

Shifting Identities and Changing Mindsets: A Case of Lecturers Adopting Digital Pedagogies in Vietnam

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Abstract

The advent of COVID 19 accelerated the need for transformational practices in higher education that were both flexible and agile in nature. The demand was that higher education institutions respond in a way that best supported each of their students and staff to find solutions to unpredictable challenges. This chapter reports on a qualitative case study of how university lecturers from three universities, located in disadvantaged regions of Vietnam, were forced to use digital technologies for teaching, and how they came to see themselves, their students and their interdependent roles in new ways that transformed their practice for the long term. Drawing on advice from international educators, over a short period of five months, the Vietnamese lecturers used a collaborative action learning approach to choose and deploy appropriate pedagogical approaches with digital technologies fit for their local context. In the absence of existing policy frameworks for using digital pedagogies and associated technologies, and with very constrained budgets for additional learning support and the expansion of digital infrastructure or new devices, the lecturers were able to make significant changes towards the adoption of appropriate and transformative digital pedagogies. The success is attributed to an approach comprising of four key steps: recognition of the professional learning opportunity, access to capacity building opportunities with existing international partners, formation of an active informal professional learning community among staff members, and capture of evidence of learning to share with others. It is argued that this approach visibly generated a shift to

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identifying one's practice more broadly as an educator, as opposed to the role of a traditional lecturer, and promoted a changing mindset about online learning, and the importance of developing digital pedagogic practices that are transformative and sustainable.

Keywords

digital pedagogies, online learning, Vietnamese higher education, change, identity

1 Introduction

Early in 2020, the global COVID 19 pandemic wrought drastic effects at multiple levels all around the world. Vietnam managed to initially escape the worst of the effects by closing down quickly. As a consequence of this rapid closing down, Vietnamese universities were unprepared to continue operating in a crisis environment where students were unable to attend campus for face-to-face classes. Globally, many educational institutions responded rapidly to the changing landscape by adopting new and existing digital technologies as a short-term solution to the inability of students and staff to access campus as usual. This response was referred to in some jurisdictions as “emergency remote teaching” (Trust & Whalen, 2020, p. 189) which implied an assumption that, when the pandemic receded, practice could revert to ‘offline’ with students attending face-to-face classes. Such emergency responses did not always align with the widespread recognition over the last decade or more, that notwithstanding COVID 19, university teaching and learning needed to transform (Ashford-Rowe et al., 2014; Nykvist et al., 2022; Surssock, 2015; Tømte et al., 2020) to meet the changing demands of an information age (Jin et al., 2017, p. 95).

The required transformation could be realised in part through technological advances (Oke & Fernandes, 2020), but a complete digital transformation requires changes in thinking as well as tools. Digital technologies and associated new pedagogical approaches have the potential to transform teaching and learning (Ertmer et al., 2012; Tamim et al., 2015), however adoption of digital pedagogy is not yet universal (Bate et al., 2013; König et al., 2020; Tamim et al., 2015), nor the potential benefits fully realised (Newman & Beetham, 2017). Digital technology used for convenience or as a bureaucratic requirement does not guarantee more effective pedagogy (Gregory & Salmon, 2013; Kirkwood & Price, 2014; Salmon, 2014). Given this state of play, educators might reflect on their mindsets about the use of digital technologies, and the potential changes in their roles and identities that digital transformation may herald in the coming decade. Using digital tools effectively for teaching and learning in the information age requires a reconsideration of the roles of both the teacher and learner with respect to each other and how they use the tools to engage in new learning experiences (Darling-Hammond et al., 2019; Hannaway, 2019; Santos et al., 2019; Tømte et al., 2020).

This paper presents a case of how lecturers in three universities, in an economically disadvantaged area of Vietnam, embraced the need for digital transformation, while providing reflections on their journey. The case illuminates how the imperative to use digital pedagogies due to COVID 19 restrictions generated shifts in lecturer identities and mindsets about teaching and learning. The case study addressed the following questions:

1. What was the situation regarding the use of digital pedagogies at the three universities prior to the onset of the pandemic? How did lecturers see themselves and what was their mindset about teaching and learning including online learning?
2. What was the universities' and lecturers' practical response to the restrictions which forced them to use digital technologies? What did they actually do?
3. What unexpected changes in lecturers' identity and mindsets became visible when they began consciously experimenting with digital pedagogies and reflecting on those experiences?
4. What, if anything, makes the changes durable/sustainable?

The case study was constructed after a five-month period of professional development, conducted from July to November 2020 with lecturers from three universities. Permission was granted from each university and the participating staff to compile this case based on the triangulation of evidence in the following data sources: an initial needs analysis of university lecturers' online teaching and learning needs, reports provided by participants during the professional learning, observation notes taken by the facilitator and the adviser during and after the professional learning sessions, the funded proposal to employ a facilitator for professional learning and the report at the end of the funding period. The primary data was in a mixture of English and Vietnamese. The authors of this chapter were each directly involved in the professional development activities described – one was the facilitator, one was the adviser, and the others were participants.

To compile the case, the qualitative data have been analysed both in the original language and in translation. The needs analysis included participants' qualitative answers to questions about prior experience with and attitudes to digital pedagogies. The participant reports provided rich participant descriptions of experimental uses of digital pedagogies and interpretation of that experience. These two data sets were analysed manually in text files for themes in how the participants talked about themselves, their roles, and what they did. The selected quotes illustrate the experiences and changes in the words of some of the participants. Three concepts were evident and have affected the choice of terminology used in this chapter: the word *lecturer(s)*, *giảng viên* in Vietnamese, is used as a job title because that is the preferred English translation of the Vietnamese job title of the primary participants in the activities described here. As university lecturers, they have teaching, research, and service responsibilities. The word *teacher*, *giáo viên* in Vietnamese,

is used by the lecturers when referring specifically to the act of teaching. The word *educator*, *nhà giáo dục* in Vietnamese, refers to a broader concept than job title, a concept which embraces the capacity to understand and judiciously choose between the use of a wide repertoire of teaching and learning methods.

The proposal for and report on the professional development activity provided some specific contextual information. The facilitator and adviser observation notes flagged surprises when participants appeared to be stuck, tried new technologies and pedagogical approaches, or expressed new insights. These confirmed the perception of changes in mindsets of the participants and their shifting identities from teachers to educators.

1.1 Background Literature

The role of an educator is already quite complex and often challenging, and the pandemic brought with it further challenges for educators and institutions as a whole. The pandemic accelerated the need for digital transformation that can respond to student needs within a relatively short time frame (Carolan et al., 2020; García-Morales et al., 2021; Mishra et al., 2020). Even prior to the pandemic, higher education students wanted more flexible and agile alternatives to current practices, including access to more relevant and authentic learning experiences and greater choice (Buchem et al., 2014; Thibodeaux et al., 2019). When this demand to be more flexible and agile intertwines with the need to adopt digital technologies, the hurdles are multiplied for educators and institutions.

Prior to COVID 19, some hesitancy was observable regarding the adoption of digital technologies in teaching and learning (Oke & Fernandes, 2020). Recent events associated with the pandemic have forced many lecturers, once reluctant or not willing to use digital technologies, to embrace them in new ways. Lecturers who were sometimes identified as being resistant to change, often lacked the confidence to use digital technologies in meaningful ways with their students (Nikolopoulou & Gialamas, 2016). When these same lecturers were thrown into a state of needing to use solely digital pedagogies with their students, the availability of digital technologies varied immensely between countries, cities and provinces, and even between local schools. In some situations, the infrastructure and digital technologies already existed, providing a relatively seamless step to provide online learning opportunities for students, even if not being used effectively by all (Hjelsvold et al., 2020). In other situations, there was no infrastructure or common access to the technologies necessary to support digital pedagogies (Autorengruppe Bildungsberichterstattung, 2020; Fraillon et al., 2019). While infrastructure and access to appropriate digital technologies can be identified as one of the major issues associated with such an urgent need to change approaches to teaching and learning in response to a pandemic, an issue worthy of further exploration is the need for change in culture and mindset around the use of these digital technologies to support transformations in teaching and learning. This issue prevailed even in pre-pandemic times because lecturers often have deeply en-

trenched ideas about what teaching and learning is and how digital technologies should (or should not) be used in the classroom (Nykvist & Mukherjee, 2016).

Lecturers' prior experiences and sense of identity shape their attitudes to the use of digital technologies. This experience and identity come to the forefront of any need to work in new ways and adopt digital technologies in transformational ways (Buabeng-Andoh, 2012; Nykvist et al., 2022). Supporting this notion, Senge (2011) claims that "culturally embedded assumptions and habitual ways of operating" (p. 60) can be problematic when attempting to transform at the institutional level. Transformation often takes time and according to McGuire et al. (2015) there is no "quick-fix transformation formula" (p. 4).

Professional learning opportunities provided for university lecturers with regards to digital pedagogies vary greatly. Some focus on the finer aspects of didactic skill development or the use of particular technologies, while others may focus on teaching theory (Gregory & Salmon, 2013). Some require their lecturers to undertake specific educational qualifications, while others rely on more of an apprenticeship style model (García et al., 2010; Gregory & Salmon, 2013). Professional learning communities (PLCs) (Hargreaves, 2019; Watson, 2014) and peer review and support of teaching practices (PRT) (Johnston et al., 2020) have often been touted as opportunities for educators to collaborate within a safe and supportive environment that promotes improved program and student outcomes. Nonetheless, evidence suggests that a top-down approach to PLCs or PRT can fail in transforming teaching and learning as opposed to an approach where educators are empowered to be part of the culture change (Chester et al., 2019; Hargreaves, 2019). Social capital evidently has the most strength in transforming teaching and learning where educators can inspire and motivate each other to improve (Chester et al., 2019; Hargreaves & Fullan, 2012). For this to be successful, it is essential that networks should be promoted in ways that build trust between the educators. These networks then offer opportunity for lecturers to grow together through double loop learning where they share and build knowledge as questions are posed and answers are shared (Kantamara & Ractham, 2014).

Until now, many professional learning opportunities for lecturers have been based on how to use specific software such as Zoom or Microsoft Teams, as opposed to capacity building opportunities that were focussed on effective pedagogy. When the use of digital technologies is focussed on enhancing the efficiency of current teaching and learning practices (Tamim et al., 2015), digital technologies have been used in familiar didactic ways (Oke & Fernandes, 2020) distinct from being used in new pedagogical ways that can truly transform teaching and learning (Crompton & Burke, 2020). These familiar didactic approaches and software training approaches are reflected then within the classroom when lecturers focus on the teaching of software skills as opposed to supporting learning with digital technologies (Nykvist et al., 2019). Ensuring a mindset change amongst lecturers through capacity building as opposed to just a change in digital skills is important. To readily embrace change, educators need a positive or growth mindset (Dweck, 2007)

where they share beliefs, values and attitudes that will be necessary for a positive and successful transformational experience (Whelan, 2016).

The pandemic was unexpected and there were no quick-fix solutions to capacity building opportunities for many educators. Nevertheless, the literature emphasises the aspiration for a digital pedagogy which embraces the use of digital tools with a technological and policy infrastructure and reflexive practice on the part of those employed as university lecturers. With this aspiration, capacity building opportunities for lecturers at three Vietnamese universities were designed and delivered in a network where trust and familiarity were essential to success. The lecturers needed to work in an environment that promoted safety and gave opportunity for each of them to be heard and build upon prior understandings, as they transformed their pedagogical approaches with digital technologies.

1.2 The pre-COVID Situation of Three Vietnamese Universities

In Vietnam, in 2020, a number of universities had already engaged more active and inclusive pedagogic practices, and incorporated some transversal skills into their curricula (Tran, 2020), though for many, the journey was just beginning. The lag to embrace digital technologies and online tools was due to a variety of factors which rapidly needed to be transcended during the coronavirus pandemic. The Ministry of Education and Training expected universities to continue teaching so students could graduate on time, even though for months at a time many students and staff were prohibited from attending university campuses (Nguyen & Pham, 2020; Pham & Ho, 2020; Pham Thi Thu & Tran Thi Ngoc, 2019).

This chapter is based on the experiences of three universities located in the northern mountainous region of Vietnam. Each of the three universities, Thai Nguyen University of Economics and Business Administration (TUEBA), Thai Nguyen University of Agriculture and Forestry (TUAF) and Tay Bac University (TBU) enrol many economically disadvantaged students, including students from Laos, Indonesia, East Timor, Bangladesh, Nigeria and the Philippines. Class sizes are commonly around 30 students per group. Available evidence suggests that most students had not ever experienced something they identified as digital pedagogy or online learning (Nguyen & Pham, 2020). When COVID 19 arrived, these universities had no policies related to the use of digital pedagogies and lacked the broader experience required for effectively using digital pedagogies in the virtual classroom. Accordingly, they lacked much of the infrastructure needed to support common institutional approaches to digital pedagogies, especially a fully online environment. They certainly did not have anything like an online teaching and learning support team like many universities in the western world and wealthier Asian countries. Many of the lecturers were not aware of the best approaches to using digital technologies for online teaching. Indeed, prior to the pandemic, most lecturers had very limited experience with online teaching and learning.

Until recently the prevalent teaching and learning culture has been predominantly teacher-centred, with prescribed syllabus content and a heavy dependence on lectures. Often faculty members not only taught as they were taught, but lecturing practices were supported by the way faculty were monitored to be in class delivering content as per the syllabus. However, over the last few years, pockets of innovation have revealed some transitions to more inclusive student-centred practices. Some lecturers have realised that more potential and energy for learning can be activated by building on what students bring from their prior experience and knowledge, and engaging more senses and emotions in the learning process. The new emphasis on employability of graduates has also driven curriculum renewal and support for students developing practical skills, self-motivation, problem solving, and a sense of responsibility for their own lifelong learning. With the funds from an Australian Aid program called Aus4Skills (Australian Government, 2019) these three universities had begun transforming their curricula including teaching and learning practices.

Many lecturers had laptops, but not all had reliable internet access when forced to work from home, and at times used data connections via their smartphones. Many students were not very literate with the tools needed for online learning, and those from economically poor backgrounds only had smartphones and no other devices to connect to the internet. When the students were forced to leave campus, many also returned to homes without internet access, so needed to travel to coffee shops or other places to gain network access. Some lecturers who were already using online tools in their teaching prior to the COVID 19 lockdown conceded that the tools had served relatively limited purposes:

I did not use ed-tech systematically ... All I did was sometimes create activities with some online game-based tools for students to do as a class activity, to change the class atmosphere or for homework for them to do without any clear purposeful and systematic plans ... I also did not pay much attention to the evaluation of these apps effectiveness. (TUEBA participant 1)

I just used the tech that I liked ... I didn't care much about effectiveness or response of the students. I thought the trendy thing was a good ... that we have to pursue [it] because the whole world is moving towards that. (TBU participant 1)

While each of the three universities had started their transformational journey in the area of teaching and learning, the COVID crisis put them in the position where they had little choice but to take another step rapidly. Although economically disadvantaged, the universities had the benefit of having already formed networks of lecturers focused on developing and practicing creative, active and inclusive pedagogies, which built students' transversal skills, and harnessed peer review among the lecturers. Leaders, mid-level managers and lecturers across the universities had experienced the benefit of taking time for short practical courses using action learning methods, and collectively had made some major pedagogical changes in their universities. In their situation, based on their experience of what creates effective change, the obvious step when faced with needing to begin

to deliver university courses online was to build networks of lecturers who could help each other learn to do that effectively.

2 Responding to the Sudden Need

Similar to many universities locally and internationally, the response to COVID 19 has been emergent. Where these Vietnamese universities are located, provincial authorities made the decisions about campus closures for community health and safety, without time for students and lecturers to make informed decisions about online learning opportunities. This required a short-term contingent response, a temporary change which also generated insecurity waiting for the next decision to come at another unpredictable time. The indefinite closure of campuses forced many students to return home to rural areas or their home countries where many had limited bandwidth and internet access and lacked other necessary resources for a productive online learning experience. One Lao student enrolled at TBU became famous in the local online news for travelling hours from home to connect on her boat to the internet and download her learning materials and upload her assignments (see <http://zingnews.vn/vuot-song-me-kong-tim-song-hoc-online-post1071621.html>). From the lecturers' perspective, exploration of how to use available digital technologies for teaching and learning could no longer be delayed.

While developing capacity for online learning had been on the horizon, responding to the need generated by the pandemic conditions was urgent. The Ministry of Education made it clear that student academic progress to graduation should not be delayed. This generated many organisational challenges with very little budget flexibility. At TBU, Zoom licenses were purchased, at TUAF lecturers and students were asked to use Microsoft Teams, and at TUEBA lecturers were asked to use Google Classroom. Very limited internal technical support was available and the universities expected lecturers and students to work together to find effective solutions to teaching and learning online. However, the university leaders had confidence in specifying their need for assistance and working with an international partner they had learned to trust. They turned to Aus4Skills to ask for help. Aus4Skills was able to deploy funds that were saved since travel and all face-to-face delivery was restricted, and agreed to pay for a short additional activity to support the adoption of effective digital pedagogy.

A total of 90 lecturers (N=90), from across the three universities, were nominated to participate in a facilitated learning activity to expedite the use of digital technology for teaching and learning (see Table 1). At the beginning of the activity, a needs analysis survey of those 90 participants was conducted using an online questionnaire to which only 80 of the participating lecturers responded (Table 1). The 80 participant responses revealed that they had limited, but positive experiences with online learning prior to the impact of the pandemic.

Table 1: Response rates for survey

University	Number of lecturers surveyed	Survey response rate	
		Number	Percentage
TBU	30	25	83.33%
TUEBA	40	39	97.50%
TUAF	20	16	80.00%
<i>Total</i>	<i>90</i>	<i>80</i>	<i>88.89%</i>

The survey revealed that just over four out of five (81.25%) had experimented with online tools in their classes, but only 67.5% of them reported talking to others at the university about online learning options (see Table 2). A further 32.5% reported that their academic department was supportive of them trying to use online tools for teaching and learning, while approximately one in five (21.25%) reported that they had undertaken some courses about online learning tools. However, 78.75% reported that they had learned to use digital tools by themselves and/or from colleagues with fewer than one in six (16.25%) lecturers reporting having personal prior experience as an online student.

Table 2: Response rates for online learning questions

Question Topic	Survey response rate to focussed questions		
	Yes	No	Percentage Yes
Experimented with online tools in class	65	15	81.25%
Talked to university colleagues about online learning options	54	26	67.50%
Have a supportive academic department/working environment for using online tools for teaching and learning	26	54	32.50%
Self-taught to use digital tools for teaching and learning	63	17	78.75%
Have taken courses about using online learning tools	17	63	21.25%
Personal experience as an online student	13	67	16.25%

A four-step process was undertaken, firstly, the universities identified the demands of the COVID-19 crisis as a professional learning opportunity for lecturers who had to adjust, and time was allowed for developing new skills and knowledge. Secondly, support for professional learning was delivered entirely online by Australian partners, which modelled some possible practices for online teaching and learning. Thirdly, the participating

lecturers collaboratively explored options and tools which increased the opportunity to learn about potential choices and how to choose the tool best fit for purpose. Fourthly, the learning was captured in the form of principles and examples that were shared in an online resource portal for others to use and add to. The following sections elaborate upon each of these four steps.

2.1 A Professional Development Opportunity

These three universities, though disadvantaged economically speaking, were led by people with a vision for more student-centred inclusive, active and practical learning experiences. They had a culture which recognised that staff need time and support to collaborate to make changes in their practice, and when needed, asked for expertise from outsiders which they could adapt, given local enablers and constraints, to meet their local needs. After a short negotiation, Aus4Skills agreed to fund a facilitator with expertise in online teaching and learning to support the staff professional learning. The funding was available from savings due to the travel restrictions imposed under the pandemic. The agreed intended participant outcomes were to: a) understand that tools are always chosen and used to meet an overarching objective which drives the way the tools are used; b) have basic skills and confidence to use a short-list of tools consistently with principles of educational design (e. g. constructive alignment); c) practise using the tools in their teaching, and share and reflect on the experiences with a view to developing a more nuanced way of using digital tools to support learning and teaching; and d) contribute to a bank of resources for online teaching and learning that could be shared with others at the university.

The leaders at each university determined a target group of lecturers to work with the facilitator and develop their knowledge and skills in online learning. The expectation that those lecturers would share their experiences and new-found expertise with others at the university was clear and consistent with their usual practice for multiplying learning within their organisation. Aus4Skills also recommended including technical staff who support the IT system to join the learning activities alongside the lecturers. This recommendation had limited feasibility due to the limited number of technical staff at each university.

The lecturers who were nominated as participants demonstrated an appetite for learning and a sense of their own capacity to try new things:

We are not tech savvy. We felt our poor understanding of the technologies and we needed to boost our modest skills and knowledge and spend some hours asking colleagues how to use Google classroom. We had to focus on small changes as opposed to big changes. (TUEBA Participant 3)

2.2 Support from a Trusted Experienced Partner, Delivered Entirely Online

The challenge and opportunity were to draw on experience from Australia and knowledge of the university context in Vietnam to develop an efficient and effective online professional development activity with the participating lecturers. A facilitator was recruited who had worked previously with the universities on curriculum renewal and also was experienced in online facilitation. The facilitator worked with another advisor who also had expertise in online pedagogy and working experience with the three universities.

The bespoke activity, designed specifically for professional development of the target group and their context, took an action learning approach, rooted in the value of peer support among professionals who knew what they are doing and were fully competent in normal 'non-COVID' circumstances. The activity provided some input on the primacy of teaching purpose and intended learning outcomes, and the importance of choosing tools accordingly. Participants were expected to report between every session on their experiments with using particular tools for specific teaching purposes. In the facilitated sessions, the participants shared their experience of the effectiveness of their experimentation using online tools. The design intended to bring lecturers together as a professional learning community (Hargreaves, 2019) to explore and experiment using digital pedagogies and associated supportive digital tools, and provide impetus to continue and expand that exploration after the available funding was spent.

Given COVID restrictions, the facilitator and advisor could not travel to Vietnam, so the engagement was entirely online. The participants also could not gather in one place. The facilitator and the group had to work with similar technological constraints as the lecturers did every day in their teaching, i. e. limits to bandwidth and speed and capacity of various devices, sometimes only having access to smartphones. The online delivery mode modelled, for the participants, ways that they could manage and facilitate teaching and learning with online tools. Participants agreed to undertake tasks that they could practice or trial between the online meetings. The online meetings came to be recognised as a safe and supportive community where they could trust each other to give honest and practical feedback to each other. In these meetings the lecturers were encouraged not to be afraid to ask questions or to explore a diverse range of ideas no matter how silly they may sound. This developed a trusting community where experimentation was encouraged and the lecturers, as experts in their field of teaching, were empowered to be leaders in digital pedagogy.

In the meetings, the facilitator ensured that all participants had a voice, and maintained a shared sense of norms and goals. Practical inquiry-based activities promoted critical and creative thinking from different perspectives about what the real problems were that they were trying to solve. In the online meetings, participants were encouraged to share thinking and feedback to the group no matter how shy they were. The online discussions with

the facilitator were conducted in English and Vietnamese with a bilingual simultaneous interpreter, so participants could choose to speak in Vietnamese or English. The option to speak in their mother language gave some participants more confidence when speaking about a topic and allowed for more spontaneous flow of conversation (albeit a few thoughtful pauses).

2.3 Collaborative and Reflective Exploration and Experimentation re Options

The participating lecturers came to this professional development opportunity with mixed experience and expertise, conscious of their limits with online tools:

[I knew about various apps but] I was stuck with the questions “How to teach effectively online? How to make effective use of the tools I knew?” (TUEBA Participant 1)

The lockout from campus forced the lecturers to think about how they could deliver their entire course online. Lecturers had to quickly find solutions, and make the best of what they knew. Without clear external direction or reference points from university policies or established digital practices, the lecturers relied heavily on each other to figure out the most effective ways forward. They reported challenges which initially confounded them, such as, how to engage students online and check their level of engagement and understanding:

Except for asking questions to increase interaction, and use Quizizz in the class, I had no other ideas for online teaching ... The stress was even higher when students did not turn on the camera and some of them never answered me. [The fear] that students have less motivation and excitement in class made the question keep running in my mind how to create an active, interactive online class and how to let students be as autonomous in online learning as offline learning. (TUAF Participant 1)

Though I posted the materials for learning before teaching for students to prepare, I was not sure who read them in advance. (TUEBA Participant 1)

The professional development activity funded by Aus4Skills provided a regular place and time to focus and share experiences of successes and challenges using online tools to facilitate the students’ learning. While the course facilitator provided some input on the principles for using online tools and pointed to some easy-to-access free apps, the learning among peers amplified the outcomes. By convening a group of lecturers from three universities, reflective collaboration occurred among a wider range of colleagues – across disciplines and universities – than otherwise would have happened. Simultaneously the participants were learning from each other about new pedagogical approaches, the existence of related digital tools, different possibilities for using those tools, and the principles of choosing a tool that served the learning goals in ways that were accessible and motivating for students:

I realised that there are many other ways of teaching and software that I can use to make the learning materials more digestible or relevant to students ... (TBU Participant 7)

The most useful part has been the discussion with my colleagues so now I don't feel alone, see that other people have similar problems. I have learnt new software which provides me and the students more opportunities. Using Zoom and Padlet has made for effective group discussion. When students submitted work for assessment via Padlet I provided formative feedback. Students were quite excited. (TBU participant 2)

Other colleagues kept sending me texts about new apps and way of doing things. We learn from each other. Previously we didn't [do that] but these discussions gave us new perspectives [on teaching and learning] ... Now in different courses I try different software and check students' responses to see what is the best fit. (TUEBA Participant 16)

Now I use online tools, especially to increase participation and communication. The limitation is that students only have mobile phones no laptops ... I have been using Quizzizz and Kahoot to check their level of understanding. Students are more engaged through games. (TUAF participant 5)

The group discussions created a change of mindset ... I thought more about the others' problems ... we talked about how to get help from others and gave tips on ... engaging students. (TBU Participant 8)

As the lecturers learned from each other they demonstrated consciousness of the importance of being very clear about the purpose of learning activities, and that choosing fit for purpose tools requires different thinking about the teaching role than preparing lectures to follow a prescribed syllabus:

I learned about fundamental considerations in online and blended teaching, which helped me ensure the online and blended teaching quality, in a more systematic way. I also received suggestions about the application of a number of online tools, for instance for which tasks/purposes they should be used rather than applying them without knowing whether they are really suitable with the target tasks. From this, I realised what my shortcomings were when conducting my online class (for example not really clear delivery of instructions and expectations, lack of structured activities, etc). I recognized that I had done everything spontaneously but failed to connect them together for higher teaching efficacy. (TUEBA Participant 1)

I used to be very strict about the use of the text books. Now I realise that there are many other ways of teaching and software that I can use to make the learning materials more digestible or relevant to students. (TBU participant 15)

I choose software that is easy for students living in rural areas to use. So, I use Google Forms to make surveys and gain feedback, for short response or multiple choice. However, in other lessons I use Zalo. I ask them to submit assessment via email. (TUAF Participant 3)

With practice, many lecturers reported increasing confidence and appreciation of the usefulness of the tools for a particular purpose:

Previously I thought the teacher was the leader who led students. My subject is accounting. Instead of going to the text book I gave them relevant examples and things they could connect with. I made

some video clips to show them the reasons they should learn the topics. I created many scenarios and case studies instead of giving them theory. I also used other software. (TUEBA Participant 3)

I decided to ask students to make a video clip and upload that to google classroom instead of asking them to submit written work. This created resources for all students. They could visit their resources any time. This gave them a voice and a channel as well. Students were very competent creating videos. (TUAF participant 2)

[We used social networks with the students.] Keeping in touch with students regularly through social networking groups helps teachers to promptly support students when they have difficulties. Students have the opportunity to interact directly with teachers through these social networking groups. (TBU Participant 1)

While initially the lecturers had reported challenges to engaging students, different experiences emerged over the months, and many lecturers reported satisfaction with increased student engagement, interaction and responsibility for their own learning:

To reduce my own workload, I followed the advice of the facilitator, dividing class into groups and assigned group leaders to help me manage the group works. I found that student empowerment was great because it not only helped me to reduce my workload but also made my students more responsible for their learning. (TUEBA Participant 1)

The knowledge is one part of story. More important is how we better equip the students to learn or to self-study. Now I spend more time to think about activities than previously. (TUEBA Participant 6)

This semester I applied a small change using suggestions from colleagues. I realise that the role of the teacher has changed and the student must be the centre of the classroom. I enhanced the amount of discussion and created a game show to engage students. I empowered the students to be the trainers or presenters. I stepped back to be facilitator. Students were more excited – lucky for me. I had the chance to also do a survey to get feedback. All responses were positive. (TUEBA Participant 8)

The students' active engagement provided the lecturers with feedback that enabled even better preparatory work to meet the students' learning needs:

Teachers' pedagogy has changed a lot, teachers pay more attention to students' opinions on issues related to professional knowledge. They have revised their lectures to suit the online teaching program to ensure the output standards for students. Instead of talking continuously in front of the camera, teachers are flexible in using chat tools during the teaching process to promptly exchange students' opinions about the units of knowledge in the lesson. Teachers also flexibly use interactive sharing tools to increase interaction with students instead of sharing their own screen for the entire time. (TBU participant 1)

Actually COVID-19 became an opportunity for us to develop new ways of teaching and learning. I have learnt from my colleagues through and after the Aus4skills course, and also from my students in every online class. At first, the students were unfamiliar but they adapted quickly. It encouraged us teachers to provide more efficient tools to the learners. I have changed my attitude to online learning. Students and parents have changed their attitudes too after their initial hesitation. COVID forced them to do it and now they see the benefit. (TUEBA Participant 2)

2.4 Capturing Learning to Resource Others

From the outset, the plan was to capture learning into a resource portal that could be shared with other lecturers at the universities, and potentially beyond. The facilitator took responsibility for compiling this in the form of a Google site, and having it translated where necessary. Initially the resource portal was used as a learning resource for the participants where resources and references were accessible, and participants could access activities. The final iteration of the resource portal included the notes used by the facilitator and worked examples and problems initiated by the participants.

Google Sites was chosen as a resource to illustrate that a free and accessible resource tool could be used for online learning and teaching without the need to purchase expensive learning management systems (LMS) and it could also be modelled for the participants while they worked within the constraints of that system. The facilitator modelled how the Google site could be used to link to a whole range of tools in a readily accessible way. Even with the most popular LMS systems, lecturers often seek other tools to support their students' learning, and given the need to respond quickly during COVID-19 without policies and guidelines in place, all lecturers could use the resources on the Google site with the existing university technology infrastructure.

3 Mindsets, Identities and Commitment to the Ongoing Change

The Aus4Skills funds for this professional learning opportunity were provided for developing a community of learners who were focussed on the need to build knowledge related to digital pedagogical approaches that could support their students during and beyond the pandemic. As indicated in some of the quotes above, and below, within a few months, the participants were part of a significant culture change that they anticipated could be sustained beyond November 2020.

The experimentation during the activity helped some participants to step beyond their hesitation about where to begin with the plethora of available information about online teaching and digital tools – which was not always relevant to their local context. Other participants were able to overcome the barriers they had encountered earlier when trying to use new pedagogical approaches and digital tools to connect and engage with their students. Participants also recognised that time saved travelling to and from campus could be used more productively for other teaching and learning purposes. In the face of bandwidth and connectivity challenges, the participants shared how they and their students learned to make adjustments using new and existing tools to deliver smaller files and limit the amount of bandwidth needed for synchronous meetings. Many participants discovered that online learning could enable even better connections with the students – more interaction, delivery of a wider range of learning resources, with more timely feedback – which in turn made the teaching and learning more effective and satisfying. At least

one participant expressed concerns about online security and confidentiality, and as a community they supported each other in working through these related issues. Some participants noted the need for more training and manuals about how to use different digital technologies, while others commented on the need to have online training regulations and sponsorship of better home internet connections for students. As one TBU participant declared “Just within a short course, the activities have changed mindsets” (TBU Participant 2).

Many comments indicated that the journey of personal change and change in practices was expected to continue:

Through group discussion in the course with team members at TUAF, TUEBA, TBU I learned methods to increase interaction between lecturers and students; students and students. For example, how to manage class to make sure students are listening rather than doing something else, what I need to be well prepared before an online class, how to design online syllabus and group discussion effectively, which online games we can use to facilitate the activities in class ... some members also shared about getting students involved in reviewing and commenting for other students. Above all, I learned the motivation, and willingness to change ourself and approach new methods to deliver the best online hours for students. (TUAF participant 1)

[I'm] very excited to be engaged in the discussions [with colleagues] ... I've changed my mindset as teacher, I'm empowered to use existing software. I thought that we need a textbook or bible to give guidance and method and all the instructions. Now I realise it's not necessary. We are here to elicit the problems from the students. Time management is an issue – we cannot be available all the time. We need to set expectations – need to develop our own toolkit for teaching and learning online. (TBU participant 3)

The lecturers described how they came to “change mindsets” and see themselves, their students and their interdependent roles in new ways that transform their practice for the long term. Lecturers perceived themselves as co-learners with their students and peers, learning how to learn with digital tools on limited infrastructure and with smartphones of all types as the primary device. They articulated insights into their students’ motivations, and ways of engaging and learning. The lecturers realised that they didn’t need access to the very latest devices and digital tools, or necessarily a text book on how to use them. Rather, they needed to delve deeply into pedagogical approaches best suited to what they were trying to achieve with their students, and recognise the importance of choosing the best available digital tool to support their pedagogical approaches as opposed to focusing on the most popular digital tool:

[Now] I realise that the old and new have their strengths and weaknesses. We have to select the tools that best fits the learners that we are working with. For my own experience the project is about making a small step but I realise the change is difficult and challenging to all of us as it makes us think a lot. When we implement the project, we realise that the students also feel the burden. We ... realise many don't have the basic skills for this. We need to look at the starting point of the student so as not to overwhelm them. Students really struggle in using the technology, [use] too much energy as opposed to focusing on what is really important. (TBU Participant 1)

I even [sic] see some advantages of online learning. First, I can control some things online that I could not control in class. Chalk and blackboard, which are traditional means of teaching and learning, must be erased completely after every class; but with online tools I do not need to rewrite the material that has been done during the previous class. It used to take so much time. Second, there are resources online that I do not have in the classroom every day. Resources that are common in western universities are not available in poor, developing countries like Vietnam, especially in mountainous and midlands region like TUEBA. But in the internet ... We can get access to the latest inventions just by clicking like the Westerners. Moreover, online I can show the students many valuable small things like random selection process, skills of searching for information in the internet, etc. So long as we have a desire to learn, it doesn't matter if we are online or offline. In future, we will combine both online and offline methods to make the most of each way for strengthening learning. (TUEBA Participant 1)

I have changed through practising. Becoming more experienced in using software is important. My subject requires personal reflection so I have to think of ways to make students speak up. Now I can use the technology to leverage and help them share their personal experiences. [My choice] depends on the nature of the student group and the situation of COVID-19 ... I prefer working face to face than online. (TUAF Participant 7)

The COVID-19 situation in Vietnam worsened in 2021, but thankfully some of the poorest mountainous areas where these three universities are located, were spared the severest hardships. One academic year was completed with on and off lockdowns and bans on attending the university campus. Another has commenced with some restrictions still in place for most students. In universities, face-to-face teaching has been encouraged where possible for some groups, with limits to how many students are on campus at once. However, many international students who returned to their homes are still absent from campus. Thus, many lecturers continue to provide online support for students in their classes while many borders remain closed.

Since the completion of the professional learning opportunity many lecturers report continuing to experiment with new approaches to pedagogy with a focus on what they want to achieve as opposed to the tool. However, it is important to note that as they look for new ways of teaching online, they are also experimenting with new tools and sharing their experiences with others. While there are no fixed meeting times this now occurs informally in online or face-to-face environments (where permitted). In addition to this experimentation and continuing efforts to transform pedagogy, the universities are actively developing policies and guidelines to support new ways of working. While regular sharing has been occurring informally between staff within and outside of their own institutions, the resource portal has become stagnant and is not being used as anticipated. This problem may be due to a changing workload and routine imposed by the pandemic or due to a lack of resources.

TBU's lecturers and students are now accustomed to online teaching and learning. TBU has updated a number of learning policies and guidelines for flexible use of technology platforms for online teaching to ensure a better learning experience for students. Support

from partners in the field of telecommunications has been mobilised to help students to access high speed internet and to optimise online learning opportunities. The university administration has supported students and faculty to have easier access to online teaching tools and methods. TBU lecturers and students emphasise creativity in the process and in their new ways to connect with each other:

Faculties of TBU are proactive in realizing online teaching goals. Initially not all teachers could use the teaching tools proficiently. The leaders have asked some lecturers who are experienced in online teaching to guide their colleagues and students in the use of technology platforms in online teaching and learning. Faculties focus on online tools that are relevant to the level and needs of students instead of modern or trendy platforms ...

Many students at TBU are already teachers in primary and secondary schools. These students can learn from their teachers' online teaching methods – both pedagogical and technological skills that in turn the students can apply to their own work. The students and teachers began to share online teaching experiences together. This is also a good way for TBU to expand its reputation and influence to the community. (TBU participant 1)

TUAF staff have made many changes compared to the first days of teaching online in 2020:

After more than one year of teaching online we actually changed a lot. We adopted online classes with less stress, and even feel convenient and comfortable. More activities, more tools can be used to increase interaction with students. We have learned together and from each other. All TUAF staff now can proficiently use an LMS such as Google classroom and Microsoft Teams to manage classes. Online applications on Google (Google doc, Google form, etc.) or other online tools are used in the class. Lecturers are adapting and adopting teaching online with more excitement. Some lecturers said they now even like teaching online rather than offline since it saves time for travelling and they can easily use tools to manage class ... We receive support from the University to transform our traditional class to a digital class. (TUAF Participant 1)

At TUEBA, changes are visible also at all levels – individual, departmental and the wider university. Initially, both lecturers and students were reluctant to learn to complete tasks online, hoping that the effects of the pandemic would recede quickly and they could go back to their traditional teaching and learning methods. However, that has not eventuated yet. Lecturers have become more and more familiar and at ease with online tools and realize their effectiveness in promoting new pedagogical approaches to teaching and learning in an online environment. Therefore, they accept the fact that they must put aside any preconceived disadvantages of online classes to stay focused more on how to improve their online practices and engage students in new ways. Now, WIFI has been provided free for lecturers to help them access more resources and to provide a better choice of teaching activities. Even though the COVID-19 pandemic is more controlled, the university has set up two online classes for each department to practice teaching this way:

Lecturers in different departments share with each other their practices and experience using technology in teaching through informal talks and group meetings. More journal articles have been

published by lecturers about students' attitudes towards application of specific online tools and/or their evaluation of technical application in their classrooms. (TUEBA participant 1)

4 Conclusion

This chapter started with the premise that COVID-19 accelerated the need for transformational practices in higher education that are able to respond to constantly changing societal needs. This case has shown how university lecturers addressing this challenge in three universities, in disadvantaged regions of Vietnam, explored with urgency, new pedagogical approaches to using digital technologies to remain connected and engaged with their students. Drawing on advice from trusted educators overseas, who had greater experience using digital pedagogies, the Vietnamese lecturers used a collaborative action learning approach and learned to choose and deploy, with confidence, appropriate pedagogic practices online with digital tools fit for their context. The participants reported that the collaborative professional learning experiences helped change their mindsets about online learning and the use of digital tools; they could observe the changes in each other and had an appetite for continuing exploration and experimentation with digital pedagogies. Their sense of what they could and should do as teachers, and what their students could do, had transformed. This was achieved in a relatively short time, within the constraints of a very limited budget for additional learning support, expansion of digital infrastructure or new devices.

The case has illuminated how in the face of coronavirus' effects, these lecturers and their universities adapted. The lecturers were able to use their agency and hard work to turn adversity into opportunity and take steps towards transformation. This case identified four critical steps that expedited the ability of these universities to turn the COVID crisis into an opportunity for them to continue on a transformation journey. The four steps are that firstly, the university leaders recognised that to effectively survive the COVID-19 crisis their staff and students needed time and some help to learn new ways of doing things; secondly, they accessed relevant assistance from trusted international partners; thirdly, the lecturers strengthened their professional learning community with a focus on exploring how digital pedagogies and associated digital tools could serve their teaching and learning goals; and fourthly, the learning was captured as it accumulated for sharing with others. These are lessons that are transferable to other similar institutions, though they are not proposed as any sort of guaranteed quick fix.

Indeed, the context was particular and the universities had a certain readiness in their disposition to building collaboration for change, but the selected examples of participants' voices highlight how purposeful learning opportunities with a clear focus on lecturers helping each other address current needs, can rapidly generate workable solutions to many challenges. What is even more noteworthy, is how the community of participants in this

activity empowered each other to seek out the very best contextualised solutions to effectively connecting and engaging with their students. This meant that once-habitual ways of doing things were identified and re-examined for their effectiveness in the new circumstances. Peers supported each other to test new tools and methods and share the experiences of what worked and what didn't.

The reported mindset changes amongst the lecturers included a change in their sense of identity from being teachers primarily responsible for delivering content in a lecture format, to becoming 'educators' who could confidently choose, among a repertoire of options, to use the most appropriate approach including the most useful tools for their students to achieve the intended learning goals. It is these changes in the lecturers' mindset and sense of identity as educators that hold the promise that digital transformation will serve educational purposes and be sustained beyond the first impacts of COVID-19.

More research is warranted to confirm the sustainability of the transformation and how it has been sustained. Other questions worthy of research relate to how the university lecturers and the university technology teams collaborate to enhance digital pedagogic practices, and the students' perceptions of the renewed teacher mindsets and identities, and their use of digital pedagogies.

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References

- Ashford-Rowe, K., Herrington, J. & Brown, C. (2014). Establishing the critical elements that determine authentic assessment. *Assessment and Evaluation in Higher Education*, 39(2), 205–222. <https://doi.org/10.1080/02602938.2013.819566>
- Australian Government. (2019). *Aus4Skills*. <https://vietnam.embassy.gov.au/files/hnoi/03%20201907%20Aus4Skills%20EN.pdf>
- Autorengruppe Bildungsberichterstattung. (2020). *Bildung in Deutschland 2020*. WBV. https://www.bildungsbericht.de/static_pdfs/bildungsbericht-2020.pdf
- Bate, F., Day, L. & Macnish, J. (2013). Conceptualising changes to pre-service teachers' knowledge of how to best facilitate learning in mathematics: a TPACK inspired initiative. *The Australian journal of teacher education*, 38(5), 14–30.
- Buabeng-Andoh, C. (2012). Factors influencing teachers' adoption and integration of information and communication technology into teaching: A review of the literature. *International Journal of Education and Development Using Information and Communication Technology*, 8(1), 136. <http://ijedict.dec.uwi.edu/include/getdoc.php?id=5073&article=1361&mode=pdf>
- Buchem, I., Tur, G. & Hölterhof, T. (2014). Learner Control in Personal Learning Environments: A Cross-Cultural Study. *Journal of Literacy and Technology*, 15(2), 14–53. <http://www.literacyandtechnology.org/uploads/1/3/6/8/136889/ib1.pdf>
- Carolan, C., Davies, C. L., Crookes, P., McGhee, S. & Roxburgh, M. (2020). COVID 19: Disruptive impacts and transformative opportunities in undergraduate nurse education. *Nurse education in practice*, 46, 102807-102807. <https://doi.org/10.1016/j.nepr.2020.102807>
- Chester, A., Johnston, A. & Clarke, A. (2019). Partnerships for Learning and Belonging in Tertiary Education: A Social Capital Analysis. In B. Tynan, T. McLaughlin, A. Chester, C. Hall-Van den Elsen & B. Kennedy (eds.), *Transformations in Tertiary Education The Scholarship of Engagement at RMIT University* (1st 2019 ed.). Singapore: Springer. <https://doi.org/10.1007/978-981-13-9957-2>
- Crompton, H. & Burke, D. (2020). Mobile learning and pedagogical opportunities: A configurative systematic review of PreK-12 research using the SAMR framework. *Computers and Education*, 156. <https://doi.org/10.1016/j.compedu.2020.103945>
- Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B. & Osher, D. (2019). Implications for educational practice of the science of learning and development. *Applied Developmental Science*, 1–44. <https://doi.org/10.1080/10888691.2018.1537791>
- Dweck, C. S. (2007). *Mindset: The New Psychology of Success*. New York: Ballantine Books.
- Ertmer, P. A., Ottenbreit-Leftwich, A. T., Sadik, O., Sendurur, E. & Sendurur, P. (2012). Teacher beliefs and technology integration practices: A critical relationship. *Computers & Education*, 59(2), 423–435. <https://doi.org/10.1016/j.compedu.2012.02.001>
- Fraillon, J., Ainley, J., Schulz, W., Friedman, T. & Duckworth, D. (2019). *Preparing for Life in a Digital World: The IEA International Computer and Information Literacy Study 2018 International Report*. Berlin: Springer.
- García, E., Arias, M. B., Harris Murri, N. J. & Serna, C. (2010). Developing Responsive Teachers: A Challenge for a Demographic Reality. *Journal of Teacher Education*, 61(1–2), 132–142. <https://doi.org/10.1177/0022487109347878>
- García-Morales, V. J., Garrido-Moreno, A. & Martín-Rojas, R. (2021). The Transformation of Higher Education After the COVID Disruption: Emerging Challenges in an Online Learning Scenario. *Frontiers in psychology*, 12, 616059–616059. <https://doi.org/10.3389/fpsyg.2021.616059>
- Gregory, J. & Salmon, G. (2013). Professional development for online university teaching. *Distance Education*, 34(3), 256–270. <https://doi.org/10.1080/01587919.2013.835771>

- Hannaway, D. (2019). Mind the gaps: Professional perspectives of technology-based teaching and learning in the Foundation Phase. *South African journal of childhood education*, 9(1), 1–10. <https://doi.org/10.4102/sajce.v9i1.674>
- Hargreaves, A. (2019). Teacher collaboration: 30 years of research on its nature, forms, limitations and effects. *Teachers and Teaching*, 25(5), 603–621. <https://doi.org/10.1080/13540602.2019.1639499>
- Hargreaves, A. & Fullan, M. (2012). *Professional capital: transforming teaching in every school*. New York: Teachers College Press.
- Hjelsvold, R., Nykvist, S., Lorås, M., Bahmani, A. & Krokan, A. (2020). Educators' Experiences Online: How COVID-19 Encouraged Pedagogical Change in CS Education. Norwegian Conference on Didactics in IT education, Norway.
- Jin, W., He, R. & Sun, X. (2017). Research on the Experience Design of Chinese Knowledge Sharing in the Information Age. In A. Marcus & W. Wang (eds.), *Design, User Experience, and Usability: Understanding Users and Contexts. DUXU 2017*. (Vol. 10290). Berlin: Springer. https://doi.org/10.1007/978-3-319-58640-3_8
- Johnston, A. L., Baik, C. & Chester, A. (2020). Peer review of teaching in Australian higher education: a systematic review. *Higher Education Research and Development*, 1–15. <https://doi.org/10.1080/07294360.2020.1845124>
- Kantamara, P. & Ractham, V. (2014). Single-Loop vs. Double-Loop Learning: An Obstacle or a Success Factor for Organizational Learning. *International Journal of Education and Research*, 2(7), 55–62.
- Kirkwood, A. & Price, L. (2014). Technology-enhanced learning and teaching in higher education: what is 'enhanced' and how do we know? A critical literature review. *Learning, media and technology*, 39(1), 6–36. <https://doi.org/10.1080/17439884.2013.770404>
- König, J., Jäger-Biela, D. J. & Glutsch, N. (2020). Adapting to online teaching during COVID-19 school closure: teacher education and teacher competence effects among early career teachers in Germany. *European Journal of Teacher Education*, 43(4), 608–622. <https://doi.org/10.1080/02619768.2020.1809650>
- McGuire, J. B., Palus, C. J., Pasmore, W. & Rhodes, G. B. (2015). *Transforming Your Organization*. <https://cclinovation.org/wp-content/uploads/2020/03/tyo.pdf>
- Mishra, L., Gupta, T. & Shree, A. (2020). Online teaching-learning in higher education during lockdown period of COVID-19 pandemic. *International Journal of Educational Research Open*, 1, 100012–100012. <https://doi.org/10.1016/j.ijedro.2020.100012>
- Newman, T. & Beetham, H. (2017). *Student digital experience tracker 2017: The voice of 22,000 UK learners*. <http://repository.jisc.ac.uk/6662/1/Jiscdigitalstudenttracker2017.pdf>
- Nguyen, H. & Pham, T. (2020). *Is COVID-19 an opportunity to strengthen online teaching?* University World News. <https://www.universityworldnews.com/post.php?story=20200512154252178>
- Nikolopoulou, K. & Gialamas, V. (2016). Barriers to ICT use in high schools: Greek teachers' perceptions. *Journal of computers in education (the official journal of the Global Chinese Society for Computers in Education)*, 3(1), 59–75. <https://doi.org/10.1007/s40692-015-0052-z>
- Nykvist, S., Blundell, C. & Mukherjee, M. (2019). Digital Learning. In K. Main & D. Pendergast (eds.), *Teaching primary years: Rethinking curriculum, pedagogy and assessment* (pp. 400–421). Crows Nest: Allen and Unwin.
- Nykvist, S. & Mukherjee, M. (2016). Who am I? Developing Pre-service Teacher Identity in a Digital World. *Procedia – Social and Behavioral Sciences*, 217, 851–857. <https://doi.org/10.1016/j.sbspro.2016.02.012>
- Nykvist, S., Mukherjee, M. & Blundell, C. (2022). Innovative approaches used to prepare pre-service teachers to activate learning with Digital Technologies. In T. Bourke, R. Spooner-Lane, D. Henderson & S. White (eds.), *Reconstructing the work of teacher educators: Speaking back to Policy through Agentic Approaches*. Berlin: Springer [In Press].

- Oke, A. & Fernandes, F. A. P. (2020). Innovations in Teaching and Learning: Exploring the Perceptions of the Education Sector on the 4th Industrial Revolution (4IR). *Journal of open innovation*, 6(31), 31. <https://doi.org/10.3390/joitmc6020031>
- Pham, H.-H. & Ho, T.-T.-H. (2020). Toward a 'new normal' with e-learning in Vietnamese higher education during the post COVID-19 pandemic. *Higher Education Research and Development*, 39(7), 1327–1331. <https://doi.org/10.1080/07294360.2020.1823945>
- Pham Thi Thu, H. & Tran Thi Ngoc, G. (2019). The revolution in online learning and implication in Vietnamese universities. *Ho Chi Minh City Open University Journal of Science – Social Sciences*, 9(1), 70–77. <https://doi.org/10.46223/HCMCOUJS.soci.en.9.1.272.2019>
- Salmon, G. (2014). Learning Innovation: A Framework for Transformation. *European journal of open, distance and E-Learning*, 17(2), 220–236. <https://doi.org/10.2478/eurodl-2014-0031>
- Santos, H., Batista, J. & Marques, R. P. (2019). Digital transformation in higher education: the use of communication technologies by students. *Procedia computer science*, 164, 123–130. <https://doi.org/10.1016/j.procs.2019.12.163>
- Senge, P. (2011). The industrial age system of learning. In P. Senge, N. H. Cambron-McCabe, T. Lucas, B. Smith, J. Dutton & A. Kleiner (eds.), *Schools that learn a fifth discipline fieldbook for teachers, administrators, parents and everyone who cares about education* (pp. 60–114). Boston: Nicholas Brealey Publishing.
- Sursock, A. (2015). *Trends 2015: Learning and Teaching in European Universities*. E. U. Association. <https://eua.eu/downloads/publications/trends%202015%20learning%20and%20teaching%20in%20european%20universities.pdf>
- Tamim, R. M., Borokhovski, E., Pickup, D. & Bernard, R. M. (2015). *Large-scale, government-supported educational tablet initiatives*. Commonwealth of Learning. <http://oasis.col.org/handle/11599/809>
- Thibodeaux, T., Harapnuik, D. & Cummings, C. (2019). Student Perceptions of the Influence of Choice, Ownership, and Voice in Learning and the Learning Environment. *International journal on teaching and learning in higher education*, 31(1), 50.
- Tømte, C. E., Laterza, V., Pinheiro, R. M. & Avramovic, A. (2020). Is there a Scandinavian model for MOOCs? *Nordic Journal of Digital Literacy* (4), 234–245. <https://doi.org/10.18261/issn.1891-943x-2020-04-02>
- Tran, L. H. N. (2020). *Building soft skills for employability: challenges and practices in Vietnam*. London: Routledge. <https://doi.org/10.4324/9780429276491>
- Trust, T. & Whalen, J. (2020). Should Teachers be Trained in Emergency Remote Teaching? Lessons Learned from the COVID-19 Pandemic. *Journal of Technology and Teacher Education*, 28(2), 189–199. <https://www.learntechlib.org/primary/p/215995/>
- Watson, C. (2014). Effective professional learning communities? The possibilities for teachers as agents of change in schools. *British Educational Research Journal*, 40(1), 18–29. <https://doi.org/10.1002/berj.3025>
- Whelan, C. (2016). Organisational culture and cultural change: a network perspective. *Australian & New Zealand journal of criminology*, 49(4), 583–599. <https://doi.org/10.1177/0004865815604196>