



Meeting the Black Swan—Teacher educators’ use of ICT—pre-, during and eventually post Covid-19

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Abstract

In the 2018 International Forum for Teacher Educator Development (InFo-TED) Summer Academy, we, seven teacher educators from Belgium, England, Israel, Norway, and Scotland, became interested in strengthening our ICT competence. At an international conference in June 2019, we presented our personal stories about how we used ICT in our teaching, and what we wanted to learn more about. In June 2020 we wrote a new narrative describing our experiences with ICT which was forced upon us in the spring of 2020. In this narrative, we reflected on how we think our practice will change post-Covid-19. In this paper, we discuss our new narratives in relation to those we wrote in 2019. The two sets of stories were formed into seven vignettes seeking an answer to: 1) How did teacher educators (we) experience the Covid-19 which forced the need for change in working only online, and 2) How do we foresee that the current pandemic

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will change our future practice? The vignettes show we have had a steep learning curve regarding the technicalities of using ICT, exploring on our own as we were working from home. Moreover, we believe we will not return to pre-Covid-19 ways of teaching as we realise that ICT has not been fully exploited. Yet, we still need to find ways to combine ICT with our pedagogical visions as teacher educators. There are differences, benefits and disadvantages, related to our respective contexts, disciplines and competence. However, we found more similarities than differences. The latter is used to feed into each other's professional learning. We all had to learn how to manage technical issues, and now we need to find ways to incorporate ICT critically and reflectively to model good teaching in teacher education. Covid-19 was a Black Swan which forced us to change. Now it is time to position ourselves as teacher educators in a changed reality.

Keywords: teacher educators; professional learning; narratives; ICT; Covid-19

Introduction

When the Covid-19 pandemic spread throughout Europe in the spring of 2020, teacher educators were forced to upgrade their ICT skills and competence overnight. ICT went from being something they were expected to wisely implement in their teaching (Czer-niawski et al., 2017; Avidov-Ungar & Forkosh-Baruch, 2018), to something they had to make use of. Seminars, lectures, as well as group work in webinars, supervision, and doctoral defences are examples of activities that academics, including teacher educators, had to handle from home to do their job. They had to find ways to adapt their practice to a previously unknown reality (Kidd & Murray, 2020). Covid-19 causing a lockdown became a Black Swan (Taleb, 2008) as regards teacher educators' use of ICT. We find the Black Swan metaphor appropriate for what happened in March 2020 as most swans are white, but when a black swan was discovered in Australia in 1697 (Taleb, 2008), it challenged preconceptions and illustrated the limitation of observations and experiences. In life, as in teaching, there will always be *black swans*, events that we cannot predict, however, they are rarely as severe and global as the current pandemic.

The challenge was not only to make use of ICT, but to implement technology in a way that modelled good teaching underpinned by theory and aligned with our pedagogical visions (Kidd & Murray, 2020). For teacher educators, how they teach is part of the message (Kelchtermans, 2009). The paper aims to describe how teacher educators with individual professional backgrounds in various institutional and national contexts experienced the change from their pre-Covid-19 use of ICT to that which took place during the Covid-19 lockdown, and how they foresee if the current pandemic will lead to changed practice in the future.

Background

Point of departure

In the International Forum for Teacher Educator Development (InFo-TED) Summer Academy in 2018, we, a group of teacher educators from Belgium, England, Israel, Norway, and Scotland formed a professional development group interested in strengthening our ICT competence. At the International Mofet Conference in Israel in June 2019, we had a roundtable presentation of our personal stories about how we used ICT in our teaching, and what we wanted to learn more about. This same group wrote a new narrative in June 2020 about our experiences with ICT which was forced upon us in the spring of 2020. In this paper, we critically reflect on what we did and on how we think our practice will change post-Covid-19.

Theoretical background

Through an inquiry-based approach to our teaching, this self-initiated group of teacher educators wanted to learn and develop professionally (Avalos, 2011). Professional development is sometimes described as growth, an inner process (Guskey, 2002) or a bottom-up process (Korthagen, 2010). Then, finding meaning in a new way of doing things requires time and effort (Langdon, 2014). Teachers' prior knowledge plays a powerful role in professional learning, and preconceptions show resistance to change (Korthagen, 2010; Koch & Hauknes, 2005). However, the Covid-19-situation forced us to challenge business as usual. Furthermore, sharing our individual experiences and creating a reflective space to talk with colleagues might make us more aware of our own practice (Penlington, 2008). Thereby we could learn from each other and move beyond our local practices.

Sometimes change has a top-down approach or is a spray-on professional development with little long-term impact (Loughran, 2014). Hargreaves and Goodson (2006) describe five change forces: waves of reform, leadership succession, student and community demographics, teacher generations and school interrelations. However, in the current situation, we were all thrown into an unpredictable situation far beyond what anyone had imagined, as education rapidly changed from face-to-face to online only teaching. We met the Black Swan (Taleb, 2008).

Changes are not always like growth or a harmonic development over time, something we can plan for, as we initially seem to think. While development often is perceived as a continuous inner process, change is sometimes more about discontinuity. Bollnow (1969) uses the metaphor *awakening* about situations in which people experience something quite different from their previous understanding. Through these border-experiences (Bollnow, 1969) caused by sudden incidents, people might find themselves in the middle of a crisis in which there is no guarantee of success.

What happened this spring is about discontinuity. From one day to the next, we had to change our teaching. It was like a *critical incident*, a mind-changing incident that needed

to be reflected on, a significant turning point or change in our lives (Tripp, 1994; Shapira-Lishchinsky, 2010). Sharing stories about these incidents can be used to enhance professional development and to support changes in teachers' thinking and classroom practices (Vy, 2018). While teachers often teach as they have been taught (Lunenberg et al., 2007), in 2020 we had to change our old patterns whether we wanted to or not. In this paper we present our stories, seeking an answer to the questions: 1) How did teacher educators (we) experience the Covid-19 which forced the need for change in working only online, and 2) How do we foresee that the current pandemic will change our future practices?

The study

We, the authors, are a group of experienced female teacher educators with diverse backgrounds, disciplines and roles in teacher education. Our professional learning community runs over two years with the aim of critically reflecting on our own practice and learning from each other. The names used in this paper are our real first names.

We explored our practices (Hamilton et al., 2009) focusing on the use of ICT, and planned individual interventions just a year ago. The first intervention trigger was the decision to explore the use of technology in our practices in 2019 to be updated and meet institutional expectations (Avidov-Ungar & Forkosh-Baruch, 2018). However, the immediate inevitability to change was the Covid-19 lockdown, the Black Swan. The intervention was not pre-planned and certainly not the same across the group. The intervention took form as we were sitting in our home-offices trying and failing when forced to work on-line. We talked the walk more than we walked the talk.

The paper presents our stories following Clandinin and Murphy's (2009) claim that narratives are the closest we come to experience and what can be learned from experiences. The definition of narratives used in this paper is taken from Connelly and Clandinin's work (2006):

Story, in the current idiom, is a portal through which a person enters the world and by which their experience of the world is interpreted and made personally meaningful. Narrative inquiry, the study of experience as a story, then, is first and foremost a way of thinking about experience (p. 375).

In the study of our experiences, we wrote down our experiences to somehow distance ourselves from them and thereby better understand the processes (Clandinin & Murphy, 2009).

The pre-intervention narratives were those we wrote in 2018 and presented at an international conference in June 2019. The post-intervention narratives were written in June 2020, rather early into the lockdown. The focus for the first set of narratives was our use of ICT and personal learning goals, whereas in the second set we wrote about how we had experienced the forced change and what we wanted to continue in a new norm. The two sets were combined, emphasising the second narrative. Each author edited and approved her respective vignette.

The presentation of data aligns with the vignettes way of data presentation described

by Reay et al. (2020) in their typology for presenting qualitative data. The typology consists of five different approaches to analyse qualitative data depending on the type of data collected (see Reay et al., 2020, p. 24). Vignettes, one of the approaches, are brief narratives derived from the data framed by a master theme or title. They have been reconstructed by us, the authors, for informal communication with the readers. The theme of our narratives was our use of ICT in teacher education, pre- and during Covid 19. However, the main focus is on the stories written rather early in the lockdown, June 2020.

The vignettes were first analysed by the two first authors, looking for commonalities and differences in our experiences, before the other five authors were invited to comment and revise the analysis. The presented analysis is therefore a shared interpretation of the group's experiences and reflections related to our future practice.

Vignettes

Elizabeth, Scotland

Just a year ago, in June 2019, my initial understanding of Technological Pedagogical Content Knowledge (TCPK) pointed towards it being rooted in a specific pedagogical approach to learning and teaching which seemed at odds with my then personal approach. Then, although I had limited opportunities to engage with technology and pedagogy, I introduced undergraduate education students to the use of digital archives, and embedded digital photography as part of a sensory experiential walk in an outdoor learning course. I also participated in a University training course, *Designing and Tutoring online Courses*. Last year my goal was to feel comfortable dwelling in a digital teaching and learning environment.

When the lockdown started on March 16, I was about to teach a newly developed Art and Social Studies experiential workshops including handling and drawing museum objects to a cohort of 130 Postgraduate Primary Education Students (PGDE). They were going to be taught face to face in small groups in two three-hour experiential workshops led by a tutor. I rapidly adapted existing online materials designed for a course with a different architecture which the students would do individually at a distance. I worried that without the face to face interactions, which I see as essential in teacher education, and facilitated engagement with materials and discussion, learning would be compromised. Therefore, I arranged an hour-long online discussion. It turned out to be a great learning opportunity. I learned how to set up online discussion groups from my PhD students who were more familiar with the adaptability and functionality of the online environment. Going online also offered an unexpected element of choice to the students, now able to choose from a wide array of activities and reflective questions rather than the narrower focus of the originally planned workshop. My experience is that online learning is not so much better or worse than face to face; it is a different experience. It offers a

greater choice in terms of selection and order of what to learn and creates new opportunities for academic staff to learn from students which in turn is rewarding.

Ainat, Israel

Last year I wrote that I felt I was falling behind in relation to using ICT in my work as a teacher educator and decided to update my skills.

I teach early childhood literacy to practising teachers who take their master's degree at a teacher education college. The spring semester 2020 opened late to enable academic staff to move their courses online due to the lockdown. In the beginning, technical difficulties mounted. Zoom meetings cut off after forty minutes and lesson recordings evaporated in the cloud, whereas automatic recordings of private meetings popped up. I used my own Zoom invitation to enter an online lesson, just to find out I had to wait for myself, the host. I did not know the basics of working with Zoom.

Some students (practising teachers) would not expose their faces. What did they do behind those nametags and black rectangles? Panicked, I started calling out their names and asking for their response. Yes, they were there. Their camera was not on, but they were attentive. As all teachers in Israel moved to online teaching, early in this master course we ended up discussing the new routine that was formed and how they had to get used to teaching online. It became evident from the stories of the practising teachers that family members of their students were involved in home-schooling providing essential technical as well as emotional support. Instead of teaching early childhood literacy, I ended up becoming a resource person for online teaching. I was challenged by my competence or lack of it, in teaching online, yet I felt I was expected to advise on how the course participants should handle online teaching with their students in school. This was not what I had prepared for, and I realised that I still have a lot to learn to be able to model how to integrate ICT in teacher education and help teachers in practising home-schooling. Moreover, we all missed the physical presence and spontaneous interaction in the course. Yet, an important lesson learned in this course was that it became clearer to the participating teachers and to me how important it is that teachers learn about the children's backgrounds, culture and life, especially in relation to home-schooling. This is an important lesson for the future.

Marit, Norway

In June 2019 I wrote that

My University, encourages and expects the staff to use digital learning tools to enhance better learning [...]. Furthermore, as a teacher educator, I am expected to prepare student teachers for digital classrooms in which all the students have their laptops, and digital competence is one of five basic competences in the national curriculum plan.

I wanted to make my students work-ready for digital classrooms, but also to teach congruent with my visions of learning and with a critical view of what happens in schools.

Therefore, my ICT development goal was to take small steps and try out 1) the use of digital images in my teaching and 2) a digital tool that made it possible to ask questions to student teachers during a lecture. Knowing that teachers can be good in different ways and that teaching never can be reduced to techniques, I questioned how *my* teaching could benefit from using the possibilities offered through digital tools.

Then, early March 2020, from one day to another, the university was locked down. I was supposed to lead discussion seminars and workshops with student teachers. Moreover, I was responsible for a mentor course for school-based teacher educators.

My university expected that we did not cancel any activities but found alternative ways of working on-line. Wisely, the workplace immediately suggested digital solutions and provided us with solid descriptions and web seminars on how to use different tools. Yet, in my home-office learning took place through trying and failing. Eventually, I enjoyed meeting students in Zoom and being challenged in my planning. However, teaching is relational, and I was pleased that I already knew my students.

The hardest bit was to record lectures. For me teaching is interaction. I find it quite boring to listen to online lectures, and I decided to make the lecturers short, informal, and plan follow-up work in groups to discuss the lecture. The students gave positive feedback saying they found it useful to be able to stop the recording listen several times if they wanted. However, they added that online lecturers need to be short and that online discussions work best in smaller groups.

Previously, I tried to use technology because I thought I should. After being forced to use it, I know that some of it will be included in my teaching. I still prefer to teach face-to-face, but now I am more conscious about why and when technology is beneficial in my teaching.

Sheeba, England

I am a teacher educator who had always considered myself competent in the usage of technology. However, in 2019, when exploring my competence for a research project, I was surprised at the limited extent of the integration of technological tools in my practice. Consequently, I aimed to expand my engagement with technology.

In March 2020, student teachers' placements were abruptly terminated following the lockdown. There was immediate panic. We rapidly adapted our programmes and rushed to provide online support and training for students. Luckily, the university had recently increased investment to expand the adoption of online technologies and provision of training to transform the curriculum and pedagogy. I completed the Microsoft Innovative Educator training program to rapidly boost my understanding of the different technologies. Utilising the centralised support sessions, I found myself adopting new technologies to teach. I found out that I was not alone in grappling with technology, colleagues were facing similar challenges. Realising that to continue to teach online, I had to swiftly immerse myself into technology. Consequently, I quickly adopted the use of Microsoft Teams for teaching, tutorials and even for interviewing prospective students, Flipgrid and

Microsoft Forms to assess and collect feedback from students, and PhET simulations for teaching practical work. I created my own YouTube channel where I posted my videos of teaching chemistry topics, for my current and ex-student teachers to enhance their subject expertise. I also learnt a few technological tricks from some of the digital-savvy student teachers! I piloted the university's virtual Writing Circles on Teams to support students in writing Level 7 assignment and to reduce their anxiety. As a teacher educator, I was aware of modelling the use of technologies in teaching. I used the Learning Designer framework (Laurillard et al., 2018), which allowed the visualisation of pedagogical approaches, to plan online lessons.

I am investigating how I can use technology to provide practical chemistry sessions online. So far, I have trialled the use of simulations and *kitchen chemistry* which involved students posting videos of doing experiments in their homes. I still have much to learn to find my way in this area.

I realise that continuously learning new technologies will become the norm. As I am still discovering new ways to use technology in developing my practice, the long-term impact of these on my teaching is not yet clear.

Kari, Norway

My work in teacher education relates to the doctoral education of teacher educators. Looking back at the status of my ICT skills in 2019, and even in the first week of March 2020, I understand how steep my technical learning curve has been. Whereas powerpoint, e-mails and a bit of Teams and Skype meetings were the range of my competence, today, after having been thrown into the deep water, I feel confident in using Zoom for meetings and webinars with break-out-rooms, Mentimeter for interacting with the audience, Panopto for recording lectures and so on. The learning has mainly taken place by trial and failure. I had a support telephone I could use when needed, but I really wanted to manage by myself. I was far beyond my comfort zone, yet, I was surprised I did not get into the anxiety zone. The reason might be that I knew there was no choice, I just had to learn. The Black Swan was there.

One of the greatest pleasures of working with teacher educators doing a PhD is to meet them face-to-face, to get to know them as teacher educators and not only as doctoral students. I was able to stay in close contact with the doctoral students in the national research school in teacher education (NAFOL) through webinars, yet the opportunities for informal talks often related to personal challenges in their doctoral work were lost. I have also had webinars for cross-faculty doctoral supervisors, group feedback sessions for the doctoral students in which peer feedback is the core. These have worked, but as a teacher (and it does not matter at which level), I often react spontaneously to the atmosphere in the room, the body language or facial expressions of the audience. This was lost in the webinars, it all became too formal to align with my pedagogical approach.

Recorded lectures were discussed post-viewing, which the doctoral students found very useful; however, I still prefer discussion taking place during the lectures. We have

also had successful public doctoral defences online, and the academic quality is maintained, but the atmosphere of this big day for the doctoral candidate, the supervisors, family and friends cannot be created online. It has been easy to have supervision sessions with co-supervisors and my doctoral students in Zoom or Teams, and this we were used to since we often are placed in different regions of Norway or different countries.

Many of the above activities are likely to become a new norm, yet they cannot replace physical meetings. The feedback from the doctoral students is that full online communication works well as an alternative when there is no other possibility, however, they (and I) miss the social and informal interaction implicit in physical meetings. I yearn for the spontaneous interaction with the audience when lecturing, triggered not only by words, but by body language, and the atmosphere in the room. A more blended approach will probably be what I am opting for in the future, however, now with more confidence.

Lut, Flanders, Belgium

I work in a centre of adult education, with a large teacher training section for secondary schools. In June 2019 I wrote:

We invest in flexible programs to combine a regular job and becoming a teacher, and most of our programs are blended learning. I am involved in the transition of the technical side of the blended learning program to a new technical environment. This reflection note is a real confrontation with my current knowledge and ICT skills. I realise I have much to learn.

My recent story starts when the lessons were suspended from March 2020. Students had to learn from home. To make sure that home-schooling would not increase inequalities, we looked for volunteer student teachers, retired teachers and teacher educators to provide extra guidance for children learning from home. We experienced that vulnerable learners needed extra support to develop self-confidence in working online. Thus, we launched the website www.diestleert.be with an online registration system to support vulnerable students. The match between learners and facilitators had the consent of parents and child, and the child's teacher. A contact person from the teacher training program supervised the support. The local teacher education institutions jointly took on a new role and the initiative was an instant success.

The lockdown challenged me and my ICT team to respond quickly to the needs of colleagues, as our teachers in adult education needed support to manage the new situation. We launched BigBlueBotton (BBB), an open-source conference system, in our context of moodle in a secure server environment. We shared its use through open digital sessions.

We learned we can cross thresholds we did not dare to cross before the COVID 19 era, also by creating an online learning community offering mutual support. Online tutoring will become more important in student teachers' practice teaching. Teachers in our blended trajectory training strengthened their self-confidence in working with digital lessons. Everybody is now more convinced that distance learning offers personalised guidance and new growth opportunities. Because of this we progressively combine online

learning with face to face contact moments.

We are gradually getting back to face to face contact after this crazy, but very instructive period. But the lessons we learned about distance learning will be implemented in our planning for the future.

Tali, Israel

Last year I taught a course on academic writing for M.Ed. students at a Jewish-orthodox college for women, and an educational technology course (EdTech) course at a secular education college in Israel. This is what I wrote a year ago about my use of technology.

I realize that I easily give up on using transformational technology pedagogy when encountering problems. Moreover, I find there are several inhibiting factors to integrating technology. Is there a need to reform pedagogical practices in the classroom rather than explore ways to integrate technology into the current paradigm?

Now, a year later, the COVID-19 pandemic caused a sudden shift away from the classroom, however, I still pose the same question as I did in 2019. As a teacher educator, this change posed both challenges and opportunities for me. At the time of the lockdown, I was in the midst of teaching an EdTech course for pre-service teachers and co-facilitating a Professional Learning Community (PLC) of leading teachers. Both were classroom-based. Overnight I needed to continue remotely. The PLC continued to meet synchronously using Zoom. I decided to continue the EdTech course as a hybrid course combining synchronous and asynchronous activities. This differentiation was due to the EdTech students' difficulty to keep up with their course work and meet synchronously while at home with their families and children.

There were, however, several challenges pertaining to infrastructure; some students do not have access to stable internet and some chose not to use the needed technology for idealistic reasons. Another challenge was the limited technical skills of some participants. Yet, the major challenge was to teach synchronously in an engaging manner and to model good on-line teaching. This challenge turned into an opportunity to enhance my skills as an online teacher-facilitator, and I participated in online courses and workshops to enhance my technological skills, yet I still wonder in what ways this will improve the quality of my teaching.

In my opinion, the adoption of online teaching and learning will continue to persist post-pandemic. I also believe that a new hybrid model of education will emerge. It is, therefore, crucial to educate teachers to teach synchronously, a-synchronously and blended. The sudden need for online teaching and learning should be the catalyst to create a new, more effective method of teacher education. E-learning will be part of my *new normal* after experiencing the benefits first-hand.

Similarities and differences

Our stories reveal that just a year ago there was a wide range of ways in how we incorporated technology in our practices, from a very elementary level (Kari) to more advanced use (Sheeba, Lut, and Tali). However, we all had an intention to improve our ICT skills to stay updated with current institutional pressures. We had good intentions and lacked a solid plan. Because the change was not imperative, we gave up when encountering difficulties (Tali). It reflects a barrier to change, defined by Koch and Hauknes (2005) as professional resistance. It was a step by step development, of which we were in control and did not take any big risks. “If it isn’t broke, don’t fix it” (Koch & Haukenes, 2005, p. 32). In the first place, we did not have to fix anything.

When we were forced to do all work online in March 2020, we experienced a steep learning curve, mainly on our own, as we were working from home. The main concern was not how to become better teacher educators, but how to manage online teaching. The technical aspects of on-line teaching were in focus. We were all in a kind of survival phase as teacher educators (Kidd & Murray, 2020). The universities provided the necessary software and online support when asked, however, we had to find our way in the manifold of programmes, trying to find what served our practice best. Therefore, there is a great variety in the programmes we used, though Zoom seems to be most common. Our workload was intensified, not having opportunities for informal breaks chatting with colleagues in the corridor, and work was extended to weekends because we worked from home anyhow. Another shared issue found in the vignettes is that we will probably not return to the old norm, intending to implement our new knowledge in creating a new norm as blended learning. We have realised that ICT has not been fully exploited in our work as teacher educators, however, we did not pay attention to how the increased use of ICT would impact our quality of teaching. When the narratives were written, we did our best just to manage without time to think of how future practices would be.

Exploring the differences, it is mainly in the selection of software used, again, focusing on the technology. Our previous competence and discipline direct the software programmes we choose. Sheeba, for example, found it difficult to teach the practical chemistry sessions online, and Kari mentions the possibility to have public doctoral defences online. Elizabeth is the only one to emphasis the opportunity to learn from students when incorporating technology, whereas Ainat did not feel comfortable giving up control when the students had the opportunities to hide behind black screens and muted microphones. Most of us recorded lectures, however, Marit was challenged by her attitude towards recorded lectures and sought ways to make them less boring. Kari also mentioned the lack of interaction with a live audience when lecturing.

Lut and Tali talk about the students and their challenges. Lut initiated a support system for children in school by asking teacher educators and students to volunteer to act as facilitators for school children. Tali voiced equity issues that derive from her specific setting, yet the question of equity probably has much broader relevance. She talks about the

students' home situation, their access to essential infrastructure, competence, and ideological reasons for not using ICT.

Benefits and disadvantages

Several advantages of online learning were noted by most of us. Increased digitalization will be part of the future school, and as teacher educators, it is our responsibility to prepare student teachers for the reality they will face. Most of us did not have sufficient ICT competence to model good teaching online. We all had to become acquainted with a variety of tools, and we learned to speak the language of online teaching. Thus, we are now more informed users of ICT in education, yet, we are not yet sufficiently informed critical users of ICT to be able to advise our students and model ways of future blended teaching. We missed, and so did the students, the personal face-to-face communication that is essential in establishing a good learning environment. The teaching became more formal and less spontaneous, which does not agree with our pedagogical visions.

An advantage is that recorded lectures online enable the students to decide when to watch the lectures. When working from home, a flexible timetable is important. Yet, online learning only disadvantaged some students who did not have the equipment or facilities to follow the instruction (Tali). The lack of unprompted interaction with the students and the black screens during zoom sessions described by Ainat from Israel did not allow for the kind of teacher education we wanted to practice.

The vignettes point at several commonalities in our experiences, yet, the learning potential lies in the differences. By sharing experiences, we learn from each other about how to work online. However, we were so occupied with the practical aspects of using ICT, of surviving that we did not reflect on how to align ICT with our pedagogical visions. We have not yet sufficiently discussed what we experienced as conducive or preventive to good teacher education. In the future, we hope to feed into each other's learning and develop as teacher educators integrating ICT in informed and critical ways in our practice. In the situation we were thrown into, we had to use our resilience, the capacity for adaptation mainly on overcoming the technical obstacles by facing our incompetence in integrating ICT in our teaching despite challenging or threatening circumstances (Le Cornu, 2009).

Discussion

Recently teacher educators' professional development has drawn attention from educational researchers, much due to the work of InFo-TED (see Smith & Flores, 2019, special issue of the *European Journal of Teacher Education*, and Guberman & Smith, 2020, special issue of *Frontiers Education*). This article contributes to a rapidly evolving knowledge base, more specifically with knowledge about how teacher educators react when they meet the Black Swan (Taleb, 2008), and are faced with a situation they have not met before, with no plans, yet still being forced to act and change practice overnight.

Professional development is found to be more sustainable when taking place in a community of practice, including online communities (Liljekvist et al., 2017). Our stories describe how before the lockdown caused by Covid-19 we had good intentions of developing our digital competence due to personal and institutional expectations of offering relevant and updated teacher education. The sudden need to shift to only online teaching was unexpected and we had to manage by ourselves from home. The steep learning curve we experienced was self-directed although we communicated daily with colleagues and students. The communication was, however, mainly about survival and how to use ICT and not about ways to improve practice by integrating ICT in our pedagogy in teacher education. We were “forced to rethink everything” (Kidd & Murray, 2020, p. 547). We were concerned about how to translate face-to-face teaching into online teaching and did not consider the many opportunities for updating teacher education that this Black Swan offered. We were busy, sitting at home, figuring out how to work online. We experienced ownership of changing to online teaching and a feeling of achievement when succeeding. This will strengthen our confidence using technology when creating new practices. In June 2020, however, we did not sufficiently reflect on the impact the change would have for our practice and identity as teacher educators. Kelchtermans (2009) claim that our message as teacher educators is how we teach, it is a form for implicit modelling in teacher education.

However, when working online, face-to-face communication, which is so important to develop group and personal relations with the students (Darling-Hammond & Hyler, 2020), is lost. Our messages are expressed through the embodiment of teaching, the being of the teacher, and not only by the transmission of knowledge. The following quote became meaningful to all of us “... it is increasingly clear that students’ social and emotional experiences influence their learning—and that teachers must learn how to integrate these areas of development to be effective” (Darling-Hammond & Hyler, 2020, p. 457). Tobbell and O’Donell (2013) argue there is a distinction between learning relationships and interpersonal relationships in teaching, and that interpersonal relationships in instructional settings have to be established to create a learning relationship which has to be built on mutual trust and respect. As teacher educators, we should model how teachers-to-be can establish beneficial learning relationships with their future students. We claim that it is more difficult to develop learning conducive relationships by using only online instruction. We believe that more a blended learning approach will characterise a new norm. There are multiple advantages of online teaching such as students being more in control of time their own time, reaching a wider audience, and exploring unknown opportunities for practical work (Kidd & Murray, 2020). Academic aspects of teacher education are likely to be strengthened by more digital teacher education. Nevertheless, effective and social-emotional aspects of learning relate to inter-personal relations (Darling-Hammond & Hyler, 2020) and are, as we see it, essential to all education. Thus, we claim that physical meetings offer better opportunities for establishing learning relations (Tobbell &

O'Donnell, 2013).

Teacher education is context-dependent (Kelchtermans et al., 2018), and this also became apparent in our vignettes. Alongside the many similarities in the way we developed online practices, the context, our diverse disciplinary background, and baseline for using technology in March 2020, formed the experiences. However, what was left out, probably due to the immediate impact for learning the tools, was how to integrate and change our practice theories (Carr & Kemmis, 1983) of teacher education. An example of this is that the question about equity was, surprisingly, only raised by Tali, and differently also by Lut in her initiative to support children's home-school learning. Aina's master students acknowledged the importance of being well informed about the students' home context. Teaching for diversity is central in schools throughout Europe, and our job is to prepare students for handling equity issues. Equity issues regarding the implementation of technology relate, among other things, to the context, social-economic status of the users, and the ICT competence of the users as well as of the providers of education. Technology can be a means for more inclusive education; however, online access, hardware and software facilities differ in various contexts and at the individual level of users. Van Deursen and van Dijk (2019) call this the digital divide, and Wargo (2020) warns against seeking simplified solutions "The swift move to innovate during the COVID-19 crisis explicates that change in higher education institutions is possible; however, we have seen how, without nuanced thinking about the complexities of access, 'solutions' can equate to marginalization" (p. 82).

Another aspect we need to worry about is that when moving to online teaching only, there is a danger of returning to more teacher-focused frontal teaching (online lectures etc.). This was found in high school students' experiences with home-schooling (Sandvik et al. 2020), and our student teachers have also critically commented on this. As teacher educators we need to use ICT to improve teaching, and to do so we need to look for ways to improve education as informed and critical users of technology. This is also important to bring into the post-Covid-19 educational policy discussions about the future of teacher education.

Professional development works well as a bottom-up process and sometimes becomes shallower when it is enforced by a top-down decision or reform (Kelchtermans et al., 2018). Covid-19 is a Black Swan, an unexpected event which is not listed among the change forces described by Hargreaves and Goodson (2006). It was a different trigger, a kind of top-down trigger, yet not prescribed by decision-makers at a policy or organisational level. The changing force came from the outside, with the wind, it was global, the whole world had to change, and there were no directives on how to go about the changes. Despite the externally required need for change, there was a feeling of not being subjected to implementing policymakers' decisions. Each one of us developed ownership to changes we made. Sheeba describes this well when she says that "we were all in it together". We have become less resistant to change (Koch & Hauknes, 2005) as a result of being forced to go online.

Conclusion

Covid-19 has been a Black Swan (Taleb, 2008) as well as a critical incident (Tripp, 1994; Shapira-Lishchinsky, 2010) which has provided us with competence and informed knowledge about benefits alongside disadvantages of the use of ICT in teacher education. We welcome a new norm for teacher education which will probably incorporate technology to a much larger extent. Whereas previously this group of European teacher educators felt obliged to introduce technology in our teaching to be updated and implement university guidelines, we are now more confident integrating technology when developing new forms of blended teacher education. With the survival level behind us, we can take time to plan and choose to use ICT in ways that align with our pedagogical visions and goals.

Finally, we should keep in mind that in this paper we have presented our stories, and the students' experiences are not equally presented. In an instructional setting, there are two main actors, and together they create mutual learning spaces. Working jointly with students we, as teacher educators, will be involved in creating a new norm with strong rudiments of blended learning. A question we would like to explore further is “If we have been through a digital revolution or been forced to apply a digital backup” (Jensen et al., 2020)?

References

- Avalos, B. (2011). Teacher professional development in teaching and teacher education over ten years. *Teaching and Teacher Education*, 27(1), 10–20. <https://doi.org/10.1016/j.tate.2010.08.007>
- Avidov-Ungar, O. & Forkosh-Baruch, A. (2018). Professional identity of teacher educators in the digital era in light of demands of pedagogical innovation. *Teaching and Teacher Education*, 73, 183–191. <https://doi.org/10.1016/j.tate.2018.03.017>
- Bollnow, O. F. (1969). *Eksistensfilosofi og pedagogikk*. (Philosophy of Existence and Pedagogy). Fabritius. https://urn.nb.no/URN:NBN:no-nb_digibok_2007051501044
- Carr, W. & Kemmis, S. (1983). *Becoming Critical: Knowing through action research*. Deakin University Press.
- Clandinin, D. J. & Murphy, M. S. (2009). Relational ontological commitments in narrative research. *Educational Researcher*, 38, 598–602. <https://www.jstor.org/stable/25592174>
- Connelly, F. M. & Clandinin, D. J. (2006). Narrative inquiry. In J. Green, G. Camilli, & P. Elmore (Eds.), *Handbook of complementary methods in education research* (pp. 375–385). Lawrence Erlbaum.
- Czerniawski, G., Guberman, A., & MacPhail, A. (2017). The professional developmental needs of higher education-based teacher educators: an international comparative needs analysis. *European Journal of Teacher Education*, 40(1), 127–140. <https://doi.org/10.1080/02619768.2016.1246528>
- Darling-Hammond, L. & Hyler, M. E. (2020). Preparing educators for the time of COVID ... and beyond. *European Journal of Teacher Education*, 43(4), 457–465. <https://doi.org/10.1080/02619768.2020.1816961>
- Guberman, A. & Smith, K. (Eds.). (2020). Expansive Learning in Teacher Education (Special Issue). *Frontiers Education*, 5. <https://www.frontiersin.org/research-topics/10619/expansive-learning-in-teacher-education#articles>
- Guskey, T. R. (2002). Professional development and teacher change. *Teachers and Teaching: theory and practice*, 8(3/4), 381–391. <https://doi.org/10.1080/135406002100000512>
- Hamilton, M. L., Smith, L., & Worthington, K. (2009). Fitting the Methodology with the Research: An exploration of narrative, self-study and auto-ethnography. *Studying Teacher Education*, 4(1), 17–28. <https://doi.org/10.1080/17425960801976321>

- Hargreaves, A. & Goodson, I. (2006). Educational change over time? The sustainability and nonsustainability of three decades of secondary school change and continuity. *Educational Administration Quarterly*, 42(1), 3–41. <https://doi.org/10.1177/0013161X05277975>
- Jensen, A. R., Skreland, L., Nome, D. Ø., & Melhus, C. (2020). Har vi vært gjennom en digital revolusjon, eller har vi vært nødt til å bruke en digital reserveløsning? (Have we been through a digital revolution, or have we had to use a digital alternative solution?) *Khrono*. <https://khrono.no/har-vi-vaert-gjennom-en-digital-revolusjon-eller-har-vi-vaert-nodt-til-a-bruke-en-digital-reservelosing/496977>
- Kelchtermans, G. (2009). Who I am in how I teach is the message: self-understanding, vulnerability and reflection. *Teachers and Teaching: theory and practice*, 15(2), 257–272. <https://doi.org/10.1080/13540600902875332>
- Kelchtermans, G., Smith, K., & Vanderlinde, R. (2018). Towards an ‘international forum for teacher educator development’: an agenda for research and action. *European Journal of Teacher Education*, 41(1), 120–134. <https://doi.org/10.1080/02619768.2017.1372743>
- Kidd, W. & Murray, J. (2020). The Covid-19 pandemic and its effects on teacher education in England: how teacher educators moved practicum learning online, *European Journal of Teacher Education*, 43(4), 542–558. <https://doi.org/10.1080/02619768.2020.1820480>
- Koch, P. & Hauknes, J. (2005). *On Innovation in the Public Sector*. Public Report D20: NIFU, STEP. <https://nifu.brage.unit.no/nifu-xmlui/bitstream/handle/11250/226573/d20-innovation.pdf?sequence=1>
- Korthagen, F. (2010). How teacher education can make a difference. *Journal of Education for Teaching*, 36(4), 407–423. <https://doi.org/10.1080/02607476.2010.513854>
- Langdon, F. (2014). Evidence of mentor learning and development: an analysis of New Zealand mentor/mentee professional conversations. *Professional development in education*, 40(1), 36–55. <https://doi.org/10.1080/19415257.2013.833131>
- Laurillard, D., Kennedy, E., Charlton, P., Wild, J., & Dimakopoulos, D. (2018). Using technology to develop teachers as designers of TEL: Evaluating the learning designer. *British Journal of Educational Technology*, 49(6), 1044–1058. <https://doi.org/10.1111/bjet.12697>
- Le Cornu, R. (2009). Building resilience in pre-service teachers. *Teaching and Teacher Education*, 25(5), 717–723. <https://doi.org/10.1016/j.tate.2008.11.016>
- Liljekvist, Y., van Bommel, J., Olin-Scheller, C. (2017). Professional Learning Communities in a Web 2.0 World: Rethinking the Conditions for Professional Development. In I. Amzat & N. Valdez (Eds.), *Teacher Empowerment Toward Professional Development and Practices* (pp. 269–280). Springer.
- Loughran, J. (2014). Professionally developing as a teacher educator. *Journal of Teacher Education*, 65(4), 271–283. <https://doi.org/10.1177/0022487114533386>
- Lunenberg, M., Korthagen, F., & Swennen, A. (2007). The teacher educator as a role model. *Teaching and Teacher Education*, 23, 586–601. <https://doi.org/10.1016/j.tate.2006.11.001>
- Penlington, C. (2008). Dialog as a catalyst for teacher change: A conceptual analysis. *Teaching and Teacher Education*, 24(5), 1304–1316. <https://doi.org/10.1016/j.tate.2007.06.004>
- Reay, T., Zafar, A., Monteiro, P., & Vern, G. (2020). Presenting findings from qualitative research: One size does not fit all. In T. B. Zilber, J. M. Amis, & J. Mair (Eds.), *Research in the Sociology of Organizations*, 64 (pp. 1–24). Emerald Group.
- Sandvik, L. V., Sommervold, O. A., Angvik, S. A., Smith, K., Strømme, A. & Svendsen, B. (2020). *Opplevelser av undervisning og vurdering i hjemmeskole under Covid-19 i videregående skole*. (Experiences of teaching and assessment in home-schooling during Covid-19). Research report, NTNU: Institutt for lærerutdanning. <https://www.ntnu.edu/documents/1272530013/1284701070/Rapport-undervisning-vurdering-hjemmeskole-Covid-19.pdf/841a710d-3d73-b1fe-cf76-125e9b7e9600?t=1597388448186>
- Shapira-Lishchinsky, O. (2010). Teachers’ critical incidents: Ethical dilemmas in teaching practice. *Teaching and Teacher Education*, 27(3), 648–656. <https://doi.org/10.1016/j.tate.2010.11.003>
- Smith, K. & Flores, M. (Eds.). (2019). Teacher Educators as Teachers and as Researchers (Special Issue). *European Journal of Teacher Education*, 42(4). <https://www.tandfonline.com/toc/cete20/42/4?nav=tocList>
- Taleb, N. N. (2008). *The black swan. The impact of the highly improbable*. Penguin books.

- Tobbell, J. & O'Donnell, V. L. (2013). The formation of interpersonal and learning relationships in the transition from primary to secondary school: students, teachers and school context. *International Journal of Educational Research*, 59, 11–23. <http://dx.doi.org/10.1016/j.ijer.2013.02.003>
- Tripp, D. (1994) Teachers' lives, critical incidents, and professional practice. *International Journal of Qualitative Studies in Education*, 7(1), 65–76. <https://doi.org/10.1080/0951839940070105>
- van Deursen A. J. & van Dijk J. A. (2019). The first-level digital divide shifts from inequalities in physical access to inequalities in material access. *New Media & Society*, 21(2), 354–375. <https://doi.org/10.1177/1461444818797082>
- Wargo, E. (2020). Interwined Higher Education Places and Spaces. *Journal of the Study of Postsecondary and Tertiary Education*, 5, 79–84. <https://doi.org/10.28945/4535>