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Edited by Yvonne Masters

Editorial Advice

Preparing a submission to the *IAFOR Journal of Education* is more than writing about your research study: it involves paying careful attention to our submission requirements. Different journals have different requirements in terms of format, structure and referencing style, among other things. There are also some common expectations between all journals such as the use of good academic language and lack of plagiarism. To assist you in reaching the review stage for this or any other peer-reviewed journal, we provide the following advice which you should check carefully and ensure that you adhere to.

1. Avoiding Plagiarism

Plagiarism is a practice that is not acceptable in any journal. Avoiding plagiarism is the cardinal rule of academic integrity because plagiarism, whether intentional or unintentional, is presenting someone else's work as your own. The *IAFOR Journal of Education* immediately rejects any submission with evidence of plagiarism.

There are three common forms of plagiarism, none of which are acceptable:

1. ***Plagiarism with no referencing***. This is copying the words from another source (article, book, website, etc.) without any form of referencing.
2. ***Plagiarism with incorrect referencing***. This involves using the words from another source and only putting the name of the author and/or date as a reference. Whilst not as grave as the plagiarism just mentioned, it is still not acceptable academic practice. Direct quoting requires quotation marks and a page number in the reference. This is best avoided by paraphrasing rather than copying.
3. ***Self-plagiarism***. It is not acceptable academic practice to use material that you have already had published (which includes in conference proceedings) in a new submission. You should not use your previously published words and you should not submit about the same data unless it is used in a completely new way.

2. Meeting the Journal Aims and Scope

Different journals have different aims and scope, and papers submitted should fit the specific journal. A "scattergun" approach (where you submit anywhere in the hope of being published) is not sound practice. Like in darts, your article needs to hit the journal's "bullseye", it needs to fit within the journal's interest area. For example, a submission that is about building bridges, will not be acceptable in a journal dedicated to education. Ensure that your paper is clearly about education.

3. Follow the Author Guidelines

Most journals will supply a template to be followed for formatting your paper. Often, there will also be a list of style requirements on the website (font, word length, title length, page layout, and referencing style, among other things). There may also be suggestions about the preferred structure of the paper. For the *IAFOR Journal of Education* these can all be found here: https://iafor.org/journal/iafor-journal-of-education/author-guidelines/

4. Use Academic Language

The *IAFOR Journal of Education* only accepts papers written in correct and fluent English at a high academic standard. Any use of another language (whether in the paper or the reference list) requires the inclusion of an English translation.

The style of expression must serve to articulate the complex ideas and concepts being presented, conveying explicit, coherent, unambiguous meaning to scholarly readers. Moreover, manuscripts must have a formal tone and quality, employing third-person rather than first-person standpoint (when feasible), placing emphasis on the research and not on unsubstantiated subjective impressions.

Contributors whose command of English is not at the level outlined above are responsible for having their manuscript corrected by a native-level, English-speaking academic prior to submitting their paper for publication.

5. Literature Reviews

Any paper should have reference to the corpus of **scholarly** literature on the topic. A review of the literature should:

- Predominantly be about contemporary literature (the last 5 years) unless you are discussing a seminal piece of work.
- Make explicit international connections for relevant ideas.
- Analyse published papers in the related field rather than describe them.
- Outline the gaps in the literature.
- Highlight your contribution to the field.

Referencing

Referencing is the main way to avoid allegations of plagiarism. The *IAFOR Journal of Education* uses the APA referencing style for both in-text citations and the reference list. If you are unsure of the correct use of APA please use the Purdue Online Writing Lab (Purdue OWL), – https://owl.english.purdue.edu/owl/resource/560/01/ – which has excellent examples of all forms of APA referencing. Please note APA is used for referencing not for the general format of the paper. Your reference list should be alphabetical by author surname and include DOIs whenever possible.

This short guide to getting published should assist you to move beyond the first editorial review. Failure to follow the guidelines will result in your paper being immediately rejected.

Good luck in your publishing endeavours,

Dr Yvonne Masters
Editor-in-Chief, *IAFOR Journal of Education*

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Foreword
(Musings from the Editor-in-Chief)

When we first decided to run with a special issue on educational responses to COVID-19, little did we know that we would still be in the midst of lockdowns, emerging variants, and scary rising statistics as we reach publication. We knew that it would take time to return to some kind of normal, but not that the "new normal" will probably be drastically different from what we knew before well into the long term.

The disruption to education, and to life itself, has been on a global scale and no-one has been left untouched in some way or other. For educators it has meant embracing online learning at an unprecedented rate, with institutions scrambling to put strategies in place to reach as many students as possible. Many of the papers in this issue reflect the search for new strategies as well as looking at how policy has rushed to keep ahead of the pandemic. Our authors come from countries at both ends of the spectrum: those who are amongst the hardest hit by the coronavirus, and those who have felt the effects, but the massive scale lockdowns and devastating death totals have mercifully passed them by. Researching and writing in the midst of a pandemic, they have found the time to pass on material of value for all. Our authors represent educators from Saudi Arabia, the United Arab Emirates, Turkey, the United States, Sweden, Japan, Ireland, Nepal and Australia. Their papers demonstrate the global dedication to keeping education going.

In the following pages you will find papers on how faculty have coped with the pandemic, how students have been engaged, how an institution dealt with final assessments and how early childhood centres conducted "virtual" professional development. There are also papers discussing the effects of the pandemic for pre-service teachers, including professional experience possibilities. One paper explores the policies adopted by a government faced with changes to educational provision. The topics are wide ranging, but the enthusiasm to make things work shines through.

This is the last issue that I will be editing personally as I have taken up the role of Executive Editor of the *IAFOR Journal of Education* from the start of April. This will involve me more in developing ways to support greater understanding of how to publish and how to review, probably leading me back to my own roots: education. I would like to say at this moment that I am heartened that so many have already trusted us to publish your work and I am sure the editors of the various issues will continue to receive your hard work. My thanks to all those who have decided to publish with us.

My thanks, as always, to the authors, the editors, the associate editors, the publications manager, Nick Potts, and to all the reviewers for bringing this issue and all of our other issues to you, the readers. They all continue to share their research, their words, their commitment and hard work in what has been some of the most difficult times. I have felt supported by the way in which you all rally to the call.

Enjoy reading and above all, stay safe,
Yvonne Masters,
Editor-in-Chief

Notes on Contributors

Article 1: The Impact of Faculty Experience with Emergency Remote Teaching: An Interpretive Phenomenological Study

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Article 8: Teacher Professional Learning Whilst in Quarantine: A Case Study from China

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Article 9: Using a Design Thinking Approach for an Asynchronous Learning Platform during COVID-19

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Article 10: Emergency Response in Educational Policies during Covid-19 in Nepal: A Critical Review

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Article 11: Online University Teaching at the time of COVID-19 (2020): an Australian Perspective

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The Impact of Faculty Experience with Emergency Remote Teaching: An Interpretive Phenomenological Study

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Abstract

The aim of this phenomenological study is to provide a deeper understanding of the impact of remote teaching on instructors' perceptions of online learning and future teaching practices amid the COVID-19 pandemic. Interpretative phenomenological analysis was used to analyze open-ended semi-structured interviews conducted with five higher education faculty in Saudi Arabia. Three major themes were identified: enhancing student engagement; increased awareness of technology affordances and constraints; and moving from emergency remote teaching to technology-enhanced and blended learning. Participants of this study were mainly concerned about finding ways to support active student engagement in this new learning environment, which in turn increased their awareness of the educational affordances and constraints of online learning and technologies. Participants' deeper understanding of the potential of online technologies in supporting student learning, as well as their own and students' increased familiarity and comfort with online learning and technologies, served as the main drivers for potential future implementation of blended learning and technology-enhanced teaching practices. With that said, participants were still apprehensive about engaging in fully online teaching, arguing that blended strategies and enhanced-technology integration are more likely to overcome some of the limitations of face-to-face teaching and improve the overall learning experience for their students. Discussion of these findings in relation to the extant literature and their implications for higher education institutions moving forward are provided.

Keywords: COVID-19, emergency remote teaching, faculty professional development, faculty support, online teaching

The global spread of the coronavirus has impacted – and continues to impact – many aspects of human life, including education. Higher education institutions around the world responded by pivoting to distance and online education to reduce or eliminate in-person classes, significantly disrupting the education of what is estimated to be over 220 million post-secondary students, or 13% of the global student body (World Bank, 2020). In Saudi Arabia, higher education institutions faced numerous challenges in their sudden move to remote teaching, as was the case for the majority of institutions around the world. The change to remote education occurred overnight – literally in many cases – placing an enormous pressure on institutions due to the lack of time normally required to design and develop pedagogically sound online courses and the absence of support structures that can accommodate institution-wide adoption of online and distance education. This has led many to argue that the emergency plans put in place to mitigate the impact of the pandemic cannot be considered true online learning, but constitute rather a mere shift in delivery method that allows students access to learning solutions that would normally be delivered face-to-face (f2f). Consequently, the term emergency remote teaching (ERT) will be used throughout this paper in reference to teaching and learning practices implemented during the coronavirus pandemic (Bozkurt et al., 2020; Hodges et al., 2020).

In light of the unique circumstances driving this change, this shift has created many new experiences for higher education faculty. It has forced many, who would otherwise hesitate to integrate learning technologies or adopt online teaching practices, to utilize online-learning platforms and tools. Even those educators who are already comfortable and familiar with online learning technologies and practices have had to rethink their course design and use online learning tools and platforms in new ways to accommodate a fully online delivery method (Johnson et al., 2020). The unique context and conditions under which this shift to ERT happened have raised some concerns about the impact of this experience on teaching faculty, calling for the need to examine the "social constructions and meaning-making of various stakeholders" (Kerres, 2020, p. 4) during ERT and its impact on faculty perceptions about online learning and future teaching practices (Cutri & Mena, 2020; Kearns, 2016; Kerres, 2020).

It is with this purpose in mind, and within this unique context, that this study is conducted. The purpose of this interpretive phenomenological inquiry is to capitalize on these new experiences by unpacking higher education faculty members' experiences during the mandated shift to ERT, and to explore how these experiences might have shaped and/or reshaped their attitudes toward online learning and the impact this could have on their future teaching practices. An examination of such experiences will help institutions and administration understand the technological pedagogical challenges and practices that have emerged during this period, and instructors' motivations and plans regarding possible future pedagogical changes and directions. These insights, in turn, can guide institutions in shaping effective support systems and structures aligned with faculty experiences and needs to support more innovative and effective use of learning technologies and online teaching practices in the future (Johnson et al., 2020; Kearns, 2016). The topic of inquiry that guided this study was:

- What was the impact of the ERT experience on higher education faculty, in terms of their perceptions and potential future adoption of online teaching practices?

Literature Review

The Online Teaching Experience

Online teaching is a complex process requiring a change to the traditional roles of instructors and a shift in their beliefs, pedagogical thinking, and teaching practices (Ferrario et al., 2013; Jääskelä et al., 2017; Marzilli et al., 2014; Sinacori, 2020). Bawane and Spector (2009) identified eight different roles or competencies that online teaching faculty need to be effective online instructors: pedagogical, professional, evaluator, social, technologist, administrator, researcher, and advisor counselor. This shift in traditional roles and normal practices can pose some challenges for faculty. For instance, faculty members who are teaching online experience a time burden due to the intensive work needed to prepare and facilitate online learning, which comes at the expense of their other academic and scholarly responsibilities and institutional expectations (Cutri & Mena, 2020; Marzilli et al., 2014; Rogers et al., 2018). A lack of resources and proper institutional support through effective professional development and policies that enable quality online teaching practices has also been identified as a great challenge for faculty teaching online and can negatively impact their satisfaction in doing so (Al-Zahrani, 2015; Sinacori, 2020; Wingo et al., 2017). The shift in their traditional roles and practices can lead to intense emotional reactions and anxiety among faculty resulting from a sense of identity disruption and professional vulnerability, such as concerns about tenure, promotion, and professional image (Cutri & Mena, 2020; Wingo et al., 2017). That said, studies have found that once faculty begin to engage in online teaching, they appreciate the unique opportunities it affords, such as its flexibility in expanding learning opportunities for their students and providing the space to support more individualized learning experiences. However, faculty who are new or have limited experience with online teaching tend to prefer hybrid and blended formats over fully online courses. This preference is mainly due to concerns about the loss of humanistic values and interaction as well as students' ability to engage effectively in this new learning space, concerns that seem to subside as faculty gain more experience teaching online (Jääskelä et al., 2017; Marzilli et al., 2014; Mejia & Phelan, 2014; Rogers et al., 2018; Walters et al., 2017; Wingo et al., 2017).

A few studies have investigated faculty experiences and reactions during the rapid transition to ERT in the spring of 2020 (for example, Haslam et al., 2020; Johnson et al., 2020). These investigations reveal that most instructors, with and without prior online teaching experience, had to adjust their course requirements, teaching methods, and learning activities. Due to the scale and urgency of this transition, many relied on self-help and collegial support, raising some concerns about the sustainability of these plans in the face of an ongoing pandemic and the possible impact of this shift in support structure and roles on faculty perceptions and attitudes toward online teaching (Johnson et al., 2020; Kerres, 2020).

The Impact of Teaching Online on Faculty Beliefs and Teaching Practices

A number of studies have examined the impact of teaching online on faculty beliefs, attitudes, and teaching practices surrounding technology, across different modalities and settings (Jääskelä et al., 2016; Kearns, 2016; Scott, 2016; Wingo et al., 2017). Consistent with other research (for example, Walters et al., 2017), Wingo et al. (2017) found that as faculty experience with online teaching increased, so did their satisfaction with the experience, their intention to continue to teach online, and their positive perception of its ability to support student learning.

Both learning to teach online (Foulger et al., 2019; McQuiggan, 2012) and actually teaching online (Kearns, 2016; Scott, 2016; Sinacori, 2020) require a shift in pedagogical thinking and

practice, thus providing the impetus for instructors to critically reexamine their assumptions and beliefs about teaching and learning. One impact that has been noted in the literature is a shift from teaching-centered to more student-centered practices (Kearns, 2016; McQuiggan, 2012; Scott, 2016). In a phenomenological study aimed at understanding the experience of changing one's f2f teaching practices and assumptions as a result of teaching online, Kearns (2016) found that as faculty engaged in converting their course materials and activities to fit the online medium, they became more critical and deliberate in their thinking about how students learn. As a result, faculty became more explicit in the structure and organization of their f2f classes, redesigned their f2f courses by incorporating online asynchronous activities to maximize the value of f2f time with their students, and integrated technology tools to support active learning and enhance peer and instructor interactions. Scott (2016) highlights the critical role that online teaching itself has on change in faculty beliefs and practice, especially when student online learning preferences and experience clash with faculty expectations.

The conditions surrounding the mandated shift to ERT due to global health concerns provide a different teaching context compared to those studies that have been conducted in non-emergency situations (Kearns, 2016; Kerres, 2020). Further, most of the studies conducted on faculty experience during ERT so far are mostly large-scale studies aimed at uncovering general patterns of faculty practices during ERT. The present study adds to the growing body of research on ERT by examining the potential impact this experience might have on faculty's attitudes about online teaching and future teaching practices through the lens of interpretive phenomenological analysis (IPA).

Methods

IPA's phenomenological, ideographic, and hermeneutic principles provide an appropriate lens through which to examine unique and complex experiences such as faculty's shift to and implementation of ERT, and the impact this experience could have on their perceptions about online teaching and their future teaching practices (Noon, 2018; Smith, 2004, 2011). This approach to research is phenomenological in that it aims to uncover individual perceptions and views of an event or object under investigation (Smith & Osborn, 2008). Deep and intensive exploration of individual experiences, and the researcher's active role in interpreting the meaning participants assign to those experiences, are central to IPA, highlighting its ideographic and hermeneutic nature (Noon, 2018; Pietkiewicz & Smith, 2014; Smith, 2011).

Due to IPA's focus on individual perceptions and sense-making, Smith and Osborn (2008) recommend the use of non-directive, semi-structured interviews as the main data-collection method, to allow for additional probing based on participants' responses. A flexible interview protocol was used, and additional probing questions were asked during interviews to allow for a deeper exploration of participants' experiences and perceptions of teaching remotely (Noon, 2018; Smith & Osborn, 2008). Typical interview prompts included "What were the main challenges you faced when teaching remotely?", "What technology tools did you use in your course? Why did you choose those tools?", and "Will you continue to use these tools in the future and why?".

Sampling and Participants

Convenience and networking sampling was used to identify and recruit participants for this study. A total of five female participants (see Table 1) from three different higher education institutions in Saudi Arabia agreed to be interviewed. Smaller, homogeneous samples are commonly utilized in IPA due to its idiographic nature, which requires intense, immersive, and

deep exploration of individual cases that hold relevance and personal significance to participants. Thus, five female participants were deemed sufficient for this study (Noon, 2018; Smith, 2011; Smith and Osborn, 2003). All participants had experience using a learning management system to support their f2f teaching prior to the pandemic, but only one participant had previous experience teaching fully online courses.

Table 1. The participants

Pseudonyms	Age	Current position	Years teaching
Julie	39	Associate Professor of Law	18
Nora	36	Associate Professor of Management Information Systems	8
Helen	52	Assistant Professor of International Marketing	15
Sarah	+40	Assistant Professor of Law	9
Susan	40	Assistant Professor of Finance	17

Data Analysis

The analytical process for this study followed that described by Noon (2018). The process began with reading each interview transcript in its entirety to obtain a general sense of each participant's account. Transcripts and initial notes were then reread, and comprehensive annotations, reflections, and interpretations were made regarding interesting quotes, which was organized into tables to sustain alignment between analysis and raw data/evidence. Codes and emergent themes were then identified based on the extensive annotations performed in the previous step. These initial themes were defined and tentatively organized according to conceptual similarities to establish their interrelations.

The preceding steps were repeated for each interview case. Once emergent themes for each subsequent case were identified, previous themes were reviewed in relation to the annotation and quotes from which they emerged and either dropped, if the themes did not appear in at least three of the five cases, or amended (Smith, 2011). This flexible iterative process ensured a balance between the collective/shared themes and the distinctive voice/experience of each individual. The final step in this process was writing up the results of the analysis. In IPA research, write-up is an extension of the IPA analytical process. Due to the interpretive flair of IPA, themes emerging from analysis are not only thematically described, but also accompanied by the researcher's narrative interpretation in relation to the extant literature. According to Noon (2018), this can be done either concurrently in a combined 'results and discussion' section, or in separate 'results' and 'discussion' sections. The latter presentation style was followed here. Following Smith's (2011) recommendation for validity and rigor in IPA research presentation, extracts that highlight convergence and divergence across cases from at least three participants are presented in the discussion of each theme.

Research Procedures

After securing Institutional Review Board approval for this research, the researcher recruited higher education faculty by email and asked for network referrals of other potential participants. Faculty were invited via email to participate in one-hour semi-structured virtual interviews to explore their ERT experience. The email recruitment message explained the purpose of the current study and the procedures being followed, and included an online consent page for participants to indicate their consent to participate and their right to withdraw from the study at any time. Three interviews were conducted virtually using Zoom, an online

synchronous communication platform, and two were conducted via email due to technical or personal issues related to participants. Email responses and Zoom interview transcriptions served as the raw data in this study. Email interviews were conducted in two phases, in which interview questions were sent to participants and their answers were returned, followed by probing questions from the researcher for clarifications or to elicit richer responses to support a deeper exploration of the personal experiences being discussed (Smith, 2004).

Results

The analysis highlighted three common themes: enhancing student online engagement; increased awareness of technology affordances and constraints; and moving from ERT to technology-enhanced and blended learning. In this section, these themes are explored and supported with representative quotations from faculty interviews.

Enhancing Student Online Engagement

A common challenge among all participants was ensuring students' active engagement with instructor, peers, and course material. All participants discussed ways in which they tailored activities/assignments and teaching strategies to encourage student engagement in this new learning environment. Take Helen for example,

> *The main issue faced in moving online was developing a medium that allowed students to talk between themselves, as they would in a class, and not for all communication to be lecturer to student, but also that we managed to succeed in facilitating student-to-student communication as well.*

When first required to shift online, Nora continued to implement her existing f2f plans with no changes; however, she noticed a decrease in student engagement and interaction. Within a week of the shift to ERT she realized that she could not simply *map* the three hours she normally provides in class to the virtual space because it is a *completely different* environment. She recognized that online environments requires *different types of incentives* for students to participate and engage with peers and course material. As a result, she worked on changing some of the learning material and pedagogical use of technology tools, such as discussion boards, to increase student engagement with course topics. For instance, instead of using the discussion board for *discussions and debates* as she did prior to the pandemic, she began to use it for student *reflection* to encourage a deeper cognitive engagement.

Helen, Susan, Nora, and Sara discussed their students' preference for text-based interaction versus audio/video during live sessions. For Helen, this preference was a challenge. She explained, *the 'teaching' was challenging, at least to me; I like to see the whites of students' eyes.* Similarly, when Susan was asked about the most challenging aspect of remote teaching, she replied, *The inability to understand the extent of student understanding. When repeatedly asked, 'Is anything unclear?' very few students used to respond.* Susan found it difficult to assess student understanding of topics discussed during live sessions due to students' reluctance to ask questions, compounded by the lack of eye contact that would allow her to gauge students' reactions and facial expression. So, instead of asking students if they had any questions, she began by asking course-related questions throughout the live sessions and encouraged students to respond via the chat facility, a strategy she found to be very effective as *the chat facility was very active in all my classes.*

For Nora, the lack of student video and audio communication was an indication of students' lack of engagement rather than her personal/teaching preference. She described the difficulties she faced as she tried to engage her students with a guest speaker during one of her live sessions:

> *Out of 32 students, only one student interacted with her during the one-hour sessions that we held. We asked the students to open their videos to interact with her, but all the students, all 31, preferred to have their videos off and said, "We will interact through text," which is not enough.*

On the other hand, Nora did not seem to mind students' passive participation in virtual office hours. As a matter of fact, she recognized the learning benefits this type of engagement provided to her students. She said, *Some of the students, they just came to listen. They didn't ask any questions, but they were learning from other students' questions. I think that is excellent.* She elaborated on this, saying,

> *Normally, not many students take advantage of my office hours. They rush going out to their houses or their part-time jobs or other commitments they have, especially [since] my office hours are fixed at the university. I will keep the fixed office hours, but I will add virtual office hours to my future classes.*

Sara recognized students' preference for text-based interaction and communication, and even went so far as to accommodate them by adjusting course activities and requirements. She explained,

> *Before COVID-19, students' debates were planned for the international law course since they are very good in realizing the CLO [Course Learning Outcomes] relevant to students being able to formulate legal arguments and perform public litigations and legal debates. However, a number of students were not in favor of having themselves speaking loudly in the Blackboard environment. Therefore, I took the students' circumstances into consideration and I decided to change the format to written debates. I reformulated the assessment rubric and had every two students coupled in a group and asked them to submit their written discussion.*

Increased Awareness of Technology Affordances and Constraints

Participants' awareness of online learning and technology affordances and constraints increased due to their concerns about students' active engagement online. Even though participants are not new to technology and have always used an learning management system to support their f2f teaching, their complete reliance on technology during the pandemic has pushed them to experiment and think more critically about the pedagogical opportunities and limitations present in different technologies that they may have not considered or recognized prior to the mandated pivot to ERT. Nora shifted some of her course activities to Slack, a team communication app. She explained her decision: *I used Slack because it's a good environment for communication with my students, because communication through Blackboard was mainly one-way communication with no interaction, such as emails for instance. I found that Slack supports better communication and discussions.* She went on to describe some of the features that she found particularly helpful in supporting her students' engagement and learning:

> *In collaborating and communicating with the students, I found Slack to be amazing. All students were involved in these discussions, so I like it as a*

> *communication tool. I also used it to send my students video tutorials or articles related to their course topics, and some students as well were sharing back resources. I was able to create a dynamic interactive environment with students and engage them in discussions related to what is important in their field.*

Sara found supporting interactive learning for a large cohort of students online to be challenging. Even though she had not found a clear solution to this problem at the time of the interview, she was cognizant of the differences between f2f and online as learning environments and the need to adjust teaching strategies to take full advantage of the opportunities provided when teaching online: *My F2F lectures are usually very interactive; however, from my recent experience with remote learning, I now understand that online interactive strategies don't work with a big number of students. I'm exploring possible alternative teaching strategies in this respect.*

Julie, who has previous experience teaching fully online courses, took advantage of the flexibility of online learning in supporting self-directed individualized learning paths for students. She noted that there are open-access resources available online that she included as extra reading to support student learning about course topics prior to the pandemic, but that *it was quite sparse at that stage because we were doing so much in the class, I was only uploading certain things. I wasn't overloading them.* This changed as classes shifted online. She did not need to use the full three hours of in-class teaching; instead, she increased the number of open-access resources with different perspectives on course topics and encouraged her students to explore. She said,

> *I was able to give my students examples and scenarios through Moodle and through the online delivery that I would never have got to cover within the classroom, ever. It was up to the students, as they went through, to kind of align themselves to whichever perspective suited their standpoint the best.*

Moving from ERT to Technology-Enhanced and Blended Learning

A commonly mentioned theme among participants that their ERT experience has served as a catalyst for future changes to their teaching practices and course design. The mandated shift to remote teaching forced faculty to experiment with technology and try to find solutions to their immediate problems, which in turn enhanced their awareness of the potential of learning technologies in overcoming some of the limitations of traditional teaching. Take Nora for example,

> *I believe in technology, but this experience has changed me a lot. One of the things I realized is why not use it for my office hours, why not use it for student reflections on some exams, especially after final exams because we don't have a class after that. I can use it to support students when they need it.*

In addition to participants' increased awareness of the affordances of online technologies, their increased familiarity and newfound confidence in their ability to learn and use technology as a result of their ERT experience was also a strong motivator for them to integrate technology tools and incorporate blended learning opportunities in the future. For instance, Susan described how her perception about her ability to utilize technology tools in her courses

changed, *I thought it will be difficult for me to learn, understand, and use them, but it was a great experience and I understood how challenges could be changed into opportunities.*

That being said, participants were still apprehensive about engaging in fully online teaching, arguing that blended strategies and enhanced-technology integration are more likely to overcome the challenges and limitations associated with f2f teaching. This led to the emergence of the subtheme *perceived barriers to fully online teaching*. Two main factors were discussed by participants as a justification for their preference for technology-enhanced and blended learning strategies over fully online teaching: their concern about the loss of social and emotional connections with students; and students' lack of technical and online learning skills. Helen passionately expressed her concerns saying,

> *Truly believe that for the full educational experience students need the face to face experience – with teaching staff – support staff and with each other – people are social creatures and having the discipline – structure and the social interaction helps enhance the educational experience. If there are medical – personal – or operational situations that make physical presence difficult – then technology can be used to enhance but really do not believe either for the teaching staff or for the students that technology is the answer – face to face classes are dynamic live entities – teaching staff need to be able to adapt to the requirements of the class – this is almost impossible to do 100% using technology – it is more feasible in the blended model of teaching and learning.*

Four of the five participants discussed the difficulties associated with student readiness for online learning even prior to the pandemic, which posed serious challenges during the initial shift to ERT. Susan noted *student reluctance to reach out with questions or clarifications and rather try to handle everything themselves,* and discussed the importance of students' ability to self-assess and take the initiative in reaching out for help when needed, especially in online courses:

> *I discussed with students the challenges and limitations of online learning, and that a meaningful outcome from each session is possible only when they take full responsibility of attending the class, being attentive, and reaching out when having doubts or difficulties via chat or via email.*

For Sara, these challenges were multifaceted. She explained that many students *did not have the required technical experience at the beginning, did not understand the requirements and basic concepts of remote learning,* and *thought of it as a chance to gain undeserved grades.* This did not come a surprise to her, as she has always faced *difficulties with students' inertia and resistance to online learning.* However, for her and for other participants in this study, these challenges seemed to subside as students became more familiar with online learning tools and requirements, which they described as being a strong motivator for them to build on this momentum and engage students in more blended learning opportunities in the future. Sara said,

I will be more comfortable that students are familiar and experienced in many of the things that I ask them to do or perform on Blackboard and technology platforms. This was not the case before the remote learning experience.

As mentioned, participants discussions about the future changes they are considering revolved around the integration of tools and blended strategies to address some of the challenges associated with traditional teaching such as lecture capture and virtual support that allow student access to course material and support anytime, anywhere; online assessment and blended teaching/learning strategies to help faculty manage large class sections; and improved access to online digital learning resources and material in different formats (i.e., audio/video) to support individualized learning and to accommodate student preferences for written versus audio and video material. It is interesting to note, however, that while participants were sharing their ideas for how to adjust future teaching practices to take advantage of the opportunities afforded by technology, they weren't always sure about the specifics of how to implement them. Nora said, for example,

> *I always have an issue with the number of students in my classes. Now I'm sure I can find ways in which technology can provide solutions to large class sizes. I believe technology can support me to a certain level on how to support my students in these large sections; I just need to think about it.*

Similarly, Julie shared:

> *Google Meets, I hadn't used before. I certainly haven't used it before with students in a way that I have been. I think going forward, I definitely would consider having a portion of my course online now, out of my contact hours. So, whether that's an hour a week or more than that, I need to think about it.*

Discussion

The purpose of this inquiry was to examine the impact of the ERT experience on higher education faculty, in terms of their perceptions and potential future adoption of online teaching practices. The emergent themes and their interrelationships are presented in Figure 1.

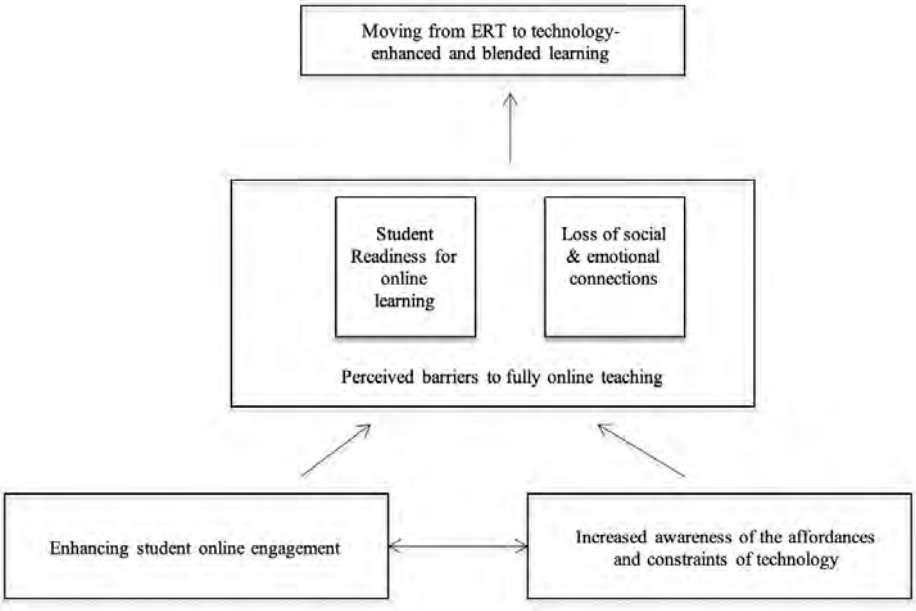

Figure 1: Themes and interrelations

Findings indicate that participants' increased experience and familiarity with online learning – even if forced – has enhanced their attitudes and understanding about the potential of online learning technologies to support student learning. All participants shared the challenges they faced as they tried to support student online engagement and accommodate the variation in their interaction preferences. These efforts, in turn, deepened their understanding of online technologies and increased their sense of confidence in their ability to utilize these tools in their teaching, both pedagogically and technically, not only in online courses, but also in their f2f teaching. However, participants' concerns about student readiness and the loss of social and emotional connections with their students in fully online courses seemed to mediate the impact of this experience on their future plans. They all shared a preference for technology-enhanced and blended strategies, rather than fully online teaching, and shared their intention to adjust their courses in ways that take advantage of the affordances of technology. These findings and their implications will be discussed in relation to the extant literature in the following section.

Key Findings

Consistent with the research conducted so far on faculty ERT experiences during the coronavirus pandemic, participants in this study reported changes to their teaching strategies, learning activities, and course material (Haslam et al., 2020; Johnson et al., 2020). These changes were mainly implemented to support student engagement and interactions with peers, instructor, and course material. Participants' explicit attention to how students learn and the ways in which learning activities and technologies can support students' active engagement is similar to the observations made by Kearns (2016), who found that instructors' actual experience teaching online can serve as the trigger needed to move toward more student-centered practices.

In this study, participants referred to their f2f teaching experience as a way to make sense of the pedagogical changes needed to support student learning, highlighting for them the differences and similarities between online and f2f teaching and increasing their awareness of the educational potential of online technologies in both online and f2f settings. As a result, participants described a number of ways in which they plan to redesign their courses and adjust their teaching practices to take advantage of these technologies (Kearns, 2016). The patterns of thinking described here, derived from participants' explicit discussion of their ERT experience and its impact, highlight the intricate relationship between changes to instructors' beliefs and practices, and the role of practical and experiential knowledge in driving instructor pedagogical and curriculum decisions and beliefs (Jääskelä et al., 2017; Scott, 2016). According to Scott (2016), "when teachers begin using elearning, they may need to elaborate or change their elearning beliefs and practices" (p. 595). Scott (2016) describes a process of change that extends beyond initial online training and course design, one that is closely intertwined with instructors' day-to-day practice, especially as they engage in self-reflection and social discourse with colleagues centered around curricular needs to find alternative solutions to challenges and unmet expectations (see also Ferrario et al., 2013; Jääskelä et al., 2017).

Study participants indicated a preference for blended learning and an intention to adjust their courses to include more technology tools in the future, rather than fully online teaching. This was due to two main reasons: concerns over the lack of social and emotional connection with and among students, and the lack of student technical and learning skills needed to succeed in fully online courses. These concerns are not unique to this sample, especially when we consider participants' limited experience with online teaching. Mejia and Phelan (2014) found that faculty with limited to no online teaching experience view blended learning as a less threating

alternative to fully online courses. Moreover, participants' concerns about student readiness for fully online learning and the impact it could have on the quality of student learning are aligned with those reported in the literature (Jääskelä et al., 2017; Marzilli et al., 2014; Rogers et al., 2018; Walters et al., 2017; Wingo et al., 2017). Participants in this study described a set of skills necessary for student success in online courses that extend beyond technical abilities, such as students' ability to effectively manage their effort and time or to seek help when they need it, skills that are consistent with the those exhibited by highly self-regulatory learners (Zimmerman, 2000). Several scholars have suggested that Self-Regulated Learning (SRL) skills, that is learners' ability to take an active role in their learning by employing specific learning strategies to achieve their goals (Zimmerman, 2000), may be particularly important for students participating in online courses (Dabbagh & Kitsantas, 2004; Rowe & Rafferty, 2013).

Practical Implications

Institutions seeking to expand their online course offerings and improve its quality should take advantage of faculty members' recent experiences with ERT and build on its momentum. With proper support built on an understanding of the incremental nature of change to instructors' beliefs and practices, and the critical role that online teaching experience plays in shaping and reshaping teaching beliefs and practices, faculty skepticism about the effectiveness of fully online learning could subside with their increased familiarity with online technology tools and confidence in their ability to support effective student learning (Ferrario et al., 2013; Foulger et al., 2019; Mejia & Phelan, 2014; Scott, 2016; Walters et al., 2017). This, however, requires an expanded repertoire of faculty support strategies and new structures that enable embedded on-the-job support and provides in-time guidance and feedback on practical day-to-day challenges (Al-Zahrani, 2015; Foulger et al., 2019; Jääskelä et al., 2017; Mohr & Shelton, 2017; Walters et al., 2017). Moving away from scalable one-size-fit-all training and workshops towards digitally-connected community spaces that allow for context-specific knowledge sharing, dialogue, and collaboration among faculty teaching online, through mentoring or faculty learning communities for instance, can enhance the visibility of contextually relevant pedagogical practices and expose instructors to alternative ideas and experiences that expand their own pedagogical thinking (Jääskelä et al., 2017, Mohr & Shelton, 2017; Pacansky-Brock, 2020; Scott, 2016; Walters et al., 2017). Further, this study highlighted the critical role that instructors' actual online teaching experience plays in shaping their beliefs and practices. These experiences can be leveraged as assets during professional development efforts through one-on-one support and guided self-reflection activities for faculty teaching online. Personalized support strategies allow faculty to form explicit connections between their experiences teaching online and f2f and improve their practices across different modalities (Kearns, 2016; Scott, 2016).

Administrators should also invest in supporting and preparing not only their faculty for online courses, but also their students. Based on the experiences described in this study, concerns over student readiness for online learning and lack of SRL skills seemed to play a strong role in participants' decisions and future plans for online and blended learning (Kebritchi, 2014; Wingo et al., 2017). Simply providing prompts or reminders of effective SRL strategies is not sufficient in promoting the positive effects that SRL has on learners' engagement in online courses. Rather, deliberate design and support for SRL must be integrated and embedded within the online learning environment. Given faculty recent experience with online teaching, enhancing faculty understanding of SRL and how it can be supported through course design and teaching practices is warranted (Dabbagh & Kitsantas, 2004; Rowe & Rafferty, 2013). Further, institution wide orientation programs for students enrolling in online programs/courses

that address student technical skills as well as their online learning and regulation skills needed to succeed in online courses can help students form realistic expectations of what effective online learning entails, and reduce faculty concerns about teaching blended and fully online courses (Liu, 2019).

Limitations and Suggestions for Further Research

The small sample size of this study could be considered a methodological limitation. However, the purpose of IPA studies is not to generate theory or provide general claims, but rather to provide an in-depth, case-by-case analysis of the perceptions and meanings generated by a small homogeneous group within their own contexts, which is why small sample sizes are commonly used in IPA research (Noon, 2018; Pietkiewicz & Smith, 2014; Smith, 2011; Smith & Osborn, 2008).

This study examined the experience of five higher education faculty who were teaching remotely during the coronavirus pandemic, and the influence this experience might have in shaping their attitudes toward online learning and their future teaching practices. Future research should examine the experiences of faculty who are involved the implementation of such changes and identify the conditions under which these planned changes are best supported and enhanced (Kearns, 2016). This should include a nuanced examination of the impact of different types of embedded on-the-job support for online teaching, such as the strategies, timing, and order of support that is most relevant and effective in supporting faculty teaching online (Mohr & Shelton, 2017).

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Teaching Future Educators During a Global Pandemic

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Abstract

While schools are the center of attention in many regards throughout the COVID-19 pandemic, programs that prepare educators have not received nearly as much attention. How has the reliance on technology, shifts in daily norms with health precautions, and other pandemic-related changes affected how colleges and universities are preparing teachers for their careers? This article walks the reader through the pandemic, from spring 2020, when the virus first shut down the US in most ways, to the winter of 2021. The authors, two educator preparation faculty members from both public and private higher education institutions in Massachusetts, reflect on their experiences navigating the challenges and enriching insights the pandemic brought to their work. Considerations for future implications for the field of teacher-preparation are delineated to think about the long-term effects this pandemic could have on higher education and K-12 education.

Keywords: COVID-19, hybrid, licensure, remote, teacher-preparation, virtual

Many overlook the impact the school closures and pandemic have on teacher-preparation programs, who rely on their PK-12 (pre-school through twelfth grade) partners to provide and prepare teacher candidates for a career in education. Teacher candidates are students on track to earn a teaching license. With the constant influx within the public schools, teacher-preparation programs must be ready to adjust and instantly change. Teacher-preparation programs are higher education programs that lead to college students graduating with a public school teaching license. This paper conveys a perspective narrative from two teacher-preparation faculty members in different higher education institutions in Massachusetts – a public institution with approximately 1,500 teacher candidates and a private institution with almost 650 teacher candidates. In combination, the institutions are preparing nearly 2,000 of Massachusetts future educators during a pandemic. This article is divided into four main sections that present a timeline of considerations: springtime crisis in full bloom; summer of planning or summer of wondering?; fall semester's trials and tribulations; and future implications.

Springtime Crisis in Full Bloom

In mid-March of 2020, the United States was thrown into a state of panic and chaos. As a result of the COVID-19 global pandemic, millions of students across the United States experienced a dramatic switch in how their education was delivered, in-school delivery to home-based learning. As the coronavirus began spreading across the United States, education changed abruptly. Schools at every level in Massachusetts, ranging from pre-school to higher education, were forced to pivot their educational plans for Spring 2020 drastically. Suddenly, all Massachusetts schools were mandated to go online for the remainder of the school year.

State and private institutions were forced to respond similarly. Living and learning on campus was not an option. Students across the state were sent home to learn remotely for the remainder of the academic year. There was a sense of solidarity in the educational community and staying at home was the safest decision. While some argue that online education quality does not match the rigor and sociability of in-person learning, others say that remote education is the only way to ensure peoples' safety. Either way, as a higher education community, both state and private institutions had to adjust to the ever-changing educational landscape. An added challenge was the lack of in-person practicums (hours logged in assistive/observational roles in classrooms), field-based experiences, and other clinical requirements critical in teacher-preparation programs. Specifically, the delivery of the rigorous Massachusetts licensure expectations of teacher-preparation programs, while learning each of the district's PK-12 distance learning models, had proven to be challenging for all the stakeholders involved. Such stakeholders include students, school districts, and college faculty.

Teacher-Preparations' Response

Teacher-preparation had no choice but to adjust and respond to the changing educational landscape. Change can invoke a response, but there were too many stakeholders to have a wait and see approach. While decisions were pondered, both students and faculty were fearful of the unknown changes that would need to occur, adding stress and anxiety to an already stressful landscape.

Student Response

Working with future teachers at the college-level online during a pandemic lacked any sense of normalcy. It was not uncommon to have students who are parents, working part-time, and juggling their roles as employees, students, and caregivers within the confines of their full

houses with everyone at home. Other students had to respond to family unemployment. Specifically, some students whose parents lost their jobs due to the pandemic were working extra hours at the local grocery store to make ends meet, while others had to take leaves to work full-time jobs to supplement families' income. To provide for their families, students were exposing themselves to the public in the hopes of having a meal on the table daily. Not only having to cope with the added responsibility of providing for their families, these students were also missing their placements and the continued development of relationships with their students.

Other students had to take on the role of teachers and guardians to younger siblings as their parents went to work. Students with parents working essential jobs had to assist their siblings with remote learning, impacting their ability to complete course work and licensure requirements. In sum, not only were they scared and worried about their health and their families' health, but students were also concerned about how the pandemic would affect their grades and track toward licensure. In combination, all the stresses were adding up, and they were simply in a state of prolonged anxiety and distress.

Faculty Response

Students were not the only group with anxiety and added stress. Having to pivot from in-person classes to online classes half-way through the semester, teacher-preparation faculty had to deal with a myriad of options and not a lot of time to figure out the best avenue. Zoom, Google Classroom, or Microsoft Teams? Synchronous or asynchronous? Between quickly learning new applications and trying to post everything on the college's learning platform, like Blackboard or Canvas, faculty soon learned that academics were not the only concern they had to handle. Students were expressing their emotional distress and needed help. The faculty needed to provide comfort and assurance in a time filled with doubt and concern while also trying to teach, care for their families, and teach their children remotely with the school closures. Everyone made it through the last few weeks of the semester, happily welcoming the warm summer months with hopes of a normal fall semester. There were still so many unknowns, but students and faculty welcomed the break.

Summer of Planning or Summer of Wondering?

The summertime brought educational professionals a chance to regain composure and plan for what laid ahead. It was clear that there was significant room for improvement regarding teaching remotely. Teachers across the US, at every level, were participating in professional development webinars and spending time meticulously improving their ability to teach as effectively as possible in an online platform. As the summer progressed, it was clear that a vaccine would not be ready, and there was discussion of another fall surge; Therefore, the efforts moving forward largely were with the mindset that schools would be remote without a vaccine in place. As businesses reopened and there was a slight increase in the normalcy in people's lives, talk of in-person schooling was on the rise. Decreased positive tests for the virus provided some with the hope that we were on the other side of the pandemic and that being inside classrooms has potential.

Summertime decreased the uniformity of educational decision-making. With the virus still present in Massachusetts, educators wondered if all schools would be remote or would schools be held in person. By mid-summer there was discussion that public elementary and secondary schools were mostly opting to try in-person and hybrid approaches in the fall to avoid a completely online avenue. This situation evoked large teacher protests and parental concerns

for child safety. Since there were so many flaws in remote teaching in the Spring, schools wanted to avoid remote education as long as they could. But at what cost?

Higher education was met with this same issue, coupled with added financial pressures. Many of the state's public institutions' decisions were to have classes remotely. Different funding sources and levels of financial pain were the leading factors in deciding if an institution could be online in the fall.

Some private institutions, afraid of closures, opted to open and provide students with a choice to go in person or fully remote. For many institutions, fully opening, including allowing students to attend and live on campus room was an expensive option, but their only choice to avoid possible bankruptcy or closure. With the decision to open, funding had to be dispersed to prioritize testing, tracing, isolation protocols, and adding campus-wide personal protective equipment (PPE), which may have come from other sources leading to layoffs, furloughs, and salary cuts.

Teacher-Preparation's Planning

A typical summer for faculty in a teacher-preparation program is filled with professional development, teaching summer classes, and pursuing scholarly endeavors through writing and research. This summer, in particular, was different. There was an enormous cloud of doubt that hung over the heads of faculty. This cloud of doubt was filled with questions and wonderings like, "What is my institution going to choose for fall? Could we pivot half-way through? Will my students get experience in actual classrooms? How will the state respond to ensure students can still take their licensing exams and log their required hours? Are my partner districts remote, hybrid, or in-person? Could that change? Do we now need to be teaching students best practices for teaching remotely as a professional expectation?" These questions made it challenging for faculty to plan and prepare thoroughly since we did not know what the fall would actually bring. A remote semester gave the promise of confidence in how the semester would run, but an in-person or hybrid model still left faculty with a sense of insecurity. What if the pandemic took a turn for the worst? Having to plan for one model yet plan for a possible pivot to completely remote caused some faculty to prepare twice as much.

Additionally, every Tuesday throughout the summer and beyond, teacher-preparation program leaders from public and private higher education institutions throughout Massachusetts would meet with the Department of Elementary and Secondary Educations to discuss fall expectations. The meetings were insightful and built a sense of community between all the Massachusetts teacher-preparation programs, but most of the time, decisions were continually changing. With no one to blame, these meetings were difficult because of all the unknowns such as the spread of the virus, no Prek-12 decisions, teacher union strikes and demands, and the situation's complete uncertainty. Planning for fall practicum (student teaching in the field, where the future teachers is able to take full teaching responsibility by the end of the experience) and field-based experiences were even more difficult with the unknowns within the PreK-12 schools.

The Massachusetts Teacher Union was in disagreement with the Massachusetts Department of Elementary and Secondary Education's decision to reopen the schools with concerns of staff and student safety (MTA, 2020). Until a compromise was made between the state and the public schools, teacher-preparation programs were in limbo and had difficulty making decisions. The only option was to plan for multiple different situations and wait for decisions

to be made in PK-12. Most decisions were unknown until mid-August, around the same time our students returned to campus.

As the college students began to return to campus with no concrete decisions on the PK-12 public schools' operational plan, the real scramble began to successfully prepare our future educators amidst the unknown and ever-changing public school landscape. As challenging as it was to plan and implement simultaneously, most higher education institutions demonstrated flexibility and adjusted as needed, leading to a fall semester like no other, simultaneously planning, implementing, and adjusting.

Fall Semester's Trials and Tribulations

The decision on what to do this fall was not taken lightly by either institution. Leaders had to take everything into account from the safety of their staff, faculty, and students through the operations and budget of personal protective equipment, ever-changing enrollment numbers, and a variety of instructional modalities to ponder. To make such extreme, college-wide changes within weeks was a daunting task. Both institutions opted for a different approach. The public institution adopted a mainly remote option (with on-campus housing options and in-person classes for lab sciences and preforming arts), while the private institution adopted an in-person, on-campus experience. The fall semester has been a time of reflection, anxiety, change, and creativity.

At the beginning, the public institution was mainly remote, with some classes occurring in a hybrid format on campus. This mostly pertained to classes that benefited from in-person instruction, like lab-sciences and performing arts. In the elementary and early childhood education department, all classes were remote, with the exception of student teaching during the second semester of senior year. Those students were participating in whatever format their school district decided, although most had at least part of their week with students in-person.

In the private institution, approximately 90% of the education classes were taught in person and on campus, with the hopes of creating a sense of normalcy in the community and keep students engaged in the curriculum. Students were able to live on campus and experienced a modified yet enjoyable college experience. Specifically, outside dining increased with food trucks, outdoor wood fire ovens, and pizzerias throughout the campus grounds, in addition to the typical college cafeteria options. Outdoor social opportunities increased with the purchase of hundreds of Adirondack chairs and fire pits placed throughout the campus grounds for relaxation and socializing. Tables with umbrellas were added in open areas to eat and work on and open-air tents and patios with heaters popped up throughout the campus. Students adopted a different, yet memorable, college experience.

Additionally, the institution was rigorous on protocols and expectations. Faculty members were expected to undergo COVID testing once a week, while many students had to have COVID testing bi-weekly. All testing was conducted on campus. Basketball courts were transformed into COVID testing clinics, and medical labs were present on campus. The campus entrances were guarded with strict entrance protocols along with phone application clearance to enter. Within the campus, strict social distancing guidelines and testing, isolation, and quarantines kept the fall semester running smoothly. In combination with alternative socialization methods and strict COVID protocols, campus residence and academics were active and well-functioning.

Although both institutions opted for different fall instruction models, both schools are large teacher-preparation institutions and had to plan a course of action to prepare a combination of around 2,000 future Massachusetts educators to be immediately impactful in the field once they graduate. Regardless of the model the leaders of the institution decided, both schools had to consider how to successfully provide teacher-preparation education, pre-practicum, and practicum experiences with minimal access to in-person experiences within the neighboring public PK-12 school districts.

Life Without a True Pre-Practicum

Traditionally, students have field experiences working with students in schools before their student teaching experience called the "pre-practicum." According to the Massachusetts Regulations for Licensure and Educator Preparation Program Approval, the pre-practicum is defined "as the field-based experiences with diverse student learners that take place during the early part of a candidate's preparation" (603 CMR 7.02). Pre-practicum includes all field-based experiences integrated into courses or seminars that address the Massachusetts Professional Standards for Teachers (PST) and the Massachusetts Subject Matter Knowledge (SMK) requirements. Although having limited access to the public schools, the expectations of a pre-practicum experience did not waiver. However, the Massachusetts Department of Elementary and Secondary Education did allow some modifications of the traditional pre-practicum experience.

For example, in a math methods course in the public institution, the students usually get an entire day at their field placement to practice teaching lessons and supporting students. This serves as the pre-practicum fieldwork hours for multiple subject-specific methods courses. During the fall semester, however, this was not feasible. Partnering school districts could not host the students due to the various needs of adjusting to the myriad of safety protocols. Students expressed, throughout the semester, that they were yearning for opportunities to work with students. Rather than teaching lessons to a classroom full of students, they taught their lessons to peers over Zoom. By also utilizing online tools like *Mursion*, for simulated teaching experience with partial-artificial intelligence avatar students, some behavior management skills were able to develop in these student teachers. In sum, the students whose experiences are typically greatly reliant on fieldwork was a struggle to facilitate, but they did the best they could with what they were given.

Video-recordings of classroom teaching were also a valuable resource, due to the lack of time spent in actual classrooms. Grissom (2020) advocates for using a variety of teaching videos with structured forms for future teachers to fill out when observing such content. Such observational guides promote high-quality reflective practice, which is an evaluation element in the state of Massachusetts. An emphasis on reflective observation has promise as serving as highly conducive addition to an experiential learning plan (Grissom, 2020). Such an approach aligns with what was happening in the math methods course at the public institution, as students had structured observation protocols and discussion prompt questions. Reflective discussions after videos occurred between students and also between the instructor and the students. Grissom (2020) affirms that such a mixture is recommended.

The same was true in the private institution. Two out of the three typical in person pre-practicum experiences were not feasible, and access was limited in the surrounding school districts with fear that college students may be spreaders of COVID in their communities. Instead, over 15 hours of observational videos were compiled for students to watch and reflect on the teaching they saw while adhering to strict guidelines of the Massachusetts Department

of Elementary and Secondary Education. The third pre-practicum was an experience at the school the students were planning on completing their practicum at. Students were expected to attend if the school day was in person or hybrid. The districts had less of a problem with attendance in the third practicum because the teacher candidates would be part of their school for the entire year.

Both institutions were able to pivot and re-create pre-practicum opportunities for students to learn with limited public school access. What did the practicum experience look like during the global pandemic?

Practicum: Areas Emphasized and Areas Lacking

After teacher candidates complete their pre-practicum requirement, traditionally, students will be placed in practicum. A practicum usually takes place during the second semester of senior year, right before graduation. According to the Massachusetts Regulations for Licensure and Educator Preparation Program Approval (2020) a practicum is "a field-based experience within an approved program in the role and at the level of the license sought, during which a candidate's performance is supervised jointly by the sponsoring organization and the supervising practitioner and evaluated in a Performance Assessment for Initial License" (603 CMR 7.04). With all of the changes, how will the pandemic impact the practicum experience of the student teachers?

After supervising student teachers in the public institution, it was evident that the student teachers and cooperating teachers (classroom teachers hosting student teachers) felt that the practicum experience emphasized specific skills to the extreme, while other experiences were lacking. For example, the need to establish clear classroom routines was more heavily stressed than ever before, not just for the sake of routine and having a productive learning environment, but for health and safety. There were concerns that elementary students lack the deep relationship-building that comes with spending five days per week with their teacher. If a kindergarten teacher who has been implementing a hybrid model only saw half her class at a time, for half the day, they may feel as though they have half as strong a relationship with students in the first few months as they would have had in a typical school year. They may lack a thorough understanding of the students' strengths, weaknesses, and learning styles and worry that the student teacher is missing out on the ability to practice observing these skills as routinely as they should occur.

Trust and Whalen (2020) conducted a study in which they surveyed educators to gain insight regarding their experiences in teaching during the Spring of 2020. It was clear, based on survey results, that most classroom teachers (kindergarten through twelfth grade) were learning how to teach using technology and in online capacities for the first time. They refer to this as "building the plane while flying it" (p. 193). After a summer of preparation and training in technology, teachers were better equipped for remote and hybrid teaching in the fall. Trust and Whalen (2020) advocate for preparation programs to use this as an opportunity to better equip future teachers with technological skills and networking. In all, the longer that educator preparation programs are training teachers to be responsive to the pandemic, the more conducive their practicum experience will be. Such training should include opportunities for student teachers to become familiar with video-conferencing platform features to be more fluid in their teaching so as to be more focused on the content being taught, rather than stumbling through technological logistics (Maher, 2020).

With the fall 2020 semester done and plans for spring 2021 commence, discussions regarding fall 2021 are already beginning. Will we be remote? Will there be a vaccine distributed to everyone? The questions continue to accumulate, yet answers are yet to be found as only time will tell.

Where We Go from Here?

While this global pandemic has meant a time of prolonged, heightened anxiety for people of all ages, there have been some silver-linings to the experience for teacher-preparation programs. These include increased respect for the teaching profession, increased flexibility for student teaching supervision assignments, more productive days for scheduling meetings, and more streamlined technology incorporations.

In March of 2020, the teaching profession came into the spotlight as one of immense respect and admiration. Suddenly, teachers were regarded by the public as heroes, and yard signs marking teachers' homes were symbols of pride and adoration. Teachers were the equivalent of health-care workers for their ongoing hard work and flexibility. As parents began to support their children's education at home when learning remotely, it became increasingly clear that what teachers do every day is not easy. This pandemic has reignited a pride in teacher candidates' career paths.

Teacher-preparation programs are just one example of a field working primarily remotely since the pandemic began. The public institution has been mostly remote since March 2020. While supervising student teachers typically means having to physically go into schools to observe teacher candidates numerous times throughout the semester, the observations still occur, but via video. Student teachers can video-record their observations and upload them to a secure server for the program supervisor to evaluate and provide feedback. There are some evident benefits to this model. The first is that the program supervisor can be assigned student teachers in numerous locations since the travel-time is not a factor. Also, since the lessons are recorded, the program supervisor does not distract students in the classroom when coming in to observe. Another benefit of video-recording the lessons is that the program supervisor is able to pause the video and take notes and then resume when ready. This allows for a more thorough write-up to supply the state documentation system when recommending the student teacher's endorsement toward licensure.

It is no surprise that days feel more productive in a remote setting in some ways. Rather than having to walk across campus to various meetings, it's easier to have meetings back-to-back. This makes faculty more available to meet with more students as needed to provide them with more one-on-one support. Some faculty have shared that more students show up during remote office hours than when office hours were held in-person. This is attributed to students not having to travel to the office for a meeting, and if it's just for a quick check-in or question, they feel it is easier to meet in this capacity. Having meetings online also provides more opportunities to attend workshops/webinars/conferences to continue professional development.

By teaching online, faculty have increased their comfort and fluidity with video-conferencing platforms, learning management systems, and other online resources. Some of the approaches that are tried in the remote classroom will carry over to in-person learning in later semesters. For example, using more document-sharing for in-class activities, rather than writing on chart paper in small groups allows students to refer back to in-class activities and review other groups' work more routinely at their ease after class.

The private school experience was similar. Faculty members learned how to conduct paperless lectures and create classroom experiences using various free virtual resources and applications. Students are more available and willing to meet independently. Rather than trying to align schedules for in person meetings, students would show up to remote office hours and seemed more engaged and open to extra support sessions. Rather than having to walk across campus for extra support offerings and office hours, they would show up virtually. Office hours of the future, most likely, will continue with a virtual component. Additionally, faculty and staff meetings are often more targeted and direct when conducted remotely than in person. The agenda is followed, decisions are made, and action items are identified.

Another positive impact of the pandemic on teacher-preparation students are the opportunities that students are presented immediately following graduation. Districts need technologically savvy educators. Students have proved to school districts that they have the required technical skills to lead a remote classroom, making teacher-preparation students very desirable candidates for immediate employment. Schools across the state have been reaching out to hire recent graduates or soon to graduate students, even willing to hire emergency licensure candidates who may not have passed the Massachusetts Test for Educator Licensure. Many seniors already have employment opportunities for next year and have committed to schools months before graduation.

Future Implications

The future of teacher-preparation will most likely look different because, as a result of the pandemic, the future of K-12 will most likely be forever altered. Teacher-preparation will be tasked at looking beyond the textbook and beyond the schoolhouse while collecting and learning the innovations that have emerged from remote learning. Teachers are implementing various instructional styles to accommodate and differentiate instruction for all learners while using a multitude of technological resources, breaking out students into working groups through multiple platforms, co-teaching with service providers, and integrating more technology into their everyday teaching. Teacher-preparation programs will be forced to keep up with the innovations and rethink the current course of study by including more innovative practices.

The global pandemic of 2020-2021 has proved that many practices are outdated, and we are experiencing educational history and innovation. The routines and expectations at colleges and universities with educator preparation programs may shift with an emphasis on practicality and convenience. This section now explores possible changes that warrant serious consideration for the future of educator preparation in a post-pandemic world.

Recommendations

After the pandemic ends, classes at the PreK-12 level and higher education would not necessarily have to be canceled due to inclement weather or building malfunctions since online teaching is an established norm (Markos, 2020). This would, as a result, allow for learning to continue in scenarios that previously shut down schools. In addition, without work all obligations being contingent upon being in-person, meetings for faculty at the PreK-12 level and higher education may occur on video-conferencing platforms more frequently, thus being more convenient for those professionals (Fogarty et al., 2020). In addition, meetings with students (in higher education for office hours) and parents (in PreK-12) may occur on video-conferencing platforms more frequently to better accommodate schedules and geographic

availability (Exstrom, 2020). With both students and parents having vast experience with video-conferencing platforms, the ease with which they can connect with educators increases the convenience of such meetings. While remote and hybrid instruction may not continue to be used as frequently in the future, educators may see value in the new instructional approaches they have tried and continue them where they see the more benefit in post-pandemic times. In addition, course content will need to include remote learning strategies to teach children with and without disabilities. This pandemic proved that remote learning would most likely continue for many populations post-COVID (Superville, 2020). Greater emphasis on accommodating in multiple modalities will need to be considered. A final recommendation is for teacher-preparation programs. Practicum supervision for program supervisors may continue being done via video-recorded lessons, rather than the program supervisor visiting the school in-person. This is more convenient for the program supervisor and allows for better feedback due to the ability to pause and take notes. IT also avoids the program supervisor serving as a distraction for students during the observed lesson, making for a more authentic lesson experience for everyone. This is just one way the higher education is facing some long-term changes post-pandemic (Llopis, 2020).

While this pandemic had posed countless challenges and required a level of flexibility and courage that many education professionals have never had to put forth, the experience has made the field of education stronger and has shed light on its resilience. Educator preparation programs are sometimes a forgotten entity to the education community when thinking about how teachers respond to the pandemic. In reality, these programs are the backbone of the profession. Without them, where would schools get their high-quality educators? Educator preparation programs have pivoted in response to the pandemic and while the experiences of future teachers in these programs may have been lack-luster in comparison to what their experiences would have been prior to the pandemic, it is awe-inspiring what these programs have been able to supply when considering the restrictions in place. Moving forward, with an admiration for the accomplishments achieved in these trying times, it's necessary to think about how the challenges have improved what these programs do. The new learning and skills required for faculty and students was not time-sensitive. Being more agile with technology is not just a pandemic-specific skill. It's integral that the field of education does not revert back to past-practice after the pandemic ends. Rather, the field of education needs to think critically about how the experience can make it better for educators and students alike.

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An Educator's Response to COVID-19: Preservice Teachers' Perspectives on Flipped Distance Education

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Abstract

With the COVID-19 pandemic, students and instructors had to carry out lessons with distance education practices, and this sudden change made it a necessity to reorganize educational processes under the conditions of the pandemic. This study sought to make an undergraduate course more effective by designing the distance education course based on the flipped learning model. In this qualitative study, a phenomenological approach was used, and 53 preservice elementary school teachers' views on the flipped distance education course were investigated. Exploration of student errors during in-class activities, encouragement of active student participation, and compatibility to individual student differences was listed as positive aspects of the flipped distance education. On the other hand, the difficulties pre-service elementary school teachers encountered in obtaining information, their concerns about attending the class or discussing the homework in front of their peers, and the issues experienced during in-class communication were identified as the negative features of this approach. Moreover, the preservice elementary school teachers needed easily accessible information resources about the course content, a stable internet connection, appropriate technological equipment, and extension of the course time to effectively perform in the flipped distance education course. As a result, the flipped teaching model emerged as an effective approach to increase the efficiency of distance education courses, especially during the COVID-19 crisis.

Keywords: COVID-19, distance education, flipped education, preservice elementary school teachers

Introduction

The global COVID-19 pandemic in 2020 triggered sudden and unexpected crises in many areas such as health, economy, and education, and the decisions that had to be taken to limit the spread of the virus and reduce its negative effects have affected the habitual way of life globally. Countries have had to suspend face-to-face education to reduce the spread of the COVID-19 virus and have tried to provide distance education opportunities to ensure continuity in education (Can, 2020). Before the COVID-19 pandemic in many countries, distance education was usually offered at the level of associate, bachelors, and master's programs (Akdemir, 2011); with the pandemic, efforts have been made to make the education system conditions work effectively by using technological equipment on a global scale and providing distance education opportunities for all age levels. This sudden transition towards distance education forced instructors to prepare and offer distance education courses and led them to seek effective distance learning opportunities. With this study, an undergraduate course that was given face to face before COVID -19 was adapted to distance education with a flipped teaching model, and the opinions of preservice elementary school teachers (PSETs) about this course were examined.

Literature Review

Studies on distance education reveal that students prefer to use written materials rather than distance education course videos (Can, 2020). In this context, the oral presentation of information directly by the instructor in distance education courses loses its efficiency, and the necessity of creating an approach that puts the student in the center arises. Current educational principles advocate knowledge creation with the cooperation of teachers and students (Singh, 2014) and recommend increasing students' motivation and performance towards the lesson by using developing educational technologies and supporting their beliefs about autonomy (Smit et al., 2014). Traditional education approaches are limited in meeting the individual needs of students (Özbay & Sarıca, 2019) and trigger a desire for change in distance education courses (Ferreri & O'Connor, 2013). As emphasized by Bishop and Verleger (2013) an educational system where students can access the content individually and adjust their own study time and speed has become more desirable. Considering these developments in education, it is not surprising that the use of the flipped learning model, which supports active learning and helps to create extra time for in-class activities (Haak et al., 2011) and gives students more control over their own learning processes in outdoor activities (Kim et al., 2014), has increased in undergraduate programs (Hao, 2016).

The flipped learning model can simply be defined as the replacement of information provided to students at home and at school (Lage et al., 2000). In other words, the flipped learning approach was designed on the principle of students' reaching the subject-related concepts through extracurricular activities and applying homework or projects that include student-centered practices in the classroom, rather than learning the concepts of the course through classroom presentations and doing their homework at home (Torun & Dargut, 2015). With the flipped learning model, the acquisition of knowledge is mostly transformed from a group action into an individual action, while the process of applying knowledge to student-centered activities turns into a group action (Hayırsever & Orhan, 2018). In this approach, the role of the teacher is not to be a direct source of information, but to guide and support the students in organizing their own learning processes (Lopes & Soares, 2018). In the courses where the flipped teaching approach is applied, while the basic level information is obtained outside of the classroom by the students with online video presentations, in-class applications that make

the student active and require high-level mental skills are used during the course (Kim et al., 2014). Thus, with the application of the flipped teaching approach, actions that require relatively low cognitive skills such as listening, understanding, giving examples are transferred outside the classroom, and time is created for the teacher-guided implementation of classroom activities that require high-level skills such as applying, analyzing and evaluating (Hayırsever & Orhan, 2018).

Numerous studies in the literature explain the positive effects of the flipped learning model on students and the educational process (Köse & Yüzüak, 2020; Özbay & Sarıca, 2019). The literature on flipped learning reveals that the flipped teaching model increases the participation (Kaya, 2018) and positive attitudes of students towards courses (Tekin, 2018), creates an active learning environment (Pierce & Fox, 2012), and it affects the educational process positively by supporting student permanence (Turan & Göktaş, 2015). In addition, the flipped learning model positively affects student achievement (Güç, 2017; Kalafat, 2019; Kırmızıoğlu, 2018), anxiety (Özdemir, 2016) and motivation (Abeysekera & Dawson, 2015) and develops problem-solving skills (Kim et al., 2014). O'Flaherty and Phillips (2015) stated that the flipped learning model offers students the opportunity to learn at their own pace, access educational materials whenever they want, and use lesson time for more efficient activities. With flipped learning, students gained more control over their own learning processes and achieved an individualized learning experience. Also, the flipped learning model can support students' communication skills by encouraging collaborative learning with metacognitive activities carried out in the classroom (Millard, 2012).

Some negative situations also arise during educational practices with the flipped teaching model. The acquisition of information about the courses outside the classroom and the management of this process is mostly under the control of the students, making it difficult to understand to what extent the desired information is acquired or how the desired homework is done (Aydın & Demirer, 2015). In fact, not fully understood content and not fully prepared homework can reduce the efficiency of planned metacognitive activities in the course. Accessing the information provided for out-of-class activities requires an internet connection and electronic equipment such as computers and tablets, and students' inability to have that equipment can negatively affect the efficiency and flow of the course (Hayırsever & Orhan, 2018). Lastly, in order for the flipped teaching system to be implemented effectively, instructors need to prepare materials suitable for this teaching approach; this process takes a lot of time and effort (Milman, 2012).

The flipped teaching model can easily be associated with distance education applications, as it delegates some of the responsibility for acquiring knowledge to the student and carries the teaching out of the classroom. In general, distance education is defined as a process in which instructors and students are physically in different environments (Akdemir, 2011). This approach, which aims to eliminate the time and space limitations between the teacher and the learner, uses technology effectively according to the requirements of education (Bozkurt, 2017) and offers flexible education opportunities for individuals of all ages (Ağaoğlu et al., 2002). In other words, distance education is an educational approach in which space and time limitations are minimized, educational materials are easily prepared using equipment such as computers, tablets, and phones, and the instructor and learner can access the desired information at any time by using internet access (Yamamoto & Altun, 2020). Distance education practices, like many educational approaches, have positive and negative effects on educational processes. The positive aspects of distance education applications can be listed as the sharing of information globally without time limitation, rapid evaluations and feedback on student projects, and

providing access to courses for a large number of students at the same time, while potential communication problems between teachers and students, problems students with limited individual working skills experience, and high infrastructure costs that can be listed as negative features (Dinçer, 2016).

Method

Research Design

This qualitative study used phenomenological approach, which aims to investigate the opinions of PSETs regarding the flipped distance education course. According to Yıldırım and Şimsek (2016), the phenomenological approach is based on investigating the events experienced by people in-depth with different perspectives. In this context, the positive and negative experiences of pre-service teachers and the requirements to participate in the flipped distance education course were examined.

Study Group

The convenience sampling method, one of the purposeful sampling types, was used to create the study group (Yıldırım & Şimşek, 2016). Participants of the study were selected among the PSETs who enrolled in a flipped distance education course at the undergraduate level offered in a teacher training institution in Turkey. Although the PSETs enrolled in this course to complete the program they registered for, participation in the study was voluntary. It was carefully explained to the PSETs that their participation in the study would not affect their grades in the course in any way and 53 of 67 PSETs who enrolled in the course volunteered to participate in the study. The information about the PSETs who participated in the study was only seen by the researcher, and all names in the study were presented as pseudonyms.

Flipped Distance Education Course

Within the scope of this study, the Mathematics Teaching-I course in the undergraduate classroom teaching program was adapted based on the principles of a flipped teaching model to conduct distance education courses more effectively. The relationship of this flipped distance education course with traditional distance education and flipped education models are presented in Table 1.

Table 1: The relationship between the adapted flipped course model and traditional approaches

Traditional lesson model			
Teacher / Student [In Class]			Student [Out of Class]
Presentation of information by the teacher	Listening to information by the student	Conducting educational activities around information	Reinforcing knowledge through homework
Flipped lesson model			
Student [Out of Class]		Teacher / Student [In Class]	
Research about the content knowledge	Comprehension of the desired information	Conducting educational activities about the information	Reinforcing knowledge through activities

<table>
<tr><th colspan="5">Flipped distance education course model (Weeks 1-7)</th></tr>
<tr><td colspan="2">Teacher / Student [In Class]</td><td colspan="2">Student [Out of Class]</td><td>Teacher / Student [In Class]</td></tr>
<tr><td>Presentation of basic content knowledge</td><td>Examining and discussing the homework</td><td>Research about the content knowledge</td><td>Homework preparation</td><td>Reinforcing knowledge through student homework</td></tr>
<tr><th colspan="5">Flipped distance education course model (Weeks 9-14)</th></tr>
<tr><td colspan="2">Student [Out of Class]</td><td colspan="3">Teacher / Student [In Class]</td></tr>
<tr><td colspan="2">Research about the content knowledge</td><td>Preparation of mathematics lesson plans</td><td colspan="2">Reinforcing the knowledge through the lesson plans prepared by the students</td></tr>
</table>

Data Gathering and Analysis

The risk of contamination of the COVID-19 virus was considered while conducting the study; the entire data collection process was carried out using Google Forms to avoid posing a transmission risk. An online questionnaire was created, and volunteer participants were asked to answer open-ended questions in the online questionnaire form. The questionnaire form consisted of six open-ended questions such as 'What are the problems you encountered during the flipped distance education course?', 'Can you explain with examples what you need during the flipped distance education course?' Participant consent forms were also sent to volunteers online, and only the data of the participants who completed the consent form in the study were included.

The phenomenological approach was used to investigate the experiences of PSETs for the flipped distance education course, and the opinions expressed by the PSETs were analyzed using the content analysis method. In the first stage, 15% of the obtained data was examined, the main and sub-themes were determined, and the codebook was created by associating the themes. Afterward, all of the data was analyzed in accordance with this content analysis codebook. During the analysis of the data, the qualitative analysis principles suggested by Lincoln and Guba (1985) were followed. The themes in the booklet have been reviewed and the necessary changes have been made. For this purpose, new codes or themes that emerged during data analysis were included in the codebook; the codes and themes that were initially added but lost their meaning during data analysis were removed from the codebook (Lincoln & Guba, 1985). For instance, some themes regarding the differences between regular distance education and flipped distance education were extracted from the codebook, since these themes were very similar with positive effects of flipped distance education.

Findings

This study aims to examine the opinions of the PSETs about a flipped distance education course. When the answers of the participants were examined, being able to correct student mistakes in the lesson, ensuring active student participation, and supporting individual differences were among the positive features of the flipped education. Difficulties encountered in learning information individually, concerns about in-class performance or homework, and problems of in-class communication draw attention as the negative features of this educational approach. The PSETs also stated that they need easily accessible information and resources, reliable internet infrastructure, technological equipment, and extension of the course time in order to perform effective flipped distance education. The themes that emerged within the scope of the study are summarized in Table 2.

Table 2: PSETs' opinions about the flipped distance education course

Theme	Sub-theme	PSETs
Positive Effects	Exploring student mistakes within the course	Rana, Hüma, Tarkan
	Active student participation	Meltem, Nesrin,
	Promoting individual differences	Salih, Hüma, Efe
Negative Effects	Difficulties in learning information individually	Alpay, Tarkan, Asiye
	Concerns about in-class performance or homework	Umut, Canan, Özkan
	Problems encountered in in-class communication	Melisa, Kemal, Suna
Requirements	Information and resource needs	Özcan, Nesrin, Kadir
	Internet infrastructure and technological equipment	Fatma, Özcan, Sema
	Extension of the course time	Umut, Sercan, Selin

Positive Effects

The PSETs often expressed their positive opinions about the flipped distance education course. They stated that the subject was understood more effectively because they had the opportunity to talk about student errors in flipped distance education courses, the information learned was long-lasting because they were active during assignments or in-class discussions, and the ability to freely access lecture video presentations supports the individual learning differences. In the following quotation, Rana states that feedback on students' mistakes is one of the advantages of a flipped distance education course.

> *The theoretical part of the course is learned by the student outside the school, so students have the opportunity to practice in the lesson. Since the implementation part is carried out in the classroom, the teacher can help them in the areas that he sees wrong, need to be corrected, and the students have difficulty.*

Similarly, Hüma noted that the examination of the homework they produced by the PSETs in the flipped teaching lesson helped them realize their mistakes.

> *The fact that we are active in the lessons through the web has positively affected us by enabling us to talk about our questions. Since not only teachers but also students examine and discuss the homework, we can see our shortcomings and recognize and correct the problems.*

In another example, Tarkan explains the positive effect of teaching the lesson through the plans the students created in the following quote:

> *Particularly in the application part, attending the lesson with the application made by the student and explaining the mistakes made in the applications makes it easier to understand.*

PSETs were stated that the increase in student participation was another positive effect of the flipped distance education courses on education. In the following example, Meltem explains how focusing on the homework prepared by students in in-class practices affects their attitude towards the lesson with the following sentences:

> *I definitely focus more on the math lesson than the other lessons. Since I know that I have homework and duty at the end. I listen carefully to the teacher and*

> *try not to miss what is being told. While doing my homework, I sort of repeat the lessons we taught that week, so the topics are well understood for me.*

In another example, Nesrin expresses how her preparation for flipped distance education courses affected her with the following sentences:

> *Considering that a lesson is 40 minutes, the information we can learn is limited. However, in flipped education, we learn the subject because we examine and investigate extensively; and we learn the important parts of the subject during the lesson. I think the information is more permanent because we have an active learning time.*

In the next example, Fatih describes the role of the prospective teachers in the flipped distance education courses with the following quote:

> *In this learning method, the student is active. Thus, it makes learning more permanent. It offers students the opportunity to practice. Students who learn the subject beforehand reinforce the subject by practicing. Thus, the subject is learned both theoretically and practically.*

Participants also stated that they have more control over the learning process with the flipped educational practices and being able to manage this process to their individual differences is an advantage. In the following quotation, Salih explains how being able to reach presentations on the subject whenever they need helps students who have individual differences:

> *Students try to learn the same subjects in the same period of time in other classroom methods. While some students can get information faster, some students may need more time. In this case, problems arise due to individual speed. But in the flipped education, students can stop, rewind, and re-watch the videos prepared on the topic at any time. By planning the subject according to his/her learning time, the student learns more easily.*

Hüma explains the advantages of recording lecture presentations and being able to watch them at any time, with the following sentences:

> *Course topics in flipped learning are pre-recorded and presented to us digitally. Thus, we can study and learn subjects at our own pace with our learning style. In a system with such flexibility, knowledge becomes more permanent because we learn more with our efforts.*

Efe also explained how students' individual differences were supported through flipped distance education with the following sentences:

> *In the flipped teaching method, individual differences are more prominent. Some students may not understand the subject when the teacher tells in traditional narration, but since the subject described in the flipped teaching method has been recorded before, students can watch the video again where they do not understand. It is also easy in terms of being portable. It is always at hand. Students can reach the lessons 24/7.*

Negative Effects

Students and educators described various problems in the flipped distance education course, as in many courses given by distance education. The difficulties they encountered while searching and finding the information in the course by themselves, the anxiety caused by showing the prepared homework to the whole class, and the in-class communication problems identified as negative situations that emerged in the flipped distance education courses. For example, Alpay points out his concerns about delegating the responsibility of the learning process in the following quote:

> *I think that leaving the students alone while learning the subject and asking them to understand will decrease the efficiency of learning. It can be difficult for students to learn the lesson on their own and to participate in classwork as they learn. Since the student is responsible for the learning activities, the complete learning of the lesson may not take place.*

Similarly, Tarkan states that he has difficulty understanding which concepts are important in the following sentences:

> *It is a really difficult process to research and to learn a new subject. Understanding takes time as well as effort. Although the practices in the course are very useful for learning, it seems that something is still missing when we cannot predict the essential parts that need to be learned.*

Asiye, on the other hand, expresses the problems students may experience while accessing the necessary information with the following quote:

> *The students coming to the class without watching the lecture videos may not enough to comprehend the subject even if they participate in the in-class activities. Since students cannot ask for something they do not understand while watching the lecture videos outside the classroom, there is a possibility of misinformation.*

Participants reported that they experienced anxiety while taking an active role in the course and expressing their ideas or sharing their homework with their peers. In the following example, Umut explained how this anxiety affected his in-class performance as follows:

> *At first, I was very nervous while attending the class. The thought that it would be my turn soon, I would not be able to explain and be disgraced, was reducing the efficiency of the lesson. But when I attended the class several times, I got rid of this panic situation.*

Canan expressed her concern that her homework could be seen by her peers in the following quote:

> *Since it was not a method we often encounter, it was different at first; I worried about whether I did it wrong or whether they were making fun of it because all our friends could see the homework we did.*

Similarly, Özkan expressed the pressure on which the presentation process of the assignments was created on him:

> *During the lesson, as the homework is presented, I wonder if I did it wrong, what kind of feedback will I get if I did it wrong, and I wait in stress and anxiety.*

Since the students and the instructor are more active in the flipped education lessons, problems related to in-class communication have emerged. For example, Melisa explained how her being able to attend the course only via message due to technological impossibilities affects her views towards the course in the following quote:

> *We are not on equal terms. The system is working over the internet, which is also a problem in terms of connection. I can't feel like I'm attending class. We have communication problems because we write our questions.*

Similarly, Kemal exemplifies that problems with internet connection affect in-class communication and reduce the efficiency of the course with the following sentences:

> *There may be technical difficulties due to distance education. Students may not be able to immediately ask the subjects they are stuck with. Since not everyone can connect with the same internet speed and does not have the same infrastructure, the quality of the course can be reduced.*

Suna, on the other hand, expresses her views on the necessity of the teacher to effectively manage in-class communication as follows:

> *The teacher needs to be a good guide in the classroom. The teacher should be involved in classroom activities and make short explanations where necessary. Since the students do not know exactly what is right and what is wrong, the teacher must have a leading position in the classroom.*

Requirements

When the requirements of the flipped distance education courses were examined, three main themes have emerged. Participants stated that they needed resources suitable for flipped education, technological equipment, and a stable internet connection to prepare the assignments effectively and present them in the classroom. Also, it was emphasized that the duration of the lessons should be extended in order to examine more homework. For example, Özcan stated that he would like to constantly access resources and training:

> *I need the information to be accessed at any time. For example, I would like to be able to access the resources offered to us by the teacher in time so that we can repeat at home what we have learned in the distance education courses prepared with the flipped teaching method.*

Nesrin expressed the information pollution in the sources on the internet and the need for a reliable textbook with the following sentences:

> *A reliable resource is definitely what I need most for effective teaching in the flipped teaching method. There is a lot of information and articles on the internet. Opinions and articles on the subject are given differently on each website. But if we had a sourcebook, the information will more accurate and reliable.*

Similarly, Kadir explained his need for a source containing examples related to the subject to reinforce the theoretical issues presented during the course with the following quote:

> *I need plenty of examples. The examples given during or after the lesson are an effective way for me to reinforce the subject. Sometimes I wonder whether I understood the thing correctly. A good example helps me answer the questions in my mind.*

Participants frequently emphasized that they needed not only online resources but also technological equipment to be able to listen and participate orally in theoretical lectures and to prepare their homework within the scope of flipped learning. For example, Fatma explains the negative effects of an unstable internet connection on student motivation with the following sentences:

> *Good internet infrastructure is required. Internet is required to participate in live classes, to get and understand the information before the lesson. Students who do not have an internet connection or have an unstable low-speed connection may have difficulties participating in class. Students who have such problems may not be able to focus on the lesson because they are worried about connection.*

In the following quotation, Özcan explains how a lack of technological equipment can negatively affect student attendance:

> *Due to technical problems (speakers, internet infrastructure, etc.), students may not be able to transfer the content of the homework they have. For example, we could not turn on the speaker in our homework on the theory of multiple intelligences, and I prepared it according to the form I would verbally present. When I could not speak up, I could not fully convey what I wanted to tell in the homework.*

Similarly, Sema expresses the negative effects of disruptions caused by technological equipment and internet connection on the education process with the following quote:

> *Since teachers and students should be active in flipped teaching, the connection problems we experience on the internet sometimes affect the flow. For example, after the teacher explains the subject, the students study it, repeat it and prepare a presentation. The presentation of the students must also be carried out during the lesson time. When there is a connection problem, we cannot participate. While the students try to join, the teacher tries to solve the problem.*

Participants often stated that the lesson duration was insufficient in terms of the activities to be done. For example, Umut expressed his views regarding not being able to allocate sufficient time for theoretical knowledge in the following quote:

> *During the lesson, we sometimes cannot understand the subject because we process the subject very quickly. Sometimes we find it difficult to do homework because we don't understand. Increasing the number or duration of the lessons may be a solution for better understanding.*

Selin, on the other hand, stated her opinions about not being able to provide feedback to all students in the following quote:

> *There is a need for fewer student numbers in the classroom [67 students were enrolled]. Thus, all students' work can be examined, and their mistakes can be said one by one. In the crowded classroom, the teacher cannot give feedback on all students' homework. This may upset the student whose homework is not examined.*

Similarly, Sercan explained his views on not being able to devote enough time to the examination of homework with the following sentences:

> *It is good for me to first explain the subject on the digital platform and then reinforce the subject with homework and examine the deficiencies in the next lesson, but sometimes we cannot discuss every single homework due to the insufficient amount of time and a large number of students.*

Discussion

Many undergraduate programs began distance education in 2020 to minimize the spread of the COVID-19 pandemic and to protect the health of students and teachers. In this study, an undergraduate level distance education course was rearranged according to the flipped learning method, and the opinions of the PSETs regarding the course were examined.

Hayırsever and Orhan (2018) described one of the requirements for the implementation of the flipped teaching model as the creation of educational culture and stated that with this method, students' active participation is provided by allocating more time to activities in the classroom due to the acquisition of some of the information outside the classroom. In our study, participants stated that the flipped distance education course facilitated active participation in the lesson. Similarly, Karadeniz (2015) emphasized the importance of reflecting knowledge during flipped learning practices and stated that providing opportunities for transferring the information intended to be taught using in-class activities is a necessity for effective teaching. Active student participation increased with in-class applications with high-level activities implemented with the flipped teaching model, and students were allowed to reflect on the knowledge they obtained outside the classroom. Also, educational activities should be organized in a way to correct improper learning that may occur during research, homework, and projects that students have done outside of the classroom with the flipped teaching model (Torun & Dargut, 2015). The teacher candidates stated that examining their homework during the lessons provides an opportunity to notice their mistakes. Finally, teacher candidates defined it as a positive feature that they could access information whenever they wanted with the flipped teaching model, so they could organize the learning process in a way and frequency that they preferred and stated that this approach supports students' individual study preferences (O'Flaherty & Phillips, 2015).

Aydın and Demirer (2015) noted that the acquisition of basic information about the course by students outside the classroom may weaken the instructor's control over the educational process and can reduce the efficiency in education. Similarly, the pre-service teachers who participated in our study stated that they had difficulties while obtaining information about the subject or trying to find a reliable and purposeful source of information. They defined one of the negative aspects of the flipped learning model as the obligation of accessing information.

Also, the necessity of electronic equipment such as computers and tablets for researching information in the course, preparing homework, or listening to the lesson within the scope of distance education, may decrease the efficiency of the course (Hayırsever & Orhan, 2018). It was observed that some of the PSETs' attitudes towards this lesson were negatively affected since they did not have a microphone or a stable internet connection. Also, participants emphasized that not being able to use electronic equipment or software properly or unstable internet connections during the lesson negatively affected classroom communication and reduced the effectiveness of the course. Lage et al. (2000) stated that approaches that affect conventional educational process dynamics, such as flipped teaching, can cause anxiety in students. Similarly, PSETs participating in our study stated that they were anxious while actively participating in the lesson or sharing their homework with their peers in this unfamiliar system that emerged with flipped teaching.

One of the effective ways to minimize the negativities about flipped distance education will be to determine the requirements for the course in advance and to take measures. Karadeniz (2015) emphasized that not all students will have the same opportunities while preparing the flipped distance education courses and stated that in-class and especially out-of-class activities should be organized carefully. Many PSETs who participated in the study stated that they needed appropriate and reliable resources to complete their assignments. In this context, while applying the flipped education model, educators should take into account that the information in external sources cannot always be accurate and suitable for the purpose, and they should prepare materials proper for the flipped teaching for the essential information that students need to acquire and the projects and assignments they need to prepare (Milman, 2012). Also, some of the PSETs stated that they could not attend the course because they did not have microphones, and some had problems during the lesson because of the lack of stable internet connections. To minimize these problems, it should be taken into consideration that students may not have the technological equipment and software required by the flipped distance education courses. Thus, in-class and extracurricular activities should be organized flexibly by considering these negativities. Finally, PSETs stated that the number of students enrolled in the course was high, and the duration of the lessons should be extended. Since the in-class teaching methods applied in flipped classrooms focus on metacognitive skills and can take considerable time, the class population should also be carefully determined when planning flipped distance learning courses. Also, students should be given enough time to apply the information they have acquired outside of the classroom.

Recommendations

Considering that active participation in the lesson lies behind the ability of students to reflect, ask questions, make predictions, evaluate and build relationships between information during the lesson (Hockings et al., 2008), it is considered that flipped distance education courses may be more effective than traditional distance education courses. There are a limited number of studies investigating the effect of distance education courses prepared with a flipped teaching model on student achievement. In this context, examining the effects of flipped distance education courses on student achievement at various education levels could support literature. Karadağ and Yücel (2020) noted that only 63% of the students had internet connections while 66% had computers or tablets in 2020. Due to the conditions of COVID -19, distance education started suddenly, and the extent to which instructors and students have the technological equipment and internet infrastructure required by distance education could not be adequately controlled. Some of the PSETs who participated in this study also stated problems regarding equipment and internet connection quality. Investigation of the extent to which instructors,

students, and educational institutions have the technological equipment and internet infrastructure required to fulfill the distance education requirements on a global scale will provide important information for the more effective implementation of distance education courses to be applied during the COVID -19 pandemic and in the future.

Conclusion

With the COVID-19 Pandemic, habits accepted as normal in life had to be changed, and face-to-face education was suspended on a global scale to reduce the spread of the pandemic. During the pandemic, distance education opportunities were tried to be used to ensure the continuity of education, and educators seek ways of providing effective teaching or evaluation under distance education conditions (Can, 2020; Kuzu, 2020). However, a few of these pre-service teachers had trouble finding proper equipment or programs to participate in-class activities. Since it might have affected those pre-service students' perspectives about flipped distance education, lack of appropriate equipment was the main limitation of this study.

Most of the PSETs welcomed the flipped distance education course designed within the scope of this study. Positive opinions about the flipped distance education course were not only stated by the PSETs who participated in this study, but similar results were also obtained in studies conducted in undergraduate-level economics, engineering, and health courses (Critz & Knight, 2013; Karabulut - Ilgu et al., 2018; Roach, 2014). Considering that Karadağ and Yücel (2020) stated that the experiences gained during the COVID-19 pandemic process will affect the distance education culture, it will not be surprising that the flipped distance education model will be used more frequently in undergraduate-level courses.

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Why Graded Assessment for Undergraduates During the COVID-19 Lockdown? An Experience Introspection

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Abstract

This paper presents a retrospective evaluation of the Higher Colleges of Technology's student assessments during the COVID-19 lockdown, reflecting the justified decision to deploy graded assessments during the lockdown for students to academically progress and/or graduate on time, while maintaining the quality and rigor of academic awards. The outcome-based evaluation of this paper is intended to provide lessons for any future situations of this significance and magnitude. While online education was the obvious response to the pandemic, the provision of assessments was not possible without risk. Taking a high-stakes decision that would affect the future of thousands of students, for years to come, involved complex steps of reasoning and justification. Addressing the role of graded assessment in supporting institutional accountability and transferability of students' achievements, student efficacy and informed pedagogy alterations were the main objectives. To meet those objectives, the Higher Colleges of Technology was able to deploy an off-campus student assessment model that builds upon three pillars of adjustments (assessment development and deployment; technology infrastructure; and governance resilience) to support students' learning, while mitigating vulnerabilities. The evaluation of student performance indicators and stakeholders' satisfaction rates revealed a successful deployment of off-campus assessment while maintaining the traditional conventions pertaining to evaluation of assessments.

Keywords: COVID-19, formative, online assessment, summative

Background

The Higher Colleges of Technology (HCT) is the largest federal higher education institution (HEI) in the United Arab Emirates (UAE), being founded in 1988 and having awarded more than 92,000 undergraduate degrees in Applied Media, Business, Computer Information Science, Engineering Technology, Health Sciences, Education, and Military and Security. Amongst many other accreditations, HCT is one of the first six HEIs in the world to receive accreditation from the Quality Assurance Agency (QAA).

HCT had 19,614 undergraduate students registered in 16 campuses for the spring-2020 semester at the time COVID-19 was declared a global pandemic. Transitioning to full, online delivery was an intuitive strategic intervention that ensured timely, legitimatized student learning progression and graduation. However, an evident quality and accountability dilemma surfaced around the issue of student assessment. While instructional delivery was possible with minor challenges, such as developing new strategies to ensure student engagement during class, providing reliable evidence of student attainment through assessment was a challenge. As was described by the QAA, alternative assessment approaches became as crucial as the alternative pedagogical provisions. As degree-awarding institutions, governing entities expect HEIs to maintain academic standards when implementing adjustments to the learning and assessment strategies in response to COVID-19 (QAA, 2020a). Globally, some HEIs decided to cancel assessments, while some opted to use Pass or Fail grading schema (Burke, 2020).

As the struggle between safety and accountability was assuming academic detrimental proportions, HCT realized that cancelling assessment was not possible. However, HCT's existing curricula are designed for on-campus delivery including physical proctoring, so placing assessment adjustments and using e-proctoring tools became evident. Additionally, the concerns over undertaking large scale modifications to existing assessment frameworks, in an extremely limited time, became a global concern (Joint Information Systems Committee [JISC], 2020). Within a few days, HCT reviewed its options and available resources, while balancing the best interest of students with curricular integrity, and the welfare of students and staff. The aspiration of setting an example for students to thrive during disruptions was also an added incentive for the decision to utilize graded assessments.

Summative assessment (SA) validates student academic progression with credible evidence, and in conjunction with formative assessment (FA), both assessments contribute to the development of students during their learning journey (Cilliers et al., 2010; Knight, 2002; Lau, 2016). Academics admit that assessments influence learning behaviors and experiences more than teaching (Medland, 2016). Similarly, students and teachers equally believe that exam marks are the main influencer on study strategies. Students even admit to shuttling between deep, superficial learning and effort management adjustments just to pass or score high marks (Al-Kadri et al.,2011). Moreover, students perceive SA as an extrinsic motivation, especially because they perceive the outcome as a reward for their work. Hence, academics see SA's value as outweighing the burden on staff in terms of enhancing the learning (Trotter, 2006). Formative assessment is predominantly used for learning and is empirically linked to student self-regulation tending to impose cumulative effects on students' thinking, actions, and feelings (Hawe & Dixon, 2017). It is also an assessment as learning (Black & Wiliam, 2003), accomplished through assessing students' competencies during instruction, coupled with feedback to improve students' learning and academics' teaching (Cilliers et al., 2010; Guerrero-Roldán & Noguera, 2018; Knight, 2002; Lau, 2016).

It is unorthodox for academics to change pedagogy without enough planning, training, and piloting. Due to the concerns of faculty to engage in a high-stakes enterprise without detrimental consequences, assessment is the area of least change in HEIs (Deneen & Boud, 2013). It is customary for faculty to investigate how students' learning is affected by any changes in teaching methods based on the students' performance in FA so they would adapt their teaching approaches. Conducting FA during the online pedagogy provided impromptu valuable guidance for faculty to adjust their teaching thus buffering the abrupt switching of lanes between on and off-campus pedagogy.

While e-proctored off-campus assessments can potentially increase student academic dishonesty (SAD), HCT addressed SAD from the moral imperative "Do No Harm", which assumes the position of keeping SAD to as-low-as reasonably achievable levels: an approach used commonly for management of safety-critical systems. Simply expressed by Williams and Wong (2009),

> While there will always be a small number of students who will cheat, the main priority should be to focus on the higher quality learning outcomes of the majority, rather than set up an entire system to stop a small minority (p. 234).

Discussions and deliberations were held with various stakeholders, including campus student council representatives and the UAE Ministry of Higher Education, to mention a few. Eventually, HCT deployed the Off-Campus Student Assessment Model (OCSAM) which ensured stakeholders' engagement and builds upon placing assessment adjustments, enhancing the technology infrastructure by the introduction of e-proctoring, and exhibiting governance resilience to support students' learning while mitigating the risks. The foundation of OCSAM observes QAA,2018 assessment principles and preserves curricular alignment to maintain academic standards (AlShamsi & El-Farra, 2021).

At the end, the retrospective evaluation of SAD rates, make-up rates, grades and cumulative Grade Point Average (cGPA), and graduation rates, in addition to the stakeholders' satisfaction results have indicated a successful intervention in response to the COVID-19 pandemic.

Why Graded Assessments in the First Place?

Summative assessment like final exams, dissertations, or final projects are conducted upon completion of an episode of teaching (for example, a course) and are mainly designed to assess students' learning without providing student performance feedback for improvement. The importance of SA is related to its ability to measure students' comprehensive outcomes' achievement with sound evidence, which supports accountability of HEIs (Bearman et al., 2016; Chong, 2018; Dixson & Worrell, 2016; Guerrero-Roldán & Noguera, 2018; Knight, 2002; Stödberg, 2012; Timmis et al., 2016). Complementing SA are FA instances, assessment tasks deployed periodically throughout the duration of the semester like quizzes, reports, and presentations with extensive reliance on structured feedback to provide guidance on how students could improve their learning, and how faculty could adjust their teaching (Knight, 2002; Trotter, 2006). Despite the debate around which assessment is better, having both types of assessments can provide invaluable pedagogical improvement tools for academics and students (Banta & Palomba, 2014; Chong, 2018; Crisp, 2012; Knight, 2002; Lau, 2016).

While some HEIs, at the global and local levels, have deferred assessments or applied Pass or Fail grading schema, HCT justified deployment of graded assessments based on: establishing accountability expectations to provide validated and transferable credentials; enhancing students' motivation and efficacy; and using feedback of FA to provide impromptu guidance to academics to prognosticate how successful this unprecedented pedogeological intervention may or may not be.

Accountability and Transferability

Predominantly, assessment of learning supports HEIs' accountability for students' employability prospects. When assessment or a collection of assessments warrant/certify achievement, grades are interpreted as metrics of performance that must be construed with trust and confidence by students, academics, institutions, employers, and quality assurance agencies (Knight, 2002). In addition to certification, SA provides information about the students' level of mastery (Trotter, 2006), thus informing progression to the next level of the study (Crisp, 2012). Moreover, assessment outcomes provide trustworthy evidence of students' attainment and provide stakeholders with astute judgements about students' achievements in stated learning outcomes (Knight, 2002).

In its COVID-19 initial guidance for higher education providers on standards and quality, the QAA stressed the need for HEIs to carefully define the extent that is deemed as sufficient evidence to verify achievement of learning outcomes, regardless of the different levels of courses and students. Additionally, HEIs which decide to award credits or qualifications to students who have not completed all planned assessments, need to record the basis for that decision (QAA, 2020a). In other words, while addressing the pandemic has required flexibility, quality compromises were not advised and when compromises were necessary, proper documentation must be carried out. To this end, and from an accountability standpoint, graded assessment was still the only possible avenue by which HCT could provide student learning quality assurance for all stakeholders.

Transferability of learning instances between different HEIs indicates that achievements of the learner can transfer to other settings and depends on the learning methodology (Knight, 2002). As official student records, transcripts are expected to accurately provide clarity on what adjustments have been made, regardless of the lockdown conditions. This, however, should be balanced against creating a perception that the spring-2020 awards are less credible than other years (QAA, 2020a). By positioning assessments at the heart of evidencing achievement, HCT decided to give leverage to transferability for students and safeguard their performance, so they are not "stigmatized". So, like all previous semesters since the establishment of HCT, spring-2020 graded assessments can be tracked down for evidence of attainment at any time in a student's life.

Student Motivation and Self-efficacy

Students are reward-oriented beings, who are less inclined to make an intensive effort for low-stakes assignments, even if the learning activities were appealing (Cilliers et al., 2010). Also, students seem to prefer assessments that extend discriminatory indications of academic capacity. Furthermore, students perceive marks obtained without assessment as being unfair (Iannone & Simpson, 2017). It is also evident that assessment has an unswerving impact on the quality of students' learning and performance (Al-Kadri et al., 2011; Cilliers et al., 2012; Medland et al., 2016; Trotter, 2006; Van de Watering et al., 2008). The effect of assessment goes even further, as students tend to alter their learning behaviors against their longer-term goals and quality of learning. It is also not uncommon for students to gauge the scale and

distribution of effort of study based on what an examiner was likely to ask (Cilliers et al., 2010). Likewise, research describes a directly proportional relationship between the associated magnitude and severity of assessment consequences, and students' learning (Al-Kadri et al., 2011; Cilliers et al., 2012). Learning behaviors are even shaped by students' perception of the assessment impact (Cilliers et al., 2010, 2012). Some students get achievement-motivated, based on the weighting of the assessment, so they plan their study strategies around passing or scoring high marks (Al-Kadri et al., 2011; Cilliers et al., 2010). Raupach et al. (2013) empirically reported that students perceive ideal and innovative teaching approaches as useless if incentives of SA are not offered. Finally, students reported that when they know that they are being assessed they start calibrating their studies so they would meet the assessment expectation regardless of adversities, such as short time frames and study loads (Cilliers et al., 2010). On the grounds of the above three demands, it was evident to HCT that online teaching, without conducting graded assessments, would not benefit students' learning, nor would it support HCTs' accountability or transferability of achievement.

Feedback for Informed Impromptu Pedagogy Adjustments

For distance learning HEIs, which are designed to deliver online programs, off-campus pedagogy and e-proctoring are not new. However, applying such off-campus pedagogy to curricula, which were intended for face-to-face on-campus delivery without exhaustive adjustments did not take place in the recent history of education. Identifying tools to probe the impact of such a paradox of delivering non-online pedagogy in an online context was crucial. Formative assessment is frequently considered a valuable tool that shapes curricula to enhance learning (Crisp, 2012; James, 2016). Also, because FA are low-stakes, feedback and outcomes of formative assessments became the instrumental "new" way of HCT faculty examining the efficiency of the "new curriculum delivery". As a result, faculty started employing FA outcomes during the spring-2020 to guide impromptu adjustments to their teaching and assessment in attempt to mitigate this paradox.

Addressing Assessment Requirements Under Lockdown

Assessment in the HCT context was addressed for the emerging requirements of the lockdown. Requirements addressed were at the academic and the technology and assessment deployment levels while tackling the vulnerabilities.

Assessment in HCT Context – Historical Background

HEIs declare key learning outcomes and teaching and assessment processes associated to provide stakeholders with clear accounts about claims and warrants of student attainment (Knight, 2002). Each program in HCT has program learning outcomes (PLOs) which are aligned with the institutional graduate learning outcomes, and accreditation entities. Each PLO cascades down to aligned course learning outcomes (CLOs). In enhancing the educational process, assessment is effective when CLOs and PLOs are aligned (Abdeljaber & Ahmad, 2017). Apparently, alignment of assessment with curriculum objectives gives students a sense of security, which enables deep learning activities (Al-Kadri et al., 2011).

The HCT's 73 academic programs are offered in a multi-campus/multi-faculty course delivery model. In such models of delivery, consensus and common understanding about priorities and expectations are of paramount importance (Banta & Palomba, 2014). While faculty need to agree about the way the CLO attainment will be tested, students also need to be well informed about their performance expectations. To ensure inclusiveness and equal opportunities, course syllabi are made available for all faculty teaching a course, and for all students enrolled. Course

syllabi outline assessment plans specifying information, such as CLO mapping, time, grades and types of and tool for each assessment activity. This plan is developed and reviewed by faculty every semester, paving the way for consensus and common understanding of expectations.

Students' final grades should be a representation of combined outcomes of several and different assessment methods (Iannone & Simpson, 2017). Institutional HCT assessments come in a variety of types and are spread out across the semester. Moreover, warranting achievement based on different and recurrent instances provides more dependable inferences of attainment levels (Knight, 2002). Also, for an effective assessment approach, FA and SA should be aligned so FA is not undermined by the known summative pressures (Black& Wiliam, 2003).

Therefore, HCT programs have a balanced number of assessment instances carefully planned so assessments have an acceptable pattern of occurrence. Coursework (CW) assessments are several formative assessments ranging from 4 to 12 assessment instances and are deployed to assess one or more CLO. Coursework is characterized with the provision of improvement-centered feedback and accounts for 70% of the total marks. Additionally, summative assessments in the form of identical final exams across all 16 campuses, referred to as faculty wide assessments (FWAs), are indicative of the comprehensive modular attainment prompting progression to the next level and are used as cumulative program learning outcomes attainment. For the vast majority, FWAs assess all CLOs in a single instance to confirm the comprehensive attainment of course objectives. FWAs are high-stakes assessments worth 30% of total course grade.

Before the pandemic, over 20,000 students were enrolled in approximately 700 multiple offering courses, with 400,000 CW assessments being conducted throughout a typical semester. At the end of each semester approximately 650 courses have FWAs. Written CWs and FWAs are conducted online or paper based with physical proctoring as a requisite (AlShamsi & El-Farra, 2021). This configuration provided a baseline in preparation for the off-campus assessments, delivered during the imposed lockdown described in the following section.

In response to the lockdown, assessment adjustments were carried out at the academic level through modification of assessments designs, to address risks associated with e-proctoring, while maintaining curricular alignment. In addition, several technology tools were deployed to facilitate improved exam security conditions.

Assessment Design Adjustments

Theoretically, if the existing curricular alignment remains preserved, HCT can defend allegations of learning outcomes attainment, but SAD under e-proctoring conditions remains a challenge. Despite a lack of agreement amongst scholars about the relationship between e-proctored assessments and SAD rates, during planning the "out of an abundance of caution" position was adopted based on reported concerns over e-proctoring entailing potential SAD increased rates (King et al., 2009; Mellar et al., 2018). Notwithstanding SAD risks, pedagogy plays an essential role in SAD rates, so HCT academics meticulously reviewed assessment design and conditions to curb students from committing SAD as suggested by QAA (2018).

With acceptable trade-offs of re-allocations of weightings' contribution to the final student grade, and changes in assessment tools (as in replacing a quiz with a project). The approved assessment design adjustments ensured the following:

a) Maintaining alignment across curricular components so all CLOs are duly assessed, and students' grades can be used as a direct measure of student CLOs' attainment.
b) Maintaining a variety of assessment tactics, as suggested by QAA, (2018), which gave the faculty opportunities to cross-verify individualized student performance discrepancies in assessments that require reflection such as portfolios against an e-proctored quiz. Assessment portfolios and case studies do provide insight into the characteristics of students' performance variances, thus providing attribution evidence (Ransome & Newton, 2018; Stack, 2015).
c) Incorporating post-submission oral defense, or viva-voce as both provide valuable insight on authenticity and contribution of the students' attempted assessments (De Villiers et al., 2016; QAA, 2020b).
d) Upscaling the cognitive complexity of assessments, so assessment tasks that require lower cognitive complexities, such as remembering and understanding items which are easy to cheat using the internet were replaced by application and analyzing items as suggested by Boitshwarelo et al. (2017), Donnelly (2014), JISC (2016), and Redecker et al. (2012).

Finally, five main assessment strategies were approved for deployment namely: limited-time assignment coupled with oral verification; open-book upscaled cognitive complexity assessment; e-proctored assessments; virtual laboratories; and projects, portfolios, and presentations.

To address workload and stress issues, programs were given the option to alter the percentages of contribution by completed assessments to students' final grades prior to the lockdown, wherever feasible. Also, because the teaching schedule was not compromised, assessments were conducted on their expected times. Finally, as recommended by JISC (2016) and QAA (2018), assessment requirements, topics, deadlines, learning outcomes assessed, marking criteria, and feedback arrangements were clearly communicated with students and staff.

Technology and Assessment Deployment Adjustments

While instances of CW did not pose a serious challenge from the technology standpoint, technology was most challenged during the FWA period, as those assessments were taking place for the entire HCT cohort during the same times and dates. Also, FWAs have an inherent risk of increased SAD potential as compared with CW instances which have relatively lower contribution to the students' grade. Therefore, SAD becomes less appealing to students as compared to FWAs.

On the positive side, HCT students were sufficiently exposed to the e-assessment environment as many assessments depended on BlackBoard® prior to the lockdown. However, all written assessments were conducted under physical proctoring within campuses. Consequently, e-proctoring was deployed, preceded by a common mock exam for all students to orient them for the technology aspects of the FWA. Furthermore, assessment technology related guidelines were published, and an exam schedule was issued, taking into consideration equal distribution of concurrent test takers at any given time, while ensuring technology was not overloaded. Additionally, and in congruence with Davis et al. (2016), Mellar et al. (2018), Okada et al. (2019), QAA (2020a,2020b), and Stake (2015), HCT deployed several authentication and authorship verification measures. For example, student ID and recorded and/or live webcams were used to authenticate students' identities.

Exclusive availability of the exam to pre-enrolled students, based on institutional registry was also used to prevent unauthorized individuals from attempting the assessment for a student. Authorship verification was extended through recorded and/or live sessions, used to monitor students and the surrounding environment while flagging suspicious acts. Respondus Lockdown® was also used to disable access to prohibited materials and activities, such as accessing the internet or email. Lastly, unexpected higher grade than average performance was considered a trigger to review the assessment recordings.

Addressing Vulnerabilities

While making such a sharp turn, it was foreseeable that existing vulnerabilities might be exacerbated, and new vulnerabilities might surface. Accordingly, HCT's responses were based on risk identification and mitigation through inclusion of all students regardless of their academic performance, with special focus on vulnerable students. Governance support, academic support, and logistics and technology support were deployed to mitigate vulnerabilities.

Governance support. Unequivocally, SAD policies and procedures are needed (QAA, 2018). However, flexibility in addressing the lockdown conditions became equally essential (QAA, 2020a). Balancing between mandates and resilience, HCT has subsequently adopted a flexible application of policies and procedures to address the pandemic-imposed e-proctoring requirements. Perhaps the most obvious necessary governance response was to permit assessment strategy adjustments during an ongoing academic year, even more critical as it was almost half-way through academic semester. Academic divisions adjusted the existing pre-approved assessment strategies, while maintaining the existing grades in percentile translated into letter grades. To mitigate vulnerable student risks, HCT devised an algorithm that denotes the last academic standing cGPA for each student as a main reference so any decline in performance will not be reflected. For spring-2020 such an exemption was significantly important for students on academic probation whereby grades were only reflected if a student would experience an improved cGPA score thus protecting those students from being academically dismissed. Based on the initial guidance recommendations of QAA (2020a), students were also given the option to defer a course with no penalty. Also, the exam make-up policy was amended to accommodate cases where technology impacted assessment conduct.

The list of students with disabilities was reviewed again on a case-by-case basis, allowing further submissions and adjustments to be in place, thus avoiding inadvertently creating new barriers for students (QAA, 2020a). The only relatively new encountered situation was for those students with visual impairment, who would usually require large font prints. In this case HCT has provided those students with large monitors to complete the exams at home. Finally, student awareness campaigns were initiated to provide guidance on SAD. Moderated discussion forums, mental health and wellbeing activities and tips on managing student life were also extended through activities, such as virtual advising.

Academic support. During the lockdown, faculty were the most influential communication conduit. Supporting students for assessment is a critical component of quality in HEIs (QAA, 2020b). Therefore, more than 1.1 million hours of recorded pedagogical activities using video conferencing platforms were delivered to preserve the intended teaching schedule plans and class times, with no down-time. Full curriculum delivery not only enhanced the learning opportunities but also warranted no compromises to the timely assessments. Faculty used class times to clearly communicate the adjusted assessment expectations. They also offered several

off-campus practice exams, so students were better oriented with e-proctoring, as advised by Davis et al. (2016).

Logistics and technology support. Between May 10-19, 2020, 19,614 students, sat for 59,357 final e-assessments, for a total of more than sixty-six thousand concurrent exam hours. A key logistics strategy to ensure students were not encumbered by technology issues during the assessment process was the deployment of "Emergency Response Teams" at each campus. Students were able to receive live, online support from respective campuses with a recorded average response time of two minutes. Less than 4% of the total 59357 assessment sessions experienced technical difficulties (AlShamsi & El-Farra, 2021). To mitigate the risks, various SAD detection tactics were deployed such as reviewing recordings and comments by an internal auditor who would flag suspicious observations for review.

An Outcome-based Evaluation

To evaluate the efficacy of the employed intervention, we investigated SAD rates, make-up rates, grade and cGPA trends, and graduation rates as student performance indicators and stakeholders' surveys as satisfaction indicators.

Student Performance Indicators

We investigated SAD rates as the main risk of off-campus assessment. Exam "make-up excuses" were also analyzed as an attribute to behavioral reasons, rather than honest ones (Abernethy and Padgett, 2010). Grade comparison is reportedly a useful tool to measure the effectiveness of pedagogical interventions (Jaggars and Xu, 2016), and in a recent literature review (178 journals) 63% referred to cGPA as a performance indicator (Zughoul et al., 2018) so grades and cGPA trends were evaluated. Additionally, grades are reportedly used to empirically explore SAD patterns (Daffin & Jones, 2018; Davis et al., 2016; Hylton et al., 2016; Stack, 2015). Finally, graduation rates were also reviewed as a drive for the intervention.

Student academic dishonesty. During assessment, suspicious actions were identified by the e-proctoring staff (live or retrospectively). Faculty and internal auditors also analyzed educational data forensics such as abnormal student performance. In spring-2020, 0.4 % of the total number of students (85 /20,461), compared with 0.5 % of (111/20,722) reported in fall-2019 were found guilty of SAD. Grade analysis findings, in addition to the subtle decline in the SAD percentages are a confident indication of absence of major exam security breaches (AlShamsi & El-Farra, 2021). Table 1 outlines spring-2020 and fall-2019 SAD statistics.

Table 1: Spring-2020 and fall-2019 SAD trends.

Semester	Spring-2020	Fall-2019
Numbers of SAD instances	85	111
Total number of students enrolled	20,461	20,722
Percentage of SAD	0.4 %	0.5 %

Make-up rates. Assessment make-up rates for spring-2020 had an insignificant 0.5% decrease, compared with the preceding semester. There was a decline by 32.8% of the make-up for sick excuses, and a drop from 30.4 % in fall-2019 to only 1.8% in spring-2020 for being late for the exam. Make-up rates, due to technical issues, have spiked from none in the preceding semester to 397 instances (71.9%) of all make-up cases in spring-2020. AlShamsi & El-Farra (2021) concluded that the favorable decline in the make-up rate could be attributed to fixable policies

and/or to taking exams from home without travelling to campus, thus entailing less stress levels. Table 2 depicts the make-up trends for the spring-2020 and fall-2019 semesters.

Table 2: Spring-2020 and fall-2019 make-up statistics comparison (AlShamsi & El-Farra, 2021) – adjusted

Semester	**Total enrolled students**	**Reasons for make-up**			**Total make-up cases**	**% of Students approved for Make-up**
		Sick	Late for exam	Technical issues		
Fall-2019	20,990	315 (46.7%)	205 (30.4%)	0	674	3.2%
Spring-2020	20,461	76 (13.8%)	10 (1.8%)	397 (71.9%)	552	2.7%

Grade and cGPA trends. HCT adopts the letter grading of A through F with an A letter-grade representing scores above 88% and corresponding to distinguished achievement, and an F letter-grade representing scores below 60% and corresponding to failure of assessment/course. HCT documents historical data on performance variances and inconsistencies like students who achieve a distinguished A or B (A/B) letter-grades in CW but paradoxically achieve an F or D (F/D) letter-grade in FWA as a tool to ensure assessment quality.

In the absence of a grades baseline under e-proctoring conditions, five student performance letter-grade inconsistencies were alternatively compared with the preceding semester, those are: students failure rates in high-stakes FWA as compared to the FA accumulation of low-stakes CW; percentage of HCT students achieving CW and FWA letter-grades that are within the same letter-grade range for example, scoring a C in CW and a C+ grade in FWA); percentage of HCT students achieving higher letter-grade in CW than in FWA; percentage of HCT students achieving A/B letter-grade in CW, while scoring D/F in FWA; and percentage of HCT students achieving D/F letter-grade in CW, while scoring A/B in FWA. Results of letter-grade discrepancies of spring-2020 as compared to fall-2019 are:

1. failure rate in FWA has decreased to only 2½ times higher than CW as compared to 6 times higher in fall-2019,
2. percentage of students scoring within the same letter-grade range across CW and FWA favorably increased from 14.4% to 17.8%,
3. percentage of HCT students achieving higher letter-grade in CW than FWA have significantly and favorably declined from 20% to 6%.,
4. percentage of HCT students achieving A/B letter-grade in CW, while scoring D/F in FWA has significantly and favorably declined from 24% in fall-2019 to 14% in spring-2020,
5. percentage of HCT students achieving D/F grade-letter in CW, while scoring A/B grade-letters in FWA has exhibited an unfavorable slight increase from 1% to 3%. This slight decline evident by a 2% increase in the percentage of students scoring D/F in CW while their FWA letter-grades were in the A/B range.

The improvement in the four discrepancies can be attributed to the cognitive complexity upscaling and adjustments to incorporate more reflective assessments like projects, portfolios, and the introduced oral verification which gives students better opportunities to exhibit their comprehension thought discussions and reflections. Also, as non-native English speakers, oral

discussions give students an opportunity to better express their comprehension compared with written responses that might irreversibly fail them in the translations. Because both FWA and CW were only approved with pre-existing rubrics to be used across all campuses, leniency in grading can be excluded.

The factors that might have contributed to the unfavorable higher gap in the fifth discrepancy are:

a) Coursework only assesses fragments of the course, so it is common for student to score higher grades than in FWAs. The trade-offs of weightings' contribution to the final student grade made it mathematically easier for students to achieve a higher overall course grade.
b) In congruence with the established relationship between assessment and student behavior, allocating lower weight to FWAs and the devised cGPA algorithm, made it less appealing for students to perform well in the FWAs because their achieved A/B grade in CW would grant them an A/B final course grade even with poor FWA performance and, if not, a student could opt for fall-2019 cGPA freeze.
c) Subjectivity in grading non-exam assessments, such as projects and presentations. Although all assessments are only deployed if they have corresponding rubrics to ensure consistency, the grades for traits such as soft skills are rarely void of subjectivity. Table 3 summarizes letter grade inconsistencies trends across the spring-2020 and fall-2019 semesters.

Table 3: Summary of letter grade inconsistencies performance for the spring-2020 as compared to fall-2019.

Spring 2020	Fall-2019	Description of inconsistency	
Failure rate in FWA is 2½ times higher than CW	Failure rate in FWA is 6 times higher than CW	Overall student failure rates in FWA compared to CW	
17.8%	14.4%	Percentage of students who scored grades within the same letter grade range across CW and FWA	
6%	20 %	Percentage of students who scored higher CW grade than FWA	
14%	24%	Percentage of students with A/B in (CW)	Percentage of the same with D/F in (FWA)
3%	1%	Percentage of students with D/F in (CW)	Percentage of the same with A/B in (FWA)

HCT adopts the 4-point cGPA with scores less than 2.0 corresponding to unsatisfactory academic performance, and scores between 3.5 and 4 corresponding to distinguished academic performance. In the spring-2020 semester, students were given a limited time option to request a previous semester cGPA freeze if their results had disadvantaged them. A normal distribution was evident in the spring-2020 overall cGPA scores. The percentage of students with cGPA below 2.0 was 20% (3,799/ 19,614), 72% (14,170 /19,614) students have achieved a cGPA between 2.0 and 3.49 points, and 8% (1,645/ 19,614) students have scored cGPA between 3.5 and 4 points. Table 4 summarizes spring-2020 semester cGPA distribution as an indicator.

Table 4: Spring-2020 semester cGPA distribution.

Spring-2020 cGPA	Student count (percentage)
Less than 2.0	3,799 (20%)
2.0 to 3.49	14,170 (72%)
3.50 to 4.0	1,645 (8%)
Total	19,614 (100%)

Graduation rates. On-time graduation is a long-term key performance indicator for HCT which monitors the graduation of a student within the prescribed program duration (for example, four years for a bachelor's degree). Graduation maturation periods are measured in years, so they are used as an indirect indicator within this context. If HCT have opted to put assessment on hold for the spring-2020, students in their last semester would have at least experienced a semester long delay in graduation. Although the percentage of graduating on time for the academic year 2019-2020 was 93% compared to 73% for the preceding 2018-2019 academic year, this statistically significant improvement cannot be solely attributed to the decisions taken to address the pandemic. However, the fact that graduation rates did not drop supports the claimed efficacy of the intervention.

Stakeholder Satisfaction Indicators

Surveys are useful formative tools which provide feedback that guides curricular adjustments (Peterson, 2016). At the end of the semester, students and faculty, were surveyed to measure the levels of acceptance and success. Also, employers were surveyed as part of the bi-annual institutional performance monitoring, a synopsis of the surveys' results is provided below.

In addition to the bi-annual surveys, extensive ad hoc surveys were carried out to monitor student and faculty satisfaction for the semester. A total of 5,744 faculty and 19,601student responses showed that faculty had an 87% overall satisfactory e-delivery experience, while students' overall experience satisfaction rate was 77%. The survey covered five categories: online learning readiness; content evaluation; instructor delivery method; overall experience; and class preference. Faculty confirmed that the orientation sessions have sufficiently enhanced their online pedagogical skills. Furthermore, faculty reported witnessing students presenting higher levels of responsibility and ownership of their learning. Additionally, the bi-annual surveys have revealed an upward trend of student satisfaction with their academic journey from 78% in the 2018-2019 academic year to 86% in 2019-2020. Finally, 71% of the respondents were satisfied in response to a survey of HCT faculty members to review their satisfaction with adjusted assessments.

Moreover, HCT deploys bi-annual surveys to monitor industrial satisfaction, the percentage of employer satisfaction with applied programs industry relevance have registered a slight improvement from 90% in the 2018-2019 academic year to 93% in 2019-2020. Table 5 summarize surveys outcomes. A sample of the surveys is provided in the appendix.

Table 5: Surveys outcomes for faculty, students, and industry.

Criteria	Faculty	Students	Industry
e-delivery satisfaction	87%	77%.	
Student academic journey satisfaction		86%	
Adjusted assessments	71%		
Industry relevance satisfaction			93%

Limitations

The novelty of the circumstances imposed a lack of reference data to constitute student performance comparisons, and a lack of previously published literature limited our findings and literature review comparisons. Further work is required to study the performance, per the type of assessment adjustment and to establish links between other variables, such as demographics.

Conclusion

This paper provides evidence on the importance of assessment as an integral part of the HEIs pedagogy. Maintaining HCT curricular alignment, incorporating assessment tactics that provide personalized authorship evidence, supplementing written assessments with oral presentations, upscaling assessment cognitive complexity, and addressing vulnerabilities of off-campus graded assessment were interventions used to maintain accountability and transferability of HCT credentials, support students' self-efficacy and motivation, and to guide the "new" online teaching methodology imposed by the lockdown. Student performance and satisfaction of stakeholders used to evaluate the efficacy of HCT's intervention as described indicate HCT successfully achieved the objectives, as outlined.

The intervention defined in this paper is of value for future considerations when HEIs are challenged by disruptions such as the COVID-19 pandemic.

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Appendix

Adjusted Assessments Survey for Faculty Sample Questions

Each item was rated 1. Very dissatisfied, 2. Somewhat dissatisfied, 3. Neutral or neither dissatisfied nor satisfied, 4. Somewhat satisfied, 5. Very satisfied

Q2: Select the applied assessment tool/s (maximum three)

Assessment tool
Drop down list: 1. Limited-time assignment (short video, oral verification) 2. Open book and take home exams 3. Online quizzes and assignments 4. Virtual laboratories 5. Projects, portfolios, and presentations

E-Delivery Satisfaction Survey – Students

Total of 5 questions, randomly selected from each category, were sent to students.

1. Online Learning Readiness

Availability of online learning resources (computer and internet service)
Communication with other students during the online class
Quality of instructions during the online class
Your readiness to use HCT online learning platform (Blackboard Learn or Zoom)
MyHCT Support when I need support
Quality of network connection during the online class
Dedicated study space where you can read and work on assignments without distraction
Comfortable to switch on the camera during online class

2. Content Evaluation

The amount of material covered
The quality of the examples presented
Quality of visual and attractive material presented
Your opportunities to ask
The presented content is Interactive
The online course was easy to navigate
The e-lesson was motivating
The variety of presentation methods was used

3. Instructor Delivery Method

The instructor’s accessibility outside of scheduled class time for additional help
The instructor’s encouragement for students to participate in class

The instructor's explanation of concepts
The instructor's feedback
The instructor's lesson organization
The instructor's respect for students
The instructor's use of class time
The instructor's use of real life examples
The level of instructor's preparedness for the lesson

4. Overall Experience

Overall experience for this lesson

5. Class Preference

Do you prefer next lesson to be	1. Face to face in classroom 2. Online

E-Delivery Satisfaction Survey – Faculty

A total of 5 questions, randomly selected from each category, were sent to Faculty.

1. Online Learning Readiness

Availability of online learning resources
Comfortable to switch on the camera during online class
Impression of student as recipients of online education
My HCT-Support responsiveness when I need support
My System Course Team Leader responsiveness when I need support
PD quality sufficient to prepare you for online delivery
Quality of network connection during the online class
Quality of student engagement during the online class
Students' attendance
Your readiness to use HCT online learning platform (Blackboard Learn or Zoom)

2. Content Evaluation

Interactivity of the presented content
The amount of time for preparation for this online lesson
The extent to which planned topics were covered
The online course was easy to navigate and manage
The quality of student interactions during the lesson
The quality of the examples presented today
The use of adequate presentation methods
Your opportunities to involve students in discussions

3. Instructor Delivery Method

Homework and assignment submission
My use of class time
Polling or tallying student votes to instructor questions
Possibilities of effective and valid online testing
Refer students to additional e-Tutorials

Student's mature approach to online class
Student's mutual communication during the class
The students' respect to instructor
This lesson's organization
Use of simulations or advanced apps

4. Overall Experience

Overall experience for this lesson

5. Class preference

Do you prefer next lesson to be	3. Face to face in classroom 4. Online

Teaching Practice Online: Challenges in Japan, India and Kenya Under Pandemic

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Abstract

The coronavirus pandemic affected the whole world in 2020, with high pressure on the health sector, many deaths, reduced business activity, rising unemployment rates, travel restrictions and social distancing. These developments have had severe consequences for all areas of every society around the globe. This also includes education. In many countries, primary and secondary pupils and university students alike were sent home as schools and universities closed abruptly as part of efforts to control the spread of the virus. As teaching moved online, learners and teachers were unprepared for the new situation, which posed a unique set of challenges. In this context, trainee teachers at a Swedish university were encouraged to support online teaching at schools in Japan, India and Kenya. The purpose of the digital internship was threefold: to continue the trainees' teaching placements in the absence of opportunities for in-class teaching; to provide an opportunity for trainee teachers to develop their own competence in online teaching; and to assist the foreign schools in the challenging task of delivering online classes. This article aims to investigate the challenges faced by pupils in Japanese, Indian and Kenyan schools and by 27 Swedish trainee teachers during this project. Data collection consisted of interviews, an online questionnaire, lesson observations, assessment forms, and reports given by trainees. The main challenges identified through our findings included internet access in host countries, the use of a teacher-centred approach to learning, and difficulty for trainees to relate to the pupils' life conditions. However, we conclude that the trainee teachers increased their global awareness through a climate-friendly alternative to the traditional teaching placement abroad.

Keywords: COVID-19, challenges, lockdown, online teaching, trainee teachers

As COVID-19 spread across the world, school activities temporarily shut down, and pupils and students were sent home. The United Nations Sustainable Development Goal 4 states there should be access to quality education for all children, but the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2020) estimated that 60% of the world's student population, 1.5 billion learners in 109 countries, were affected by school and university closures in March/April 2020. This created tough conditions for children and youth, affecting their wellbeing and educational future. There is no doubt that school closures will impact inequalities in education and affect school attainment among pupils and students (Haeck & Lefebvre, 2020).

Learners and teachers were unprepared for the transition to distance learning. Neither learners nor teachers had sufficient experience of online teaching, despite the common use of computers. Naidu (2020, p. 425) argues that "the irony is that it has taken a calamity for us to rethink and reengineer our approaches to learning and teaching, despite evidence in favour of the need to do so, long before COVID-19 struck". Due to the COVID-19 outbreak, teachers and pupils/students found themselves in a situation where they were compelled to embrace the online teaching and learning experience (Mishra et al., 2020). However, many teachers were attempting to understand online teaching for the first time and to source free digital resources to apply in their teaching. Rouadi and Anouti (2020) found in a study from Lebanon that online teaching during the pandemic was a failure in many secondary schools. However, it was successful when teachers used a variety of teaching methods, developed good communication with learners, and encouraged active participation during lessons.

There are, therefore, challenges to implementing online teaching: pedagogical, technical and social (Hansson, 2015). Firstly, a pedagogical challenge is introducing digital tools in formal education when teachers have limited experience of online teaching and pupils have limited digital competence. Digital devices may be frequently used outside school, but many pupils lack experience of use in an educational setting. Another pedagogical challenge is moving from teacher-centred to learner-centred approaches, with the purpose of engaging the student and encouraging active participation in learning. Studies show that learners prefer, and are more engaged by, blended learning (a combination of traditional classroom teaching and online educational materials) rather than a fully online learning approach (Crichton & Onguko, 2013; Wanner & Palmer, 2015). This has led researchers to investigate what people learn in "knowledge-rich environments", of which online teaching can be considered an example (Hansson, 2015).

Secondly, technical challenges concern the use of an appropriate mobile device and the cost of internet access. Digital and mobile technologies have great potential to support learning because of being ubiquitous, reliable, cheap, and both social and personal (Royle et al., 2014). The learners can move between content and context. It offers flexibility and students can accordingly learn at any time and any place. Thus, "learners will be able to seamless start a lesson in school, continue the lesson on the bus, and complete the learning at home" (Ramnath & Kuriakose, 2015, p. 659). However, learners in low- and middle-income countries may face barriers to digital learning such as network failures, lack of power and lack of access to the Internet (Crichton & Onguko, 2013; Hansson & Jobe, 2014). Escueta et al. (2020) point out that despite expanding access to technology, the digital divide is increasing. Further, even "when disadvantaged students can access technology, they may lack the guidance needed for productive utilisation - a 'digital-use divide'" (Escueta et al., 2020, p. 898).

Rasheed et al. (2020) argue that the main challenges for teachers in distance learning are the use of technology and the selection of appropriate instructional technology. Therefore, proper techniques and learning support should be provided to teachers as well as to students (Dhawan, 2020). However, teachers have been found to show resistance to using new technology for teaching (Rasheed et al., 2020). Lenkaitis et al. (2020) suggest that teacher training programmes should integrate virtual exchange opportunities with international partners, which have been highlighted as even more valuable during the COVID-19 crisis.

Thirdly, social challenges include a lack of familiarity with and ability to use digital and mobile technology. Digital skills need to be improved, particularly in low-income countries. In addition, gender must be considered: worldwide girls have fewer educational opportunities, and secondary school completion rate is in favour of boys (Singh & Mukherjee, 2020). Moreover, as Dhawan (2020) points out:

> We cannot ignore and forget the students who do not have access to all online technology. These students are less affluent and belong to less tech-savvy families with financial resources restrictions; therefore, they may lose out when classes occur online. They may lose out because of the heavy costs associated with digital devices and internet data plans (p. 17).

The project examined in this study takes an approach that is different from many other international collaborations, where one party tends to be more interested than the other. Western countries often seek collaborations with partners in low-income countries where the exchange occurs in one direction: for example, Western participants travel to the low-income setting. The project studied here began with a request from local schools in low-, middle- and high-income countries to a Swedish teacher training programme to support their online teaching and mitigate the impact of school closures. Concurrently, the Swedish university was searching for opportunities to develop trainee teachers' online teaching skills; it was therefore a perfect match.

The purpose of this study is to investigate teaching placement online under lockdown. The research question is: What are the challenges involved in online learning for pupils in Japanese, Indian and Kenyan schools and for Swedish trainee teachers? The next section describes the background to the project, followed by the methodology of the study including settings, target groups, data collection and data analysis. Thereafter, findings are presented, followed by categorisation and analysis of results. The paper concludes with the discussion, limitations, conclusion and key recommendations for future research.

Background

In March 2020, when the university in Sweden moved from campus teaching to online, it was a challenge for the Department of Education to continue with teaching placements as part of teacher training courses. However, following requests for assistance from three schools in Japan, India and Kenya, respectively, a digital internship module of 7.5 European Credit Transfer and Accumulation System (ECTS) was created. The internship period was five weeks in June and July 2020. The application period for the placement was short, which meant limited preparation time for prospective participants. Five students (three male and two female) were accepted. Before the placement started, the university arranged two digital seminars covering the educational systems of the different countries, life conditions, the United Nations' Agenda 2030 for sustainable development, cultural context, ethics, prerequisites and practicalities. After

digital meetings with directors, headmasters and supervisors, the internship was organized. A second group of trainee teachers were admitted for an online teaching placement abroad in November 2020 and January/February 2021. This second group of 22 students (9 male and 13 female) conducted their placement at primary and secondary level in India and Kenya for 3-5 weeks.

The participating schools were located in Nara (Japan), Bangalore (India) and Nairobi (Kenya), representing high-, middle- and low-income countries, respectively. In Japan, two trainees were placed at a secondary school. English was the only subject accepted. In India, four trainees taught all subjects at a primary school, one trainee taught French in upper primary, and six trainees taught Social Science at a secondary school. In Kenya, two trainees taught Mathematics and Biology, and 12 taught Social Science (History & Government according to the Kenyan syllabus), all at a secondary school. The Swedish trainees were all in the third year of their teacher training, except for one student who was already working as a teacher but did not yet have a certificate.

Table 1: Overview of selected schools and placements

Country/city	School level	Placement	Trainee teacher(s)	Subject
Japan/Nara	Secondary	Form 1–3	2 male	English
India/Bangalore	Primary Upper primary/ Secondary	Grade 2-5 Grade 7–8 Grade 10-11	2 male/2 female 1 male 1 male/5 female	All French Social Science
Kenya/Nairobi	Secondary	Form 3–4 Form 1-2	2 female 6 male/6 female	Maths/Biology Social Science

Prerequisites

The participating schools were private, and teaching was based on the national syllabus and curriculum. The Japanese school was a girls' school and the others were mixed. The Japanese and Indian schools charged fees, whereas the school in Kenya did not, as it served disadvantaged youth. The total number of pupils in the schools was 700 in Nara, 900 in Bangalore and 300 in Nairobi. Class sizes were 40+ in Nara, 20+ in Bangalore and 30+ in Nairobi. In general, all pupils had limited experience of digital learning before this project. In terms of technology, the Japanese pupils had their own laptops and/or tablets, internet access and use of a digital school platform. The Indian pupils used their own computers or mobile phones with internet access and Google Classroom as a learning management system (LMS). The Kenyan pupils used tablets with internet access provided by the school and a locally designed digital platform called "The Big Blue Button" to access educational material.

Method

A mixed-method approach was used for data collection, consisting of lesson observations, an online questionnaire, semi-structured interviews, assessment forms, and trainees' oral and written reports (see Table 2).

Lesson observations were followed by a 30-minute digital meeting to discuss the lesson, pupils' activity, the teacher's role, challenges encountered, and so forth. The online questionnaire consisted of 18 questions using a Likert scale where the pupils were asked to agree or disagree with a series of statements. A five-point scale was used, ranging from 1 = *not at all* to 5 = *yes,*

absolutely. The pupils also had the opportunity to add responses in their own words. In total, 56 questionnaires were collected from the pupils after having been distributed in the first phase of the project (July 2020).

Table 2: Overview of data collection

Method	Japan	India	Kenya
Lesson observation	2 lessons of 40 min	5 lessons of 60 min	4 lessons of 50 min
Online questionnaire	33	12	11
Interview	2 x 50 min	1 x 50 min	4 x 45 min
Assessment form	2	11	14
Oral & written report	2	11	14

Online interviews were conducted with all five trainee teachers from the first group and two students from the placement in November a few weeks after teaching was completed. The trainees on placement in January/February 2021 had only just finished the internship at the time of writing, and it was therefore not possible to include interviews with them. The semi-structured interviews were guided by themes and questions. Each interview took the form of a conversation, rather than simply ticking off questions from a list, although in every interview the same questions were asked. Each interview lasted 45-50 minutes and was recorded and transcribed. An assessment form containing open and closed questions was submitted by the trainees' supervisors. Finally, oral and written reports were given by the trainee teachers.

Ethics

The participants were informed about the study and were given the opportunity to consent to participation. The data material was anonymised and coded, and only the researcher had access to the material. All results are presented in an anonymised way so that no individual can be identified. Nevertheless, transparency and communication with the participants are of importance. Online education leaves digital footprints which constitute sensitive information and privacy can easily be violated, thus personal data must be handled with confidentiality. Consequently, pseudonyms were created for the participants to maintain their anonymity.

Data Analysis

The analysis is based on both quantitative and qualitative data with the aim of taking a holistic perspective. Rich data and systematic search for categories are at the core of qualitative content analysis, and important are a reduction of data and systematisation (Schreier, 2014). Therefore, Bryman's (2015) four stages of analysis were used. Firstly, the transcribed interviews were read as a whole and notes were taken. Secondly, the text was labelled and systematically coded. Thirdly, codes were reduced, and interviews compared and categorised. Fourthly, codes and categories were related to the research question and relevant studies. Thereafter, online questionnaires were compared, and notes taken about the responses, which were related to the interviews and categorised. Finally, notes from lesson observations, comments from assessment forms, and notes from trainees' reports were related to the other data and included in the categorisation. The analysis of the empirical data produced three categories: technical, pedagogical and social challenges. In addition, there is a category of trainee teachers' experiences.

Findings

In this section, the results from the different methods of data collection are presented under main categories, illustrated with extracts from interviews and reports together with quantitative data from the online questionnaire and pupils' comments.

Pupils, trainees and supervisors reported uniformly that they were not used to online teaching before this project. The teachers started in-service training to receive hands-on material of online teaching, alongside teaching their pupils under lockdown. As one trainee teacher put it,

> *... so we kind of learned together. Both the pupils, teachers, and me. At the same time* (Interview, female trainee teacher).

Japan

In the first week of the internship (early June 2020), all Japanese pupils were at home, with their regular teachers providing live teaching through Zoom. The trainee teachers observed lessons. From the second week onwards, the pupils resumed school attendance. Face masks were mandatory, which presented a significant challenge to conducting English language teaching. The Swedish trainees were now responsible for the lessons, and the pupils were all in class together with two of their regular English teachers. The Swedish trainees, who attended via video link and were displayed in the classroom via a projector, instructed the pupils via the regular teachers, and pupils completed exercises individually or in groups. The Swedish trainee gave oral and written examples in English and used the webcam to illustrate the content with body language, and the local teachers asked the pupils in Japanese to respond back to the trainee. The pupils presented their assignments in front of the webcam directly to the Swedish trainee teacher.

India

The pupils were at home using their computers or mobile phones to access Google Meet for distance learning. The Swedish trainee teacher conducted the lesson supervised by a local teacher. All pupils had their webcams on for the whole lesson. Pupils shared their screens when presenting their homework, and used the chat feature to ask questions or make comments, for example "This was easy". During the project period in June and July 2020, the Indian government gradually revised its policy on digital education. This was confusing for the teachers due to numerous changes being made and affected online teaching when pupils' screen time was reduced. The government introduced a maximum of 1.5 hours per day in front of a screen, with pupils working on individual assignments for the rest of the school day. The policy changed again while the second trainee teacher group was active to allow only 30 minutes at the time followed by a break. Pupils then spent half the school day online.

Kenya

All pupils were from disadvantaged communities in various parts of Kenya, to which they were sent home when the day- and boarding school closed. The pupils in Forms 3 and 4 were then equipped with tablets but had no previous experience of using them. While waiting for the new tablets to be delivered, some pupils in Form 3 used borrowed mobile phones to access the educational material. The content was uploaded by teachers and/or Swedish trainee teachers on the Big Blue Button platform. This was an LMS with an integrated video tool (similar to Zoom) for live teaching, a digital whiteboard to illustrate lesson content, a screen-sharing facility to show PowerPoint presentations, and pupils could ask questions either orally or by using the chat feature. The Kenyan pupils did not use their video cameras at all, due to poor bandwidth.

In January 2021, the pupils were back in class using tablets when trainee teachers conducted their online lessons.

Technical Challenges

Teachers were accustomed to using WhatsApp in day-to-day life. Under lockdown, the teachers used WhatsApp and telephone to discuss teaching material and to check on the students. This was in particular important in Kenya, where pupils returned to their hometowns in often remote rural locations with limited internet connectivity and interrupted power supply. In Bangalore and Nara, WhatsApp was a reliable tool used to communicate with pupils, but from an early stage in the project schools used their LMS because they were already integrated in teaching and learning. Nonetheless, the LMS were a challenge at all schools in this project. Both pupils and trainee teachers experienced difficulties accessing the school learning platforms, with interrupted internet links and poor internet connection being the main explanations. Table 3 shows the technical difficulties experienced by pupils at the different schools.

Table 3: Pupils' technical challenges

	Japan	**India**	**Kenya**
Internet access	16	5	5
Lack of power	4	1	4
Problems accessing the platform	3	0	1
None	10	6	1
Total no. of pupils	33	12	11

A major problem for the pupils (26 of 56, or 46%) at all three schools was accessing the Internet. The survey does not identify the frequency of such difficulties, whether they occurred all the time or only occasionally, but according to the trainee teachers it was a common problem. This meant that pupils could be in and out during a lesson. Thus, a challenge not depending on if the pupil were in a low-, middle- or high-income country. In the Kenyan pupils' case, they received data bundles (Internet time) from the school administration, and these did not cover the whole period (monthly). Other pupils relied on Wi-Fi. Lack of power was frequently a concern for Japanese pupils, due to learners spending many hours in front of screens and forgetting to charge the device. Difficulties with power were also apparent for Kenyan pupils, but this was usually related to power shortages in their rural home locations. Technical issues led to high rates of absence among Kenyan pupils. For example, a lesson observed in Form 4 had 10 pupils present out of a class of 54. Students attending had their video cameras switched off to ensure a better connection. Overall, 30% of all pupils had no technical challenges at all.

Kenyan pupils who used a mobile phone, which usually belonged to a parent, encountered challenges in sharing the device. For example, one Kenyan pupil said: "I am using my mother's mobile phone, and sometimes she doesn't stay at home during my study time, so I miss the classes". Other challenges occurring at the three schools included pupils forgetting to mute their microphones, which led to unwanted background noise; problems sharing screens when accessing lessons on a mobile phone; and pupils pretending to have technical issues when the teacher asked a question that was too difficult. On the other hand, pupils sometimes complained of difficulties in the other direction: "We can't hear the teacher or see him due to technical problems" (Indian pupil). According to the trainee teachers, the Japanese pupils were used to using digital tools and showed digital competence, but they also had problems accessing the Internet (16 of 33, or 48%). Additionally, trainee teachers faced difficulties when sharing

screens on the local platform because it was then not possible to see the chat, where pupils frequently asked questions or informed the lecturer that they could not see the shared screen or hear the teacher.

Pedagogical Challenges

The Swedish trainee teachers sometimes had difficulties understanding whether all the pupils were following the lesson properly. One female trainee stated:

> *I do not know how much they understood. It was the hardest thing for me to know.*

This was especially difficult when pupils' microphones and cameras were turned off, and the latter occurred frequently with the Kenyan pupils due to low bandwidth. All online teaching was live, and another common issue was pupils forgetting to mute their microphones, which brought in background noise – for instance from siblings, neighbours, chickens or motorbikes. Kenyan pupils in particular stated that they experienced a disruptive environment. The pupils themselves sometimes disturbed the lesson as well, and in some cases used the chat function to bully other pupils. On the one hand, the pupils sometimes took advantage of the digital setting. One male trainee teacher said:

> *I ask if a pupil can answer and then the pupil's internet collapses. Or the camera is not working. But if he or she wants to ask me something, the camera works perfectly and there is no internet problem.*

On the other hand, the trainees noticed by observing the regular teachers that they sometimes did not give the pupils time to respond.

> *The pupils have learned that if they wait 2-3 seconds, the teacher will give the answer* (Interview, male trainee).

Additionally, some Japanese pupils argued they had problems concentrating, thus difficulties with the subject content in the online environment. An explanation of this, according to the trainees and supervisors, is that the combination of online teaching and English as a subject was too difficult for the Japanese pupils. However, teaching was generally considered to be relevant and interesting. According to pupils, the overall grade for online teaching provided by the trainees was a mean 4.19 (out of 5). Pupils considered the teaching approach to be at a level suited to the pupils' knowledge, and the content was considered not too difficult (mean 2.93) and relevant for the learning objectives (mean 3.82). According to the pupils, the effort required to follow the teaching was medium (61%) or high (31%). Active participation and interaction between pupils occurred during lessons. One Indian pupil said: "We watched a lot of interactive videos and did a lot of fun activities". Thus, overall, the pupils felt positively about the teaching from abroad (mean 3.35), and found lessons both different and interesting.

Some pupils stated that they had difficulty understanding because the trainees had a different (as in Swedish) accent when speaking English, and recommended that they speak more slowly. Vice versa, trainees initially had difficulty understanding the English spoken by pupils and supervisors. Nonetheless, the atmosphere was supportive: "Everyone was given an equal chance, and politely corrected when someone made a mistake" (Indian pupil). Pupils felt they developed skills (for example, language skills): "It was very easy to understand even in online

classes" (Japanese pupil). One Kenyan pupil expressed his approval of the trainee teacher via the online questionnaire as follows: "Keep it up 👍".

Social Challenges

The trainee teachers reported that it was a challenge to relate to the pupils in the digital environment. To be able to move between formal and informal engagement is important to create rapport with learners and sustain interest and motivation. One supervisor from India commented: "He (the trainee teacher) didn't get an opportunity to explore this as the internship was online" (assessment form). Thus, the social skills objectives as part of the teacher training were problematic to fulfill. In addition, a Kenyan supervisor writes:

> NN [trainee] demonstrated an ability to change the way she communicates, based on conscious social and pedagogical considerations of the Kenyan students. NN joined us under unprecedented circumstances. We were grappling with finding our way with online teaching. She was quick to think on her feet when assigned lessons. She fashioned the lessons very independently such that they did not need much adjustment. (Assessment form)

The Swedish trainees said that teaching was made difficult due to limited possibilities for using body language, which limited his modes of expression and available ways of explaining the content. The trainees had no previous knowledge of the pupils nor their background, life conditions, and so on. Interviews and written reports from trainees reveal difficulties pronouncing pupils' names, or even knowing whether the name displayed on the screen was a first name or a surname, due to cultural differences. Additionally, it was sometimes difficult for the trainees to know whether a pupil was male or female from their name alone. During the internship, trainees deepened their knowledge about their host country by reading about the culture, traditions, food, and so on, and/or by interviewing the supervisor about the pupils' life situations. These investigations allowed them to adapt their teaching practice to the context in which the pupils lived. For example, the Kenyan supervisor pointed out that pupils were sometimes required by their families to do small jobs to receive a daily income, and were therefore absent from class at certain times.

Trainees' Experience

The trainee teachers reported limited experience of online teaching prior to the placement; only theory of digitalisation had been discussed during the teacher training programme. Trainees understood the importance of online teaching aids, flipped classroom, and so forth, and appreciated the opportunity to practice. One female trainee said in an interview:

> *I think I have learned more in this practice than in any other practice. Because it has been so intensive, and I have had to learn so much. Technical, cultural, and I had to teach […] the usual in teaching practice plus more components. So, it has been very intense mentally even though it has been 1-2 lessons a day.*

The trainees increased their self-confidence and learned to be flexible and take the initiative. This was particularly apparent when, for example, the network of regular teachers failed, and the trainee suddenly had to step in as class teacher. For the most part, the different time zones did not pose a great challenge, but in the case of the Japanese school, trainees had to wake up

at 04.30 am to start teaching and sometimes found it challenging to motivate, inspire and engage the pupils in the lesson.

Trainees cited varied reasons for participating in the internship. The main reason was wanting to help out the participating schools under lockdown, followed by a desire to develop their own digital teaching competence. Trainees stated they would not have applied for face-to-face teaching abroad, which the university regularly offers as a summer course. Reasons for not applying for such courses were lack of time, fear of flying, and considering it more important to develop their digital competence. However, following the online placement, trainees showed an interest in undertaking teaching practice in selected countries the following year due to having been well-received by the host schools and supervisors. This interest in both globalisation and digitalisation developed steadily during the digital internship according to the initial digital seminars, and trainees' oral and written reports.

Discussion

This study explores the challenges faced by three schools in three different countries in the transition from face-to-face teaching in classrooms to fully online teaching, which presented a totally new learning situation for both teachers and pupils. The implementation of online teaching regarding organisational, technical and pedagogical aspects was not thoroughly planned by the schools before they started their online programmes. In addition, there was uncertainty from governments, and their guidelines and policies changed from month to month. For instance, in July 2020 the Indian government significantly reduced pupils' screen time to encourage reading and study in the traditional way (i.e., textbooks). This may have been motivated by concern that pupils might simply copy text from the Internet, and that teachers would have little insight into learners' experience. Thus, this requires a mind change if full learning potential is to be achieved. The findings of this study show that the main challenge encountered in online learning was not the technology itself, even if the pupils had difficulties with insufficient networks and internet access, but rather teaching methods and pedagogical approach (see Escueta et al., 2020; Hansson, 2015; Rouadi & Anouti, 2020).

The pedagogical approach taken by trainees was initially mainly teacher centred. A typical lesson consisted of a trainee giving a lecture by sharing PowerPoint slides, or a pre-recorded video lecture. The pupils were then passive participants, and understandably found the lessons rather monotonous. According to the questionnaire, the pupils suggested that teaching be made more fun and delivered with a smile. The Swedish trainee teachers then faced the same dilemma as the local teachers in the schools. Together, teachers on both sides gradually moved towards a different approach, learning about the technology and attempting to blend pedagogy to create more interactive and personalised instructional videos. In some subjects they offered digital textbooks, this can be a development aspect to integrate at larger scale in the school platform.

Three of the trainees in the first group were teaching foreign languages in Indian and Japanese schools. The pupils stated clearly that they found language learning difficult and therefore they were less motivated. The main social challenge for all the trainees was a lack of understanding of the pupils' context, background, life conditions, and so on. The trainees had been given some relevant information by the course coordinator and supervisors, but as outsiders their understanding remained limited, particularly in terms of relating to a poor setting such as Kenya when coming from a high-income country like Sweden. The trainees also pointed out that in face-to-face teaching, it is possible to use body language and eye contact, to chat with pupils before and after lessons, and so forth. In the online setting, there was a lack of opportunity to

build social relationships, which trainees considered to have a negative effect on learning. Consequently, there is a need for more and other forms of interaction – for instance, through WhatsApp or Facebook Messenger. However, in general, the pupils were satisfied with the teaching provided by trainees. An Indian pupil concluded: "The foreign teacher gave me a wider perspective on the cultures and lifestyles of those in several countries."

Recommendations

Innovation and emergent technology optimism are not enough to ensure quality in online education. There are other aspects to consider such as infrastructure, teachers' digital competence, and the relationships between online resources and learners. Rasheed et al. (2020) and Lenkaitis et al. (2020) point out that an important question in teacher training is how to provide effective online activities for trainees. Trainee teachers have criticised teacher training programmes as being too theoretical when it comes to digitalisation. The digital internship was a capacity-building project, helping to equip trainees with 21st-century skills and foster lifelong learning. It is important for trainees, and pupils, to develop digital literacy, which encompasses skills to access, synthesise, analyse, interpret and critically evaluate information (Kong, 2014).

The trainee teachers in this project developed new perspectives on both the Swedish education system and those of other countries. The trainees increased their global awareness and received new pedagogical ideas about how to integrate digital learning in normal teaching. Further, this internship reached trainee teachers who would not normally have participated in mobility programmes. Trainees have a clear interest in globalisation, but their mobility is limited for various reasons, and it is of importance that trainees still receive global exposure regardless. Online teaching placements are a cost-effective and climate-friendly solution to improve trainee teachers' skills.

The online internship can be scaled up to groups of trainees who can teach abroad when it is suitable both for them and for selected schools. With this said, schools and teachers have learned from the experience to be better prepared for online teaching in the event of a future pandemic or similar disruption.

Limitations

Like any small-scale qualitative study, this research has limitations. The study is limited to three schools in three different countries with a limited number of trainee teachers, and generalisability has yet to be examined in other contexts and cultures. Another notable shortcoming is that not all objectives (social and pedagogical) for a teacher training placement have been examined; nor is there scope in the current article to identify the qualities and behaviours of supervisors.

Conclusion

The coronavirus pandemic that began in 2020 has affected the whole world and will continue to have consequences on a number of sectors for an unforeseen period of time, including education. When national lockdowns came into effect, the schools in this study mobilised quickly to transition from classroom teaching to online teaching. The teachers and pupils had very limited experience of digital tools or online teaching. Three schools in Japan, India and Kenya asked for support from trainee teachers in Sweden, who themselves had limited practical experience of online teaching. This study presents challenges and learning experiences from online teaching both under lockdown and when pupils had just resumed school attendance. While technical challenges were numerous, such as access to the Internet, the key concern at

all three schools related to pedagogical approaches. Pupils came from different socio-economic backgrounds, while teachers applied one and the same pedagogical approach, and there were shortcomings in the understanding of individual differences. In the online environment, teachers and trainees found it difficult to know whether pupils were active and had a good understanding of lesson content. On the other hand, pupils often found online lectures to be less motivating. Subsequently, the trainee teachers encouraged active participation and interaction, which was well-received by the pupils. Thus, a shift took place towards a learner-centred approach which was flexible and provided pupils with a variety of learning choices to make learning useful, exciting and motivating. There are small but important steps to be taken in the wake of the pandemic for developing quality in online education.

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Motivating Online Learning through Project-Based Learning During the 2020 COVID-19 Pandemic

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Abstract

The transition of traditional schooling to online learning during the COVID-19 pandemic disrupted formal school education. Though at home, teachers and students continued teaching and learning in socially distant ways using online technologies. From various teacher surveys, only about 60% of students in the United States regularly engaged with learning activities. Teachers and parents also expressed a significant need for help to keep students motivated and engaged in learning activities. During the pandemic, online learning left teachers and parents needing support for learning activities that motivate and engage students. Project-based learning is an increasingly popular pedagogical practice centered around students working collaboratively on projects while the teacher facilitates learning activities and progression. Project-based learning embodies several factors considered central to motivation in online learning. In this paper, we inquire how this approach presents itself as a candidate for learning during the pandemic when considering students' motivation to learn through online learning experiences. We construct a conceptual framework informed by motivational theories that share core tenets with this form of learning and use the framework to analyze interviews of 11 teachers from 4 schools that taught with a project-based learning approach before the pandemic and transitioned to teaching, using it online, in the Spring of 2020. From our analyses of the teachers' narratives, we discuss teaching aspects of the approach that lend themselves well to online teaching, elements that the teachers believe are missing, and how educators might cater to these missing aspects with a focus on student motivation to learn.

Keywords: COVID-19, motivation, online learning, project-based learning

Introduction

The COVID-19 pandemic disrupted traditional school education. Physical school facilities were shut down, but school education was expected to continue. This disruption created a wide range of schooling, from photocopied packets being mailed home to video conference classrooms. Unlike other disasters like hurricanes and tornadoes where schooling is temporarily paused, the COVID-19 pandemic forced physical school facilities to close, but teachers were expected to continue socially distant teaching using technology. This is attributable to a confluence of factors unique to the current time, comprising broader access to computers and internet than ever before (Child Trends, 2018), availability of technologies for online teaching and learning (Emmanuel, 2018; Meticulous Research, 2020; Wan, 2019), and the unique constraints of the pandemic wherein students, as long as socially distant, can stay home and continue learning.

However, learning from home did not result in the same teaching and learning experience for teachers and students as before the pandemic. From various teacher surveys, only about 60% of students in the United States regularly engaged with learning activities (Educators for Excellence, 2020; Kraft & Simon, 2020). These numbers are difficult to report by districts and states, as no standard metric or definition for student engagement during the pandemic has been agreed upon yet (Barnum & Bryan, 2020). Student engagement was divided across race and socioeconomic status lines, where teachers of students of color and those belonging to low-income groups reported lower student engagement in learning compared to other groups (Gewertz, 2020). Irrespective of student background, teachers and parents expressed a significant need for help to keep students motivated and engaged in learning activities. 44.6% of teachers from a recent RAND study (Hamilton et al., 2020) reported needing help with strategies for keeping students engaged and motivated, and 53% of parents in a National Parents Union survey (Echelon Insights, 2020) indicated needing help with engaging their children in good activities.

This transition to online teaching, a phenomenon that we refer to as social distance teaching and learning (Anderson & Hira, 2020), disrupted formal education, leaving teachers and parents needing support for learning activities that motivate and engage students. In this paper, we explore how teachers who use project-based learning (PBL) were able or unable to motivate their students to learn during social distance learning. We first construct a conceptual framework informed by motivational theories that share core tenets with PBL, and then analyze interviews of 11 teachers from 4 schools that transitioned to teaching using PBL online in the spring of 2020. From our analyses of the teachers' narratives, we discuss PBL teaching aspects that lend themselves well to online social distance teaching, aspects that the teachers believe are missing, and how educators might cater to these missing aspects with a particular focus on student motivation to learn.

Literature Review

Project-based learning, true to its name, uses projects for teaching and learning. Projects provide students with opportunities to be central in their learning, work autonomously over a given period of time with facilitation from the teacher, collaborate and cooperate to research and create projects, and reflect on their learning individually and as teams (Bell, 2010; Blumenfeld et al., 1991; Thomas, 2000). Through PBL, students work on relatively complex and advanced problems that are authentic in context. Learning is grounded in explicit educational goals (Moursund, 1999), often including lifelong learning (Diehl et al., 1999).

Theoretically, PBL is grounded in constructivist and constructionist educational theory, wherein learners construct knowledge based on their experiences and prior knowledge (Piaget, 1970) and mediated by their interaction with artifacts (Papert, 1980; Papert & Harel, 1991). Savery and Duffy (2001) claim PBL to be one of the best exemplars of constructivist learning. PBL has been shown to produce a better attitude towards learning and higher academic achievement (Baş, 2011; C. Chen & Yang, 2019) compared to traditional instruction and textbook-based teaching. Students are motivated to pursue nontrivial problems by genuinely engaging with them (Blumenfeld et al., 1991). Ideally, PBL in practice is scaffolded to meet appropriate learner goals, supports teachers and students to enact effective teaching and learning, includes formative reflective and peer evaluations, promotes both collaborative work and individual student ownership and agency (B. J. S. Barron et al., 1998; Kokotsaki et al., 2016; Svihla & Reeve, 2016). In synthesis, PBL places student autonomy and agency at the center of the learning process, takes place in socially connected settings, develops individual students' abilities and skills, and the projects are relevant and interesting to the students.

Many studies exploring PBL and online learning have focused on how online tools like cloud computing and online forums can help facilitate PBL pedagogy. Studies have found that cloud computing or collaborative online tools such as the Google suite or Office365 are valuable tools for facilitating PBL (Çakiroğlu & Erdemir, 2019; Sutia et al., 2019). Ching and Hsu (2013) concluded that peer feedback encouraged student participation and learning in online PBL assignments. Others have explored student group dynamics in the online environment. Yilmaz et al. (2020) investigated how different online group dynamics comprising vertical and shared responsibility are both effective in completing PBL assignments. While prior work on online PBL provides relevant grounding for this paper, it is essential to note that our study is situated in a time when teachers abruptly moved to remote teaching or what we have termed social distance learning. Most prior work in the area has focused on intentionally designed online PBL experiences, whereas during the shift to online teaching during the pandemic, schools and administrators did not have the time to deeply think through and implement any major redesigns mid-semester. Thus, we report on this unique maneuver that many teachers across the world were expected to perform.

Conceptual Framework

To understand relevant motivational factors that play a role in effective online PBL, we form a conceptual framework by synthesizing tenets of relevant motivation theories, namely, self-determination theory (SDT) (Deci & Ryan, 1985), achievement goal theory (AGT) (Nicholls, 1984; Pintrich, 2000b; Senko et al., 2011), and the role of interest in learning and development (Renninger et al., 1992). Below we explain how these theories aid understanding motivation to learn in PBL settings.

According to Deci and Ryan (1985, 2000), individuals' self-determination towards various tasks is promoted by their experience of achieving the psychological needs of autonomy, competence, and relatedness. Autonomy refers to an individual's sense of agency in a given situation, competence refers to an individual's capability to carry out a task, and relatedness is the quality of connecting with others. SDT has also been used as a theory to understand motivation in online learning environments (Hartnett, 2016). Unsurprisingly when students are supported in their autonomy, competence, and relatedness to learning, students improve in these three psychological areas, in turn favorably affecting their self-determination to learn in online settings (K. Chen & Jang, 2010). Kim and Frick (2011) reported that perceived relevance and competence to use technology, in addition to age, were the best predictors of learners'

motivation to begin self-directed e-learning. This motivation to start self-directed e-learning, along with learners' perceived quality of instruction and their fit for online learning, predicted their motivation to continue self-directed online learning. Hsu (2019) also reports that in an online setting, individuals' experience of agency, capability, and relatedness, resulting in self-determination, is associated with a higher perception of knowledge transfer and increased achievement of course objectives.

Another prominent and relevant motivational theory is the achievement goal theory. Originally, the theory proposed two types of motivational goals for learning, task and ego goals (Nicholls, 1984), as in goals that are met by completing tasks or supporting one's ego, respectively. Over time, these goals have been revised to be called mastery and performance goals, respectively (Dweck, 1986). The first aimed at mastering tasks, and the second at performing better than others (Pintrich, 2000b). Some propose that mastery goals are more socially desirable by students because of their ability to please parents and teachers (Darnon et al., 1997). Contemporary conceptualizations have introduced a multiple goal perspective to the theory which combines both mastery and performance goals (Elliot, 1999; Harackiewicz et al., 2002; Pintrich, 2000a). A relevant approach for this study is the idea that students shift their motivation between the two types of goals as and when it is relevant in their learning: they focus on mastery goals while they are learning new information and working by themselves, and motivate themselves by performance goals when taking tests (K. Barron & Harackiewicz, 2001; Pintrich, 2000b). In the case of PBL, a majority of learning time is spent in the former.

Finally, the third theory that supports motivation to learn in PBL settings is the role of interest in student learning and development (Renninger et al., 1992). According to Renninger et al., students' interests play an essential role in their engagement with learning experiences. This interest can be personal or situational, or both. Personal interest influences a learner's engagement with the social and non-social environment, and situational interest refers to how interesting the environment is by itself to encourage interactions with people and objects. A related theory is that by Voss and Schauble (1992), who propose a model of learning in which learning takes place in both, within the individual, and in the environment that the individual is in. They claim that individuals use two types of "equipment" to learn. The first is value-based that informs individuals' goals and interests, and the second is intellectual that informs individuals' knowledge and beliefs. As per their model, learning takes place within the interplay of these two equipment.

For our study, we synthesize the factors from the above theories as relevant to PBL. These include personal meaning and relevance, autonomy and agency, connections with others, and competence development.

Methodology

For this paper, we interviewed eleven high school teachers from four schools across three states of the United States. All four schools had adopted a PBL approach to teaching prior to the pandemic and continued their PBL practices with the limitations of the pandemic and virtual teaching. See table 1 for the teacher pseudonyms along with their school contexts. The teachers belong to a mix of suburban, urban, rural public, and public charter schools.

Table 1: Teachers and school background

Pseudonym	School
Chloe	Urban Public Charter
Leah	
Melissa	
Naomi	
Denise	Urban Public Charter
Jacob	
Eric	Suburban Public
Eli	
Tiffany	
David	Rural Public
Rebecca	

All four of the above schools are part of a network of schools supported by an organization committed to rethinking and changing high school education. As members of this organization, the school leaders and teachers from the four schools are part of common communities of practice.

We interviewed the teachers between May 11th and June 15th, 2020, using a semi-structured interview protocol developed to understand the teachers' perspectives on teaching with a PBL approach, their experiences working with instructional coaches, and their transition to social distance teaching in the wake of the pandemic. For this paper, we limit our analyses to the answers and narratives from the interviews in response to their experiences transitioning to social distance teaching triggered by the pandemic. All the teachers were teaching completely remotely i.e., from home, at the time we interviewed them. We conducted deductive coding (Corbin & Strauss, 2012; Denzin & Lincoln, 2005; Miles & Huberman, 1994; Patton, 2014) of the interviews based on the concepts of the conceptual framework, as explained in the previous section. The line of inquiry or research question for this paper is:

> How does PBL present itself as a candidate for social distance learning when considering students' motivation to learn in online learning experiences?

Ethical Considerations

This research study was determined exempt by the Massachusetts Institute of Technology Committee on the Use of Humans as Experimental Subjects under the exemption criteria as defined by Federal regulation 45 CFR46 under Category 2 – Educational Testing, Surveys, Interviews or Observation. All participants provided informed consent to be interviewed for the purposes of this research study and were compensated for their time spent on the interview. Pseudonyms were used in reporting the data to protect the participants' identities.

Findings

Personal Meaning and Relevance

The first lens in the conceptual framework is that of personal meaning and relevance. In PBL, students work on projects and activities that they find personally interesting and relevant to their lives. This is true of the students' projects in class and still true once classes pivoted to remote in the spring of 2020. The teachers share how, during the pandemic, their students continue to work on projects that the teachers find educationally meaningful, and the students personally interesting. In the following quotes, teachers speak to how PBL as a pedagogy provides opportunities for their students to find personal meaning and relevance in what they are learning, and how this continues to be true in social distance learning.

In watching her students pursue projects that are personally meaningful Leah shares how this is helping to shift her notions of what counts as school learning and growth.

> *I love doing PBL... how can we continue to reinvent what's school … I have some students who are sewing hats … teaching themselves random instruments … It's helped expand my idea of how do we measure learning and growth.*

PBL is allowing students to pursue their interests and expand Leah's notion of learning.

Tiffany, a business teacher, uses PBL pedagogy to help her students connect their class work to their own lives.

> *...I know that kids are kids, at the end of the day, they're going to say, ""It's not important to me."" But if I can show you the parts that are important, and you can walk away with those life lessons, then I've done my job.*

She recognizes that students often do not see how what they learn in school is essential. In her instruction, she ensures that students take what will be relevant and vital to them as life lessons from the project experiences.

When schools moved to remote learning, Chloe needed to reframe her PBL lessons so that students could work on projects that were still of interest to them but were also feasible given the constraints of remote learning, including a loss of supplies in her classroom. By *having students devise their own projects, and what will they need and what do they have available to them already.* Chloe reframed her PBL lessons to be relevant and feasible.

Autonomy and Agency

The second lens in the conceptual framework is that of student autonomy and agency. A PBL approach can enable students to have autonomy over their work, as they can work at their own pace and schedule in self-directed ways as long as they meet the project's broader goals. Since projects are often related to student interest and are created to be relevant to them, there is space in the experience for students to practice agency and perceive control over the learning experience and outcomes. In their experience of teaching socially distanced PBL, teachers share how they have provided differentiated learning experiences for students in the way they deliver content and mentor their students one on one. While some students who struggled in the traditional classroom performed better and even took charge of how they learned, other high performers struggled. The teachers attribute successful performance to fewer distractions

and certain students being able to better self-pace their learning. We will discuss the possible factors for students struggling to learn in the next section on connections with others.

When the pandemic started, Denise moved to a more hands-off approach, an approach that PBL enables, to provide students with high-level project goals and not day to day instruction. The students had to self-pace their way through the project, a shift in trust and agency for her students, as Denise stated *really trusting kids to guide themselves.* In giving more autonomy and agency to her students, Denise found

> *...something else that's changed is students...have traditionally struggled...doing a lot of work ...* [now they] *have been the most on top of it and the most creative.*

Remote PBL allowed Denise to place more autonomy and agency in pacing her students' work, which gave space for some students who had traditionally been struggling to thrive.

Tiffany likes that she can provide differentiated instruction for her students by teaching PBL online, which she calls a low floor, high ceiling approach. Seeing how another educator includes both the essential questions for the lesson and a section of the virtual learning platform called

> *…enrichment. I love that, and that's going to be a new thing for me because you always have more information you want to share with the students, but you don't want to overwhelm them … It helped me reestablish what differentiation was in a different way … it's a low floor, no ceiling approach.*

Even while providing added scaffolding Tiffany also noticed that not all her students are experiencing social distance PBL learning the same. Some of her usual high-performing students are struggling, and some that she was concerned about are doing well. Tiffany heard from her students who were thriving that they

> *...love this because I'm succeeding, and I'm getting good grades … There's nobody in the classroom cracking stupid jokes to distract me.*

Tiffany gives the students space to have more autonomy and agency without the distractions of the classroom.

In the same vein as Tiffany, Melissa is experimenting with individualized one-on-one mentoring during the quarantine:

> *One-on-one actually helps. … You're the person doing the work, I'm the person just giving feedback … And I think what I would love is to translate that when we go back next year of the same way...*

Teaching PBL virtually has allowed Melissa to provide more autonomy and agency to her students through shifting her role from the holder of knowledge to guide and supporter of learning – a role she wants to continue back in the classroom.

Similar to Melissa's students', Jacob's students demonstrated agency, advocating for their classwork to be less a to-do list and more project work related to the environment, which is the school's focus.

> *I had a couple kids that wrote me and said, "Well, I can't do this. Every class is just 'Give me a list of things to do,' and it's taking forever. I hate it. ...this one student, she really was...challenging us on the mission of the school and said, "We're this environmental school, and I'm just in front of a computer all day long".*

Students spoke out for the learning they wanted to do and successfully changed the work that was asked of them.

Connections with Others

The third lens from the conceptual framework is that of experiencing connections with others. As we mention in the previous subsection, teachers share that some of their students struggle with social distance learning. One of the factors attributable to this is the lack of connection with their peers, mentors, school community, and the communities that their projects are focused on. Teachers share that in addition to the rift of not being in the physical vicinity of each other, they are also observing an emotional separation as they cannot make themselves available in their students' lives as caring adults in the same way as being in person in the classroom. Teachers believe that this lack of connection has adversely affected teamwork and collaborative aspects of learning.

Denise spoke about how the rift in social distance learning is negatively impacting relationship building:

> *...[our school] struggle with a lot of things, what we don't struggle in is relationship-building. Kids like coming to school...I feel like I've lost that joy.*

Eli similarly noticed a rift that social distance teaching has created between him and his students:

> *There's a legit distance between you and the students, not only, obviously, spatial. It feels like, emotionally, there is a distance there. It's really hard.*

He can see his students struggling to be at home without the supportive community of a classroom.

Leah misses being able to see her students' progress on their project over time, and being available for just in time supports:

> *When I'm building things for in-class, a lot of that is just me being able to be there. So, if a kid does have a question, I can just give them that sentence stem.*

In teaching online, she is unable to provide these scaffolds as easily.

Similar to Leah, Tiffany shares how she was not able to dynamically engage with her students resulting in students working by themselves on their projects: *once in a while they had*

questions, but for the most part, they did things on their own... , often not doing the complete background reading and work.

Rebecca too misses meeting with and interacting with her students one-on-one. She thinks that online communication can come across as cold:

> *... I feel like everything online seems a lot colder and a lot... more harsh when you're just typing an answer to a question.*

Similarly, Melissa craves the energy and passion that in-person engagements with her students generated, *It's really difficult to maintain enthusiasm and passion for projects when you're by yourself.* She also thinks that her students are not getting the social connections they need to do work as they are used to.

Several teachers spoke about the loss of collaborative team projects in the move to remote learning. Eli highlighted how working together in groups is absent from the online experience.

> *That's definitely missing. The small group works, having a dedicated space within those groups to be able to discuss and plan and map things out, and to even build their artifacts or their projects, that's so hard to transition to, especially, in distance learning.*

Naomi echoes Eli in the loss of social interactions and, in particular, the collaborative team projects of PBL, *I think that teaming aspect was kind of lost at this time and that is an invaluable thing that we do at (school name) is a lot of teamwork.* In the spring of 2020, collaborative projects, an integral part of many PBL assignments, were missing.

Along with a loss of collaborative learning in the move to virtual learning, students were less able to engage with the school community. Chloe longs for celebrating her students' growth as a classroom and school community. Similarly, Eric believes that an essential aspect of PBL and their school is the community that students build and feel in the school, and social distance learning omits this part of teaching and learning. In particular, Eric states:',

> *... a big part of project-based learning is not just the projects, but also the sense of social growth that happens during the project.*

In virtual learning, teachers and students had a more challenging time connecting with others to create a sense of community.

Competence Development

For the fourth lens of the conceptual framework, we look at what competencies the students are developing, and those that their teachers want them to develop while learning from home via PBL. We asked the teachers about the kind of skills they hoped their students were learning at home by themselves. The teachers shared skills and lessons that can be mastered individually, as many school districts changed their grading system due to the pandemic (Reich et al., 2020). The teachers' answers ranged from learning how to be self-directed learners and managing their time efficiently, knowing what is valuable to them and self-advocating, and relevant skills for life like essential math and professional email communications.

Naomi shared that she hopes for her students to have learned and practiced leading their own learning and planning out their work accordingly.

> *One of the competencies we've been focused on [is] lead ones [own] learning. … The kids were tracking their work every week and planning their week out.*

Denise aspires for her students to learn time management and knowing when they are most effective.

> *I think time management has been really interesting, and also kids kind of gauging when they're most efficient... The kids that I knew struggled in school that haven't struggled, I think it's because a lot of them were able to work when the time is effective for them.*

Denise believes that students being self-aware of when and how they are most effective is a possible reason for some of her students to thrive with social distance learning. Similarly, Tiffany wishes for her students to learn to take initiative of their learning, which she believes is essential to becoming lifelong learners.

> *I hope that they see that there's always a way to learn so that they can continue to be the lifelong learners that we're trying to convince them that they should be. I do a lot of reminding them that as adults, the way we learn is that we have to take the initiative.*

By encouraging students to take more ownership of their own learning Tiffany believes her students are more likely to become lifelong learners.

Melissa aspires for her students to feel empowered to know when it is okay not to do an assignment and, in turn, where they should be focusing their learning efforts.

> *I want them to learn that you should not do things you don't want to do. Because over and over again, they would come to me and be like … "I guess I'm supposed to do it* [an essay]. *But also, my grade is really good in his class and I kind of don't care. And I'm stressed, and I'm working on this other thing." And I would just be like, "… Don't do things that don't matter to you."*

Similarly, Jacob hopes that the final projects that his students completed to answer the larger school-wide questions felt real and valuable to his students.

> *I hope that with all the different phases of the year from actually being in seats to doing the distance learning that they were able to see a thread that was consistent throughout in terms of being aligned with the mission, aligned with the big questions we're trying to ask about the community ... and that the fact that we were trying to approach schooling differently. At the end, they were producing things that felt real. When I think about the podcast and the book, I love those projects so much, because at the end of the day, it produced this really tangible...product that exists in the world ... So, I really hope that that is something that they experience and trusted...*

Eric taught his students the relevant math concepts of logarithmic growth.

> *So definitely due to the nature of the pandemic, I wanted to prioritize the exponential and logarithmic growth because I want them to understand how quickly viruses branch out and how you can model and track their growth. How are the people that are making the predictions... how are they doing that?*

Eric wants his students to gain specific skills in order to understand the science behind the pandemic's exponential growth.

Eli wanted to use this as an opportunity for his students to develop a healthy and productive relationship with technology and learn professional communication etiquettes via email.

> *Email etiquette, I hope, how to not be afraid of technology, sometimes. I think that's one. It's not because the program is difficult to use. It's because of their attitudes towards technology, sometimes. Same with Microsoft Word, everything is in size 14 Comic Sans MS.*

Through the move to social distance PBL during the spring of 2020, teachers emphasized professional skills, life skills, and lifelong learning goals for their students.

Discussion

In the previous section, we presented how the teachers in PBL focused schools are social distance teaching in the COVID-19 pandemic from the four lenses of our conceptual framework, namely, personal interest and relevance, autonomy and agency, connection with others, and competence development. In this section, informed by the findings and our conceptual framework, we discuss key takeaways and ideas to consider when teaching PBL in online settings. For successful online project-based teaching and learning, activities and projects should be relevant to students and develop skills that can be mastered by students individually. Students should be encouraged to take control and ownership of their learning, and activities should provide for peer to peer and peer to mentor interactions even in online settings. Finally, technology should serve as a means to support effective teaching and learning. In these key takeaways, we provide examples of the teachers from our study enacting motivational theories that informed the conceptual framework. These takeaways, at a high-level, apply to most approaches of effective teaching and learning from a motivational perspective. However, below we discuss instances of teachers adopting exemplar strategies while teaching PBL online during a pandemic. We share these to provide examples and inspiration for teachers facing similar predicaments, and also to capture and archive how teachers rose to the challenge of keeping their students motivated to learn in disrupted times.

Make Space for Individualized Learning Experiences

Similar to in-person PBL approaches (Diehl et al., 1999; Hira & Hynes, 2017; Moursund, 1999; Thomas, 2000), learning activities in online PBL settings should cater to students' interests and be relevant to their current and future lives. For example, Chloe encourages her students to work on project areas that are of interest to them; Leah's students have been working on activities like hat weaving and playing musical instruments which, they bring to share with classmates and her; and Tiffany encourages her students to see how the start-ups they work on in their business class are relevant to their lives. It is also essential for the skills and learning

outcomes to be adjusted to ones that can be developed by students working the majority of the time by themselves. For example, managing their own time and learning like Naomi, Denise, and Tiffany's students, learning what is valuable to them and advocating for what they need in their school learning experiences like Melissa and Jacob's students, and relevant skills like essential math and professional communication like Eric and Eli's students.

Encourage Students Taking Ownership of Learning

Inherently, PBL allows for greater student autonomy and agency than traditional lecture and homework models of education (Bell, 2010; Blumenfeld et al., 1991). Online PBL instruction should be accompanied by encouraging students to practice autonomy over how they spend their time completing the project's goals. Students should also be encouraged to advocate for the kinds of projects they would like to work on and their involvement. Perceiving control over their work and schedule can prove useful in making students take ownership of their learning. For example, Denise's students are self-pacing themselves; Tiffany's students are doing a minimum amount of common work and then being able to pick how much deeper they would like to go into the content area; Melissa's students are leading their learning and checking in with her as a mentor; and Jacob's students are advocating for doing more work related to the environment.

Enable Connections Between Peers and Mentors

An essential aspect to consider when teaching via PBL online is if systems are in place to encourage and support students to form connections with their peers and teachers. Feeling connected with others is an important motivational factor for student learning (Ryan & Deci, 2000). Many of the study participants reported missing human connections, this virtual aspect of learning and motivation, in their current online PBL teaching experiences. Students need to connect to be on teams together, collaborate on projects, and feel part of the school community. They also need to communicate with their teachers as mentors and be connected with caring adults as they make their way through school. This need for connection and teachers' role as part of the landscape of caring adults in students' lives has been harder to achieve online (Anderson & Hira, 2020). We see this with these teachers as well, Eli and Denise share how they miss the emotional and dynamic parts of their relationships with their students. Leah, Tiffany, and Rebecca are unable to connect with their students one-on-one throughout their projects, and Eric and Chloe miss facilitating a supportive community for their students to learn and develop in. Teachers believe this is a loss not just of connection but a fundamental loss to how learning should take place through relationships.

Use technology to Support Learning

Technology cannot wholly replace the school learning experience. However, it certainly makes teaching and learning a possibility when there are constraints on in-person learning like during the COVID-19 pandemic (Code et al., 2020; Peterson et al., 2020). Since technology mediates the environments in which students learn, it is imperative to consider how teachers and students engage with the environment to experience learning. Technology can also help support the three prior takeaways in this section. It is perhaps useful to think of technology as a means to support teaching and learning, and not entirely replace it (Dowding, 2004). In addition to introducing relevant educational technologies, schools need to provide training on using technology and set up systems to communicate and ensure a common understanding of how and when to use different technological tools.

Limitations

In this paper, we inquired how PBL presents itself as a candidate for online social distance learning in the COVID-19 pandemic. One of the limitations of this work is that it captures teachers' experiences in a moment of time, which is the spring 2020 semester in the United States, soon after the transition to online learning. There is still more to learn and inquire about the teachers' and students' experiences of PBL and online learning during the pandemic over the course of the school year. This study, though in part communicates teacher and student interactions, it does not cover the students' perspective of learning during the pandemic.

Conclusion

This study initiates a conversation about teaching PBL in online settings and exploring motivation with PBL teaching. Future work would include following teachers and students during the academic year 2020-2021 as school districts adopt online, hybrid, and in person learning, to learn how PBL may continue to motivate students to learn. With a particular focus on technology's role in mediating such learning experiences and understanding teachers' motivation to teach PBL in these unusual times.

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Distance Teaching Practicum: Its Impact on Pre-Service EFL Teachers' Preparedness for Teaching

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Abstract

Teaching practicum performs a crucial role in initial English language teacher preparation programs in that it offers pre-service English-as-a-foreign-language teachers a great chance to put the pedagogical content knowledge they have acquired through the coursework into practice by teaching real students. Due to the outbreak of COVID-19 pandemic, pre-service English-as-a-foreign-language teachers in the context of the present study, had to do more than half of their teaching practicums via distance education. This qualitative case study explores 25 pre-service English-as-a-foreign-language teachers' conceptions of the influence of distance teaching practicum on their preparedness for the first year of teaching. The data collected by emailed questionnaires were analysed adopting inductive content analysis. The results indicated they did not believe distance teaching practicum was effective in enhancing their professional learning and preparing them for the first year of teaching. In addition, they did not think teaching practicum conducted face-to-face could be replaced by distance teaching practicum.

Keywords: COVID-19 pandemic, distance teaching practicum, preparedness for teaching, pre-service English-as-a-foreign-language teachers, teaching practicum

Teaching practicum (TP) could be conceived to be a platform where pre-service English-as-a-foreign-language teachers (PSEFLTs) gain a first-hand experience of testing the effectiveness of disparate methods for English language teaching, about which theoretical information is provided by the university component of pre-service teacher education. Notwithstanding the importance of the theoretical knowledge imparted to pre-service teachers to help them prepare for the teaching profession, the mismatches that may occur between what is preached in the coursework and what is lived in the field might be the source of not only PSEFLTs', but also beginning EFL teachers' questioning its merit. Since learning to teach is viewed to be a context-dependent activity (Zeichner, 2010), the field is deemed to be of high significance by PSEFLTs to experience what it means to be a teacher and to gain profound insights into teaching and learning from the viewpoints of teachers rather than students, which they have been doing to the date they commence to do their TPs.

Distance education (DE) that could be defined as the education provided via online learning environments and on which a plethora of research has been undertaken (Akimov & Malin, 2020; Bose, 2013; Lee, 2017; Nielsen, 1997; Ramos et al., 2011; Raygan & Moradkhani, 2020) differs from face-to-face education presented in a learning setting with the physical presence of the teacher and students. Not only does the mode of delivery change from face-to-face education to DE, but also the learning outcomes produced by them may change. Such a discussion on the disparities between the effects of face-to-face education and distance education on student learning can be extended to the probable discrepancies between the effects of face-to-face TP and distance teaching practicum (DTP) on PSEFLTs' professional learning and preparedness for the teaching profession.

Until the outbreak of the COVID-19 pandemic, TP had been conducted by placing senior PSEFLTs into practicum schools where they were required to teach students and observe their mentor teachers' instructional practices. As a result of the pandemic, they could not complete their TPs in their placement schools. In view of the fact that PSEFLTs hold TP in high esteem and view it as an invaluable arena adding to their preparedness for teaching, this research aimed to unpack PSEFLTs' conceptions of the effect of DTP on their preparedness for the first year of the teaching profession. The lack of research into the impact of DTP on PSEFLTs' preparedness for teaching indicates the contribution to be made by this study to the literature. Additionally, the findings to be presented in this research could prompt teacher educators, mentor teachers and policy makers in TP to deeply ponder over what initiatives to launch with a view to running effective DTP so that PSEFLTs can make the most of it.

Literature Review

Pre-Service Teachers' Professional Learning

Teacher professional learning could be defined as learning practices they go into in an attempt to enhance the quality of their teaching. What teachers want to learn professionally could change according to their year of teaching experience (Louws et al., 2017), and the development of pedagogical content knowledge is believed to be person- and context-bound (Driel & Berry, 2012). Associated with that, the factors contributing to pre-service teachers' professional learning are postulated to be manifold, and in addition, they are considered to be influenced by past and present experiences having been gained in various contexts (Leeferink et al., 2015). Considering "the person" as one of the main determiners in gaining pedagogical content knowledge, it could be alleged the experiences pre-service teachers had in their prior educational lives and the ones they undergo as fulfilling the requirements of the pre-service teacher education program presumptively have something to do with their professional

learning. Pre-service teachers assume an active role in the construction of their professional knowledge during their initial teacher education (Tang et al., 2012), and what they acquire through campus- and school-based learning could foster their abilities to work at schools (Tang et al., 2016). Pre-service teachers seek help for their professional learning starting from their first year in the program (Toom et al., 2017), which brings forward the crucial function to be served by teacher educators and the other parties featuring in pre-service teacher education.

A set of actions can be taken to promote pre-service teachers' professional learning. For instance, it could be stimulated through peer assisted learning as was reported in the research conducted by Bone et al. (2019). Teaching abroad experience is also posited to broaden pre-service teachers' knowledge of teaching in a world continually increasing in complexity (Moorhouse & Harfitt, 2019). Additionally, Anwaruddin's (2016) study yielded integration of information and communication technologies into English language teachers' professional development activities ended in improvement in their pedagogical knowledge. Seeing the increased integration of technology into teaching and learning practices at all levels of education over the last two decades, avoiding it in pre-service teacher education would literally be swimming against the current.

Notwithstanding the fact that subject knowledge is appreciated to be effective in quality teaching (Richards et al., 2013), teaching experience gained by virtue of TP is on a par with pre-service teachers' knowledge of English language teaching. TP occupies, in effect, a vital place in pre-service teacher education (Gray et al., 2019; Grudnoff, 2011; Ulvik & Smith, 2011) as pre-service teachers practice teaching real students and develop their teaching competencies via employing pedagogical content knowledge they have accumulated from the start of and/or during their TPs (Choy et al., 2014; Cohen et al., 2013; Gebhard, 2009). The indispensable contribution of teaching experience gained in TP to PSEFLTs' learning was demonstrated in Chien's (2015) study from the points of view of PSEFLTs. As well as practicing teaching in TP, reflecting on teaching practices impacts on pre-service teachers' professional learning. For instance, in the study by Gan and Lee (2016), it was reported that pre-service English-as-a-second-language teachers' reflections on their teaching experiences in TP resulted in professional learning with regard to effective classroom practices. Undoubtedly, mentor teachers perform a fundamental role in how much pre-service teachers learn from their experiences of TP. Accordingly, the substantial role played by mentor teachers in pre-service teachers' learning to teach is accentuated in the literature (Adams, 2017; Barak & Wang, 2020). Irrespective of the fact each student teacher has diverse needs in the transition period between the final year of pre-service teacher education programs and the first year of teaching (Dahlgren & Chiriac, 2009), they all need practice teaching and reflect on their teaching practices in conjunction with the feedback they receive from their mentor teachers and university supervisors.

Distance Teacher Education

Distance teacher education could be conducted as a supplement to face-to-face teacher education or as a substitute for it as a consequence of the emergence of an unanticipated circumstance like a pandemic. Distance teacher education is contended to be an agent promoting the increase in the exchange of ideas between lecturers and pre-service foreign language teachers and developing students' skills of the use of technology for their learning (Forbes & Khoo, 2015), and it is viewed to be an agent enhancing pre-service teachers' professional learning and development (Turvey, 2012). Moreover, online technologies are considered to facilitate personalized teacher professional development in Yurkofsky et al.'s (2019) study. It was demonstrated in the study that DE promoted pre-service teachers'

reflective practice, and offered curricular and emotional support to them. The advantages of DE, according to Cowan (1995), were the freedom students had in placing more emphasis on the topic they wanted to learn and in the decisions they made in the learning process, and having the chance to study at their own pace. However, the author claimed that it embodied a number of disadvantages including the absence of effective communication, considering the one in face-to-face communication, the difficulty to be faced by students in taking equal advantage of the same DE, and lack of socialization among students and teachers.

The way DE is conducted affects the satisfaction pre-service teachers derive from it. To exemplify, the research by Kim et al. (2011) revealed the quality of teaching positively influenced learning satisfaction with DE. The study by Offir et al. (2008) explored the differences in the learning outcomes produced by synchronous and asynchronous distance learning systems. Synchronous distance learning was depicted to be more effective than asynchronous, originating from the higher level of interaction between the teacher and students. The extant studies on DE also reported negative conceptions student teachers held about it due to the problems in regard to the inability to use technology, the need for training the staff to develop their technological skills, demotivation among students, and being devoid of social presence (Gillies, 2008). The research done by Adem (2009) yielded the reasons behind the high attrition rates amongst the participants of distance teacher education programs, which involved the insufficiency of the support and overburdening the participating teachers by the work required. What is reported in Adem's (2009) study indicates the necessity of offering firm and continuing support to distance pre-service teachers. The level of support to be provided to them largely depends upon their particular needs. To illustrate, the significance of virtual field experience for pre-service teachers who could not go to schools was emphasized besides the need for the development of their technological skills in Phillion et al.'s (2003) study.

Initiating and sustaining a strong interaction with pre-service teachers in distance education can be deemed to be a predictor of the effectiveness of DE. Therefore, the quality of DE could be improved through increasing both the quantity and quality of the interaction between students and teachers (Carrillo & Flores, 2020). Meaningful tasks as a part of online courses were favoured while the ones mandating memorization and group activities were not found useful by the study participants in the research by Boling et al. (2011). Even though designing meaningful tasks and maintaining interaction between the teacher educator and pre-service teachers and amidst pre-service teachers seem to be challenging in distance teacher education, Falloon's (2011) study suggested the promoting effect of virtual classrooms on the occurrence of quality dialogue. Furthermore, an array of improvements in DE such as providing prompt feedback and constant adaptation of the online system based on students' comments are required to foster student learning (Hall, 1996). In addition to pre-service teachers, university supervisors and mentor teachers could derive benefits from distance teacher education (Gruenhagen et al., 1999). They may have the chance to develop their skills in effectively and efficiently using digital technologies in pre-service teacher education and their repertoire of tactics to employ at challenging times in distance teacher education.

The literature encompasses studies demonstrating no significant difference in students' contentment receiving education in traditional classrooms and online classrooms (Skylar et al., 2005). Higher education students' social presence in online learning environments is contended to be affected positively by a comfortable online learning environment in which their feedback on the process of their distance learning is valued (Sung & Mayer, 2012). The pivotal role played by feedback in getting the most out of DE on the part of pre-service teachers was stressed in Uribe and Vaughan's (2017) study. Pre-service teachers instructed on the

significance of providing timely feedback in encouraging student learning need to receive immediate feedback from their teacher educators. The outbreak of the COVID-19 pandemic has urged all the parties involved in pre-service teacher education to ground pre-service teacher learning on digital technologies, about which they are likely to hold distinct views. For instance, the teacher educators participating in a recent study conducted by Moyo (2020) expounded divergent views on how teacher certification would be finalized in the absence of TP done in the field. In addition, they emphasized the significance of appreciating favourable outcomes of TP conducted face-to-face in a real classroom environment to sustain the achieved standards in pre-service teacher education.

Andragogy, developed by Knowles (1968), is the theory underpinning this study. The theory of andragogy lays the emphasis on adult learners' characteristics to explicate how they learn. Following is Table 1 displaying adult learner characteristics proposed by Knowles (1980, 1984).

Table 1: Adult learner characteristics

As a person matures, his or her self-concept moves from that of a dependent personality toward one of a self-directing human being (Knowles, 1980, p. 43).
An adult accumulates a growing reservoir of experience, which is a rich resource for learning (Knowles, 1980, p. 43).
The readiness of an adult to learn is closely related to the developmental tasks of his or her social role (Knowles, 1980, p. 43).
There is a change in time perspective as people mature –from future application of knowledge to immediacy of application. Thus, an adult is more problem-centred than subject-centred in learning (Knowles, 1980, p. 43).
The most potent motivations are internal rather than external (Knowles, 1984, p. 12).
Adults need to know why they need to learn something (Knowles, 1984, p. 12).

Since the participants in this study are adult learners, according to andragogy, they are supposed to be self-directed and internally motivated learners, which could have its reflections in their perceptions with respect to DTP. Review of related literature has uncovered that DTP is an under-researched topic necessitating more research to enlighten its impact on PSEFLTs' professional learning and their preparedness for beginning to teach following graduation; thus, this research targets unravelling what views PSEFLTs hold about the effect of the DTP they have completed on their preparedness for the first year of the teaching profession.

Methodology

Research Design and the Context

This study was designed as a qualitative case study because, according to Strauss and Corbin (1998), qualitative research is "research about persons' lives, lived experiences, behaviours, emotions, and feelings" (p. 11), and this research aims at exploring PSEFLTs' lived DTP experiences. Additionally, as is stated by Denzin and Lincoln (2010), gaining a deeper account of a subject's perceptions of a phenomenon necessitates the use of qualitative study, and in this research, delving into PSEFLTs' DTP experiences was targeted. Furthermore, as is suggested by Punch (1998), the question of what kind of research, qualitative or quantitative, could enable us to learn more about what is investigated was posed prior to the start of this research. Taking into account the research question to which answers were sought in the present study, the answer to that question was found to be qualitative research. In addition to these, this research

does not intend to generalize the findings to other contexts, but to explore the study participants' perceptions of the DTP they have done.

In the context of this study, senior PSEFLTs have to take a 14-week TP course in the last year of initial English language teacher education programs. The course aims to endorse PSEFLTs preparing for the teaching profession by providing an opportunity to them for transferring the pedagogical content knowledge they have gained since the beginning of their academic education into their teaching in their practicum schools. PSEFLTs must teach at least 14 hours in their placement schools, assigned by Provincial Directorate of National Education. However, the PSEFLTs in this study could not complete their TPs in their placement schools on account of the coronavirus disease. They had been to their placement schools for just three weeks when their country started to be shaken by the deleterious effects of COVID-19 on every aspect of life. For this reason, they could not continue going to their placement schools in the remaining 11 weeks; instead, they were assigned the following tasks:

- Read the regulations regarding the teaching profession and add a copy of them to your file.
- Read the rules to be obeyed at schools and add a copy of them to your file.
- Provide information about the online systems having already been used by the practicing teachers to do school-related work and the distance education system introduced synchronously with the termination of the face-to-face education.
- Analyse the 2019-2023 strategic plan of the Ministry of National Education and add a synopsis of it to your file.

The participants completed the tasks and submitted their assignments to their university supervisors by uploading them to the distance education system used by the university they were enrolled in. The university supervisors were asked to email the assignments of the PSEFLTs they had supervised to their mentor teachers. The performance of the PSEFLTs on the TP course was assessed through grading their assignments, which had been done by assessing the lessons taught by them before the emergence of COVID-19. Subsequent to the completion of the DTP, a mailed questionnaire was administered to find answers to the research question.

Participants

The questionnaire was e-mailed to 42 fourth-year PSEFLTs, the selection of whom was grounded on convenience sampling. Nonetheless, 25 PSEFLTs responded to it. The mean age of the participants was 23.2. Fifteen participants were female and the rest were male. All the participants had to complete their TP at a distance and were the first PSEFLTs doing DTP. The participants were informed about the purpose of the study and their consent was obtained; in addition, it was notified that they could withdraw from the study at any time for any reason. The name of the participants will not be mentioned throughout this research to protect their privacy. Each participant is numbered and when extracting statements from their responses, expressions like PSEFLT 2, PSEFLT 5 are used.

Data Collection Tool and Analysis

A mailed questionnaire comprising two parts was developed by the researcher. The first part was used to disclose demographic information about the participants while the second part involved the three open-ended questions posed to uncover PSEFLTs' perceptions of the DTP. The questions were created after reading the literature on DE, and then were sent to three

English language teacher educators to ensure the precision of the questions and that they could offer answers to the research question. The questions in the questionnaire are:

- What are your opinions on the effect of the paperwork assigned to you in place of practicing teaching in real classes on your professional learning?
- Taking into account not having the opportunity for completing your TP in the field, how do you feel about your preparedness for teaching in your first year on the job?
- How do you think DTP could be offered in a way different from assigning paperwork so that it could help you prepare for your professional life better?

The data gathered from the questions were analysed inductively following the steps suggested by Creswell (2007). The data were read by two coders, one of whom is the researcher, before they began the coding process, thereby getting a rough idea of the participants' views about the DTP. The coders selected one of the questionnaires and thought about what was meant in the responses by the respondent, and wrote it in two or three words. Afterwards, the coding process started. Following that, each coder looked at his/her list of codes and tried to lessen the number of the codes to 25-30 to avoid redundancy. Before commencing to develop themes from the codes, the coders checked each other's codes and tried to come to an agreement on the discrepancies between the codes they had produced. Finally, themes were developed from the codes. Peer debriefing (Lincoln & Guba, 1985) was conducted with an eye to ensuring trustworthiness in this research. The processes undergone in this study, from the employed research design to the data collection tool and analysis, were checked by a pre-service English language teacher educator. Moreover, member checking (Lincoln & Guba, 1985) was done by sharing the findings and their interpretations with the participants to ensure they reflected what they had in their minds about the DTP.

Findings

The first and second questions in the mailed questionnaire served to obtain data on what the participants thought about the influence of the DTP on their preparedness for the first year of the teaching profession. The data on the first question of what the PSEFLTs conceived of the effectiveness of the assigned paperwork instead of practicing teaching in the field led to the emergence of the theme below.

Effective in Learning Professional Regulations, Useless in Learning to Teach

All the participants held the conception that the paperwork they completed helped them learn about the regulations in relation to teaching profession, which, according to them, could be learned easily from the website of the Ministry of National Education even if they had not been assigned it. The statement of PSEFLT 21 epitomizes others' viewpoints on the effect of the paperwork they carried out on their professional learning.

> *I believe that nothing can be compared to the real practice in a classroom with real students. Because, as a teacher candidate, I think observing a real classroom atmosphere and experiencing some teaching-related situations in their own contexts can give me enough confidence to deal with similar situations in my future teaching career.*

The participants indicated professional learning was learning about teaching for them, which could be achieved by teaching practice, and therefore, they believed their professional learning could be enhanced by putting the content and pedagogical knowledge into practice in real

teaching. The PSEFLTs highly valued the TP constituent of pre-service teacher education, which enabled them to work out the effectiveness of the teaching methods they had learned and on which they had done their microteaching. PSEFLT 10 stated in her survey:

> *Teaching real students is beneficial for us because we really teach something in classes. We need to practice teaching to develop our teaching skills, but we couldn't do it this term because of the COVID-19.*

PSEFLT 2 explicated her perception of the negative impact of the paperwork on her professional learning:

> *When I learned I had to submit a file on regulations instead of teaching, I was really disappointed and demotivated because I know that the best way of learning to teach is to teach.*

The second question in the questionnaire presented invaluable insights into PSEFLTs' preparedness for the first year of teaching profession. The content analysis revealed that aside from one PSEFLT, all the others did not feel ready for the first of year of teaching as a consequence of the DTP they had completed. The participant who claimed she was prepared for the first year of teaching, despite the DTP, stated she had been tutoring for three years and that that teaching experience made her feel that she was ready to start to teach. The content analysis of the remaining 24 participants' responses led to the development of the following theme.

I Missed Irreplaceable Experiences, and Therefore, I Do Not Think I am Prepared to Start to Teach

The respondents pointing out that they were not prepared for the first year of teaching asserted that they had been deprived of the valuable hands-on experience of teaching they would have gained if the pandemic had not hit the normal flow of the TP having been maintained for decades. PSEFLT 15 explained why he was not prepared for the first year of teaching in the following words:

> *I feel uncomfortable about not doing my practicum in my placement school. I really don't feel ready for teaching in any context. I guess I did not learn how to teach.*

PSEFLT 7 stated:

> *For the first year on the job, TP is needed. So, because I had to do DTP, I am lacking in self-confidence in my teaching skills.*

Linked with the significance attached to gaining experience of teaching, another point conveyed in the responses is that the participants believed the more opportunity they had had to teach English to real students, the more prepared they would have been for teaching English, which had been hindered because of the pandemic.

> *I think, as pre-service teachers, we have to practise more and more because we need to improve our teaching skills to teach better. Also, we need to be present at schools to get accustomed to the operation of schools. Because of these, we had to go to practicum schools but we couldn't* (PSEFLT 14).

The third question was added to the questionnaire to learn about the PSEFLTs' suggestions concerning how DTP could be designed in a different way to better serve senior PSEFLTs in preparing them for the first year of teaching. The content analysis revealed that they had no recommendation as to offering DTP in a different way to improve its effectiveness in equipping PSEFLTs with the knowledge and competencies they would need to use in their professional lives. The reasons they stated for suggesting nothing about improving DTP developed the theme given below.

No DTP Could Replace Face-to-Face TP

The participants asserted in their responses that they had no idea about how to improve the quality of DTP as they did not believe that TP could be conducted through DE. From their points of view, it should be done face-to-face; that is to say, they should be at schools teaching students, observing how schools operate and what responsibilities other than teaching the teacher has. The PSEFLTs stated that TP was the course they had waited till the last term of the program, yet they could not complete it by being physically present at their placement schools. Three of the respondents argued that they should be subjected to face-to-face TP after the end of the pandemic or at least as soon as it lost its detrimental effects before beginning to teach.

> *I have no suggestion about how DTP could be made more effective because I do not think it can be effective at all. For TP, we should be at schools with real students. DE is not appropriate for TP. It is not a course like linguistics; because of that, I can develop my teaching only if I teach. Something should be done to give us the chance to do our practicum face-to-face before we start to work in the field* (PSEFLT-11).

Discussion

The findings demonstrated that the TP the PSEFLTs had to complete via DE as a result of the outbreak of the COVID-19 pandemic did not help them enhance their professional learning aside from learning professional regulations. Due to the unprecedented impact exerted by the pandemic on educational life involving tertiary education, the participants had to complete the paperwork assigned to all the senior Education Faculty students in the context of the study, which did not result in professional learning for the study participants, who defined it as broadening pedagogical content knowledge and transferring it into practice. These findings are the indicators of the significance of this study inasmuch as the related literature does not entail a study reporting on PSEFLT's viewpoints on the contribution of DTP to their professional learning, and associated with that, to their preparedness for the first year of the teaching profession. Integrating technologies into teacher education contributes substantially to teachers' professional learning as was yielded in Anwaruddin's (2016) research, nonetheless, most parts of the TP done through DE were not perceived to be adequate to extend their professional learning. Such discontent with the DTP stemmed from what was expected of them to complete their TP, which pinpoints the importance of providing a chance for PSEFLTs to practice online teaching. By the same token, the PSEFLTs' perceptions regarding the DTP they completed indicate the necessity for determining the content of DTP contemplatively and in cooperation with PSEFLTs. It was revealed in the findings that the content of the DTP disappointed the PSEFLTs and demotivated them to complete the program. In view of the importance of the high level of motivation novice teachers have in their success in the first year of teaching, the study participants who will begin to teach in the following school year might encounter motivation-related problems. Providing the respondents had had the chance to carry

on going to their placement schools and online learning tools had been incorporated into the process, their perceived unenhanced professional learning could have been empowered as was suggested by Forbes and Khoo (2015).

The PSEFLTs stated they were not prepared for the first year of teaching due to not being able to complete their TPs face-to-face in their placement schools. They delineated what they had been devoid of as a result of the DTP by addressing the lack of teaching experience, the opportunity to observe the classroom practices of their mentor teachers and to observe the operation of schools, among which losing the chance to practice teaching was the most annoying for them. The findings show that TP is highly valued by the study participants, and similarly, the participants in the studies undertaken by Gan and Lee, 2016; Chen, 2015; Choy et al., 2014 and Cohen et al., 2013 gave special prominence to it. The stress placed on TP makes sense because it is the arena where they display the teaching skills they have gained and developed to a certain extent, and get feedback on them (Uribe & Vaughan, 2017). In the DTP the participants conducted, there was no interaction between them and their mentor teachers, significant figures in initial teacher education (Adams, 2017; Barak & Wang, 2020), because no circumstance occurred to get in touch with them, which can make the picture of what the PSEFLTs lived clearer. Taking into account the need PSEFLTs appeal for starting from their first year in the program (Toom et al., 2017), the pivotal role of the quality of the interaction amongst the stakeholders of initial teacher education becomes evident.

In addition to the absence of the interaction between the PSEFLTs and their mentor teachers, the one between PSEFLTs and their university supervisors was not gratifying as could be understood from the respondents' responses, involving that they lacked self-confidence in their current teaching abilities. This indicates TP done in real classrooms caters for the increase in PSEFLTs' level of self-confidence. In line with this, the participants could not offer any suggestion to improve the effectiveness of DTP for they had a strong belief in the conception that TP should be done by the physical presence of PSEFLTs in their placement schools. Though the respondents did not come up with an alternative for TP conducted face-to-face, Phillion et al. (2003) suggested virtual teaching practice for the pre-service teachers who could not go to placement schools. Given the fact that the research participants and the other parties in TP were unprepared for conducting it at a distance, it could be understood why the PSEFLTs could not make recommendations for reforming the way it was conducted in their context. However, the invaluable experience gained by the stakeholders through striving to complete the DTP will probably steer the future of it and how it can be carried out in the best way possible.

Implications for Initial English Language Teacher Education

The education provided to PSEFLTs both on-campus and at schools needs to be comprehensive, of high quality and adaptable to a wide range of situations subsuming the mandatory DE that may result from a pandemic. The entire world has suffered from COVID-19 over the last seven months and this led the Faculties of Education to produce a solution to the problem of the impossibility of conducting TP face-to-face as a result of the closure of schools. The solution they worked out was having the last year pre-service teachers do their TPs at a distance. As could be comprehended from the perceptions of this study's participants, meticulous work needs to be done on designing DTP jointly with PSEFLTs. Anything, from the content to the assignments, should be tentative because the feedback that will be offered by PSEFLTs might necessitate something that has not been contemplated before. Since the opportunity for practicing teaching is what makes TP valuable, virtual teaching practice needs

to be an integral and indispensable part of DTP. PSEFLTs should be teaching students they are supposed to teach face-to-face in a virtual synchronous learning environment, and feedback on their teaching should be provided both by their mentor teachers and university supervisors. Online technologies should be used in the teaching of pedagogical and content courses, too to help PSEFLTs perceive DE as a part of their education.

Conclusions

This qualitative case study explored PSEFLTs' perceptions concerning the DTP they have done and the influence it has wielded on their preparedness for teaching. The findings reported that the participants were not feeling ready for the first year of teaching as they could not practice teaching and complete their TPs in their placement schools thereof. The findings reiterate the vital role taken on by TP in the eyes of pre-service teachers. This study has the potential to make a notable contribution to the literature on TP by the findings as to the negative effect of the way TP was conducted at a distance in the context of this study.

Since this research was conducted with the participation of 25 participants studying at the same university, the researcher does not aim at generalizing the results to other contexts. Undoubtedly, further research is needed to gain more considerable insights into PSEFLTs' conceptions of both DTP and its influence on their preparedness for the first year on the job. Moreover, additional research should be conducted in the following years with the practicing teachers having engaged in DTP with a view to examining how it will have impacted on their teaching in their first year/s of teaching. Large-scale studies in which participants with DTP experience from different contexts take part are also needed for they could demonstrate if the divergence in participants' views on DTP resides in the differences in the way/s DTP is carried out.

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Teacher Professional Learning Whilst in Quarantine: A Case Study from China

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Abstract

Transforming two early education centres in China to incorporate the educational philosophy of Maria Montessori is a huge task. To induct teaching staff into Montessori's philosophy, pedagogy, and curriculum when their past educational experiences have been formed by a rigid, traditional model added to the challenge. To further complicate matters the transformation took place during lockdown due to the COVID-19 pandemic and the staff participated in a completely voluntary capacity whilst in isolation. For this research project the authors collected data through direct observations, surveys, questionnaires, individual teacher interviews, and focus group interviews. How online professional learning for 35 staff members was planned, organised, modified, and undertaken is outlined. Practical and technical issues involved in moving from face-to-face to online teaching are also included. Teachers reported that the professional learning program had prepared them well for when the centres reopened and the children returned.

Keywords: China, COVID-19, early childhood education, Montessori, quarantine, teacher professional learning

This article explores the professional learning of early childhood teachers in two preschools in Shandong Province, China. The professional learning program was designed to bring about major and enduring changes to pedagogy and curriculum, and occurred at a time of unique circumstances associated with the coronavirus pandemic in the first half of 2020.

The term "professional development" of teachers is well understood, however in a growing number of countries the term "professional learning" is gaining currency (O'Brien & Jones, 2014) and will be used in this article. The Organisation for Economic Co-Operation and Development [OECD] definition of teacher professional development/learning encapsulates the concepts which have been identified as contributing to successful and effective teacher professional learning:

> *Effective professional development is on-going, includes training, practice and feedback, and provides adequate time and follow-up support. Successful programmes involve teachers in learning activities that are similar to ones they will use with their students, and encourage the development of teachers' learning communities* (OECD, 2009).

Literature Review

The elements of effective teacher professional learning and development have been the focus of considerable research. In a wide-ranging review of the literature on teacher professional development/learning Villegas-Reimers (2003, pp. 119–120) identified the following factors necessary to create a "culture of support" for successful professional learning: collegiality, openness, and trust; opportunities and time for inquiry; teachers learning in context.

In a policy brief on teacher professional development in the USA, Kedzior and Fifield (2004) identified the characteristics of high-quality teacher professional development as including a focus on content, the provision of opportunities for active learning, collaboration with colleagues, and responsiveness to teacher needs. Based on a literature review of effective contexts for teacher professional learning Timperley and colleagues (2007) added an extended time for opportunities to learn and opportunities to process new understanding, the development of a learning culture, and the creation of conditions for distributed leadership.

Little (2012) conceptualised good teacher professional learning as being contextualised, connected to issues of teachers' practice, encouraging experimentation, collegial and collaborative, and active as opposed to being "episodic, superficial and disconnected from their own teaching interests and recurring problems of practice" (p. 22). To be most effective Harris and Jones (2017) stated that "teachers' professional learning should be appropriate, timely, targeted and meaningful" (p. 331).

Based on a literature review of effective approaches to teacher professional development Borko et al. (2010) stated that professional development content should be situated in practice, focused on student learning, take place in a collaborative learning environment, and involve teaching practices modelled by the leaders of the professional learning program.

In Turkey, a qualitative study involving elementary school teachers Bayar (2014) found the participating teachers identified the characteristics of effective professional learning as including meeting the teachers' existing needs, involving teachers in the design and planning

of the activities, and opportunities for active participation (p. 319). These features also were identified in an editorial by Kennedy (2015, p. 1) in the UK.

With specific reference to early childhood education in Australia, Nolan and Molla (2018) conceptualised professional learning as socially situated practice conducted in a specific context. They referred to the four C's of effective professional learning: context, collegiality, criticality, and change.

In a recent review of thirty-five "methodological rigorous studies" of effective professional learning Darling-Hammond et al. (2017, pp. iv-v) identified positive links between effective teacher professional learning, teacher practices and improved student learning outcomes:

1. The learning is content focused and develops specific pedagogies and teaching strategies associated with related curriculum content.
2. Teachers are actively involved in designing and trying out teaching strategies that involve the same style of learning they are designing for their students.
3. Opportunities are provided for teachers to share ideas and collaborate while they create learning communities.
4. Teachers are provided with a clear understanding of what best practices might look like through shared curricular models and the modelling of instruction.
5. Professional learning activities and shared expertise focuses on the individual needs of teachers.
6. The professional learning includes time and space for teachers to reflect, receive input about, and make changes to their teaching practice.
7. There is adequate time for teachers to learn, practice, and implement new strategies that facilitate changes in their practice.

The factors outlined in the seven points identified by Darling-Hammond and colleagues (2017) encapsulate the points made by the authors of previous paragraphs and were used to analyse and structure the professional learning experiences of teachers in two early childhood education centres (ECE) during the first half of 2020**.**

Context of the Study

When this study commenced in early February 2020, educational institutions in Shandong Province, China, were prevented from opening after the Chinese New Year holiday because of the outbreak of a novel coronavirus in the city of Wuhan. Prior to this, the decision to introduce a Montessori approach to teaching and learning through a one-week professional learning program for teachers in the two ECE centres had been planned. The lockdown meant that teachers were not being paid and the Centre's Director was not receiving any income from fees. Nevertheless, all teachers volunteered to continue to participate in the professional learning program.

For a number of years, the two centres had operated in different areas of the same Chinese city under the ownership of the Director. Each centre had a Principal as well as teachers and carers, and their daily management was relatively independent. For each thirty children the teaching group consisted of three people, a Head Teacher, a General Teacher and a Carer. The children were organised into mixed-age groups from 2.5 to 6 years of age. This situation was different from that which existed in most early childhood centres in China where the number of children in each class group was larger and the children in each class were in the same age group.

The professional learning sessions began online in February and continued until June. The content of the early sessions had been planned but, as the length of time that staff were prevented from meeting face-to-face increased, the range of topics for professional learning grew. At first topics were largely determined by the Director, with input from the two Principals, but over time the specific needs of individuals and groups of staff members were acknowledged, and these needs became the focus of continuing professional learning activities.

In order to appreciate the challenges confronting the professional learning program it is necessary to understand the external and internal forces that were impacting upon early childhood education in China and, more specifically, in the two centres in late 2019 and the early months of 2020.

External Factors

In January 2019, the Communist Party of China Central Committee and the State Council announced that by 2025 preschool education would be available for all children **(**Zou Shou, China Daily, 2 January 2019). This decree placed considerable pressure on the existing private early childhood centres to conform to a fee structure set by the government, in order for the centres to continue to operate.

At the beginning of 2020, awareness of a novel coronavirus (COVID-19) was recognised by Chinese authorities. The initial centre of the disease, Wuhan, was shut down, as was much of China. On 30 January, the World Health Organisation declared COVID-19 a Public Health Emergency of International Concern, and as a pandemic on 11 March 2020.

Internal Factors

The Director had decided previously that the centres would adopt a modified Montessori approach to ECE, and that it would be necessary to provide professional learning experiences for all teachers in the new pedagogy and curriculum. To induct the teaching staff into Montessori's philosophy, when their past educational experiences had been formed by a rigid, traditional model, provided a major challenge. Because of COVID-19 the government closed access to all educational institutions in China and prevented the gathering of groups of people. This meant that the mode of delivery for the planned professional learning program for the centres' thirty-five staff members had to be modified. Some practical and technical issues involved in moving from face-to-face to online teaching became apparent. An added issue was the level of training and the relative inexperience of many of the teachers. A few teachers were university graduates, but most had undertaken certificate courses or were high school graduates.

The Decision to Introduce a Montessori Approach

Late in 2018 the Director decided that both centres would be re-organised to implement a Montessori approach to teaching and learning. She had attended short-term training programs about progressive approaches to teaching and learning including those of Montessori, Reggio Emilia and Waldorf and she had read widely from the works of John Dewey, Jerome Bruner and others.

The Director wrote:

> *At first, I doubted the feasibility of applying any of these approaches in my schools in a city like my hometown, where parents all think education, including early childhood education, is about academic performance. … I*

> *chose the Montessori approach because it gives teachers full practical training to allow them to understand the core of the approach gradually.*

Once the decision was made the Director undertook an official Montessori program herself which provided her with a formal Montessori teaching qualification.

Montessori's Approach to Education

Montessori's training as a medical doctor, together with her studies in anthropology, philosophy, psychology, education, and her experiences in teaching children with mental disabilities provided her with a background to develop what she considered a "scientific pedagogy". She wrote:

> Our aim in education in general is two-fold, biological and social. From the biological standpoint we wish to help the natural development of the individual, from the social standpoint it is our aim to prepare the individual for the environment. … The education of the senses is most important from both of these points of view (1912, p. 150).

She believed in the power of each child to learn through observing and adapting to life especially in the important first six years of life, and advocated an education that would provide children with a stimulating environment in which they could "experiment" and learn through their experiences. She designed learning materials to be used in classrooms which allowed children to identify their errors and learn without being corrected directly by the teacher.

Montessori emphasised the importance of the child in doing "work" (learning) by themselves. She demanded that a teacher must be a careful and systematic observer of each child in order to be aware of what and how each child has been learning, and when a child might be ready to grasp the opportunity to move onto different or more complex concepts.

Montessori saw a child's natural development as taking steps towards achieving independence through different "planes of development". The first plane extended from birth until six years of age. In the first three years the child learns through sensory experiences. During the second half of the first plane, a child learns in a more conscious way by being encouraged to actively do things on their own (Montessori, 1912, p. 150).

Montessori wrote about a "new pedagogy" which has important implications for teachers.

> It is my belief that the thing we should cultivate in our teachers is more the spirit than the mechanical skill [of teaching] … we wish to awaken in the mind and the heart of the educator an interest in natural phenomena (1949, pp. 28–29).

To be able to achieve this the school must be set up in such a way that a child may be observed in a systematic, yet unobtrusive way. She believed the teacher's task was not to talk at the children, but to prepare activities, based on specifically designed materials which would assist children to act and think for themselves. The child would be free to select the activity and materials that caught their attention at any time (Montessori, 1949, p.229). In this context what is commonly thought of as a "lesson" becomes an experiment for the child. Any guidance

offered by the teacher should be brief, simple, and aimed at assisting the child to achieve the child's objective.

Implementing a Montessori Approach

In the centres about two hours every morning was spent using Montessori teaching and learning activities and materials. During this time each child had access to a range of learning materials, some devised by Montessori over 100 years ago, supplemented by newer materials created by teachers, but based on Montessori principles. Each piece of learning material was designed to produce a specific learning outcome for an individual child. Some newer materials reflected the influence of Chinese traditional art, festivals**,** and local cultures.

The learning materials were laid out on shelves which were easy for the children to access. The children were free to choose any of the materials which interested them and to spend as much time as they wished using them**.** During this time the teacher systematically observed individual children and recorded his/her observations in order to understand their learning and developmental needs. In the afternoon, group activities which involved music, art, language, and personal safety were organised according to the ages of the children.

There was a considerable difference in the level of qualifications and experience among the staff. Four had a bachelor's degree or above, while two-thirds of the staff either had a college diploma or vocational school certification. A few had only completed high school. Some have taught in traditional schools for a number of years, but others have only taught in schools for a short time. The Director made the following comment:

> *Young teachers, who form the majority of our teacher group, don't have the experience of self-learning as they were taught in a traditional way. They have little idea of how to stimulate the children's active learning.*

A persistent issue for most early childhood centres in China is a constant turnover of staff, with few staying for more than one or two years. According to a report in the China Daily (2 January, 2020) the shortage of public kindergartens and teachers can be attributed to the poor pay, heavy responsibilities, and pressures from the children's parents. The Director expressed a desire for teachers to stay for at least three years so they could work with the same group of children through the whole of Montessori's first plane of development.

Research Methods

This study, which took place over four months in the first half of 2020, is a qualitative case study and is interpretive in nature (Merriam & Tisdell, 2016). It was conducted by the Director of the two ECE centres. It is a requirement of the Chinese Government that teachers undertake professional learning activities on a regular basis and that a record be kept of these activities. This record of activities, together with the Director's observations, reflections and interactions with teachers through individual interviews and focus group interviews and a survey into teachers' preferred modes of professional learning, form the basis of this study. Apart from the identity of the Director, no individual member of staff can be identified. The results were analysed by using the seven elements of effective professional learning identified by Darling-Hammond et al. (2017). A limitation of this study is that it reports on the professional learning program developed for the teachers, but it does not report on how the program changed teaching practices. This will form the basis of a future study

The professional learning activities for all staff were conducted online each morning for about one-and a-half to two hours from early February until June while the schools were closed, and all teachers were isolated from each other in their own homes. Most of the staff members' learning activities were shared using "live broadcast" within the learning group on the Ding Ding app. This meant that teachers could listen to presenters and view PowerPoint slides, but questions to the presenter had to be typed into a message and sent separately in order to be read and answered. The computer screen showed the presenter in the upper right corner of the screen and questions appeared on another part of the screen. This approach caused some difficulties for discussions, but alternative approaches, such as video conferencing, proved less successful because of bandwidth issues and the lack of suitable software.

Results

The results of the study are reported under two headings related to the timing of the professional learning activities and staff reactions: February-March, and April-June.

Phase 1: February-March

The first three professional learning sessions outlined what was involved in the Montessori approach and illustrated how it differed from traditional Chinese education. The sessions included the essentials of the Montessori approach and the different role for teachers. Teachers were presented with ways of building a Montessori environment in their classrooms. These sessions were mostly theoretical and involved introducing elements of Montessori's philosophy in a didactic manner, although there were opportunities for questions and comments. A very important part of the Montessori approach is the observation of an individual child whilst interacting with the learning materials. Teachers were instructed on how to observe in a non-intrusive manner, and how to record a child's reactions towards and with the materials in a systematic and regular manner. As an essential part of the first three sessions teachers were introduced to Montessori's ideas of regulation and freedom of the children.

The succeeding sessions were more practical in their focus but difficult to conduct because the teachers were isolated from one another. Experienced teachers demonstrated and discussed how they used traditional Montessori materials for all teachers to observe. This was particularly useful for the less experienced teachers as they were encouraged to observe, note, and comment on what occurred.

Teachers were asked to develop hand-made "complementary Montessori" materials to share with colleagues. In most of the sessions one teacher presented her new material in a manner which demonstrated how it might be used in the actual learning environment and what learning was likely to be achieved by a child "working" with that material.

The content of each of the sessions was found easy to understand and teachers thought the key points were clearly emphasised and the content of each session clarified their work in the classroom and inspired their practical work. They thought the presenters made interesting and informative presentations and answered questions clearly. They especially appreciated the way in which the presenters focused their main message on the teachers' everyday work. Overall, all participants were well satisfied with the professional learning sessions, although a few indicated they would have liked more interactive activities, however the technology available did not allow for this to occur at the level which was desired.

A number of teachers found it very useful to be able to review each session at a later time as this allowed them to clarify their thinking and reflect upon the important messages, as well as picking up on points they may have missed initially. They indicated that when participating as a member of a group of 35 and interacting spontaneously it was difficult to grasp the significance of everything that was said.

After the initial three sessions it was decided that the following sessions should have a specific focus resulting in teachers being provided with focus questions to consider in preparation for the next day's session. Some key readings were also provided to stimulate their thinking. These measures assisted teachers, especially those with less experience, and provided a definite focus for each professional learning session.

Table 1: Details of selected professional learning sessions based on Director's notes

Time	Topic of learning activities	Presenter	Learners
11Feb. (Day 1)	Presentation: "The basic theories of Montessori education" followed by question and answers	Director	All teachers
13 Feb. (Day 3)	Presentation: Observation and recording, freedom and regulation" Homework: Come to session with questions about basic theories of Montessori education	Director	All teachers
18Feb. (Day 6)	Discussion: questions about teaching the area of Practical Life in Montessori classroom Sharing: hand-made materials for the area	An experienced teacher	All teachers
25 Feb. (Day 11)	Homework: hand-made traditional Montessori sensorial material called "Pink Tower"	One principal	All teachers
4 March (Day 18)	1.Question raised by teachers 2. Showing pictures of Constructive Triangles II hand-made by each teacher 3. Sharing the making process 4.Three teachers demonstrate the process using their hand-made materials in a live session or a video recording uploaded to the online learning group 5. Discussion about the session and the uploaded video 6. Homework: 1) singing practice; 2) hand-made traditional Montessori sensorial material called Constructive Triangles III	Activity 1. discussed by teachers and director Activities 2-6. conducted by an experienced teacher	All teachers

Two formal evaluations of the professional learning activities were undertaken in this phase. In late February, a survey was distributed to all teachers and towards the end of March focus group discussions were held involving all teachers, followed by separate focus group discussions with specific groups of teachers, and individual meetings with beginning teachers.

The survey indicated that the majority of teachers spent three or more hours on the first three sessions which focused on the basic theory of Montessori education, Montessori environment and materials, and methods of observing and recording children's learning. All teachers reported that the online presentations assisted them to understand Montessori's approach, but

most teachers found the sessions on the development and use Montessori materials were the most useful.

When surveyed about the forms of professional learning they preferred, the teachers indicated they preferred online synchronous lessons and interactive learning approaches best. The 31 respondents were able to choose one preferred form of professional learning, or as many as they wished.

Table 2: Teachers' preferred modes of professional learning

Mode of professional learning	Numbers selecting each mode
Online live (synchronous) sessions	22 (1 person chose only this form)
Online interactive learning	22 (2 people chose only this form)
Off-line interactive learning	22 (1 person chose only this form)
Workshops or seminars	20
Professional reading	17
Face-to-face presentations	14 (2 people chose only this form)

In the second part of this phase emphasis was placed upon developing materials based upon Montessori principles, and focus group discussions began. The majority of comments from teachers indicated their interest was stimulated by the learning materials other teachers had prepared, as well as developing a renewed interest in their own learning and their deeper understanding of Montessori principles. Teachers commented:

> *I have become more skilful in operating these materials than before. My memory [of how they should be used] was somewhat fading away, and now it is refreshed* (A Head Teacher).

> *At the beginning I participated in making new materials because I'm a leader of a teaching group so I must make my presentation for our teachers as a positive role model. But eventually, I found it has become more and more interesting, so I make everything with a passion* (A Head Teacher).

> *Making teaching materials improved my concentration and dug out my potential. I did not think I could be so good. In the past I was a very careless person. When* [my supervisor] *saw my work she said she had got to know a different me* (A less experienced teacher).

The focus group discussions with the less experienced teachers provided some additional insights into their uncertainties and lack of experience. Despite encouragement from presenters some of the younger teachers felt shy and uncertain about contributing to the discussions and asking questions publicly. The following comments from less experienced teachers indicate this:

> *I wanted to listen to other teachers about how to answer first and then answer myself. But by then the discussion had moved to the next question too quickly.*

In spite of this, listening to the issues that teachers discussed together was very useful:

> *Listening to the teacher's story about their class and the teacher's answers is very helpful. In the future, if I encounter such children or such situations, I will know how to help them. I have learned some methods from other teachers' experiences.*

Some less experienced teachers were concerned that different teachers used the learning materials in slightly different ways. This confused them because they seemed to think that there was only one correct way to use the materials. Some beginning teachers commented:

> *I found that teachers have their own operating habits, and there are differences. I hoped to have a unified approach which I could follow in the future.*

and,

> *When we watched the replays of live broadcasts, some teachers presented materials in different ways. We got confused and don't know which one is correct.*

This reflects their reliance upon their previous experience associated with didactic approaches to teaching and learning. However, it was obvious that less experienced teachers found the sessions useful and one suggested that the broadcasts and videoconferences could be transferred to videos. This would allow the teachers to re-watch and re-listen to presentations and discussions and help overcome the problems of poor computer connections. This would help them clarify issues that were missed while they tried to be active in the discussions.

A written comment by the Director towards the end of March provides a positive view of the results of the program at that time:

> *This morning I was so surprised by the quality of the hand-made materials the teachers made at home. They are so sophisticated. It has been such a joy to be involved in the teachers' experience-sharing in the morning learning sessions. I believe this group is so much better than before. It is so unexpected but a great achievement while we're losing so much during the pandemic. This keeps me feeling hopeful and that we will be successful in being able to battle this most difficult situation that we have ever met.*

Phase 2: April-June

During April and May discussion groups and online learning activities continued. Specialised online discussions and activities were set up for different groups of teachers. These groups were led by the Director and the two Principals and focused on the different work and needs of clusters of teacher**s.**

In April a series of sessions for the Principals and Head Teachers began. When asked to suggest issues which would form the basis of these sessions, they identified the following:

- How to understand children better through observing their behaviours;
- How to improve leadership;
- The methods of developing children's abilities;
- How to build up better trust with parents through communication;
- How to organise the daily work better;

- The management of a Montessori class;
- How to build a cohesive and energetic team;
- How to deal with an injured child.

Materials on each issue were prepared and the Head Teachers were provided with one or two readings prior to each session. Head Teachers were encouraged to use their previous experiences to provide "real" scenarios for discussion. Details of selected sessions based on the Director's notes are presented below:

Table 3: Selected professional learning sessions for Head Teachers

Time	Learning Activities	Presenter	Learners
24 March (Day 1)	1. Participants vote for the issues that concern them most to choose the contents for their learning that could most help them at their position in the centres	Director	Head Teachers and Principals
31 March (Day 2	1. Presentation: Team Cohesion and Personal Leadership: • Understand yourself better • Teambuilding and cohesion • Core management skills and leadership 2. Interaction with learners about: What kind of person am I? 3. Homework: Describe your strengths and weaknesses. Devise a plan to improve your strengths and overcome your weaknesses.	Director	Head Teachers and Principals
2 April (Day 3)	Presentation: Team Work and Efficiency Management • Time management • Plan-making • Power of regulation Homework: • Prioritising your work • Short term and long-term goals for your team • Describe a conflict among children and prepare your language to help solve the problem	Director	Head Teachers and Principals
10 April (Day 5)	Discussion: Studying the book "Understanding and Positive Guidance of Children" • Indoor environment that suits children's development • Positive communication • Effective interference of behaviour guidance. • Real examples	Director	Head Teachers and Principals

Towards the end of May some less experienced teachers were becoming aware of the pressure parents were likely to put on them once the children returned. They wondered how they might gain parents' trust. The young teachers were aware that the Montessori method was very different to what they had experienced in their own education. They thought it might be difficult to convince parents that the children were learning because it might appear that the children were "playing" with materials rather than "learning". The Director, together with the two Principals decided that the parents needed to be aware of the basis of the Montessori approach and to accept it as the way in which learning now takes place in the two ECE centres. The Director planned to have meetings for parents once the coronavirus quarantine was lifted to explain the processes involved in a Montessori approach. In the meantime, parents were provided with online materials which explained Montessori education.

Over the period of physical isolation necessitated by COVID-19, the Director provided some insights into staff reactions to being isolated physically from colleagues and the children.

> *The morale and cohesion of the whole teacher team has been considerably increased since we started the online program. … I don't know the exact reason but strongly feel it might be because of the difficulties everybody shares right now … We realise it is better to stay with the groups we are in to support* [each other] …. *It may give each other more security when everybody feels the stress from the uncertainty spreading in the whole society.*

In the past the Director had found it difficult to stimulate much discussion during face-to-face professional learning sessions. She suggested that this could have been due to her role as the Director as well as the trainer. Part of the way through the online professional learning program she stated:

> *There are so many more teachers involved in discussion now online. They can have some preparation before each discussion. … It wasn't like this at the beginning of the online sessions,* [but] *we decided to give teachers notice and a few related questions to think about in advance. I found the group discussion online is so different.*

The regular online sessions involving practical exercises increased the level of teachers' personal communications, especially among experienced teachers. The Head Teachers now understood that they had a role to play in leading younger colleagues in understanding why and how the Montessori approach leads to a special kind of children's learning.

Teachers chosen to demonstrate online how they used the learning materials with children took their role very seriously. They conferred with other experienced teachers prior to their demonstration to ensure that the details they provided were accurate and clearly expressed. As the Director states, this unexpected outcome *seems to have contributed to group learning in a self-motivating way*. A learning community was developing.

An important reason that the teachers, as unpaid volunteers, continued their involvement in the program after the planned one-week was that, as they were in isolation, they looked forward to the opportunity to see and hear their colleagues on a regular basis.

The Director could see many advantages to online learning. She stated:

I'd seriously consider using this form of learning (online) *regularly in the future, in addition to our usual face-to-face professional learning activities.*

Analysis and Discussion

The results of this study are analysed through the seven elements of effective professional learning programs identified by Darling-Hammond et al. (2017).

Content-Focused

Effective professional learning involves teaching strategies and specific pedagogies which are associated with specific curriculum content (Darling-Hammond et al., 2017 pp. 5–7). It was planned that the two ECE centres adopt a modified Montessori approach to education. In the early stages of the teachers' learning program, they were introduced to the philosophy and principles of the Montessori method with emphasis on "the education of the senses". In later sessions some specific approaches advocated for teaching reading, writing, language, and numeration were introduced. Teachers worked with special materials developed on Montessori principles and through this began to understand what Montessori was trying to achieve through her pedagogical methods and materials.

Active Learning

Effective professional learning provides opportunities for teachers to design and try out new teaching strategies and to engage in the same style of learning they are designing for their students (Darling-Hammond et al., 2017, pp. 7–9). After an introduction to Montessori's philosophy of education and child development, all activities had a practical emphasis. Teachers were given tasks to develop materials which could be used to produce the types of learning advocated by Montessori. During each session selected teachers would explain how they developed materials, and they also demonstrated online how they would use the materials with children. Given the nature of the situation under which the professional learning took place it was not possible for teachers to physically practice the new materials with children, however, teachers gained confidence in their own ability to adapt to the Montessori method.

Collaboration

Effective professional learning helps teachers create communities of learners which can change the culture of instruction by providing time and space for the sharing of ideas (Darling-Hammond et al., 2017, pp. 9–11). Although teachers were separated by distance, they were united in sharing the presentations and discussions that occurred during the online sessions. A high degree of collaboration was developed because of the regularity of the meetings which led to teachers becoming more familiar with each other as individuals. As the isolation restrictions were eased small groups of teachers were able to begin to meet face-to-face. The special series of sessions for Head Teachers were developed specifically to meet their espoused needs. As a result of allowing Head Teachers to meet online and face-to-face they developed their own learning community. These communities showed how Head Teachers might become pedagogical leaders for the other two members in each of their groups.

Models of Effective Practice

Effective professional learning involves teachers developing a clear understanding of what appropriate professional practice might look like as well as providing opportunities for teachers to share stories of actual teaching events (Darling-Hammond et al., 2017, pp. 11–12). During the online meetings teachers were encouraged to share positive examples of their teaching practice. Although it was mainly the more experienced teachers who were able to do this, newer

teachers learned from the practical stories of their colleagues. When demonstrating how they thought new materials might be used in the classroom teachers used effective practices and also elicited possible modifications from other teachers.

Expert Support

Effective professional learning focuses directly upon the individual needs of teachers, allows them to share personal expertise, and provides appropriate support from experts (Darling-Hammond et al., 2017, pp. 12–14). Having graduated with a professional qualification in the Montessori approach to education the Director was able to answer questions and clarify what the materials and activities were designed to achieve. She was supported in this by her two Principals. The provision of expert support was most important because the Montessori approach is so different to what most teachers had experienced throughout their own schooling. Two areas of concern for some teachers were how to maintain discipline in the classroom and how to respond to parents who questioned the Montessori approach. Discipline in the classroom can only become a practical reality once the classes are in operation. The teachers understand, in theory, Montessori's approach that a child developing self-discipline occurs through an understanding of how their behaviour might impact upon others in the classroom. Convincing parents of the advantages of a Montessori education is a task for the Director and the two Principals. In order to achieve this objective, the Director is conducting meetings with parents to explain what, how, and why certain things are important in the education of their children.

Feedback and Reflection

Effective professional learning involves teacher reflection and allows time for teachers to think about their practice (Darling-Hammond et al., 2017, pp. 14–15). Although there were some technical difficulties in providing instant feedback during the group online sessions, these difficulties were overcome to a certain extent when it was possible to organise discussions for special groups. One outcome from the online sessions was that teachers were able to review and reflect upon what happened during each session. Many teachers liked the fact that they could re-watch the sessions at a later time. While they were participants in real-time sessions there was no time to think about what they had observed, nor was there time for reflection. Re-watching provided for thinking and reflecting.

Sustained Duration

Effective professional learning provides adequate time for learning. It consists of multiple opportunities for learning over a sustained time period (Darling-Hammond et al., 2017, p. 15). For four months teachers interacted with each other on an almost daily basis, discussing professional issues and clarifying for themselves what the Montessori approach meant for them and the children they were to teach. Prior to this, teachers from each centre used to meet separately at the end of each week, and both centres met together every two months. From the teachers' comments, much was gained from the regularity of the sessions they spent together online, but physically apart. The stresses of being unable to socialise, or do the things they liked to do, and being unable to work face-to-face was, in part, overcome by the feeling that they were not alone and that others were having similar feelings. The fact that they knew they could interact with colleagues who were in the same predicament on a regular basis was reassuring.

Conclusion

The professional learning program was initially planned to be implemented over a one-week period. During this time teachers at two early childhood education centres in Shandong province, China would learn about the Montessori approach, and the philosophy underpinning its pedagogy and curriculum. As a result of the government requirement for individuals to quarantine themselves for an indeterminate length of time the program grew and developed into a highly practical experience. The mode of delivering the program was rapidly adapted from face-to-face to online learning.

Teachers' comments after their professional learning program indicated that they felt prepared to implement a learning program for children which is different to that which they had experienced as students. A greater sense of collegiality was developed during the months of professional learning, and teachers were able to develop closer relationships with each other. The teaching group structure of three people, Head Teacher, Teacher, and Carer was very important, especially for professional learning in the future. Each member of each group got to know other members better and came to understand their colleagues' strengths and weaknesses.

A factor which contributed to the success of the professional learning project was the ability of the Director to see opportunities the extended period of professional learning presented. This additional time allowed for the development of a more extensive program involving input from staff members, and the consideration of issues which otherwise could not have been addressed. At the beginning of June, when the children were permitted to return to the centres, the teachers reported that they felt refreshed and were eager to try out the things they had learned.

The elements of effective professional learning identified by Darling-Hammond et al. (2017) were reflected in the literature consulted and the seven elements were found to provide a useful structure for the analysis of the results of the program. What remains to be determined is the impact the professional learning program has had on teachers' practices in the classroom once the children return.

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Using a Design Thinking Approach for an Asynchronous Learning Platform during COVID-19

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Abstract

The COVID-19 pandemic abruptly shut down schools in an urban based school district in the Spring of 2020. As the closures persisted over months, an immediate educational need arose for online curricula that could help alleviate the learning gaps caused by the shutdown. The purpose of this study was to create a process and model for the development of a fully asynchronous online learning environment for prekindergarten through 2nd grade students that could help other districts implement similar projects. Since the turnaround time for development and implementation was a matter of weeks the project team used an iterative process to solve a "wicked problem" and identified solutions to create an improved user experience. A modified design thinking model approach was developed through the process of developing this six-week, theme based virtual curriculum that included interactivities in early literacy, writing, reading comprehension, science and math. This adjusted model includes 6 stages: discover, interpretation, ideation, experimentation, implementation, and evolution. This research focuses on the processes involved during each of the stages and the resulting use by the intended audience. The curriculum was used by over 5,800 prekindergarten through second grade students during the 6-week period of the summer of 2020. The online platform continues to be used by students presently.

Keywords: asynchronous, COVID-19, curriculum, design-thinking model, early grades

Out-of-school summer learning differences substantially account for achievement gaps related to family income levels, commonly termed as the "Summer slide" (Alexander et. al., 2007). However, recent research takes advantage of advances in vertically scaled tests to clarify that the bulk of 9th grade student achievement inequity is present in kindergarten. Therefore, summer learning, while not the source of inequity, may still be a valuable and effective strategy at remediating inequity if it is targeted at the early grades (von Hippel et al., 2018). With the surge of cases of COVID-19 and the abrupt in-person school closures in the Spring of 2020, schools began rethinking summer programming. Many policy makers approached the sudden shift to online learning, and disconnection from traditional instructional time, through the lens of summer learning loss. In the late spring of 2020, predictions about the COVID learning loss were widely publicized (Dorn, 2020). Investments in summer learning and remediation were stressed, and investments and programs followed. However, despite research that underlines the importance of early learning, many summer programs were targeted at children 3rd grade and up. This was true for a large urban school district in the Northeast United States that planned to offer an online summer learning curriculum for 3rd through 12th grades in response to the COVID-19 school closures; however, the district did not have the capacity to create virtual programming for kindergarten through 2nd grade students. The importance of early grade summer learning, exacerbated by a national pandemic, prompted the Read by 4th Campaign (a non-profit coalition of organizations and individuals, with a strategic mission of ensuring all children in their city are reading on grade level by the 4th grade) to convene its partners around the shared goal of making a self-guided PreK through 2nd-grade virtual curriculum. All activities in the developed curriculum were to be aligned with the school district's English Language Arts standards and science/social studies themes from the Spring 2020 quarter. The goals were to make up for lost learning from March through the end of the school year and strengthen the reading skills for students completing grades PreK - 2. Named "The Ultimate Summer Learning Adventure", the curriculum was made available for free to all starting June 28, 2020.

The purpose of this study was to create a process and model for the development of a fully asynchronous online learning environment for prekindergarten through 2nd grade students that could help other districts implement similar projects.

The project team consisted of both the curricular and design teams as well as representatives from the local school district, city library, and the local public television station. The curriculum team included content experts in literacy and mathematics from the local university, The Philadelphia Writing Project, Teach Plus and First Up, and their primary responsibility was to develop content for each grade level band and identify resources for curriculum lessons. The design team was made up of two instructional design specialists and one media specialist with the primary responsibility for the transformation of the curriculum team's content to an interactive web-based learning environment. Through their work together, the curriculum team and the design team realized that while much was known about the content that ought to be learned in the curriculum, there was not a large body of knowledge about the appropriate design of the website that would carry it, or the right process for realizing the work. The design team therefore took an iterative process approach to implement the online learning curriculum. This manuscript explores the design process for the Ultimate Summer Learning Adventure and the patterns of use that resulted. The authors believe it will be valuable for the field as it has valuable lessons about an iterative team design approach from process and product for early grades.

Through this rapid iterative design process, a new model for a design thinking approach to instructional design emerged. The questions below guided the work as we explored a new model that illuminates how a team-based approach, with various feedback loops, can create design that improves the virtual user experience and subsequent learning practices:

1. How did the team create this online learning platform?
2. What challenges did the team face when creating this online learning platform?
3. How did user data (from Google site) and feedback influence the design process?

Literature Review

Effects of COVID-19 on Teaching and Learning

A core finding from global education research over the past three decades has focused on the educator's impact on student learning in the classroom. Despite several variables, what teachers do in the classroom has been shown to have the largest single impact on student learning outcomes (Muijs et al., 2014). In March 2020, the COVID-19 pandemic introduced unprecedented challenges in teaching and learning from the traditional classroom format. Across the globe, educators were required to adapt to distance education as schools observed social distancing protocols and limited face-to-face interaction. This prompt transition offered little time for educators to adapt existing lesson plans, learn best-practices in distance education, or develop proficiency with now-required educational technology. Studies administered since the onset of the COVID-19 pandemic have demonstrated that teachers believe they were not prepared to teach in remote settings (DeWitt, 2020). One such survey of 908 teachers and district leaders across the US found that teachers reported spending up to 71% less time on student instruction while 87% of teachers reported an increase in the amount of time spent troubleshooting problems with technology (Herold & Yettick, 2020). As a result, teachers voiced concerns about the sudden expectations that had been asked of them (Comanducci, 2020). They were concerned with the difficulties caused by their unfamiliarity with remote teaching and learning tools as well as a lack of immediate feedback offered while in traditional face to face classrooms.

A survey of more than 12,000 teachers from South Carolina was conducted in June 2020, just 3 months after country-wide school closures in the US (Berry, 2020). While teachers reported being deeply committed to making a successful shift to remote instruction, many felt they struggled to reach their students during this period of "emergency instruction". Despite this, when presented with the reality of no high stakes testing or assessment, many teachers saw possibilities to integrate creativity, leadership, and the opportunity to cultivate engagement within students' homes. In considering key findings from remote education during COVID-19, the Education Endowment Foundation's (2020) rapid evidence assessment on remote learning found that: teaching quality is more important than how lessons are delivered; ensuring access to technology is key, particularly for disadvantaged pupils; peer interactions can provide motivation and improve learning outcomes; supporting pupils to work independently can improve learning outcomes; and different approaches to remote learning suit different tasks and types of content. While schools sought ways to adapt to the challenges of emergency remote education, educators struggled to keep students engaged with the learning opportunities they had become accustomed to in the classroom. As a result of struggles with remote education, many educators reported that students did not participate in online environments to complete assignments (DeWitt, 2020; Herold & Yettick, 2020). Dorn and colleagues (2020) suggest that this type of learning slowdown could hinder students in ways that equate up to eleven months of lost schooling when compared to traditional face-to-face modalities. Those

numbers increase to almost fourteen months of lost schooling when students do not participate in any remote instruction, depending on when face-to-face instruction resumes. To remediate the effects of emergency remote instruction, schools, educators, and researchers sought a variety of methods to approach the pandemic's new normal. New educational programs, instructional methods, and guiding frameworks emerged as a response to education during COVID-19.

Remote Learning Opportunities During the COVID-19 Pandemic

In Spring 2020, countries worldwide were presented with the necessity of emergency remote education in response to the COVID-19 global pandemic. Given the lack of preparation or planning for this transition to remote education, schools, educators, and researchers sought new approaches to teaching and learning in this "new norm". In a survey of more than 1,000 K-12 librarians in the United States, over three-quarters of respondents were provided emergency or supplementary training in online learning (Rodgers, 2020). Librarians reported offering remote support in the form of readers' advisory, research or project assistance, and story time/read aloud opportunities. Over 80% of all respondents planned to offer summer reading programs, many of whom sought to integrate web-based tools such as the reading system Beanstack for the first time. A study of 45 preservice school librarians in Spring 2020 sought to identify the effectiveness of online environments designed by school library candidates (Burns, 2020). Overall, preservice librarians were largely successful in designing effective online environments supported by instructional design models and appropriate online pedagogy. These lessons were not without their shared problems, however, as the difficulty of synchronous learning experiences necessitated the implementation of additional asynchronous offerings as well.

While educators developed new remote programs, parents were also asked to improvise and provide educational supports for students in new ways. In examining mathematics teaching and learning during COVID-19, some parents reported improvising by using household items, finding links to online interactives, or using statistics/graphics about the pandemic to aid learners in mathematical understanding (Khirwadkar, 2020). Parents also reported several ongoing challenges related to educational supports in the home including their own lack of knowledge or pedagogy, the need for increased teacher communication, or lack of accessible technology or Internet quality (Garbe et al., 2020). A predominant challenge discussed by parents was the struggle to meet disability-related or gifted and talented needs of children now studying remotely. Smith and Colton (2020) detailed the creation of a YouTube channel for Deaf/Hard of Hearing (DHH) students. Prior to the pandemic, there existed limited online teaching resources accessible to DHH students. The transition to online education coupled with a lack of home resources necessitated the construction of a channel which provided instructional videos to parents and students which was freely accessible throughout the COVID-19 pandemic. Parents also struggled with the difficulty of the material assigned to their children in a remote schooling environment. Parents cited spending additional time attempting to differentiate between their child's educational needs and remote assignments at home while under normal circumstances these special considerations would fall to an educator (Garbe et al., 2020).

In response to the pandemic, research sought to provide novel approaches for understanding and supporting learning in emergent crises. Whittle and colleagues (2020) introduced the emergency remote teaching environment (ERTE) framework to provide support for those familiar with pre-planned online instruction. ERTEs differ from more online or distance education experiences as they offer rapidly developed and temporary instructional support in a

crisis without pre-planned resources or infrastructure (Hodges et al., 2020). The ERTE framework comprises three steps: inquiry, classifying available resources into constants and variables, and designing educational experiences. The steps in ERTE are nonlinear and iterative as the needs presented during a crisis require constant re-evaluation (Whittle et al., 2020). Despite these contributions from educators, parents, and researchers, the COVID-19 pandemic represents a "wicked problem" in that the problem is ill-defined and information is often confusing or unknown (Rittel & Webber, 1973). As a response to "wicked problems", design thinking has been utilized to assess fit for all remote stakeholders (e.g., students, teaches, and parents) while offering opportunities to redefine problems and offer alternative approaches to non-traditional problems.

Design Thinking as a Response to COVID-19

Design thinking has been defined as an analytic and creative process that provides opportunities to experiment, prototype, gather feedback, and redesign (Razzouk & Shute, 2012). It has been described as both process and mindset which can be characterized by a number of attributes: ambiguity, collaboration, constructiveness, curiosity, empathy, holism, iteration, non-judgmental way, and openness (Baeck & Gremmett, 2012; Luka, 2014). Dunne and Martin (2006) suggest that design thinking models represent a cyclical process to solve "wicked problems". From their perspective, design thinking is a process of induction, abduction, deduction, and testing. Brown (2008) contrasts this perspective by suggesting that the design thinking process consists of a system of spaces as opposed to a series of steps. These spaces are inspiration, ideation, and implementation. Most notably, Plattner, Meinel, and Weinberg (2009) present a model of design thinking that has been viewed as both stepwise and cyclical. This model is separated into two halves comprised of three individual steps each. The first phase, *problem*, consists of understanding, observing, and providing a point of view. The second phase, *solution*, involves ideation, prototyping, and testing. This model encourages interaction between the phases of problem and solution which become linked, either directly or indirectly, through their unique steps.

Though its foundations reside in engineering, design thinking has steadily grown into the field of education. Welsh and Dehler (2012) detailed a design thinking approach to the creation of a student-centered learning curricula. Their narrative surrounding this process identified design thinking as a crucial element which encouraged critical analysis for both students and teachers alike. Luka (2014) presented a discussion on the merits of design thinking (also referred to as design-based learning in the field of education) and its merits for pedagogy. Though abundant in education broadly, there has been limited research that details the use of design thinking as a response to COVID-19. One example in medical education utilized a rapid design thinking strategy to develop a response to challenges in medical education and training throughout remote learning (Thakur, Soklaridis, Crawford, Mulsant, & Sockalingam, 2020). Their model shows that the educational response to the COVID-19 pandemic may provide an opportunity for educators and students to adapt towards positive and sustained change. To design and develop an online curriculum for PreK-2 students amidst the COVID-19 pandemic, the team sought to build on the success of prior curriculum development using a design thinking approach. The following sections will detail our adapted design thinking model and our steps in moving towards the creation and teaching of an online curriculum.

Method

In March of 2020, the K-12 community encountered a "wicked problem" and was forced to quickly adapt to a virtual learning environment. While some schools developed an immediate

plan, others were delayed with the assumption that the face-to-face closure would be in effect for only a few weeks. An urban district in the northeast section of the United States shut down their district from March 16th to 27th in response to the outbreak of COVID-19 cases in the United States. This shutdown was meant for a deep cleaning of facilities, but the district quickly pivoted to offering remote instruction. This emergency remote teaching environment was in response to the pandemic crisis and did not have the infrastructure of a pre-planned learning environment (Whittle et. al, 2020). In addition, students lacked the necessary hardware and internet access to learn remotely; therefore, the district delayed remote instruction until Chromebooks were distributed and internet access areas were established.

This Prekindergarten – grade 2 (Prek-2) online learning project used an iterative, design-thinking process in a quick turnaround time due to the impact of COVID-19. In this study, an exploratory sequential mixed method research design was utilized in order to aid us in reflecting on our own design practices, experiences in creating the virtual course, and the students' experiences in utilizing the course over a six-week period. In an exploratory design, qualitative data is collected and analyzed in order to drive the analysis and interpretation of quantitative data (Creswell & Plano Clark, 2017; Teddlie & Tashakkori, 2009). At the beginning of each week, the project team would track progress through weekly meeting notes, agendas, and content reviews to identify key areas for improvement. For example, the pipeline for the creation of weekly content and its publication to the interactive web-based application was developed using this iterative process. Subsequently, Google Analytics user data guided analysis in how students were using and navigating the application. These descriptive statistics enabled the project team to gain insight into statistics such as student geographic location and their point of access to the web application. For example, the project team was able to make design decisions on web application font sizes and amount of content presented per slide due to the high usage rate of mobile devices (tablets and phones). This iterative process was utilized throughout the project duration in order to build out the web application and to give insight into our own design process. Due to the immediacy of the problem and the time constraints, the team became pragmatic researchers (Onwuegbuzie & Leech, 2007). Since society has not had the issue of school closures due to the pandemic in over 100 years, this study used an exploratory approach. The iterative model developed here may be helpful to other designers and early grade content developers focused on independent virtual learning. The research team received Institutional Review Board ethics approval through the university.

The structure of a design thinking approach (Luka, 2014) is outlined within the process below. The six-phase design thinking stages – discover, interpretation, ideation, experimentation, implementation and evolution – highlight how the project team developed the PreK to 2nd grade web-based curriculum. Variances to our design-based curriculum model were a result of the guiding questions and interpretations that emerged through project team discussions, instructional development and indirect user feedback. This section will explore how the process of developing a web-based PreK-2nd grade curriculum resulted in an amended design- based model for development.

Discover

In the *discover* phase of the project, understanding the problem and interpreting the issue were key. The team needed to determine the immediate curricular needs of rising Kindergarteners, 1st and 2nd graders that would offset the learning gap that occurred due to the COVID-19 shutdown and subsequent remote instruction that followed. A curriculum team was assembled to include seasoned teachers in Reading, Early Literacy, Writing, Math, and Science. This team would become the Subject Matter Experts (SME) for the project.

The instructional design team along with the SMEs were tasked by an Educational Non-Government Organization in consultation with the school district of the city, with developing a six-week curriculum that consisted of three days of instruction for each week. Each day would consist of lessons for the following subjects: Reading Comprehension, Early Literacy, Writing, Math and Science to total a time of 1 to 1½ hours for each grade level.

Inspiration for the design process came from the multitude of teachers that were quickly adapting to the online environment and creating Bitmoji classrooms full of lessons and activities (Gewertz, 2020). Additionally, the continued development of interactive online software that gamifies and engages the learner inspired both designers and subject matter experts to develop the project in a way that would attract young learners in the summer months. Quickly, a team of potential partners that included school district administrators, local library partners, subject matter experts and graphic designers was assembled (virtually) to determine the project's feasibility and the roles individuals could fill.

Interpretation

Within the *interpretation* stage, an understanding of the audience and interpretation of the work is developed. The driving questions of "how do I interpret it" and "who will be the audience" frames the design approach. In this instance, the "it" is the process of bringing curriculum to life for the user in a web-based approach. The results of these questions result in the team developing a persona analysis and a framework to develop the curriculum to teach the newly defined user based on the persona analysis.

Initially, a meeting of potential partners and contributors included literacy experts, school district officials, funding partners, and community educational partners such as WHYY (Wider Horizons for You and Yours) the local PBS station, and the public library helped to determine the audience and provide guidance on what should be included in the curriculum.

Virtual pre-project meetings were held with the school district in the Northeast to discuss the grade level bands and the content standards of the project which would constitute the audience. It was decided the content would focus on the Spring 2020 standards in the hopes of alleviating the Fall 2020 learning divide, and potentially filling the gaps of instruction from the school district's closures due to COVID-19. As parents were tasked with working either at home or in person in essential positions while their children were at home for the summer, the need to offer a virtual learning opportunity that was designed so the student would be able to access and perform the activities without the help of an adult was paramount. There is evidence to support the idea that student learning outcomes can be improved through this independent work (Educational Endorsement Foundation, 2020). Except for the pre-kindergarten students, the development team decided to proceed with this expectation in mind.

Project team partners determined the use of themes for each grade level module. Each module would include content that focused on one theme over a two-week period. A total of three themes for each grade level were decided. Books needed to be selected to be included for read-alouds. In the beginning, the content experts planned to use online books through a variety of companies that responded to the pandemic with free resources for teachers; however, due to copyright issues this was not permissible. In response, it was decided to include content-lead selected read-alouds that were readily available on YouTube. The read-alouds were chosen based on relationship to the theme, grade level, and were culturally responsive. The books were chosen and shared with the larger partner group. Some books were changed due to lack of rigor for the grade level and some books were changed to more culturally responsive text. The

themes were also shared with our partner, WHYY to develop television programming for one hour each day during the six weeks. The WHYY schedule was distributed with literacy activity packets at *Meal on the Go* locations across the city so they could reach students who might also be struggling with internet access.

Ideation

Within the *ideation* stage, the design-based approach focuses on the question "What do I create?" Although this question adequately addresses a single-based curriculum design for a grade specific user an additional question, "How do I create the learning experience" was added due to the multiple subject areas and grade levels being addressed in a specific week with variant web-based interactive approaches. The ideation process unfolded in two iterative and interrelated phases as the project team design discussions and tool availability emerged.

Initially, the project team discussed hosting all the curriculum on a website. Each page of the website would hold individual Reading Comprehension, Early Literacy, Writing, Math and Science segments for the day and week. This would result in lessons being produced and operated on each page at each grade level. The lessons would be produced on Google Slides with embedded video and hyperlinks for the students to navigate.

Instructional designers, however, suggested the use of Articulate 360: Storyline to create the digital content. This software had advantages, they argued, in creating more interactive content, and in allowing more compact and user-friendly website architecture. Articulate 360: Storyline allows for the branching of subjects in one produced lesson instead of having multiple lessons for each Week, Day and Subject (WDS) activity (see Figure 1). This approach would allow for greater control of audio, interactive elements, and a more streamlined user experience since the user would be navigating within one produced lesson in lieu of having six produced lessons on a page, and therefore the risk of audio playing for two subject lessons while on one webpage would no longer exist. The use of Articulate 360: Storyline also allowed interactive elements to be incorporated into each lesson shifting the learning experience from passive to active. Lastly, the website would broadcast each WDS activity on its own page (see Figure 1).

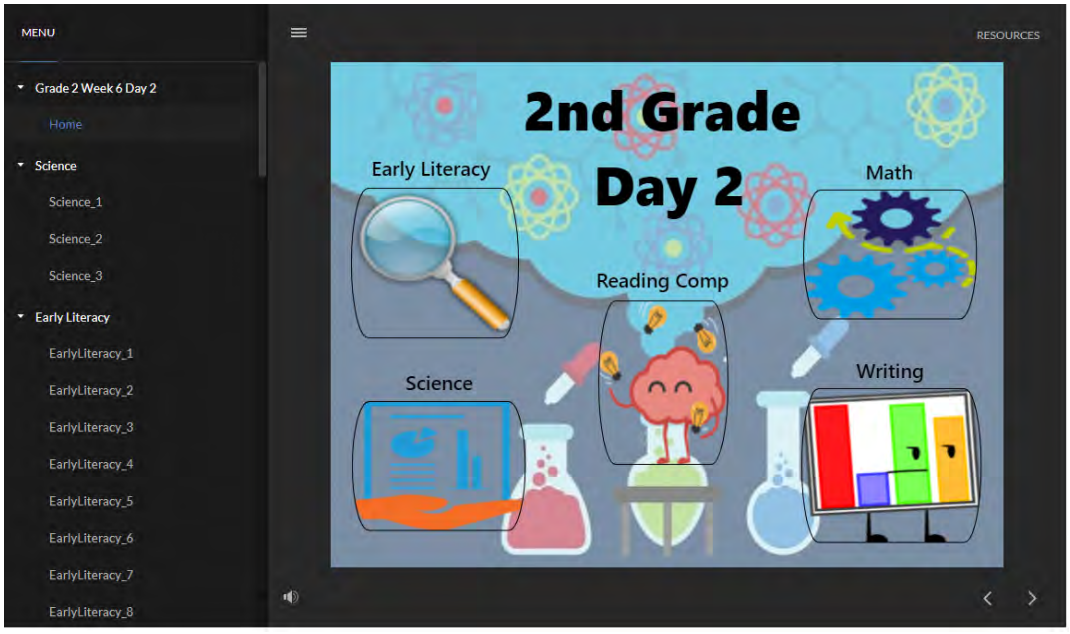

Figure 1: Sample activities page for grade 2 day

Experimentation

In the *experimentation* stage, a prototype is built, tested, and feedback is obtained. Ideally, the experimentation phase lends itself to testing a prototype and refining it based on various feedback loops. Unfortunately, many programs, including the Ultimate Summer Adventure program, run on an expedited timeline where a multi-feedback loop prototype is not feasible. The instructional designers had a one-week window to design the content that would be released during the first week of the program.

With the timeframe in mind, the designers constructed the prototype so that the user could engage with various activities for each of the subject areas. One content area for a grade level may have two or three activities resulting in approximately 40-60 activities for all four levels for all five subject areas.

Once the prototype was complete, one content expert, one funding partner and one district administrator tested the learning activities. Notes were taken (see Figure 2) and adjustments were made by the instructional designers over a two-day period. The prototype was then launched on the website as Week 1's learning adventure.

The central question of the experimentation stage was "how do I build it?" Through trial and error and the project team working together, we were able to produce an array of learning modules that had different interactives suitable for each grade level.

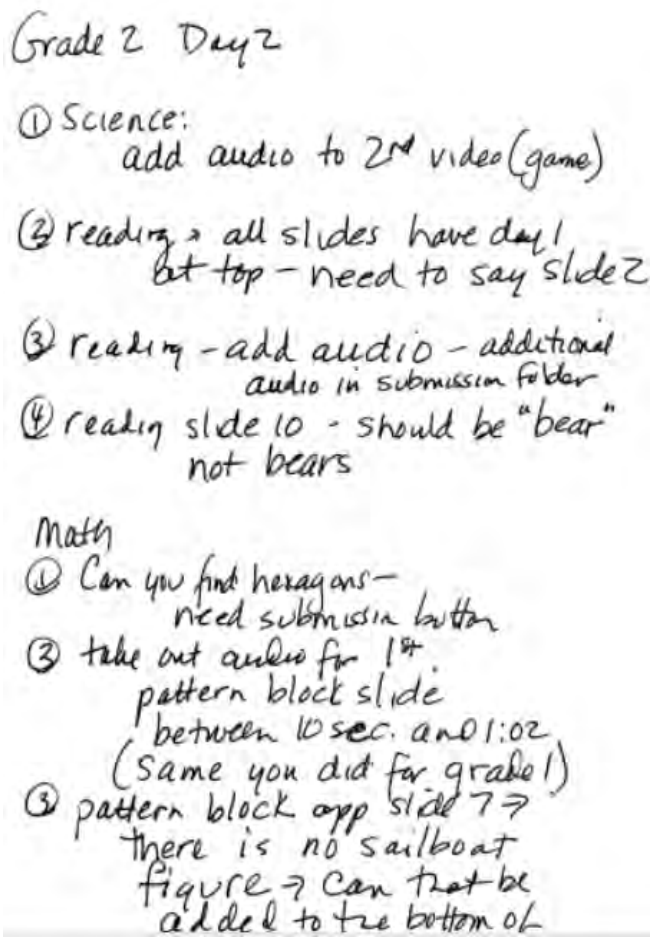

Figure 2: Notes from content expert to instructional designers on weekly build

Implementation

In the *implementation* stage, the team needed to identify what was and was not working and revise as needed. After the first week of production, the project team developed a more streamlined means of submitting the content for design in hopes of streamlining the process and assisting with identifying missing or repetitive areas of development.

After the first week, the project team met and identified the need for more audio in each lesson to clearly articulate to the learner how to proceed. For example, for kindergarten students who are just developing reading skills, all directions and words on the screen were read aloud.

For Pre-K specifically, after the first week, the design team in conjunction with the SMEs decided to not embed Word documents within their lessons for fear of the user not being able to access such documents. The designer would move ahead in week two with embedding Google documents that were viewable by the user.

Evolution

The *evolution* phase is time to get external feedback. In this project, the feedback came after week two when the instructional design team was able to report technical user data. In this phase we assessed the fit of our curriculum model and delivery with the user stakeholders.

The data showed most users were accessing the media through mobile and tablet devices. Originally, the design was geared toward the Chromebook environment because of the district's Chromebook distribution initiative. With this new data, the designers proceeded with making both navigational buttons bigger on the slides and increasing the font size. Additionally, the interactive elements were paired down. For example, an eight-set matching game would be decreased to a four or five set matching game to increase the picture and text sizes.

The SMEs, during weeks five and six, added content data collection by embedding Google Forms in the interactives. As students answered questions, the responses were recorded anonymously on a spreadsheet. This process allowed content developers to understand if and how users were taking part in the activities.
Through the evolution stage, the content and design team made various tweaks to improve the user experience including:

- Written directions for adults/caregivers of PreK students were moved from Google Docs to a layer within Articulate 360: Storyline so that the adult would not be taken out of the lesson and have difficulty returning to the site. (Week 3)
- Written directions for adults/caregivers of PreK students would have audio elements added to them. (Week 4)
- Produced video would be added to Kaltura (an inhouse video platform) and then embedded into Articulate 360: Storyline. This allowed the Articulate 360: Storyline file size to remain relatively low.

Discussion

Research Question 1: How Did the Team Create this Online Learning Platform?

After meetings to discuss grade level bands and content areas, decisions were made as to which content experts were needed. Additional meetings determined the platform to host the content and which software would make the content interactive. Following those decisions, the content

experts met with the design team weekly to clarify making content more user friendly and interactive. Each week the team used an iterative process that served to make changes to content and improve functionality for the end user. As discussed earlier, there are other models of design thinking that could have been applied to this project. The 2009 model from Platter et al. suggests understanding and observing in the first phase of the cyclical process. This project did not allow the luxury of complete understanding of the problem, nor the time to observe; therefore, the Platter model did not meet our needs. Through our iterative process, a new model was created that details the process used (see Figure 3). In the *discover* stage, the team created a shared understanding of the challenge, quickly and effectively designing a multi-grade curriculum to be used asynchronously. The second stage, *interpretation*, enabled the team to determine the standards and themes. With set interpretation of the discovered problem, the team could progress into the third stage, *ideation*. Here, the team generated multiple ideas and received feedback from stakeholders. Stage four, experimentation, took the team through developing a prototype and getting feedback from students, parents, and team members. The project learning environment was revised iteratively over the course of six weeks during the *implementation* stage as student data became available. The last stage, *evolution*, would bring the team back to the *interpretation* stage each time we received feedback or data to support a change.

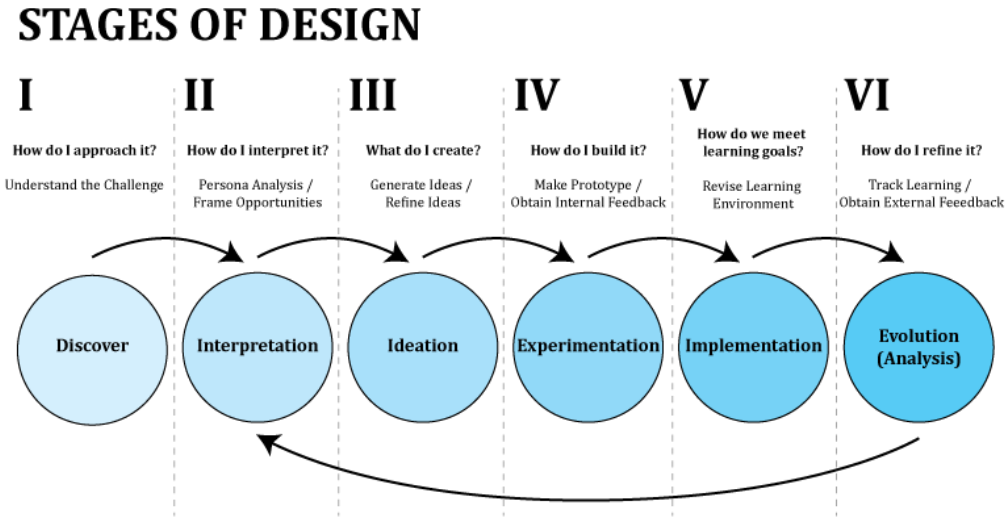

Figure 3: Iterative Design Model for Ultimate Summer Learning Adventure

Research Question 2: What Challenges did the Team Face?

The team faced many challenges in the development and implementation of the project. The timeframe from idea to implementation was a hurdle that had to be addressed. The team determined the serving the needs of the students far outweighed the long days the team would work to get this project off the ground. Another challenge was finding the content experts for the curriculum that had the necessary expertise and the time to commit to the project. The one benefit was the many partners involved in Read by 4th.

An additional challenge was experienced while the platform was in use. Many users were using cell phones to access the platform. The instructional design team had to adapt the content and size of items on a page. While internet connectivity did not appear to be an issue when students were using the platform, not all households in the targeted district had internet access. To address that challenge, printouts of materials that addressed the same themes were provided at meal centers across the city.

Research Question 3 How and When was the Curriculum Used?
Analytics from the Google site were studied to identify the most active time periods (see Table 1) and the locations of students where the site was accessed (see Table 2). The site was promoted at the beginning of the summer through emails, advertising through social media, local grassroots champions, and radio ads. June through August brought 5,848 unique users who viewed an average of 3.13 pages per session. In September, the site was renamed, but was still active and students could continue to use the activities. September through November brought an additional 434 unique users with less pages per session when compared to summer.

The program was developed for a region in Pennsylvania. The intent was to reach students from the region. In the summer session, 4,515 of the users were from Pennsylvania, 251 from New Jersey, followed by 163 from District of Columbia. Six other states rounded out where the users were located during the summer. In the Fall, Pennsylvania again hosted the highest number of users (n=230) followed by New Jersey (n=27) and a surprising number of users all on the same day from Utah (n=230). The analytics suggest a teacher(s) may have discovered the site and assigned some activities to their students. It is important to note that there was no advertising for the site after August.

Table 1: Use of ultimate summer learning adventure across time periods

Time period	Users	Sessions	Page Views	Pages per Session
June-Nov (All)	6,190	6,202	11,238	3.10
June-Aug (Summer)	5,848	5,848	10,404	3.13
Sept-Nov (Fall)	434	354	834	2.66

Table 2: Users by location and timeframe

US Locations	June-Aug (Summer)	Sept – Nov (Fall)	June-Nov (All)
Pennsylvania	4,515	230	4,677
New Jersey	251	27	277
D.C.	163	4	167
Utah	51	23	74
Iowa		21	
Texas	37	21	58
Wyoming		13	
New York	98	3	101
Virginia	81		86
California	77	12	89
Washington		12	
Ohio		11	
North Carolina		6	
Delaware			51
Massachusetts			44

Initially, activities were designed based on the assumption that students would use their newly distributed Google Chromebooks. In the implementation phase, the developers realized

students were mostly using mobile phones which was approximately 77% in the first weeks of the summer program. The content experts and developers adapted activities for students to easily access the content on mobile phones, which was not considered at the beginning of development. When the design features were changed to have less words on a page, less choices on a page, and larger navigational buttons and font sizes, the intent was to provide a better user experience for the students using mobile devices.

Over the course of the summer programming, 57.96% of users were accessing the content on mobile devices, followed by desktops at 36.88% (See Table 3). It is interesting to note that in the Fall, after the summer program advertising ended, the content was still available for use; however, desktops were the device of choice at 80.41%. The team hypothesized that teachers may be using the curriculum activities in their virtual learning assignments.

Table 3: How users accessed the curriculum

Device	June-Aug (Summer)	Sept-Nov (Fall)	June-Nov (All)
Mobile	57.96	14.98	55.54
Desktop	36.88	80.41	39.48
Tablet	5.16	4.61	4.98

This project was started and implemented in two weeks. The iterative design-thinking process occurred throughout the six-week curriculum offering. The team learned valuable insights on how to create curriculum-based content with asynchronous online activities for the early grades. The team had to adjust content for grade level by adding additional audio to any written material; amount of content on a page and larger response buttons for mobile phone use; and increase knowledge capacity of technology for the content experts. The instructional designers and content experts learned from each other and had to work together under high stress circumstances due to the time constraints.

At the time of the project implementation, many households did not have either the internet connection or the bandwidth to access the platform. This is an ongoing issue across the country and is slowly being addressed. Lack of access may have affected the results of this program. The project team attempted to address this issue by providing physical copies of materials and including themed programming through public television (WHYY); however, families that could have benefitted from the program may not have had the access to participate.

Recommendations

Designing and implementing an asynchronous virtual learning curriculum for preschool through 2nd grade was a challenging task. Much was learned during the process that can be considered as recommendations for others with similar aspirations.

While the goal of this project was to allow students to access the curriculum without a log in, it is recommended that students would log in to the system. This would allow for better data tracking and would improve the changes made in real time. It could also provide a way to assess student learning.

Another recommendation concerns accessibility. It may prove best to design activities with mobile devices in mind. When the design is planned for the smallest screen, the material will be accessible on all devices. As the team learned through this iterative design thinking process,

audio support was a necessity. If words are written, audio needs to be provided to support universal design for learning. It is also critical in a project like this to have buy- in from all the stakeholders and to be open to their feedback. Scheduling time and having a process for the feedback from the beginning would allow for timely iterations. Ultimately, it was feedback from a variety of stakeholders throughout the process that contributed to the content and design changes that improved the user experience.

Conclusion

COVID-19 has placed many challenges on schools and student learning. The Ultimate Summer Learning Adventure was one response to the spring 2020 in person school closures. While it was initially developed to help students recover or master skills that were presented virtually in the spring, this virtual curriculum is still being used by students. The project was a quick response to a "wicked problem" and was used by the students it was intended to support. One limitation of this study was the intentional choice of not having students log into the system did not allow for analysis of student learning. The iterative design process that was instituted may prove helpful for others intending to support asynchronous, virtual learning for the early grades.

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Emergency Response in Educational Policies during COVID-19 in Nepal: A Critical Review

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Abstract

The COVID-19 pandemic has brought chaos in education across the world, including developing countries like Nepal. To respond to this educational disruption in this South Asian country, different educational plans and policies were formulated by the Ministry of Education, Science and Technology, Government of Nepal. It is not known whether these policies were realistic and practicable, as there is no review of these documents to date. With this backdrop, this paper critically reviews the educational plans and policies that were developed to manage education during the crisis. It appraises the strengths of these policies in terms of their intent and practicalities of implementation in the given situation, and identifies gaps and challenges, and recommends some ways to realistically run the education system. The review reveals that these documents have several strengths, such as they plan to create data in terms of learners' access to resources, value self-learning and parent education, and suggest several alternative ways to resume school. Yet, there are some gaps and challenges, the identification of which can guide the effective delivery of education in Nepal in any kind of crisis period both at present and in future. This paper is expected to help policy makers to revisit the existing policies or guide them when they form future educational policies that are designed to manage education in any kinds of crisis. It is also deemed helpful for teacher educators, practitioners and other educational stakeholders to understand about the educational plans and policies formed to deal with crises.

Keywords: COVID-19, challenges, educational policies, emergency response, strengths

Background

In the history of education systems, the COVID-19 pandemic has brought the largest disruption and affected nearly 1.6 billion learners in over 190 countries, and in case of low and lower-middle income countries, closure of schools and other learning spaces have affected up to 99 percent of learners (United Nations, 2020). The out-of-school rate of primary education is high (up to 86 percent) in low human development index countries whereas it is low in very high human development countries (only 20 percent) (Conceição et al., 2020). The current situation has the potential to further widen the gap between children of low and high development countries. The learning space has become disembodied, and virtual not actual**,** for students of developing countries, affecting both student learning and organization of schools during the pandemic (Pacheco, 2020).

In the case of Nepal, until December 11 2020, 245,650 positive cases of Coronavirus were reported with 1,663 cases of COVID-related deaths (Worldometer, 2020). As the early response to this crisis, the Ministry of Education, Science and Technology (MoEST), the Government of Nepal (GoN) issued a brief notice on March 3 2020 to conduct all the year-end examinations within March, which is the end of the academic year. Later, on 24 March, the GoN announced lockdown as the second COVID case was identified in Nepal (Center for Education and Human Resource Development [CEHRD], 2020a). At first, all the educational institutions were closed till April 27 2020, but the lockdown had to be extended further. The baby step of distance learning got a boost during COVID-19 in Nepal (Karki, 2020) although the quality of technological devices that learners use to access education is one of the concerns in developing nations such as Nepal (Shrestha, 2016). COVID-19 revealed major inequalities such as access to devices, platforms and places to do schoolwork for the learners when they are outside schools (Fullan, 2020), and it was also very visible in this small South Asian country.

Giri and Dawadi (2020) report that around 9 million school children have been affected in Nepal by the school closure due to the COVID-19 crisis. Amongst those affected, the children having internet access is 1,093,394, children with access to other media are 3,958,270, children with no access to other media are 2,357,959 and the children at risk are 995,090 (CEHRD, 2020a). There can be a higher risk of dropout of nearly 3,335,000 children in Nepal who do not have access to any media needed to support virtual learning. To respond to the current disruption in education, particularly in school education brought by the COVID-19 pandemic, the GoN developed and implemented some policies over a period. It is not known whether these policies stood as strong documents to guide the practices during the pandemic. Of late, there has not been any critical review of the plans and policies that were formulated to respond to the educational chaos during the pandemic in Nepal. With an aim to fill this gap, this study critically reviews all the plans and policies that came as responses to manage education during the pandemic.

Policy Review: Theoretical Bases

Policies do not fail or succeed on their own right rather their progress depends on how they are implemented (Hudson et al., 2019). Neupane (2020) proposes a five-step framework for formulating and implementing effective education policy. The first and second steps include examining socio-cultural disparity, and the third focuses on the analysis of educational inputs. Neupane (2020) contends that it is necessary to map available resources for education spending to learn both resource gaps and demand/supply gaps. She argues that a number of concerns

should be addressed, such as identifying the timeline, necessary institutional framework and further programs to achieve the policy objectives and goals (step 4). The final step is assessing socio-economic developmental impacts of education. Although this framework seems comprehensive, it has missed out the socio-economic aspect to be examined at the first step which can substantially help policy makers to develop effective policies.

On the basis of the success factors they found in their study, Norris et al. (2014) provide suggestions to make policy effective for implementation, such as identifying the problem and the outcomes that matter most, thinking about implementation while developing the policy, being aware of and ready to respond to the wider system, staying close to the implementers, determining where and how decisions are made, building in long-term focus, and being prepared to rethink if the context changes dramatically. Highlighting the contributors to policy failures, Hudson et al. (2019) identify overly optimistic expectations, implementation in dispersed governance, inadequate collaborative policy making, and vagaries of the political cycle (focus on the short-term results) are four contributors. Long-term policies can be challenging for the government because the political will necessary to drive long-term policy making dissolves over time (Ilott et al., 2016). Hudson and their colleagues argue that the implementation difficulties of any policy are also related to the lack of collaboration in policy-making and the failure to create a common place for public problem solving. Policies formulated at the central level may face difficulties of ensuring consistency in delivery at local level (Hudson et al., 2019). In some cases, policies are formulated with many key elements left unexplained which can lead people to spend substantial time and effort as ambiguous terms need to be explained and interpreted (Weaver, 2020). Norris et al. (2014) argue that the clarity on the issue that is dealt on the policy also helps decision makers to choose during implementation particularly about where resources should be focused. The above discussion reveals that many policy analysts have proposed different models and guidelines to analyse policy formation and implementation, which will guide the analysis of the findings of this study.

Methodology

This is a policy review focused on intents and practicalities of the plans and policies formed by the GoN during the COVID-19 pandemic. Guided by the document analysis method, firstly, the authors went through all major policy documents that were released during the pandemic till December 2020 namely *Emergency Action Plan for School Education, 2020*, *Student Learning Facilitation Guideline, 2020* and *Framework for School Operation, 2020*. These documents were retrieved from the sites of MoEST and Center for Education and Human Resource Development (CEHRD), Nepal. Bowen (2009) says that document analysis is the process of "evaluating documents in such a way that empirical knowledge is produced and understanding is developed" (p. 34). The researchers of this study intended to produce the empirical knowledge based on these documents which can help researchers and educational stakeholders understand the essence of these policies. During the exploration, the focus of the authors was more on witting evidence (O'Leary, 2017), which is the content within the document, compared to the focus on latent contents of the documents such as author or creator, tone, agenda, style of the documents (O'Leary, 2017). To do so, the technique the researchers used during exploration is closer to the "interview technique" claimed by O' Leary (2017) as the authors highlighted the texts bearing some tentative questions in mind. Then, the researchers organized the information into the central questions related to intent and practicalities (Bowen, 2009). Later, they re-read those notes and arranged them under strengths, and gaps and challenges. They also went through some other documents and notices released

and issued during the pandemic by the GoN and other local bodies. O'Leary (2017) contends that how we read and what we draw from the documents will be based on our own situatedness. However, the researchers during the analysis of these documents tried to be as objective as possible in order for the document analysis outcomes to be credible and valid. The following shows the process of our review and analysis of the documents under discussion.

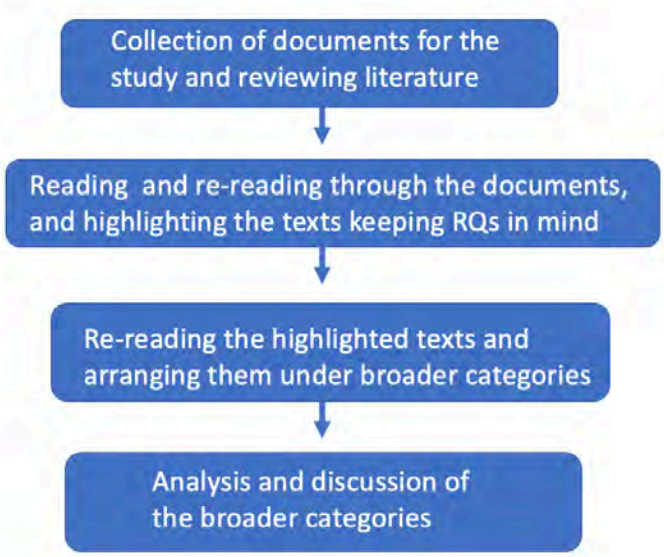


Figure 1: The research process

The following research questions guided the study:

1. What are strengths of the educational policies that were/are implemented during COVID-19 in Nepal?
2. What are the gaps and challenges found in those educational policies?
3. What aspects of educational policies need to be considered to make such policies operational during any crisis contexts in a developing nation, such as Nepal?

In the following sections, the authors discuss the documents chronologically identifying their strengths, and gaps and challenges.

Findings and Discussion

Emergency Action Plan for School Education, 2020

The first plan brought by the government during the pandemic in Nepal is the *Emergency Action Plan for School Education, 2020* (Government of Nepal, Ministry of Education, Science & Technology [GoN, MoEST], 2020a). It is a comprehensive plan that claims to list activities to manage the school education during the crisis, processes to complete the activities, timelines to carry them out and the implementers as well as supporters who will play a significant role in carrying out these tasks. One of the strengths is that it has a plan to create a record of students under five categories for the alternative learning considering learners' access to resources under five different categories: students having no access to any resources; students having access to radio/FM; students having access to television; students having access to computers but no access to Internet connection; and students having access to all kinds of resources. This was targeted to be completed by the first week of October 2020. It also planned to ascertain the distribution of textbooks to the students. Other components worth noting were students' enrolment plans, intent to send teachers to teach at the school sites, the classification of content

as self-learning or teacher supported, the development of self-learning materials in line with the curriculum, the implementation of home schooling, the development of temporary learning facilitation centres and converting them into free Wi-Fi zones and to evaluate the learners based on their context. Another crucial scheme of this action plan is to develop and disseminate some materials to deal with mental wellbeing of teachers and learners, which is hardly taken into account in Nepal (Gnawali, 2020) although the study of Mahat and Khanal (2012) report that child mental health program implemented in schools have significant positive impact on students, school environment and teaching learning activities. The study of Gautam et al. (2020) on the self-reported psychological distress during COVID-19 in Nepal equally emphasizes that there is a need of the formal body to address the appropriate mental health and psychological support response in Nepal.

Despite being an action plan, it seems that in many cases, it lacked explanation of the implementation steps on how to carry out the activities it listed. For instance, it planned to collect data in relation to the access to resources by the first week of October; nonetheless, it has remained silent on how the data will be collected. The question emerges whether it was possible to collect the data in the given timeline given the situation that there was no usual practice of data collection, and there is high prevalence of psychological distress among the Nepalese during the pandemic (Gautam et al., 2020). Norris et al. (2014) contend that the clarity on the issue is needed on any policy for the effective implementation.

The document is very ambitious in that it plans to develop the scheme to expand internet access to the schools beginning from October or November. This plan seems very relevant but unrealistic as this is a mere statement without a proper study and clearly stated action plans. It corroborates the argument of Hudson et al., (2019) that overly optimistic expectation in any policies lead to failure in the implementation. First, there needs to be a categorical specification such as, which schools from which regions should be targeted, what could be the minimum bandwidth for each school and in what ways the schools use the newly obtained Internet for facilitating teaching and learning? The breakdown of broad actions is missing in this document.

Some plans in this policy document seem completely unrealistic such as, making mobile data free while operating the learning portal of CEHRD during COVID-19. Radhakrishnan-Nair et al. (2020) argue “This will require that new servers and network hardware be set up in many provinces to handle higher traffic” (p. 21) and these actions did not seem feasible during the crisis. Nepal Economic Forum (2020) claims that the GoN has failed to build the necessary infrastructure for virtual learning during COVID-19 period.

Nonetheless, the document paved the way to design a more comprehensive action plan titled *Student Learning Facilitation Guideline, 2020*, analysed in the next section, which helped to facilitate learning during the pandemic.

Student Learning Facilitation Guideline, 2020

This is a primary guideline aimed at helping learners at the school level in Nepal to gain the learning objectives set by the Curriculum Development Centre for the current academic year during the time of the COVID-19 crisis (GoN, MoEST, 2020b). This guideline mandated to be implemented by the MoEST in 2020 has defined students as children who are learning formally or informally and are of school-going age groups but have not joined schools. The guideline classifies school students of Nepal into 5 categories (listed in the previous section) as stated in the *Emergency Action Plan for School Education, 2020*. This guideline has clearly made a broader category of learners and recommended some plans to address diversified learners in

the current crisis. Yet, there are some gaps and challenges to implementing it, the identification of which can guide the effective delivery of education in general and in the current crisis and during any kind of crisis period in future. Since this is the primary guideline supposed to address multiple educational issues during the pandemic in Nepal, the authors have given more space in this article to the discussion of this plan. In the next sections, they discuss the strengths and gaps with relevant evidences from the document.

Strengths. This guideline has specified the roles of different stakeholders such as CEHRD, Curriculum Development Centre (CDC), municipalities and rural municipalities, schools and parents to facilitate the learning during the period of the COVID-19 crisis. This is a necessary step on policy formation as Neupane (2020) asserts that it is required to understand the availability of resources and plan accordingly. This guideline also plans to collect data of learners in general and in relation to the access to learning resources in particular which can benefit to devise new educational plans and policies in future.

(५) यस दफा बमोजिम समूहगत विद्यार्थी पहिचान तथा वर्गीकरण गर्ने प्रयोजनका लागि विद्यालयले चालु शैक्षिक सत्रमा विद्यार्थीको अभिलेख तयार गरी सो अभिलेख बमोजिम विद्यार्थीको नामनामेसी, आमा, बाबुको नाम, ठेगाना, सम्पर्क नं., विद्यार्थीको समूहकृत वर्ग र स्रोत साधनको पहुँचको अवस्था समेतको विवरण खुलाई सम्बन्धित स्थानीय तहलाई उपलब्ध गराउनु पर्नेछ ।

Translation:

5. Guided by this clause, for the purpose of identifying and classifying students into different groups, in this academic year, the schools will collect students' names, names of their parents, addresses, contact numbers, groupwise classification of students, their access to resources, and keep record of the learners and submit those data to local level.

Figure 2: Excerpt from the Student Learning Facilitation Guideline, 2020 (p. 2)

Clause 5 of the Guideline above requires the schools to collect/maintain data of students submitted at a local level. This holds schools responsible for the data and the local bodies to manage them further which ultimately increases the coordination between the local bodies and the schools.

It also stresses that there should be a separate learning facilitation for the differently-abled children. This consideration to include them in learning during the crisis is positive from an inclusivity perspective. Human Rights Nepal (n.d.) argues that many children with disabilities do not get appropriate kind of support to learn and do well in schools in Nepal as a result, they are deprived of quality education.

Another positive aspect of this guideline is to require a head teacher to enter the data of students into the Integrated Educational Management Information System (IEMIS), even though the availability of a functionally effective system in all community schools is still questionable. This provision not only ensures that the data are entered in the system for action and analysis, but it also impacts in the long run the capacity building of the schools which is consistent with the argument of Norris and their colleagues (2014) who contend that one of the factors of effective policy is its focus on long run.

Group management of the learners for the facilitation of learning is an appropriate plan, and involving parents in the teaching-learning process is another good move in this guideline. Parental involvement was also briefly stated in the previous *Emergency Action Plan for School Education, 2020*. This provision helps in supporting students as per their learning needs. In the past, the Government was rigid with regard to the education regulations, but now it has shown flexibility in different ways as it has valued home schooling, online learning and promoted self-learning. Besides the dormant role of parents, this guideline has also delineated some of their roles for the day-to-day learning.

In previous years, despite availability of some digital resources, there were teachers who would not access those materials to use them in regular teaching and learning (Rana et al., 2018); nonetheless, at this time, a large number of teachers are trying to access digital materials to engage learners in this crisis context. In this regard, this guideline has also stated that teachers can access materials from the different sources such as www.learning.cehrd.edu.np, www.youtube.com/ncedvirtual, www.moecdc.gov.np, www.doe.gov.np.

Furthermore, this guideline has given some room for the adjustment of courses rather than completion, which is a departure from the former practices based on a rigid structure (Acharya, 2016) that focus on completing the courses in each academic year without focusing on students' learning. Now, the teachers will be able to adjust the contents based upon the needs and practicalities, and also critically think about what works and what may not in the crisis period.

Gaps and challenges. Despite having some strengths, this guideline has some gaps and challenges that may compromise the effectiveness of its implementation as intended. The guideline has stated that in the current academic year, in order to classify the students in different groupwise categories, the schools should keep the records of their names, parents' names, addresses, contact details, their groupwise categories and their access to resources, and submit them to the local level. The question emerges here: how can all schools keep records at this time, as there is no school physically running (Shrestha, 2020) and not all schools have been able to reach out to all the children (United Nations Children's Fund [UNICEF] Nepal, 2020)? The guideline also states that the schools can use the data collected in the previous year and provide details. Again, the question is if the schools have collected data in relation to their access to technology in the previous years as there was no consideration of such issues earlier. This confusion and complexity might lead the local level not to take the job seriously, which accords with the argument of Hudson et al. (2019), that is to classify the students as there is no clear action plan delineated by this guideline.

The digital divide, which was already considered as a challenge by the *National Education Policy 2019* (GoN, MoEST, 2019), seems to continue defeating the purpose of this guideline that it may further augment the digital divide in the long run. A mere division of learners is not sufficient. The following sub-clause seems to have totally favoured the learners having access to all kinds of resources.

६. **विद्यार्थीले आफ्नो रुचि र प्राथमिकता अनुसार अध्ययन गर्न पाउने**: दफा ५ बमोजिमका कार्यक्रमहरूमध्ये एकभन्दा बढी कार्यक्रममा पहुँच हुने विद्यार्थीले आफ्नो रुचि र प्राथमिकता अनुसारको कार्यक्रम छनोट गर्न सक्नेछ ।

Translation:

6. **Students can learn as per their interest and priority** : Amongst the programmes listed in clause 5, the students having access to more than one programmes can choose the programme as per their interest and priority.

Figure 3: Excerpt from the Student Learning Facilitation Guideline, 2020 (p. 7)

The issue that persists here is the equitable provision to other groups of learners who have access to limited or almost no resources, and the guideline seems to have remained silent on it.

Under clause 19, it also states that as per necessity, resources will be made available by producing them in local languages which seems to be a good move as it has also considered the use of local languages to develop resources which can help learners to have a better understanding of concepts that are dealt in their languages. However, there remains a procedural confusion. Since the guideline has not delineated procedural aspects, the mere statement seems a kind of comfort word for the policy activists who might advocate use of local languages in teaching-learning resources.

The plan to require a head teacher of the school to enter the data of students into the IEMIS is a good idea. Nevertheless, there are layers of confusions to be unpacked, which can lead stakeholders to spend substantial time and effort to clarify confusions (Weaver, 2020). Is such a system effectively functioning in all schools? If not, what steps can be taken to build such a system?

This guideline mentions that there will be some actions towards arranging the required budget to create and manage a unified education portal, establishing and managing educational television channels, developing electronic resources, technology and devices, arranging alternative means to power, and creating virtual lab, E-cloud lab and E-library. Norris et al. (2014) claim that obtaining clarity on any concerns that are stated in any policy is one of the important steps to make it effective; however, in this guideline, it is not clear what percentage of budget will be there and who the contributors are.

(ग) एकीकृत शिक्षा पोर्टलको निर्माण तथा सञ्चालन, शैक्षिक टेलिभिजन च्यानल स्थापना र सञ्चालन, विद्युतीय शिक्षण सामग्री विकास, अनलाइन प्रविधि तथा उपकरण, विद्युतको वैकल्पिक व्यवस्था, भर्चुअल ल्याब, ई-क्लाउड प्रयोगशाला र इ-लाइब्रेरी स्थापना, खरिद तथा सञ्चालनका लागि आवश्यक बजेट व्यवस्थापन सम्बन्धी कार्यहरू गर्ने,

Translation:

c. There will be actions to manage the required budget for developing and managing unified education portal, establishing and managing educational channel, developing digital teaching materials, online technology and devices, managing alternative sources to electricity, establishing virtual laboratory, E-cloud laboratory and E-library

Figure 4: Excerpt from the Student Learning Facilitation Guideline, 2020 (p. 10)

It has also stated that teachers can access materials from the different sources such as www.learning.cehrid.edu.np, www.youtube.com/ncedvirtual, www.moecdc.gove.np and www.doe.gov.np. The issue is if there was any form of teachers' engagement when these learning portals are created and updated, or if there is any plan to engage teachers. If it is purely top-down production, the materials available in these resources can be only in a form repository as teachers may not use them, having found that most of the materials available there are not context-appropriate. The Clause 8 sub-clause 5 claims,

(५) स्थानीय तह वा विद्यालयमा विकास र प्रयोग भएका सामग्रीहरु स्थानीय तह तथा विद्यालयले आफ्नो वेबसाइटमा अपलोड गर्न सक्नेछन् ।

Translation:

5. The resources that are developed and used at local level or schools can be uploaded in the sites of local level or schools.

Figure 5: Excerpt from the Student Learning Facilitation Guideline, 2020 (p. 8)

It is a good policy to upload some materials created and used by local levels and schools to the school's site or the site created at the local level. Nonetheless, by just uploading the resources

at local level limits the teachers' contribution in creating the resources which can have a potential to contribute nationally. It also shows that local teachers' contributions are not valued, and there seems to be very much expert-centric practice bypassing the roles of local teachers who indeed have the ability to design context-appropriate materials. Shrestha (in press) argues that the digital materials developed by the teachers will be context-sensitive and can be included in a centrally created digital repository.

As schools remained closed for a long period, and the "emergency remote teaching" (Hodges et al., 2020) could not be as effective as face-to-face and also the positive cases of COVID-19 were dropping continuously, in November, MoEST planned to reopen the schools. They brought out the new *Framework for School Operation, 2020* which is discussed in the coming section.

Framework for School Operation, 2020

The recent *Framework for School Operation, 2020* (GoN, MoEST, 2020c) in the context of COVID-19 implemented by the MoEST has clearly delineated the preparation strategies that the institutions should adopt before reopening the schools such as disinfecting the schools that were used for quarantine, arranging help-desks, consulting with local authorities that include parents, the members of children's clubs about the possibility of reopening schools and so on. The strength of this framework is that it has also created a checklist to measure if the schools are safe to open. Interestingly, it has nowhere mentioned the protocol of transportation used for the students who commute to and from their schools. Especially, a number of private schools that have a large number of commuters will be struggling to resume their schools as there is no clear policy about students' transportation in this framework. Worse, the students who use public transports can be exposed to vehicles, that may not follow the safety protocols for transportation (Ojha, 2020). It reveals that the collaboration with local stakeholders is missing while framing the policy, which can potentially lead to the policy failure (Hudson et al., 2019).

This framework provides the authority to the local bodies that comprise parents, schools, children's clubs and municipalities or rural municipalities which can decide the reopening of the schools depending upon the local context. It is in line with the assertion of Norris et al. (2014) that other stakeholders have to be brought into policymaking to make it effective. This framework firmly maintains that based on the risk of COVID-19 expansion, available physical resources and students' number in a school, the local bodies will help implement one of the following alternatives: running all the classes at once; running classes in different shifts; running classes reducing the actual time; running classes on alternate days; and running classes by dividing the students of the same class. These alternatives have helped local bodies to consider the options to resume schools in their regions.

This framework also states the role of a school management committee to help children be psychologically prepared to join the school. It equally argues that the local bodies will liaise with the organizations working for students with disabilities and the parents to create a favourable situation for the return of students with disabilities or additional needs; however, the policy has not clearly stated how local bodies will achieve it and where they get resources required to complete these tasks. Once the local bodies access the data about students with disabilities or additional needs, how can they provide learners with resources to help them continue learning? Will liaison alone with the organizations working for students with disabilities or additional needs and parents suffice to solve this issue? These issues are not clearly addressed in the framework.

(घ) विद्यालय सञ्चालनका लागि स्थानीय स्रोतको पहिचान र परिचालन गर्ने ।

Local resources will be identified and managed to run schools.

Figure 6: Excerpt from the Framework for School Operation, 2020 (p. 15)

The above is a very broad statement from the framework that talks about the identification and use of local resources to run schools. The way the local resources are identified and managed by local bodies is not explicitly addressed. Norris et al. (2014) assert that clarity on a policy helps decision makers find out where resources should be targeted. It can be a case that the local bodies may keep on waiting for the clear direction and decisions of the federal or provincial bodies which is usually a practice in Nepal.

Based on the emergency educational policies implemented during this crisis, there were some new developments to deal with crises such as creation of a Learning Portal (https://learning.cehrd.edu.np/) by CEHRD, actions to provide free data for the students from disadvantaged communities, circulation of *Procedures for Communication Networking in Schools* (CEHRD, 2020b) to establish a closer user group and so on. Some of these new initiatives also had some issues which are briefly discussed below.

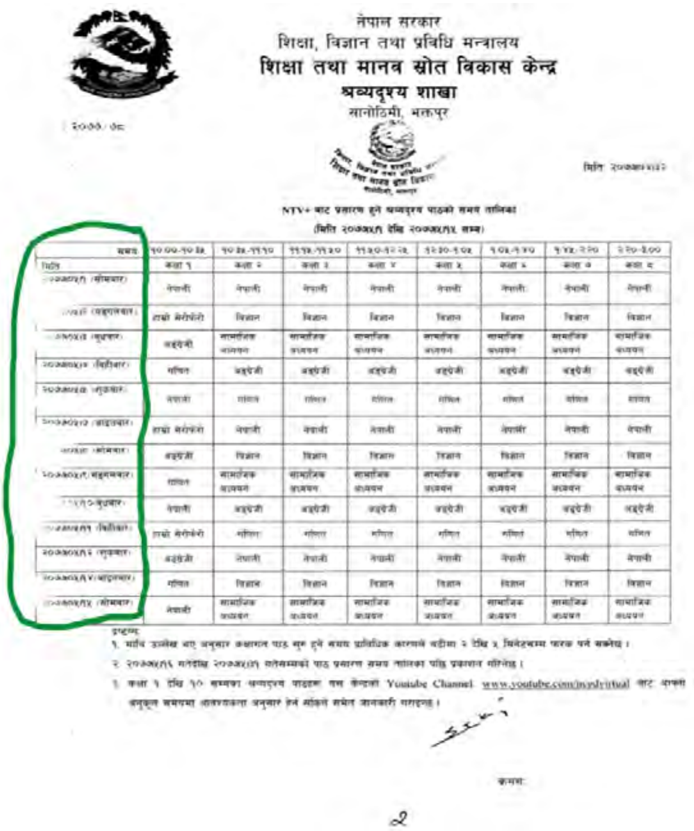
Issues on Initiatives Driven by Educational Policies During the Emergency

The first ever learning portal was developed by CEHRD during the pandemic, which is believed to have helped a large majority of the students and teachers. It comprises the lessons intended as self-learning materials for students of different levels. If utilized as intended, the materials appeared to be effective for maintaining the learning of the children during the emergency period. The authors question the sensitivity of the selection and use of a picture (Figure 7) which appears on the homepage of the learning portal. It is, of course, hard to understand the rationale behind using this picture on the homepage of the learning portal. Questions may arise such as, is the use of the picture on the homepage to show how curious a little girl is for learning which potentially can motivate other learners as well? Or is it to convey the visitors of this site the message that despite being from a low socioeconomic background, this girl is still interested in learning?

Figure 7: The landing page of the Learning Portal that includes a little girl's image

The girl in the picture seems to be from a state-owned school and from low socio-economic background as in general underprivileged students go to state-owned schools in Nepal (Mathema, 2007). Buckingham et al. (2013) argue that children from low socioeconomic backgrounds begin their schools with low literacy, and it is likely that they can be weak in reading when they progress through school too. So, it can be assumed that using a picture that portrays a particular socio-economic status might make such a group feel that the content used in this portal are equally suitable for them. However, a learning portal is not a report to have a picture used to depict a particular group of school children because politicisation of the page, if it is done taking account of socio-economic status, can remain an issue. Undoubtedly, in this age of ICT, the meaning of any artifact can be conveyed using multiple modes, for example, using texts, pictures, videos and other semiotic resources. In this case, if the picture used in the portal cannot help visitors to construct a meaning, CEHRD may need to reconsider this. In addition, the issue here is also of the acknowledgement to this little girl whose picture is used in this portal, for instance, who is this girl and what is the meaning of using her picture here? This brief information could have been mentioned as a note on the site.

It is obvious that during a crisis or an emergency, there is a very limited time to respond to any issues (Herman, 1969). In many cases, the attempts made to respond to an emergency seem random which, of course, calls for proper care and attention. For example, while uploading the notices related to the schedule of airing or telecasting of educational audio and video materials on the site of the CEHRD, the notices had some missing information regarding dates due to poor scanning. In the notice below (Figure 8) issued by CEHRD, the extreme left-hand column (circled in green) which mentions the dates and days of telecasting audio-visual materials is blurry. Educational television and radio broadcasts are important communication means between educators and students when managing internet connectivity is challenging (David et al., 2020).



नेपाल सरकार
शिक्षा, विज्ञान तथा प्रविधि मन्त्रालय
शिक्षा तथा मानव स्रोत विकास केन्द्र
श्रव्यदृश्य शाखा
सानोठिमी, भक्तपुर

NTV+ बाट प्रसारण हुने श्रव्यदृश्य पाठको समय तालिका

समय	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
मिति	कक्षा १	कक्षा २	कक्षा ३	कक्षा ४	कक्षा ५	कक्षा ६	कक्षा ७	कक्षा ८
[illegible] (सोमबार)	नेपाली	नेपाली	नेपाली	नेपाली	नेपाली	नेपाली	नेपाली	नेपाली
[illegible] (मङ्गलबार)	हाम्रो सेरोफेरो	विज्ञान	विज्ञान	विज्ञान	विज्ञान	विज्ञान	विज्ञान	विज्ञान
[illegible] (बुधबार)	अङ्ग्रेजी	सामाजिक अध्ययन	सामाजिक अध्ययन	सामाजिक अध्ययन	सामाजिक अध्ययन	सामाजिक अध्ययन	सामाजिक अध्ययन	सामाजिक अध्ययन
[illegible] (बिहिबार)	गणित	अङ्ग्रेजी	अङ्ग्रेजी	अङ्ग्रेजी	अङ्ग्रेजी	अङ्ग्रेजी	अङ्ग्रेजी	अङ्ग्रेजी
[illegible] (शुक्रबार)	नेपाली	गणित	गणित	गणित	गणित	गणित	गणित	गणित
[illegible] (आइतबार)	हाम्रो सेरोफेरो	नेपाली	नेपाली	नेपाली	नेपाली	नेपाली	नेपाली	नेपाली
[illegible] (सोमबार)	अङ्ग्रेजी	विज्ञान	विज्ञान	विज्ञान	विज्ञान	विज्ञान	विज्ञान	विज्ञान
[illegible] (मङ्गलबार)	गणित	सामाजिक अध्ययन	सामाजिक अध्ययन	सामाजिक अध्ययन	सामाजिक अध्ययन	सामाजिक अध्ययन	सामाजिक अध्ययन	सामाजिक अध्ययन
[illegible] (बुधबार)	नेपाली	अङ्ग्रेजी	अङ्ग्रेजी	अङ्ग्रेजी	अङ्ग्रेजी	अङ्ग्रेजी	अङ्ग्रेजी	अङ्ग्रेजी
[illegible] (बिहिबार)	हाम्रो सेरोफेरो	गणित	गणित	गणित	गणित	गणित	गणित	गणित
[illegible] (शुक्रबार)	अङ्ग्रेजी	नेपाली	नेपाली	नेपाली	नेपाली	नेपाली	नेपाली	नेपाली
[illegible] (आइतबार)	गणित	विज्ञान	विज्ञान	विज्ञान	विज्ञान	विज्ञान	विज्ञान	विज्ञान
[illegible] (सोमबार)	नेपाली	सामाजिक अध्ययन	सामाजिक अध्ययन	सामाजिक अध्ययन	सामाजिक अध्ययन	सामाजिक अध्ययन	सामाजिक अध्ययन	सामाजिक अध्ययन

टिप्पणी:
१. [illegible]
२. [illegible]
३. [illegible] Youtube Channel [illegible]

Figure 8: Unclear notice uploaded in the site of CEHRD

To help learners to join online learning, CEHRD circulated *Procedures for Communication Networking in Schools* on December 18, 2020. This document aims to create a closer user group in schools by setting up communication networking between students and teachers. As per this document, a closer user group is a systemic online networking between students, teachers, parents and school officials created for learning facilitation. It states that the available services related to such groups will be cut off completely or partially once the schools run physically. This provision seems impressionistic as it was approved by MoEST on December 01 and circulated by CEHRD 18 days later when many schools resumed physically. *The Framework for School Operation, 2020* which has guided to resume schools physically, was approved on November 05, nearly a month before the *Procedures* was circulated. Actually, the *Procedures* should have been implemented much earlier to assist the learners engage in online learning by setting up a closer user group. Although the document seems comprehensive, its arrival at this point of time seems the relevant effort made at an irrelevant period.

Lastly, although the issue the authors are pointing out below is not the initiative based on educational policies developed during emergency, it has a direct implication on the formulation of emergency plans and actions. It is unfortunate to note that the MoEST still has not published, let alone updated, the reports and figures related to education on its website even though they have created a separate tab for it. For example, when a visitor visits the site of the MoEST, particularly the pages titled "national education in figures, reports and curriculum", the following message pops up:

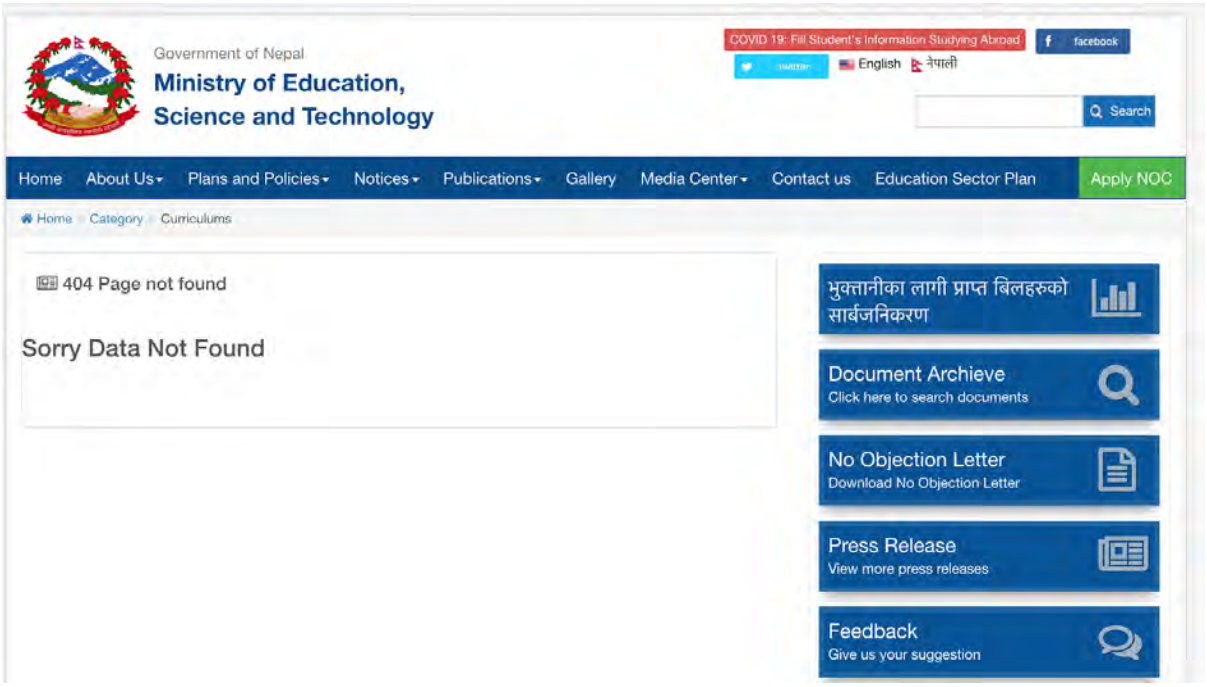


Figure 9: Screenshot of the website of MoEST, GoN

It is high time that the authorities like ministries updated information on their sites which will be useful to manage emergency situations and develop any educational plan in future.

d'Orville (2020) argues that the disruption brought by this pandemic "offers the opportunity for all actors in the education sector to rethink the system and discuss how to educate future generations" (p. 13). All the educational policies developed to respond to the current pandemic are first of their kind. These policies aimed at addressing the pandemic did acknowledge some

novel aspects of education. These policies have also signalled a transformation in education such as valuing self-learning, redefining traditional assessment, focusing on a parental role in education, the last of which was highly neglected in the past, and looking for broader collaboration with all possible educational stakeholders. However, in many cases, it seems that these educational policies are still one-way and have a top-down orientation. They lack dialogues with local stakeholders of education, and they seem to have been prepared without enough homework and consultation with stakeholders, such as teachers, parents, school heads, learners and also community members. Although the pandemic times were unusual, enough local consultation could have been possible as teachers, school managers, parents, local community members and learners could be available virtually. As a result, the emergency response could have been much more solid. It is observed that many students are left behind during this crisis (Dawadi et al., 2020), and the gap between private and public schools in managing education during this crisis widened largely (Pandey, 2020).

Recommendations

Based on the researchers' observation as teacher educators and the analysis of the above educational policies, some recommendations are made. First, educational policies need to be dialogic and bi-directional thereby getting enough inputs from local educational stakeholders so that the implementers of these policies can ensure that they fit to the local context.

Second, the collection of data about students that includes access to resources is a must during their enrolment, and it has to be frequently updated. This can be done by developing a specific form that students can fill it up if they can write on their own or parents can do so on behalf of younger students.

Third, the *Student Learning Facilitation Guideline* is silent on promoting learners from no access category to the category having some and further to the category having full access to resources. There should be plans to promote current learners from the level, that is learners having access to no resources to the other level and so on. Fourth, to require the headteachers to enter the data of students into the IEMIS, there should be a clear guideline to develop such a system at a local level or in the school, and equally, there should be the plan to mentor the headteachers to enable them to work on any digital platforms.

Fifth, it is a good initiative of the student learning facilitation guideline to give some flexibility to teachers to adjust curriculum in the current setting rather than completing courses. In any future policy, there should be a provision which ensures that teachers gain the autonomy to decide course content so that the learning objectives indicated by the curriculum are met in a comfortable and realistic manner instead of merely completing the course for the sake of completion.

Sixth, the guideline has not mentioned anything about adding resources generated by teachers if they are found useful. Adding resources built by teachers to a portal also means valuing teachers' expertise which can help build resources that can be more contextual. Therefore, future plans and policies should consider teachers' expertise and recognize them nationally.
Seventh, as the guideline mentions, parent education which can help them to instigate to involve their children in learning, the nature and role of parent education should be clearly stated. Also, there should be a study that explores if any parent education is practised or designed to practise at any level.

Eighth, in the guideline, there is no timeline to execute the specific action plans, and it has very limited actions. As a result, it might fail to direct the stakeholders to carry out their roles effectively within the relevant period of time. Therefore, either this guideline needs to clearly describe the timeline or the upcoming policies should indicate the timelines for each action plan.

Lastly, the data such as Education in Figures and other relevant educational reports should be made available in the MoEST or CEHRD sites, and they should be timely updated. In addition, when the key information is disseminated through the official sites, they have to be reviewed for clarity both in content and presentation.

Conclusion

The implementation of all the educational policies to manage education in a crisis situation is indeed a praiseworthy move of the CEHRD and MoEST, the Government of Nepal. The policy documents the authors reviewed are novel in many cases and present landmark plans. They validate self-learning and online learning and emphasize collection of data of learners in relation to their access to resources to assist teaching and learning. They also accentuate parent education to bring parents into a teaching and learning process. Despite having these strengths, these policies which seem to have been formulated with little examination of the situation and without clear directions for implementing the actions also have some issues. One of the major educational policies, the *Guideline* exhibits overly optimistic intents coupled with ambiguity. Further, the procedural aspects to accomplish certain tasks or action plans are missing most times. There are gaps on how the stipulated activities can be executed in terms of budget and other arrangements.

Based on the critical observation on the policies in relation to the current crisis situation, the authors recommend some steps that policymakers can adopt while forming a new policy or revisiting any existing policy related to education. In the meantime, it is also expected that this paper also informs other stakeholders understand and explore the current Nepalese education system. This paper is purely a document analysis, and it does not include the perceptions and experiences of stakeholders on the implementation. Therefore, a further exploration on how educational stakeholders interact with these policies can yield equally interesting insights.

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Online University Teaching at the time of COVID-19 (2020): An Australian Perspective

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Australia

Abstract

The impacts of COVID-19 have been widespread, and the education sector has not been immune to its effects. In March 2020 Australian universities were forced into a shutdown, which prompted an unanticipated, sudden shift in education, from on-campus and face-to-face to an off-campus and online mode of teaching and learning. This paper describes the experiences of two Sydney-based university unit coordinators, from two different institutions, who rapidly shifted their units online as a result of COVID-19. In particular, it applies reflection as a research method, to share what the authors' encountered as successful, and what was challenging about teaching online. Motivating and retaining students was a key challenge identified by the authors. Therefore, the paper discusses the authors' application of various digital programs and tools in their response to this challenge of motivation and engagement. It is hoped that our experiences might benefit those looking to integrate programs and tools in the online teaching and learning space. Although Australia is currently one of the most successful countries in their handling of COVID-19, there is still great uncertainty about the future. Globally the pandemic shows no signs of abating, as many countries struggle to manage high levels of transmission and infection rates, which in turn have an impact on the education sector more broadly. Consequently, online learning may be the 'new normal' for many institutions in the near future. Therefore, it is important for educators to share their online teaching experiences that can contribute to greater understandings of this space.

Keywords: COVID-19, higher education, online learning, online teaching, university

In the past two decades Australian higher education institutions and their teaching units have exponentially increased the function of their online platforms to support face-to-face teaching. On 18th March 2020, the Australian Government advised that "university and higher education should continue at this time with risk mitigation measures, including working from home arrangements where effective" (Morrison, 2020, Universities and Other Higher Education Centres section). For many Australian universities this announcement coincided with the start of the semester. In Sydney, Macquarie University responded to the COVID-19 pandemic by pausing all face-to-face and online teaching from 18th March (in their fourth week of session 1), removing the mid semester break (13th - 26th April), thereby allowing the University to prepare their transition to online teaching and learning. Similarly, University of Technology Sydney paused their teaching on 17th March to enable staff to prepare an online mode of delivery for their subjects, and commenced online teaching on 24th March. At other universities, the transition to online teaching and learning was immediate, and needed to be as seamless as possible to maintain professionalism and quality education standards. For some teaching staff the online space was familiar territory, with many having used their university's online platform to complement face-to-face teaching to provide resources, lecture recordings, conduct tests/quizzes, post readings and/or assessment resources. Aside from teachers having to overcome gaps in technology infrastructure, the forced transition online meant that teachers needed to become more knowledgeable and skilled with their institution's online learning platform, adjust approaches to pedagogy, rethink lesson plans, consider strategies for online engagement and be more considerate of students' circumstances that may impact on their attendance, participation and/or timeliness of assessment submission.

This paper presents our experiences as university unit coordinators and teachers from two different Sydney universities who transitioned our face-to-face teaching skills to the online space in March 2020. When each of our universities transitioned to online teaching and learning we were coordinating and teaching both undergraduate and postgraduate units that were comprised of domestic and international students. Online learning enabled our students to continue their studies without delaying or pausing their degrees. The following sections explore our experiences of online teaching and what we found improved the online learning experiences of our students, the programs that we integrated to enhance engagement, the challenges we encountered and some of the techniques we employed to counter some of the challenges we came across while having to teach and promote learning in the online space in semester 1 (March-June), 2020.

Due to the scope of this paper and the need for data collection, this paper did not address one key overarching challenge of online learning in the university sector. In Australia (and other developed nations) there is the general presumption that all students have a dedicated space in their home to study effectively, have access to a computer, and have access to reliable internet and/or technological devices. Data and research indicate that this is not the case. Approximately 87% of Australians have access to the internet at home, but only 68% of Australian children (5-14 years old) living in disadvantaged communities have access to the internet at home (Graham and Sahlberg, 2020). However, access does not equate to reliability, especially for students who are studying online in remote or regional locations. Furthermore, 'more than four million Australians access the internet solely through a mobile connection' (Noble, 2020), which is impacted by mobile phone plan data limits, sharing (or hotspotting) and internet speeds. Much of the research published focuses on Australian children and teenagers, but university students are also negatively impacted by the same internet and technology challenges, especially those from racial and ethnic minority backgrounds, lower socioeconomic backgrounds and those in rural or regional areas (Gillis and Krull, 2020). While

some of our students made off-hand comments during the semester about one or more of these challenges (space, technology, internet), there are likely to be others who were severely impacted by online learning that we did not hear from, who perhaps withdrew from study or suffered academically as a result. Further research is required to ascertain this data because without access to technology and reliable internet students will struggle to participate in online learning, thereby widening the digital divide and educational divide.

Engagement

As higher education educators, we identify that engagement is "one of the most important variables for the learning process" (Kucuk & Richardson, 2019, p. 199). One of the most accepted theoretical frameworks for understanding online learning processes is the Community of Inquiry (CoI) framework (Garrison et al, 2001; Garrison et al, 2010a). Central to the CoI framework are three elements (cognitive presence, teaching presence and social presence) which "work together to create and maintain a collaborative community of inquiry and effective learning processes in online education environments" (Kucuk & Richardson, 2019, p. 197). For online learning, these three elements of the CoI framework and their overlap reflect the dynamics of online learning experiences that are key to sustaining and improving the quality of online education (Kucuk & Richardson, 2019; Garrison et al, 2010b). Cognitive presence "refers to the extent to which online learners can construct and validate meaning based on critical and continued communication and thinking" (Kozan & Richardson, 2014, p. 68) and relates to the learning and inquiry process, based on the Practical Inquiry model that recognises four phases in the inquiry process (Garrison et al, 2001): the definition of a problem or task; exploration for relevant information/knowledge; making sense of and integrating ideas; and, finally, testing plausible solutions' (Garrison et al, 2010b). Teaching presence in the CoI framework is "the design, facilitation and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes" (Anderson et al, 2001, p. 5). According to Garrison et al (2010b, p. 32) the first responsibility of this element "is establishing curriculum content, learning activities, and timelines", the second "is monitoring and managing purposeful collaboration and reflection", and the third "is ensuring that the community reaches the intended learning outcomes by diagnosing needs and providing timely information and direction" (Kucuk & Richardson, 2019, p. 197).

We recognise that student engagement is "broad and there is no agreement on its meaning, definition, and measurement" (Mamun et al, 2016, p. 381). Rather, student engagement is "a multi-faceted construct which usually encompasses several subsets; each of which has its own indicators" (Ding et al, 2018, p. 214). Nevertheless, it is widely accepted that the three different types of student engagement are categorised as: behavioural engagement, cognitive engagement and emotional engagement (Fredericks et al, 2004; Hu & Li, 2017; Reeve and Tseng, 2011). In this paper, and its specific focus on online teaching and learning, we have adopted Dixson's definition of online student engagement, as

> … students using time and energy to learn materials and skills, demonstrating learning, interacting in a meaningful way with others in the class (enough so that those people become 'real'), and becoming at least somewhat emotionally involved with their learning (i.e. getting excited about an idea, enjoying the learning and/or interaction) (Dixson, 2015 p. 4).

Dixson (2010) reports that students find online activities where they can apply theories to case studies, do group work, discussion blogs and work on assignments that relate to recent events

encouraging. Furthermore, she also states that the active involvement of the instructor and a feeling of connection with the instructor creates a positive online learning environment for students (Dixson, 2010). Students value an online learning environment that caters sense of belonging, that is welcoming and provides meaningful learning experiences. Within that environment they feel connected and engaged, especially when collaborative learning exercises are included in the teaching practices, students' participation and their critical thinking skills increase (Young & Bruce, 2011). Facilitating discussions by using active teaching-learning processes assists students' engagement in understanding the key ideas for them. However, too much instructor participation in the discussions has a tendency to decrease student engagement (Dennen et al., 2007). Therefore, learning in the online space needs to involve student-to-student and student-to-instructor communication (Dixson, 2010).

Although the focus of this paper is on engagement in the online space, it must be acknowledged that because the students we were teaching did not choose to have their learning carried out entirely online, the experiences that we faced as teachers differs to the pre-COVID-19 (pre-2020) literature and research on online student engagement. In pre-COVID-19 times, students undertaking online learning, volunteered to do so, or at the least are aware that their learning will be delivered wholly/partly online. Research indicates that higher education students who enrol in an online mode of education are often non-traditional students, who do so because it provides flexibility (Oblinger, 2003; Redmond, 2018). For those who do not volunteer for online learning, "… an online environment might benefit certain types of engagement, but may also be somewhat of a deterrent to others" (Dumford & Miller, 2018, p. 452). Our students in 2020, like many others, were forced to transition online, or chose to withdraw from their studies. Furthermore, the COVID-19 pandemic did not only impact higher education students and their education, for many it also had impacts on their employment, living circumstances, family and carer's responsibilities (including higher education students who had children who were home-schooling), all of which had cascading effects on relationships, mental health and wellbeing. For us, as teachers who were previously teaching in face-to-face, on-campus settings, there was a real rush to become more aware of engagement that was specific to online contexts. This experience was not unique to us, "the fast transition to remote teaching during the COVID-19 pandemic made forethought and planning for course aspects that are related to engagement difficult" (Garris & Fleck, 2020, p. 3).

Rethinking Lectures for the Online Space

The approach to lectures differed between us. Smith used pre-recorded lectures to run asynchronously, and Kaya ran live lectures. Each of these approaches had its benefits and challenges, as explored in the following paragraphs.

Pre-Recorded Lectures

From week 4 of Semester 1, Smith created pre-recorded lectures in Zoom that were uploaded to Panopto, through Western Sydney University's (WSU) online platform, Blackboard. Pre-recorded lectures are an important 'part of providing flexible education environments that address the diverse needs of students in higher education' in a variety of ways, such as pace, place and time (Larkin 2010 p. 238). The most notable, positive aspect of pre-recorded lectures is the flexibility it allows for students to view the lecture, where to view the lecture, ability to pause and later resume the lecture, and the various ways it could be viewed (such as: computer, phone, streamed through the television, and audio). The additional benefit of pre-recorded lectures is the ability for students to replay lectures at any point in the semester and alter the speed of delivery (faster or slower) to suit their learning preferences. Panopto also has a

captions (subtitles) function. However, Smith identified frequent errors in their accuracy and so they were not used in her pre-recorded lectures to avoid confusion. Nevertheless, these features may be useful to students from non-English speaking backgrounds and/or international students, but they may present challenges for some students with learning disabilities.

The flexibility of pre-recorded lecturers and online learning more broadly, requires that students possess digital competencies, which research suggests is not always evident. Therefore, the idea that students are what Prensky (2001) termed 'Digital Natives', "is by no means the universal student experience" (Kennedy et al., 2008 p.117). Furthermore, "simply because students have grown up with increasingly ubiquitous and advanced digital technologies does not mean that they naturally know how to study in online spaces" (Scull et al., 2020 p. 6). Smith's experience teaching her unit online during Semester 1 supported these statements, that students are not homogeneous in their digital competence, nor does digital competency regarding everyday digital use mean that students know how to instinctively or easily navigate the university's online platform. As a result of the varying digital competencies of students, additional time spent in tutorials was required to explain how to navigate the WSU's online platform so that accessing all unit materials was understood. This experience resonates with previous studies that have highlighted that when students are learning online, they require assistance and support with time management and self-regulation (Cho and Shen, 2013; Dabbagh, 2003; Douglas, 2019; Kent, 2015; Scull et al., 2020). The main challenge that this posed was that time spent navigating the features of the WSU's online platform took time away from teaching unit content in tutorials.

Using Panopto to create pre-recorded lectures had numerous beneficial features, such as the ability to edit lecture recordings, insert videos and quizzes, and have statistics collected on student views (including number of views and percentage of the lecture viewed), which is useful for units that have attendance requirements. Smith's experience of creating pre-recorded lectures highlighted that the process: preparing (scaffolding/story boarding), recording and editing lectures was significantly more time consuming than presenting on campus, face-to-face lectures. While pre-recorded lectures allow "opportunity for the lecturer to listen to the recordings and reflect on lecturing styles, points of emphasis and content", editing lectures can be time consuming, especially for early career academics who are new to lecturing and lack the confidence gained from experience (Larkin, 2010 p. 246). However, pre-recorded lectures removed student interruptions or disrupting behaviour (such as: talking, late arriving students, early exiting students, doors opening and closing, mobile phone alerts) which may assist inexperienced lecturers, or lecturers who view lectures as the transmission of knowledge or a 'sage on the stage', teacher-centred approach. Under different circumstances, when teaching staff know prior to semester commencing that pre-recorded lectures are the method of lecture delivery, there is time to prepare. Unfortunately, the rapid shift to the online space in March 2020 due to COVID-19 meant that making pre-recorded lectures available for students a week in advance created additional pressure. Lecturers' experience of pressure and stress as a result of creating lecture content for the online space in 2020 is more accurately described as "emergency remote teaching … put together in great haste to deal with an emergency situation" (Boud, cited in Baker, 2020).

A last point on the topic of pre-recorded lectures is that it is not easy to hold the attention of students for 90 minutes in the same way that an on campus, face-to-face lecture would, especially if there is no lecture attendance requirement. As previously discussed, on campus, face-to-face lectures offer students opportunities to be involved in the content that pre-recorded lectures cannot provide. This was observed when Smith reviewed lecture viewer statistics

through the 'stats' function in Panopto. Panopto's ability to gather and report statistics on student lecture views does not determine whether the lecture was actually viewed by the student (students can play the lecture while they are not physically viewing the lecture). Nevertheless, the statistics provide a guide as to how much of the lecture was viewed by each student and at which point, they ceased viewing. Smith observed that while most students were initiating the lectures, there were many who did not complete viewing them to the end. This observation is supported by Professor David Boud, director of the Centre for Research in Assessment at Deakin University (Melbourne, Victoria), who stated that "you have to package up lectures that have been recorded and are too long, they're not designed to be dealt with in that medium" (Boud, cited in Baker, 2020, para. 16). As a result of low lecture views, Smith began to divide 90-minute lecture recordings into three parts in the hope that students would find viewing them more manageable. Students were asked for their feedback, comparing their preference of a single, 90-minute lecture recording, to multiple, shorter recordings. The statistics on pre-recorded lecture views demonstrated that a greater number of students had viewed lectures when they were the latter, compared to a single, 90-minute lecture recording.

The previous paragraph mentioned that pre-recorded lecturers remove student interruptions, but it is important to note that not all student disruptions are negative. When teaching on campus both Kaya and Smith invite student participation by asking questions, taking polls, asking students to speak to one another, and welcome questions from students who want further clarification on lecture content. This kind of student involvement during lectures assists lecturers in gauging what students know, what parts of the content they might be struggling with, and encourages engagement with content that pre-recorded lecturers cannot offer. The aforementioned information allows lecturers to pause and revise content which enhances understanding and the student learning experience. Similarly, encouraging students to share their experiences or answer questions provides richer discussions that are not achieved with pre-recorded lectures. In this sense, the challenge of pre-recorded lectures is that it may be "convenient for lecturers but not good for learning" (Boud, cited in Baker, 2020, para. 17).

Live Lectures (Online)

It is an optimistic expectation to wait for students to attend the live lectures and take notes in the same way they would do in a face-to-face lecture. Therefore, the ability to engage requires effective use of technology. Kaya delivered synchronous online lectures (also known as "live lectures") through Zoom, where students attend at a scheduled time. The chat tool, screen annotation, polling, non-verbal and verbal feedback buttons and breakout rooms in Zoom create engagement when students are off-campus, and it also supports other teaching and learning functions, such as hosting office hours or small group discussions. Zoom-run live lectures can be accessed on laptops, desktops, tablets, smartphones, and even desk phones, giving students flexibility in how they attend live lectures. During these live lectures, Kaya included activities within the delivery of the lecture content. Such activities not only help students with assessment preparation, but it also encourages active involvement in live lectures for the purposes of creating more enjoyable and enriching lectures. Students learn more when they engage in an active learning process rather than passive audiences, and similarly active teaching practices increases attendance (Deslauriers et al., 2019), encourages interaction and engagement, supports peer collaboration, and develops positive students' attitudes toward the subjects that they are studying.

Unlike walking into a lecture theatre on campus, or speaking into a lectern microphone, live lectures (online) require alternative ways to commence. Opening a 90-minute live lecture with a question prompts student attention and "sets the scene" of the lecture. Based on Kaya's

experiences, it was evident that periodic questioning kept students' attention and contributed to an active learning process during live lectures. This is where Kaya found microteaching valuable. Microteaching focuses on the importance of delivering specific information within a limited timeframe. Thus, lesson planning in microteaching requires concise, appropriate and relevant content. It involves the steps of plan, teach, observe, re-plan, re-teach and re-observe. These steps enable us to modify the teaching-learning process to integrate skills learned from the three major phases in microteaching; knowledge acquisition, skill acquisition and integration, and feedback, all of which provide a valuable understanding in transferring the performance to the classroom (Remesh, 2013). Students' attention is around 10-15 minutes, then they start to drift (Felder & Brent 1999). Therefore, using microteaching techniques in live lectures, dividing the lecture content into 15 minutes sessions, and including periodic questioning, rather than delivering an entire lecture at once, was a strategy that demonstrated greater levels of student engagement, by way of attention and participation. An observation was that students would become familiar with other students, and these interactions would continue in online tutorials, especially when students were asked about their impressions and understandings of the lecture content.

Online Tutorials: How Can We Energise Students and Retain Engagement?

Online learning is not "slapping classroom content online" (O'Neil et al., 2008, p. 18), it must be purposeful and transformative (Budhai & Williams, 2016). A 2020 Monash University study that interviewed teaching staff who taught online as a result of the COVID-19 pandemic, similarly found that "online learning is a different type of learning, it's not just a transfer across from face-to-face classes" (Scull et al., 2020 p. 4). Our experiences of teaching online support these statements, that an effective online pedagogy focuses on student-centred learning and applies active learning practices which include collaborative and individual tasks that encourage students to share and discuss ideas with their peers. Therefore, this section of the paper focuses on online tutorials, specifically what we identified as instrumental in maintaining quality teaching standards, and in encouraging student engagement and participation in the online space.

The INSPIRE model (Table 1) of expert tutoring points out that successful tutors are identified as intelligent, nurturant, socratic, progressive, indirect, reflective and encouraging (Lepper & Wolverton, 2002; Wood & Tanner, 2012) and we suggest that the model can be adopted as a strategy to support students during their online learning processes. Although the model was developed based on a study conducted in primary and secondary school mathematics, it can also meet the needs of students in higher education, and the effective tutoring strategies can be transferable to the large lecture setting and stimulate student engagement in both lectures and tutorials.

Table 1: The INSPIRE model of expert tutoring (Lepper & Wolverton, 2002; Wood & Tanner, 2012)

Characteristics of expert tutors	Results for students
Intelligent	Difficulty of the content optimally matched to students' level of understanding
Nurturant	Feeling accepted, supported, and free to explain their thinking
Socratic	Constantly thinking, doing, and responding
Progressive	Moving in small steps to higher competency through deliberate practice
Indirect	Working in a nonjudgmental atmosphere
Reflective	Articulating their thinking, explain their reasoning, and generalize to other contexts
Encouraging	Experiencing productive learning and gaining confidence in their abilities

Kaya designed her online tutorials as spaces where students can construct, explore, resolve, and confirm meanings through collaboration and reflection. In this process, Dewey's concept of reflective thinking (Sun & Chen, 2016) enabled students to work on questions, retrieve information and find their ways of resolution.

Critical and creative thinking are essential to developing analytical and evaluative skills and understandings in the Australian Curriculum (Ab Kadir, 2016). We argue that activities that foster critical and creative thinking include both independent and collaborative tasks and entail transition between ways of thinking. It is imperative to establish tutorial environments where students and teachers collaborate, actively discuss, and articulate activities and assessments for the purpose of students to demonstrate their critical and creative thinking (Reid & Petocz, 2004). In addition to designing activities that encourage and develop critical and creative thinking, the importance of motivation and retaining students must be discussed.

Motivating and Engaging Students

While lectures present information to all enrolled students in a more formal sense, tutorials are typically more dynamic, consisting of smaller groups where the lecture content and reading/s are integrated and discussed. Both authors exclusively used Zoom to conduct online tutorials in Semester 1, 2020, allowing for a range of strategies. One strategy that we both implemented in our online tutorial design was to begin by asking students if there were any questions based on the lecture content or readings that needed clarification. This open discussion time was a strategy that allowed additional time for late arriving students to join. A creative and engaging segue from this informal discussion to the tutorial was to sometimes include a game. Ding et al (2018, p. 214) state that "empirical studies examining gamification in promoting student learning are sparse", that most studies are quantitative, and that "only a few studies investigated the gamification approach from the educator's perspective".

A popular game-based student response system (GSRS) we integrated into some of our tutorials was Kahoot! Its platform, which includes a web-based creator tool, makes it easy to create a quiz with two to four multiple choice answers that have timed opportunities to answer. We integrated Kahoot! into our online pedagogy, because like other GSRSs, it "enriched the quality of student learning in the classroom, with the highest influence reported on classroom

dynamics, engagement, motivation and improved learning experience" (Licorish et al., 2018, p. 1). Ding et al (2018, p. 214) explain that the "majority of the existing research reported that the gamification approach can have [a] positive influence on student learning, such as encouraging participation and bolstering interests in learning". Based on our experiences implementing Kahoot!'s basic plan (which is free) into our pedagogy, we observed numerous positive effects, including its ease of use, creativity (allowing the insertion of images and video), providing real-time feedback for students and teachers, ability for students to play anonymously, creating a sense of community and fosters an entertaining environment, like that of a game show (Licorish et al., 2018, p. 4). Kahoot! with its simple user interface and step-by-step set-up makes the GSRS extremely easy to use for both creators and players. The ability to attach images and/or video to the question design add layers of creativity to the GSRS and provides opportunities for lecture or reading images/content to be reintroduced (memory and recall).

The following figures are examples of the Kahoot! questions that Smith posed in her tutorials following a lecture on several sociological theories (see Figures 1 - 3). The Kahoot! quiz required students to match the explanation with the most appropriate sociological theory. Considering the context (COVID-19) that resulted in online tutorials, Smith would joke that first prize was a roll of toilet paper (this was a commodity that was difficult to find stocked in Australian supermarkets); second prize was hand sanitiser, and third prize was a face mask.

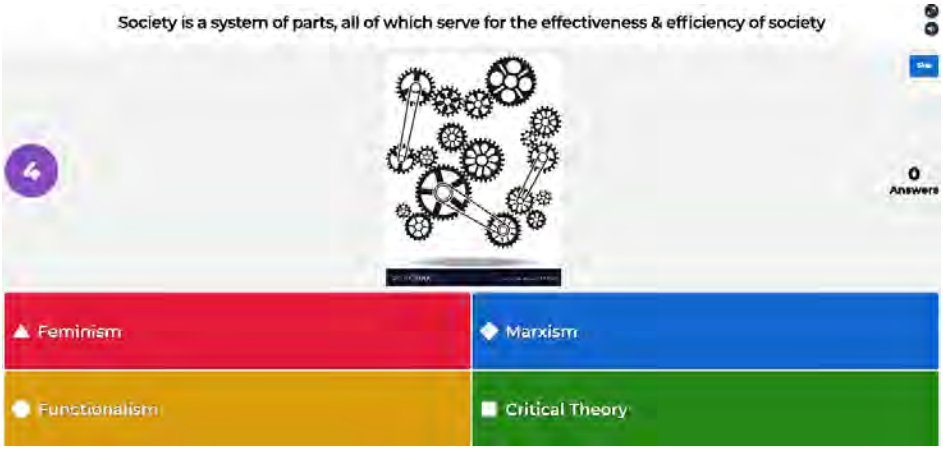

Figure 1: Kahoot! quiz question example 1, Semester 1

Figure 2: Kahoot! quiz question example 2, Semester 1 2020

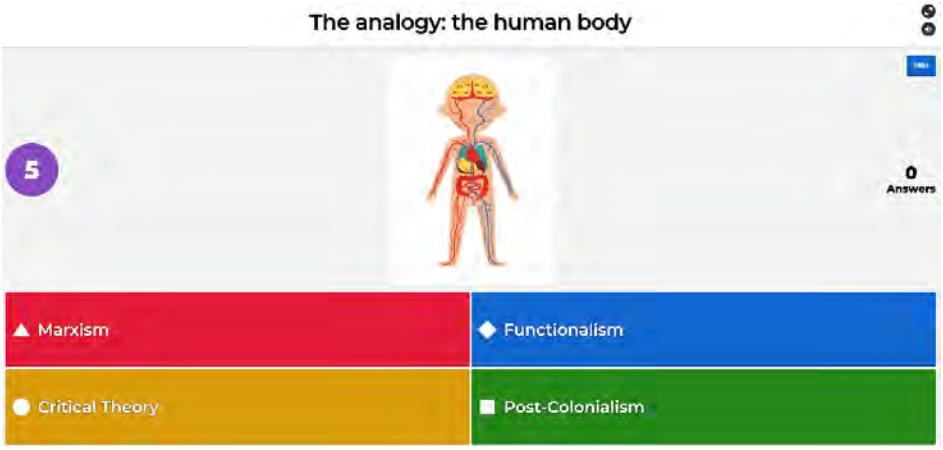

Figure 3: Kahoot! quiz question example 3, Semester 1 2020

Some have linked Kahoot!'s background colour scheme and music during play to that of a game show, which adds to the excitement, novelty and creativity of the GSRS in educational settings (Licorish et al., 2018; Wang, 2015;). It has also been observed that a large part of Kahoot!'s appeal for students is that it allows for students to participate anonymously, as they have the ability to select alternative names or aliases, therefore encouraging students to participate even if they do not feel confident that they may know the content well or will answer correctly. For some students, the anonymity when playing Kahoot! creates a sense of safety to participate without the fear of being shamed by others. Many students took this opportunity to adopt a pseudonym, and some adopted known pseudonyms, such as Karl Marx and the Australian Prime Minister. Aside from students engaging in creative pseudonyms, this contributes to the social aspect of the tutorial dynamic and more creative and humorous ways to be involved in the game. There is a cultural phenomenon in Australian (and New Zealand) society whereby students may be reluctant to answer questions or avoid opportunities to demonstrate their knowledge or understanding for fear of criticism of being perceived as a high achiever, or for standing out from the group, known as "Tall Poppy Syndrome" (Licorish et al., 2018). At the end of the game a podium is displayed with the names of the top three players (or teams). In some instances where the top players used pseudonyms, those students did not identify themselves to the class, perhaps because of the fear of being perceived by their peers as egotistical (Tall Poppy Syndrome). Therefore, based on these experiences implementing Kahoot! into online tutorials, offering students the option to adopt a pseudonym is an important feature to encourage participation.

Smith would preface the game by stating that playing Kahoot! is not a test and is not about making students feel as though they do not know the content; it is about testing your conscious and subconscious recall of the lecture and readings, seeing what you know well and what areas you may need to revise, and it contributes to your continued learning of the content. Often this further encouraged students to participate, to test themselves and what content they know well and what they may need to revise. This aspect was beneficial in providing real-time feedback for students and teachers. On the one hand students can quickly identify what areas they recall, and what areas they may need to familiarise themselves with in order to answer the questions correctly. And on the other hand, teachers are able to gather quick insight into what their students recall, and what areas may require further revision. If in the case that many of the students incorrectly answer one or several of the answers, an improvised adjustment to the tutorial lesson plan, to allow the teacher to revise those areas, is possible.

Similar to lectures, tutorials require preparation, regardless of whether they take place on campus or online. Unsurprisingly, we found that tutorial content for the online space had to be planned differently to face-to-face tutorials, with a particular intention to motivate engagement and enhance participation. This planning drew on the previously discussed CoI framework and the three elements: teaching presence, social presence and cognitive presence, with the aim of creating and "maintaining a collaborative online community of enquiry and effective learning processes in online education environments" (Kucuk & Richardson, 2019, p. 197). Planning (part of the teaching presence element) was particularly important in relation to designing breakout room activities, the timing of the activities and discussions with the whole tutorial after a breakout room activity. Breakout rooms have been identified as beneficial because they allow the teacher relief from presenting (Chandler 2016), but more importantly, they facilitate collaboration, interaction as well contribution to the content or the lesson plan (part of the social presence element). The University of Technology Sydney (UTS) Learner Experience (LX) Team provided pedagogic techniques for effective breakout rooms in Zoom. The LX Team emphasised the importance of assigning clear tasks for students in Zoom tutorials with consideration of matching the time and number of students to the task, providing students with links to shared documents in the chat for collaborative notetaking, keeping the same student groups, and the importance of monitoring group discussions by having the host (teacher) enter breakout rooms (LX Team, 2020).

Both authors found that most weeks at least 80% of enrolled students were present at any given (online) tutorial in semester 1, 2020. Kaya had up to 40 enrolled students, and Smith had up to 30 enrolled students when tutorials shifted online. Although there was a good tutorial attendance rate, the number of enrolled students in an online tutorial was the key challenging factor that we identified in influencing our tutorial lesson planning, specifically: the number of breakout room activities, the time for breakout room activities and the time allocated for whole-tutorial discussions. Based on the units that we taught, the ideal breakout room sizes comprised of at least three students and a maximum of five students. For Kaya, breakout rooms frequently contained ten students in order to allow time for each group to report back to the whole tutorial. As a result, students often reported that they did not feel that they had equal or enough opportunity to speak in their breakout rooms, and when reporting back to the whole tutorial. Other students reported being bored by activities in such large groups.

Smith had smaller online tutorial sizes; however, a key challenge that she observed was that many students elected to switch their cameras off. This visual withdrawing from tutorials in effect conflicts with a teacher's ability to observe classroom practice which is a vital aspect in improving teacher practice that in turn improves student learning (Australian Institute for Teaching and School Leadership, 2017). In face-to-face tutorial settings observed visual cues from students include nodding and being able to see where eyes are focused (for example, their mobile phone, the floor, the board, the teacher, their peers). However, when these visual cues are not observable, as was the case when students had their cameras switched off, it impacted Smith's ability to adjust her pedagogy, specifically to make "judgements about if, and when interventions are necessary, as well as decide what those interventions might be" (Rooney & Boud, 2019, p. 444). As research has shown, student engagement online is a key component of effective online learning, and when students do not have opportunities for face-to-face interaction, students tend to disengage from online discussions (Ding et al, 2018, p. 214). Although most students were wholly or partly listening (as tested by the teacher's request for students to display an emoji such as a clap or thumbs up when prompted) it became clear that some students were either engaged in other activities or away from their device. This was evidenced in two primary ways, firstly when breakout rooms were formed some students would

remain in the main tutorial instead of accepting their breakout room allocation. These lingering students would be asked, both verbally and in the chat by Smith if they were experiencing technical issues, with many either not responding for several minutes or for the entire time of the breakout room activity. Secondly, when Smith would enter each breakout room to answer questions and check on the progress of an activity, some students would not be contributing to the group's discussion. Students did express (either to the whole tutorial when having to report their group's results, or privately to Smith in the Zoom chat or by email) that this was a frustrating aspect of online tutorials, that those who were present and contributing felt burdened with the responsibility of having to complete activities without the support and contribution of all group members. It became clear, early into the shift from face-to-face to online teaching and learning, that designing well thought out, problem-based learning activities would be key to motivating student participation in online tutorials.

Given that the pandemic is so recent, it is unsurprising that little research has been on effective strategies for improving student engagement in online tutorials. It was reported in one paper that teachers were frustrated with students in online tutorials who elected to turn their cameras off because they perceived that students were being disrespectful, and secondly, that students were appearing to attend but were not actively participating (Stafford, 2020). However, teachers' frustrated "assumptions ignore the complexities of online study in general, and specifically during this pandemic" (Stafford, 2020, p. 151). Indeed, for some students, turning their cameras off during tutorials improved their internet connectivity. For others, having their camera off was important for privacy reasons as they multitasked their children's home-schooling responsibilities, while for others, their home environments were not spaces that they felt comfortable sharing with their peers. Therefore, the suggestion by one teacher that "a student wouldn't hide their face in the physical classroom so why would they do it online?" ignores "the complexities of online study in general, and specifically during this pandemic" (Stafford, 2020, p. 151). However, it is important that educators strike a balance between giving students allowances in the COVID-19 pandemic context, and providing leniencies to students that only serve to further isolate and disconnect them (Dixson, 2015), the latter being a concern of online learning prior to the pandemic.

In terms of tools that were effective in student-led discussions and collaboration there were several that Kaya engaged with to complement online tutorials. Assigning activities by using technology and online tools activates students' teamwork skills and gives them the opportunity to practise their leadership and management skills. Sometimes students do not prefer to report back to the whole tutorial cohort, but rather they enjoy the discussions in their group and talking to the tutor when they join their breakout rooms. Kaya used various tools and platforms such as Google Docs, Google slides, Google Jamboard, Padlet, Lucidchart and Canvas during the online semesters. The use of Padlet demonstrated that being creative is more valuable than being high tech in tutorials. The following figure is an example of a Padlet created by students while they practised problem solving tools in business examples. Students were asked to work in their breakout room groups on mini-case scenarios, specifically identifying and analysing the problems. Similar to Kahoot!, Padlet allows students to participate anonymously, which as previously mentioned in relation to Kahoot! has positive effects on student participation.

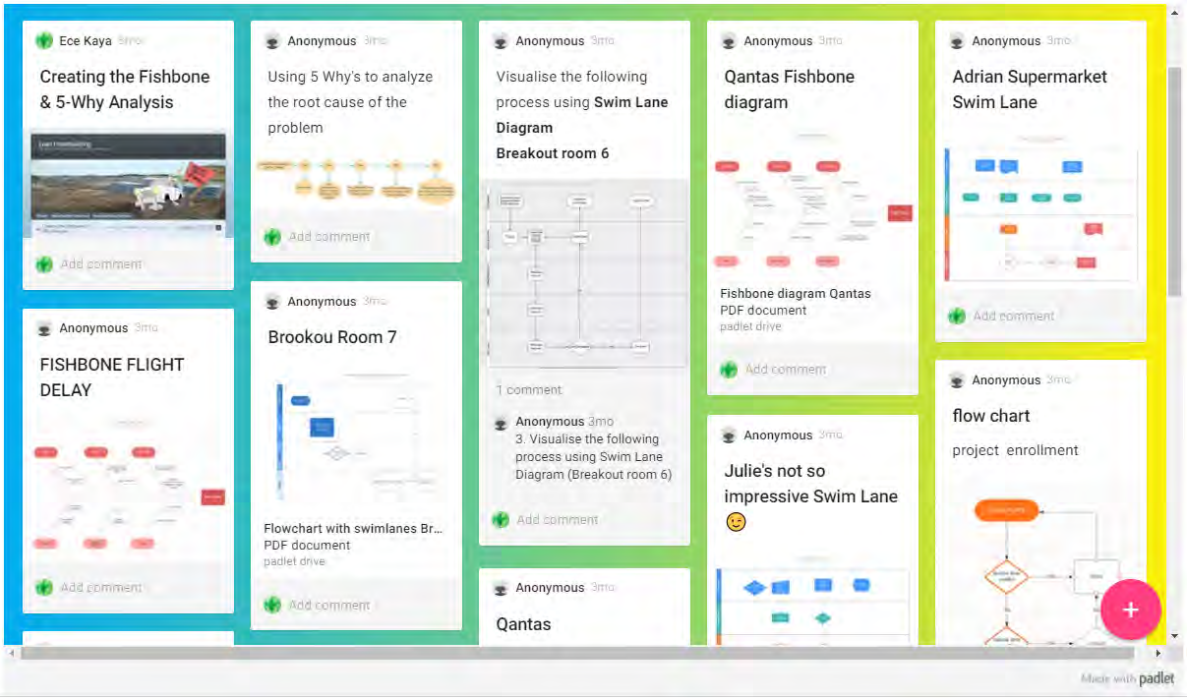

Figure 4: Example of Padlet

Google's Jamboard (Figure 5) was another effective tool that allowed for students to collaborate with their peers in online tutorials. Jamboard can be used to create storyboards and write stories. Brainstorming has become a fun activity and allowed students to write their own notes, ideas as well as add images and figures.

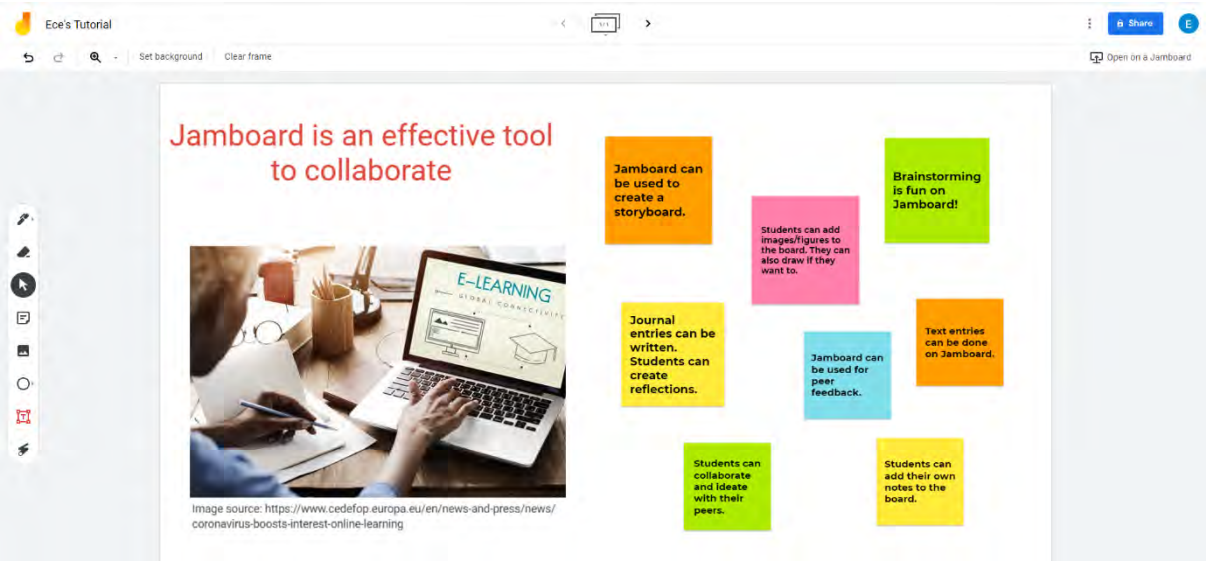

Figure 5: Example of Jamboard

Our experiences teaching tutorials online made us acutely aware that it is easy to unintentionally slip into a teacher-centred mode of tutorial delivery, especially when students are reluctant to turn their cameras on and/or do not engage by responding, verbally or through the Zoom chat function. It becomes easy for the tutor to fill the void of blank screens and silent

gaps with the answers, but doing so limits and disservices many of the pedagogical strategies that contemporary teachers identify as pillars of learning such as peer interaction, collaborative learning and inquiry-based learning, all of which support the diverse and dynamic ways that students learn.

Conclusion

This paper anticipated that our experiences might benefit those looking to integrate programs and tools in the online teaching and learning space, such as Panopto, Zoom, Kahoot!, Google Jamboard and Padlet that the authors applied in their teaching in order to respond to those challenges and create a positive online learning environment for students. It is worth noting that at the end of Semester 1 (2020) the student feedback that we each received about our teaching was overwhelmingly positive. Many students made specific mention to the inclusion of online tutorial activities and tools that made classes more enjoyable, interactive and helpful in solidifying course content. Students' explicit mention of the activities and tools that were incorporated into lessons, reaffirmed our view that teachers cannot simply transfer their on-campus lecture and lesson plans to the online space, online learning needs to be thought out and planned in different ways. At the time of writing this paper, Australia was recognised as being one of the most successful countries in their handling of COVID-19, having been ranked 8th in the world by the Lowy Institute (Dziedzic, 2021). Even with the commenced rollout of vaccines worldwide, the pandemic is far from over as many countries continue to struggle to manage transmission and infection rates. Consequently, this has an impact on the education sector and online learning may be part of the solution for many institutions in the present and near future. Therefore, it is essential that educators continue to share their online teaching experiences so that we can build our knowledge of digital pedagogical tools. Furthermore, educators who seek to explore and invest time into the ever-changing digital space, specifically online educational programs and tools, and incorporate them into their teaching will be able to vastly improve the learning experience and motivation of their students. This is especially important now as the education sector is in a continuing state of uncertainty as a result of the pandemic. Online education used to be an alternative for some students, but due to the abrupt change in circumstances as a result of the COVID-19 pandemic, online learning may have more longevity than educators had previously imagined. In fact, some universities are now looking to integrate more online teaching and learning, especially regarding lectures, as existing lecture theatres make social distancing an impossible task for universities to resolve in the near future. Western Sydney University (WSU) is incorporating HyFlex for some units in 2021- a hybrid learning environment with a flexible course structure that gives students the option of attending tutorials face-to-face, online, or both. Institutional changes to integrate a more hybrid teaching and learning environment justifies the need for further research and publications on the topic of online teaching and learning.

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