Chapter

Perspective Chapter: Peer Observation of Teaching in Phygital Communities of Inquiry

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Abstract

The disruptions caused by the COVID-19 pandemic have affected many aspects of teacher training programs, which are crucial for informing research in higher education, including reflective peer observation of teaching (POT). The higher education community has adapted to this new normal and begun using phygital (blended physical and digital) spaces effectively. This requires practitioners to adapt new methodologies and hybrid approaches, which pave the way for a new future of learning in a new phygital environment. This chapter describes the implementation of a phygital community of inquiry (CoI) by preservice teachers in an undergraduate early-years education program in the United Arab Emirates. This chapter presents the authors' observations of preservice teachers' practices during their internship to describe them against the experience of higher education in the United Arab Emirates. Incorporating the principles of POT and CoI requires strong institutional support if creative technologies are adopted to react to the current state of practices. Specifically, the POT principles involved in CoI should expand the phygital approach to improve the reflective practices of preservice teachers. Moreover, models relevant to specific programs should provide adequate instructional support, materials, and training for preservice teachers to allow their optimal investment of POT in phygital spaces.

Keywords: community of inquiry, peer observation, phygital communities of inquiry, teacher education

1. Introduction

The COVID-19 pandemic disrupted education systems all over the world, but institutions ensconced in traditional practices and hesitant to incorporate technology were affected to a greater extent. Isolation and social distancing became mandated, which disrupted physical classrooms and forced a shift to hybrid teaching and learning for faculty and students in all UAE HEIs [1]. This shift was intended to enable flexibility in teaching and learning while maintaining the institutional expectations [2]. These flexible and novel approaches to educational practice still require good learning outcomes and the meeting of expectations. While United Arab Emirates (UAE) higher education institutions (HEIs) were impacted, one UAE HEI was uniquely well positioned to transition to a virtual format, as it had been in the

vanguard of nations in implementing hybrid learning before the pandemic. Despite this prescience, which limited some of the chaos arising from the pandemic, some institutions were nevertheless affected by staff shortages, because of the huge cuts as a consequence of the COVID-19 [3]. Without action, a lot of adjunct faculty are likely to go and funding in many universities is becoming very precious with many research projects potentially in jeopardy [3]. As a consequence, there was a need for speedy and creative thinking to operationalize the sudden shift of practices to online platforms. Various solutions are documented and discussed in the recent literature to support preservice teachers' practices [4]. Students and educators are encouraged to implement new approaches to teaching and learning to ensure social and cognitive interaction [2], for example FlipGrid which is a tool that is used primarily for hosting video discussions and peer-to-peer communication especially when tasks are assigned by educators [5]. It has been proven that FlipGrid is a useful tool for practicing oral communication and discussion [5]. Due to the COVID-19 restrictions, teacher education programs have been affected and creative solutions to effectively implement lesson observations were needed. One creative solution was to implement peer observation of teaching (POT) in an online context. POT is a process by which a peer observes the teaching of another colleague with an intention to provide constructive feedback [6].

This chapter describes an initiative by the Education Faculty at the HEI involved in this reflective chapter to record preservice teachers' experience of peer observation of teaching (POT) and the establishment of phygital communities of inquiry (PCoI). Teachers' use of Flipgrid, a social learning platform tool, was key in the physical and online presence of students, and it helped ensure reflective practice. More importantly, this chapter illustrates the importance of educators and students working together in a community of inquiry (CoI) using online communication platforms to facilitate rigorous teaching and learning practices and their professional development in order to continue meeting the program's expectations.

2. Background

Before the onset of the 2020 pandemic, the HEI involved in this reflective experience had transitioned to hybrid learning. This was largely possible as a result of the institution's preexisting use of technology to create blended learning, e-portfolios, learning management systems, assessment, digital library services, intelligent learning systems, digital services, and relevant infrastructure [7]. The UAE Ministry of Education (MoE) in collaboration with HEIs, provided unique regulatory solutions to ensure the continuity of the teaching and learning process [1]. During the transition to hybrid teaching, this HEI supported the faculty and students by transforming its 'Digi-campus' and maintaining ongoing professional development and the sharing of best practice.

Students play an important role in the HEI involved in this reflective experience community. For the education faculty, student teachers quickly understood that the learning practices that would be necessary during the pandemic differed from the ordinary learning practices and could be used to supplement their future professional development. Student teachers and their instructors' gradual transition to the new normal after the pandemic lockdown took place in both physical and digital spaces. Before the onset of the pandemic, student teachers completed their teaching practicum (TP) at schools, studied face-to-face, and took some online courses. Their

mentor teachers visited them in schools and provided immediate and constructive feedback. The practice of combining the use of both online and on-site spaces creates what is referred to in this article as phygital learning environments.

To give the reader a clear picture of the context, the physical learning space pre-pandemic and the digital learning space during the pandemic are briefly described here.

The physical learning spaces in each of the five campuses where the Bachelor of Education Early Childhood program is offered at the HEI consist of classrooms both at the HEI campus and at the early childhood schools, kindergartens and nurseries, which host the teaching practicums, as well as three unique learning spaces. The first of these is a model early years classroom which is equipped with cameras and microphones and set up as an ideal learning space for young children. The second is an observation room, which is linked to the model classroom by a one-way mirror so that observers can see what is happening without disturbing the classroom environment or the children and student teachers' learning. This observation room also hosts the recording equipment, which is used by student teachers and their faculty to review teaching performance in the model classroom. The third space, which in some campuses is combined with the observation room, is the learning resources room, which is stocked with all the materials students teachers and faculty may require for the design and preparation of teaching materials. The room includes several tables, where student teachers can prepare their lesson plans and teaching materials in collaborative groups. These three rooms together are called the Education Hub, because they act as a community hub for local schools who can bring their children in for master teacher demonstrations or student teacher lessons as a break from the school routine. Schools can also host professional development sessions with their teachers in the Education Hubs, which thereby act as a catalyst for strong college-school partnerships that encourage joint research.

Naturally, when the pandemic broke out, the Education Hubs closed down as the country went into lockdown. However, the three federal HEIs in the UAE with the support of the MoE were able to ensure the continuity of teaching and learning through flexible but rigorous regulations [1]. Therefore, student teacher preparation was not impacted by the loss of physical teaching practicum opportunities in the schools. The MOE allowed student teachers and mentor college tutors (MCTs) access to the virtual MS Teams platform, issuing codes for all student teachers and college faculty to the assigned schools and mentor schoolteacher (MST) classrooms. This allowed the HEIs to give MCT, MST and student teacher groups the opportunity to explore different ways to complete the required observations in the new virtual spaces. There were, of course, numerous challenges but the flexibility and determination of all involved ensured that no students' program duration was impacted and student teachers were able to graduate and progress according to their study plans, dependent on them demonstrating the competencies required to pass each practicum course. The HEI provided MCTs, MSTs and student teachers with Online Teaching Practicum Guidelines, which included detailed information on the roles and responsibilities of each party, outlined the flexibility each MCT/MST/Student Teacher team had to assess student teacher competencies in each course and provided best practice examples gathered continuously from everyone's experience as they coped with the new virtual world of the pandemic lockdown.

The innovation and creativity witnessed along with the unique opportunities for learning to teach in an online environment provided a myriad of experiences, material, approaches, methods and techniques for both enhanced learning and teaching.

After three semesters and over 2000 virtual teaching practicum placements, schools and colleges returned to work face to face but with some pandemic restrictions still in place. These were gradually reduced, but everyone had to refamiliarize themselves with another new world where the best practices of the pre-pandemic physical world and the during pandemic online world could be combined in a new hybrid phygital learning environment. It is this new environment that is the context for this chapter.

As with traditional learning environments, the success of the new phygital learning environment and the transition to the new normal began with classroom implementation and authentic learning. At the same time as innovative approaches were being implemented by student teachers and their instructors, they still needed to face and solve specific challenges related to the issues created by the pandemic, such as the shortage of faculty [2, 3] and the appearance of COVID-19 cases among children, student teachers, and their mentor teachers, while completing their TP in the schools. Therefore, reflecting on the TP at the HEI involved in this reflective practice and the phygital model, integrating both physical and digital spaces, was pivotal to understanding the procedures and responsibilities of all parties when applying this new approach to students' authentic and innovative approaches to learning.

As this HEI had begun focusing on technology use and was implementing hybrid models even before the pandemic, the sudden transition to hybrid learning after the onset of the COVID-19 pandemic led to a new array of leading and managing learning and teaching in online communities. Geng et al. [8] refer to this as a blended or hybrid learning environment. While hybrid learning has been the most prominent means of delivery for higher education during the gradual transition to face to face learning, it presents certain specific challenges for students' effective learning and communication within the new context. In general, hybrid practices tend to have drawbacks, such as the lack of a real online community to ensure positive learning outcomes [9, 10] beside the issues that continued to arise as a result of the pandemic.

Student teachers faced multiple challenges due to the pandemic. Among the negative impacts was the lack of the community-based experiences they had been used to, which had ensured positive social and cognitive interaction among learners, peers, mentors, and instructors [11, 12]. Attempts to salvage this type of interaction prompted researchers to identify factors that could support successful online experiences [13, 14]. The CoI model was proposed to examine the quality of virtual learning experiences (VLE) [15, 16]. The contextualized practice of this framework integrates the student as a cognitive presence and the instructor as designer, facilitator, and instructional presence, together with a social presence as the construct of meaning by means of the maintenance of sustained communication that concretizes the community [2, 17].

Among the significant dilemmas faced at this time was that of ensuring sufficient, effective, and constructive feedback during the period of the student teachers' TP, despite the faculty shortages [18]. The idea of this approach was to solve issues creatively and innovatively, with the support of available resources and using creative methods. College mentor teachers (MCT) conducted four observations for year four student teachers, and the school mentor teachers (MST) observed the student teachers four times. The MST was able to complete their observations, but the MCT was unable to observe all assigned student teachers, due to the high number of observations involved and additional issues related to the pandemic, including faculty shortages and cases of COVID-19 among faculty and student teachers. Therefore, creative and innovative methodologies to utilize the available phygital spaces were needed. There was likewise a need for a community that could link physical and online

presences while ensuring critical thinking and rigor in practice. In summary, the need to develop a peer observation system that was able to withstand the disruption of the pandemic but could also facilitate teaching and learning within a community of inquiry was recognized.

3. Overview of teaching and learning within the context of UAE HEI

3.1 Peer observation teaching

The academic knowledge that students receive as a result of their college experience is invaluable when it is enhanced by authentic experience. Therefore, the evaluation or using peer observation of teaching is crucial for a clear understanding of teaching practices that substantiate academic and program's performance. Martin and Double identify six goals of peer observation: improving an understanding of personal approaches to curriculum delivery; enhancing teaching strategies; exchanging insights; expanding personal skills of self-reflection and evaluation; developing curriculum planning skills and collaboration; and identifying areas in teaching practice with particular benefit for next steps [19]. Recent studies highlight the importance of POT as a way of foregrounding the process of teaching and learning, improving the quality of classroom practices and making teaching visible to everyone [20, 21]. Ref. [21] suggest that POT provides firs-hand collegial support and the growth of teaching-related collaboration. To and Carless [22] highlight the value of peer evaluation in the transfer of knowledge into practice. Students' POT in teacher education programs forms part of a process in which student teachers observe other educators or colleagues teaching, using available resources. It is one of the main methods used for the evaluation of teaching. A previous study explains that POT assists in the development of reflective process and provides qualitative evidence and formative feedback to substantiate students' evaluation [5, 20]. Several benefits exist with respect to POT and its perspective. For instance, Van den Bergh et al. [23] reported that peers provide constructive feedback that has a crucial influence on professional development and critical reflections by the student and mentor teachers. In an earlier study, Bell and Mladenovic [24] found that POT enhances teaching quality and competencies as teachers gain confidence in their teaching methods, acquire new ideas, and share teaching methods and practices.

As discussed, the main purpose of POT is to improve practice and provide formative feedback for future improvement. In teacher education, peer observation can take three forms; (1) a management model, where the main goal of the observation is to evaluate the performance for quality assurance purposes; (2) a development model where the goal is to improve teaching and learning and overall classroom practices; and (3) the peer review model, where self-reflection is emphasized as a result of formative feedback. According to Gosling, the development model is for educational developers to observe practitioners to check the demonstration of competency, track teaching and assessment improvement [25]. Generally, the final purpose is to plan for action steps, which student teachers need to take, and to either pass or fail the performance. There is a level of confidentiality between the observer and the observed student that include detailed reports on the observed teaching performance, lesson plans, learning materials, etc. On the other hand, the peer review model includes teachers observing each other and students observing each other with a high level of engagement in discussion about teaching; self and mutual reflection. The goal is

to provide analysis, discussion, and elaboration on a wider experience of teaching methodologies. The evidence is what is shared among peers as it is a non-judgmental with highly constructive feedback. Similarly, teaching performance, lesson plans, and learning materials are observed; however, the goal is to inform the practice.

3.2 POT in the UAE HEI program

Online teaching and learning are essential components of the hybrid mode of delivery for higher education institutions. It is critical for faculty that standards are upheld throughout online and face to face teaching and learning. Therefore, POT is often conducted during the TP placement of preservice teachers who are enrolled in the HCT Early Childhood Education (ECE) program. Student teachers are always assigned to a MCT and an MST in their practicum courses, and peer observation is assigned as a formative task during the student teachers' experience in the schools. The observations by the MST and MCT are expected to form the performance assessment part of the practicum course. A similar approach is used in peer observation as an assignment, although there is no fixed number of POT observers [26, 27]. Thus, for example, an MST and a peer can both observe the student teacher's teaching.

During face-to-face classes and in online POT, students, mentor teachers, and their peers agree on a format for the peer observation. At the beginning of the practicum course, the instructor shares the course's TP booklet with the students and discusses all of the relevant expectations and tasks in detail. In addition, the instructor discusses the observation sheet and the feedback process that is to be expected in detail. Throughout the semester, student teachers shadow the MSTs and teach under their supervision to enable them to receive constructive feedback. Ideally, the MST meets with the student before and after the given lesson, and the MCTs receive the lesson plan a day before the observation, so that she can discuss the lesson with the student and send feedback before the observation. A feedback meeting should be implemented immediately after the lesson observation. No requirements are imposed for the pre-observation meeting. However, post-observation is mandatory in order to provide constructive feedback and to identify focal points and next steps in the student teachers' development. During the transition to the new normal and during the COVID pandemic and faculty shortage, the MCT assigned strong peers to complete two out of four lesson observations on their behalf. However, the MCT needed to ensure rigor in the observation practice, as will be discussed in the following sections.

Cosling's second and third model can be combined to ensure the validity and reliability of formative assessment practices in preservice POT and, additionally, can provide valuable qualitative evidence to support quantitative data and complete final summative evaluation. For this reason, we find it crucial to combine multiple models in our program.

3.3 Model of peer observation of practice in Phygital spaces

3.3.1 Theoretical framework: Community of Inquiry

The CoI model forms a three-dimensional pedagogical framework that is grounded in theories of teaching and learning in higher education [17]. After it was created, this framework evolved to incorporate broader perspectives of distance learning [13, 28]. The three constructs, namely, cognitive presence, social presence, and teaching presence, have remained stable and form contributions to maintaining a

strong virtual learning environment within the CoI model [2, 17]. They are described as follows:

- *Cognitive presence* refers to the learner's development of higher-order thinking skills and construction of meaning as they transition through four cyclical stages of inquiry and perform sustained reflection on their education experience [17]. These four stages are triggering, exploration, integration, and resolution. First, in triggering, the problem is identified, explored, and brainstormed, inviting further exploration and collaboration, after which ideas are generated and integrated, and are finally tested and implemented. Reflection forms an important part of CoI for a better cognitive presence.

- *Social presence* describes students' interaction and collaboration within a productive virtual social community [17]. Their open communication performance is facilitated by using a variety of tools and approaches to building group cohesion that encourage emotional reflective expression, where learners can better share values and personal impressions [13]. Social presence is a pivotal mediating variable between cognitive and teaching presence [28].

- *Teacher presence* describes the instructor's role and relevant leadership skills. Teaching presence refers to the design, facilitation, and direction of cognitive and social processes for an instructor to produce better learning outcomes. These affect students' satisfaction levels, perception of learning, and sense of community [29]. Teaching presence thus focuses on course organization, design methods and strategies, direct instruction, and discourse facilitation. The development and implementation of the framework over the years highlight the importance of this construct [29].

3.3.2 Relationship between CoI and professional learning communities: Designing POT in PCoI

The CoI emphasizes the importance of faculty development as a pivotal aspect for positive teaching outcomes. Where teacher quality is considered important, so the professional learning community (PLC) can be defined as the entirety of the organization where the CoI is located. Multiple definitions exist of PLC. However, in this chapter, we use a definition provided by Hilliard [30], namely, that "a professional learning community [is] made up of a leadership team and faculty members as a collaborative group who seek to improve the learning experiences for students through a shared vision" (p. 71). To achieve this goal, the quality of instruction and learning should be founded on the use of twenty-first-century approaches to assist with assessment, learning, and showcasing students' outcomes. A contextualized implementation of CoI indicated that female students lacked social presence in online learning communities of practice [25]. One key aspect here is the communication environment, which can be enhanced through the inclusion of social media [31]. Using an interpretive and qualitative approach, Bedford identified the benefits of adopting a virtual PLC, including relationship building, faculty and students engagement, and fostering shared learning. The design of a POT reflective platform within a PCoI requires effective, respectful, and professional conversation within a safe environment. Reports of POT within the online environment and its advances within a cross-institutional context are trending upward in the literature [27]. Here,

our adoption of the technology (Flipgrid) to facilitate this blended learning style for the students' benefit was also of interest. Chaturvedi et al. [32] ably illustrated this positioning, drawing on Kolb's Learning Theory, Mezirows' transformative learning theory, Jean Piaget, and John Dewey to demonstrate successful blending of learning within a phygital environment at their business school in India. In a recent study, Kleftodimos and Triantafillidou explored a creative approach to support students' participation and communication during online learning [5]. Their findings indicate that FlipGrid is a useful platform for online discussions and elaborations enhanced by video and the available library to include all supportive documents [5].

Full institutional support for faculty and students was enabled for this study through the earlier transformations to the Digi-campus, continuous ongoing professional development and availability of electronic portfolios. One aspect of this POT in PCoI process relates to the need for a rigorous process of inquiry to meet high expectations in lesson observation and authentic practice.

4. Student teachers' evaluation

A fully collaborative evaluative process for student teacher observations must account for key areas in POT, including five main competencies (professionalism, planning, implementation, assessment, and reflection). Inclusion of these aspects allowed preservice teachers in our B.Ed. Early Childhood program to describe their TP experiences using the Phygital CoI during the COVID-19 pandemic.

To evaluate the progress and gain insight into the experience of preservice teachers through this approach, a multiple data sources should be employed, including reflective and reflexive interpretations, as these allow an in-depth understanding of the student teaching program [33]. The students' online peer observation formative assessment process was used in achieving this objective. This produced a series of reflections by nine fourth and final year students enrolled in the ECE program who were expected to complete four lesson observations by their MCTs and four lesson observations by their MSTs as part of their reflective teaching practice. The group included nine women aged 19 to 21 years old, some of whom were married. All were permanent residents of the UAE and attended the program full time. The observations face to face (when recorded) and online are without time boundaries where the second observer can review the recorded lessons multiple times. This practice validates the initial peer observation and leads to a more constructive feedback. This chapter reflects on the application and the implementation of a unique POT in a PCoI where preservice teachers are observed by their peers in a real classroom setting and validated by their instructors after watching the recording. Both observations are followed by constructive feedback using Flipgrid which served as a professional learning community platform where students and their instructors came together as one community. This community includes physical and digital methods of teaching, learning and assessment.

4.1 Applications and implementation

A CoI was envisioned, drawing on a need to establish a tool or methodology to help complete lesson observations during student TP placements during the COVID-19 pandemic. As noted, the pandemic-era new normal had placed the institution in a precarious position due to the shortage of faculty for TP observations and cases

of COVID-19 among students, the primary observers, and the school and college mentors.

The TP objective remained the same during this time; the MCT was to conduct four observations, while the MST was to observe the preservice teachers four times during their TP. The MST had the opportunity to complete their observations. However, the MCT found it impossible to observe all of the student teachers that were assigned. Therefore, we had to find a creative way to establish a community of inquiry, link physical and online presences, and ensure critical thinking and rigor formed part of the practice. Ultimately, we developed a peer observation system to achieve these objectives.

The MCT encouraged preservice teachers to work in a CoI, utilizing Flipgrid, an online communications platform for educators and students, to facilitate effective feedback. The MCT could not assign preservice teachers to observe each other without ensuring that rigorous standards would be followed to enable the production of valid results and clear learning outcomes. Moreover, the MCT was required to submit summative assessments, which included data from four MCT formative observations and four MST formative observations and a final TP rubric for year four student teachers. The peer observations were included in the first course assessment, following previously published research on CoIs and a specific focus on rigorous virtual learning CoIs [2]. The practice followed the HCT's model of integrating innovative technology and rigorous learning methodologies in the contemporary phygital age. This new Phygital CoI (PCoI) was developed using the following methodology:

1. Train fourth-year students to use the Education Faculty system-wide approved observation template.

2. Train preservice students to understand the summative assessment rubric that will be submitted based on their eight formative observation evaluations. Although their peer observation cannot be used as a final summative assessment, the preservice teachers must know the procedure in detail, as they will report on each other's practice collaboratively with their MCT by this means, through the submission of peer observation and feedback. Preservice teachers have a right to access this data; it is a standard practice for the MCT to review the assessment criteria with preservice teachers.

3. Train preservice teachers on the use of Flipgrid with online videos to provide and respond to feedback. Preservice teachers are expected to use the Flipgrid as a library to document their work. They upload the following: their pre-observation notes, lesson plans, video of the demonstrated lesson, post-observation notes, lesson observation sheet and a final lesson observation sheet after the MCT provides their feedback.

4. Apply a rigorous peer observation cycle. Here, the MCT is included as a secondary feedback provider to ensure rigor in the practice and in the data. In general, preservice teachers perceive rigor in qualitative research with reference to the level of agreement among raters (MST and MCT) and observers. Therefore, in the summative assessment, preservice teachers consider the feedback from the eight observation reports obtained from the MST and MCT, as well as the eight reflective essays that the students submit, one after each feedback session. To ensure rigor in this reflective practice, the MCT uses students' peer feedback

and the MCT's feedback from a peer observation cycle as a secondary source, together with the students' own reflections. The level of the agreement facilitates a valid decision for the first summative assessment.

5. Start a WhatsApp group to ensure that all preservice teachers have immediate access to information exchange.

Since the beginning of the pandemic, the following rigorous observation cycle (**Figure 1**) has become the new normal within these PCoI groups:

> *Each student meets with the peer observer to discuss the lesson and subsequent steps, which may include discussion of a development plan for personal goals and action steps to be implemented for the following lessons. Together, the preservice teachers choose a focus area after completing a general observation.*
>
> *Before the observation, preservice teachers send their lesson plan to the MCT and the observer. The preservice teachers meet with the observer to discuss the areas of strength and possible areas of focus.*
>
> *During the observation, preservice teachers deliver lessons while their peers observe and document the lesson practice using the observation template which they were trained to use. Each student records the lesson (they can seek the classroom assistant's help to record the lesson or the focus area of the lesson) and shares it with the MCT. Each student a SharePoint link to the recording of the taught lesson before the feedback session.*

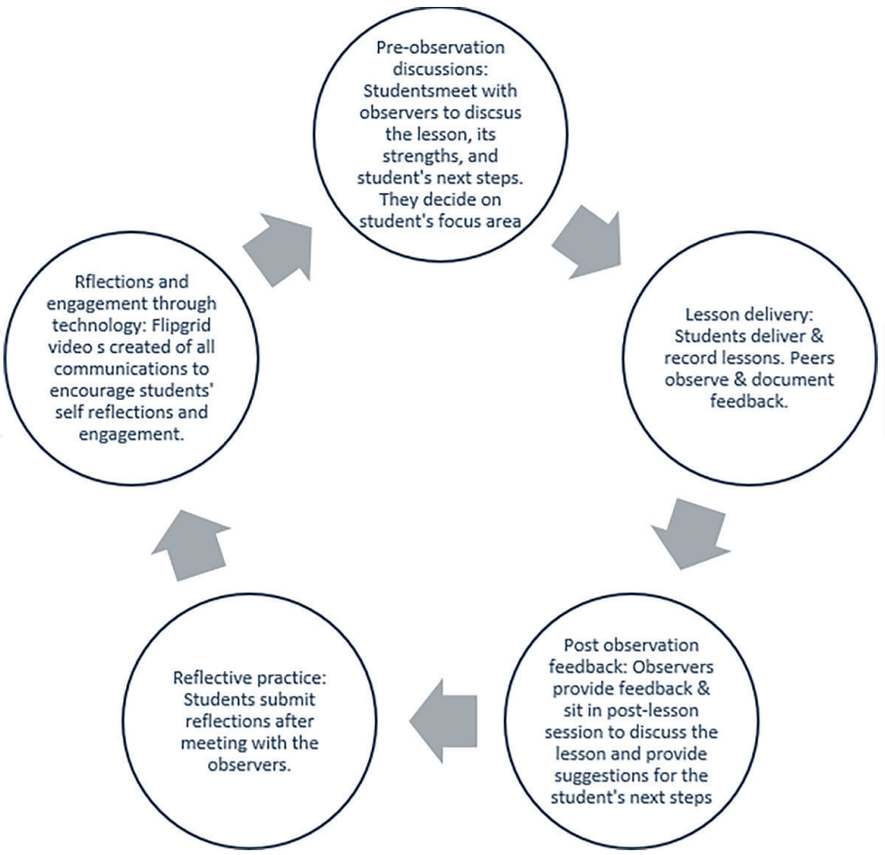

Figure 1.
Phygital communities of inquiry: PCoI communication cycle at one UAE HEI.

> *The observers provide feedback and then participate in a post-session to discuss the lesson and provide suggestions for next steps. The completed observation template and student reflection are signed by the observer. The preservice teachers are expected to upload the pre-lesson notes, lesson plan, lesson observation sheet, post-observation notes and the video to the Flipgrid library.*
>
> *After receiving these documents and watching the video, the MCT creates a new video on Flipgrid to provide feedback. The student teacher and the observer respond using Flipgrid video to ensure a sense of community, and the MCT elaborates on the earlier feedback received. Then, preservice teachers begin a thread of continuous discussion based on their expected reflections on the lesson implementation. The MCT ensures that the preservice teachers move from simple reflective practice to a more rigorous reflexive practice, in which they review their reflections.*
>
> *Each student submits her reflection after meeting with the MCT and the observer. All of these documents are attached to the Flipgrid thread.*

The COVID-19 pandemic continues to teach us to adapt to the new normal and use phygital spaces effectively. Due to the increased use of technology in higher education, preservice teachers are moving toward a robust approach, using platforms such as those provided within the UAE HEI Digi-campus, in which they can emphasize hybrid learning and pave the way for the future and the new phygital reality of education.

The concept of phygital communities has been developed from the Business field, namely D. Randy Garrison, Terry Anderson, and Walter Archer's (2000) concept of CoI as a process model, and AlShamsi's [2] contextualized practice of this process. The original concept of CoI was grounded in theories of teaching and learning in higher education, carrying the philosophical framing of John Dewey's work on community and inquiry [28]. The goal of CoI is to offer "a conceptual framework that would provide order, heuristic understanding, and a methodology for studying the potential and effectiveness of computer conferencing" [28]. AlShamsi [2] provided an overview of CoI and drew on Garrison and colleagues' CoI model, integrating a bioecological perspective, to explore the VLE of female college students at a higher education institution in the UAE, taking observations, journals, and peer-reviewed literature as means of evaluating the combined effectiveness of the three elements within the CoI framework, namely, cognitive presence, social presence, and teacher presence in the virtual classroom. The MCT adopted the framework of the PCoI and aligned it with the UAE HEI's Digi-campus and hybrid model innovation. A novel contextualized image of PCoI is given in **Figure 1**.

4.2 Implications for practice

PCoI was used to allow preservice teachers to work within a rigorous learning community, in which they were tasked with discussing an issue, working together to find solutions to it, designing and deciding on a practice, implementing the practice, analyzing and evaluating the outcome, and then implementing it once more. This reflective cycle ensured higher-order thinking and application within the contemporary digital age during the COVID-19 pandemic, allowing a smooth transition to the phygital reality of learning grounded in the theoretical perspective of CoI. Phygital experiences include the use of Zoom meetings, a Blackboard learning management system to save information and documents, document sharing using OneDrive,

incorporating the use of WhatsApp for messaging, writing reflection blogs, and employing Flipgrid to provide a collaborative PCoI group experience. The preservice teachers saved all of the documents related to each observation, along with the recording link. During the discussion, the preservice teachers used the blog and continued to reflect on each other's practice. Preservice teachers also referred to the literature, examples of best practices, and other tools to assist with their professional development. This methodology aligns with the CoI framework, incorporating an element of lifelong learning as a positive outcome. The MCT is continually present with organized materials and feedback and uses Flipgrid interactively to facilitate video discussion. Students interact with each other in the school classroom before, during, and after their observations and focus on higher-level thinking, moving from reflection to reflexivity, and finding new and creative solutions for current educational practices. With respect to cognitive presence, students are highly involved in determining the next steps and identifying their concerns for their own professional development, deciding on the next areas of focus, and discussing why those areas are significant.

The next steps involve elaborating on means of improving ECE practices in the UAE by researching and referring to the global literature, planning and applying lessons learned, and inviting others to observe and document their practice. For this, preservice teachers must agree on the next steps. This phygital approach to extending cognitive presence is all part of the process of adapting to the new normal.

The final reflective section explores the impact on learning of the students who collaborated interactively with each other and with their MST and MCT in digital and physical spaces.

4.3 Reflections from the field

As we reflect on the experiences of using Phygital Communities of Practice for the peer observation of teaching during teaching practicums, we take pride in how the approach has attempted to take the best of the pre-pandemic physical face-to-face practice and the best of the during-pandemic virtual online practice and merge them into a new approach for the new phygital world that has become our new normal post-pandemic. Naturally, there are numerous learning opportunities ahead of us, but we will draw this chapter to a close by highlighting the key learning points from our reflection on the experience described above.

Institutional Support—whilst the description in this chapter has continuously highlighted the importance of institutional support in terms of educational technology, it should be noted that all the technology used in the approach taken can also be replicated with free software widely available. The true difference institutional support makes is when teachers and learners are given the freedom and trust to try new approaches, and where creativity and innovation are not just supported but encouraged and celebrated.

Grounded in Theory—the theoretical foundation in communities of inquiry of the approach described in this chapter was both purposeful and essential as a model of good practice for the student teachers. The Bachelor of Education Early Childhood program is centred around a theory of teacher knowledge development, which focuses on the practicalization of theory and the theorization of practice [34]. Therefore, when a new initiative is launched or piloted it should act as a model of research and development by following the approach at the heart of the program's philosophy. Student teachers are thereby exposed to best practice and experience the connection between theory and practice in educational research firsthand.

Build on Strengths—the pre-pandemic physical face-to-face teaching practicum observation procedures were well-developed and clearly detailed in Teaching Practicum Booklets with well-designed rubrics for observation linked to teacher competencies aligned to the national Teacher Standards. These booklets had been adapted and strengthened during the pandemic to account for online teaching competencies as well, and student teachers were very familiar with them. Therefore, it made good sense to use the procedures and rubrics already outlined in detail in these booklets as the primary resource for the new approach.

Trust your Students—since the student teachers involved in this study are about to graduate and move into the professional field, it made perfect sense to involve them as equal partners in the observation and assessment process. Trusting their maturity and ability reaped benefits such as more open and professional communication and more frequent examples of deeper reflection on practice than had been previously seen.

Prepare the Student Teachers Thoroughly—the key to the success of the approach described in this chapter was the thoroughness of the student teacher preparation. Training them on the use of the rubrics and ensuring understanding of the criteria and competencies with examples from practice of what needed to be observed under each criterium and sub-competency was an essential part of the process.

Support and Challenge—the teacher educator role throughout the process is one of support focusing on what the student teacher observers are doing well, but also one of challenging student teachers to justify their observations and provide quality feedback as they would expect themselves when they are observed.

Depth of Reflection—ultimately the main goal of the approach was not to overcome the shortage of observers but to empower the student teachers and allow them to demonstrate real depth of reflection tying practice to theory and moving well beyond simple description. The depth of reflections provided during this study has convinced all involved that the approach has worked and will be one that we continue to use and develop in the coming semesters.

The reflective practice described in this chapter validates the CoI framework. The continuous growth of technology and its use in education implies that the new normal will soon be considered simply normal, as it relates to a twenty-first-century education. Accordingly, the higher education teaching institutions might consider it prudent to continue phygital learning and teaching to fulfill the expectations of the next generation.

COVID-19 has been instrumental in enabling the swift implementation of new phygital spaces for phygital learning through physical means, attending TP face-to-face as a response to the new normal, and digital means, making use of the new normal and utilizing technology, such as Flipgrid. These were benefits for the majority of the preservice teachers as well as their instructors.

Finally, the preservice teachers considered that they had emerged stronger after the COVID-19 pandemic, due to the new phygital opportunities they experienced, and supported by institutional strategies. They hope that this initiative has helped prepare their way for additional phygital campuses.

Conflict of interest

The authors declare no conflict of interest.

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