

Mapping the SAMR model to deconstruct the conventional peer-micro teaching and learning reconstructing into the pandemic COVID-19 online responsive mode.

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We, as teacher educators at the Mauritius Institute of Education, have always been using the conventional face-to-face to service the Peer-Micro Teaching (PMT) component for the PGCE programmes. However, during COVID-19 pandemic, the online mode of learning was adopted as an emergency response to ensure continuity of learning while mitigating learning loss. To curate this sudden shift, the SAMR instructional design model was used in reconstructing the design of PMT for the online learning environment. A progressive implementation approach using the Community of Inquiry theoretical framework was utilized to facilitate the adjustments students had to make when moving to online learning. This shift supported a learner-centred approach that guided the students with a more accurate understanding of the novel learning modality. A mixed research methodology was used to gauge the efficacy of online teaching and learning. The results revealed that COVID-19 triggered adaptation had a positive impact on the students' learning in terms of accessibility, flexibility, opportunities for collaboration, creativity, and independent learning. Alongside, the integration of technology redefined the roles of the students and those gained learning experiences had improved their digital literacy where new set of habits was learnt. The findings were promising and implying that the technological innovation was affordable, inclusive, and scalable.

Keywords: remote learning, online learning, SAMR instructional design model, Community of Inquiry

Introduction

The unprecedented COVID-19 pandemic undermined existing practices and changed the rules in unpredictable ways (Bryson et al., 2020; Horton, 2020; Žižek, 2020). The led to the closure of educational institutions everywhere and made the deployment of emergency remote teaching and learning off-campus which was considered as the best alternative to be practiced ensuring continuity of education while mitigating learning loss (Bozkurt et.al., 2020).

According to Hodges (2020), there was a shift in conventional teaching to remote teaching where teaching and learning had to take place from home with all the practical and technical challenges this entails, and often without technical support. Alongside, a significant challenge for university academics has been their lack of the pedagogical content knowledge (PCK) (Shulman 1987) needed for teaching online (Angeli and Valanides 2005; Kali, Goodyear and Markauskaite 2011; Ching, Hsu and Baldwin 2018). This further necessitates the pedagogical foundations and knowledge of principles essential to design, develop, and facilitate effective online teaching and learning experiences.

The emergency online teaching during the COVID-19 pandemic crisis has been triggered various research from academic community in the higher education institutions across the globe emerging from case studies, (Bao 2020; Rumbley 2020), webinars (Weissman 2020) and reports from reputed international organisations to discuss its impact of COVID-19 on education.

The COVID-19 pandemic has impacted education at all levels in various ways. On the one hand COVID-19 has revealed vulnerabilities while on the other it has surfaced opportunities to reshape the learning and teaching landscape unleashing the human resourcefulness and potential. In a nutshell, COVID-19 presented us with a real challenge and a real responsibility. This pandemic has magnified many of the long-standing challenges facing humanity.

There is therefore an urgent need both for the development of quality assured online resilient learning systems in all educational institutions for the future, as well as advocating for a well-managed online ecosystem that supports professional development through upskills of the teaching community, guided blueprints for online design substantiated with appropriate and current online pedagogies, and an online support systems to promote and sustain the online teaching and learning experiences.

Purpose and significance of the study

For this study, it was imperative to go beyond emergency online practices during this abrupt shift caused by the COVID-19 crisis and develop quality online teaching and learning which is guided by informed instructional design and learning design theories. Thus, this research was instrumental in the sense that there was a paradigm shift from the traditional to the online mode of learning for the PMT component which required face-to-face teaching given its nature.

Problem statement

The most challenging difficulty was to deconstruct the conventional peer-micro teaching component and reconstructing it into the pandemic COVID-19 online responsive mode while ensuring productive online teaching and learning that result from careful instructional design and planning.

In an online mode of teaching, it necessitates a well-constructed instructional design plan supported by relevant learning design theories (Tennyson and Schott 2010). This normally happens when the teacher is collaborating with a professional team coordinating the different phases of the instructional design of the online course. Online teaching and learning imply a certain pedagogical content knowledge (PCK) related to designing for enhanced learning experiences, with the help of digital technologies (Rapanta et al. 2020, p. 923). Hence, preparedness to shift from face-to-face to online teaching and learning entails prior understanding of the online teaching and learning pedagogy and its related digital tools to create meaningful learning events which are relevant, accurate, and contextualized with a combination of different types of presence to support, sustain, and reinforce learning.

In this research, the SAMR instructional design model with a blend of the Community of Inquiry theoretical framework was used to design the online teaching and learning environment to be responsive to the context.

Research questions

This study seeks to address the following research question (RQ):

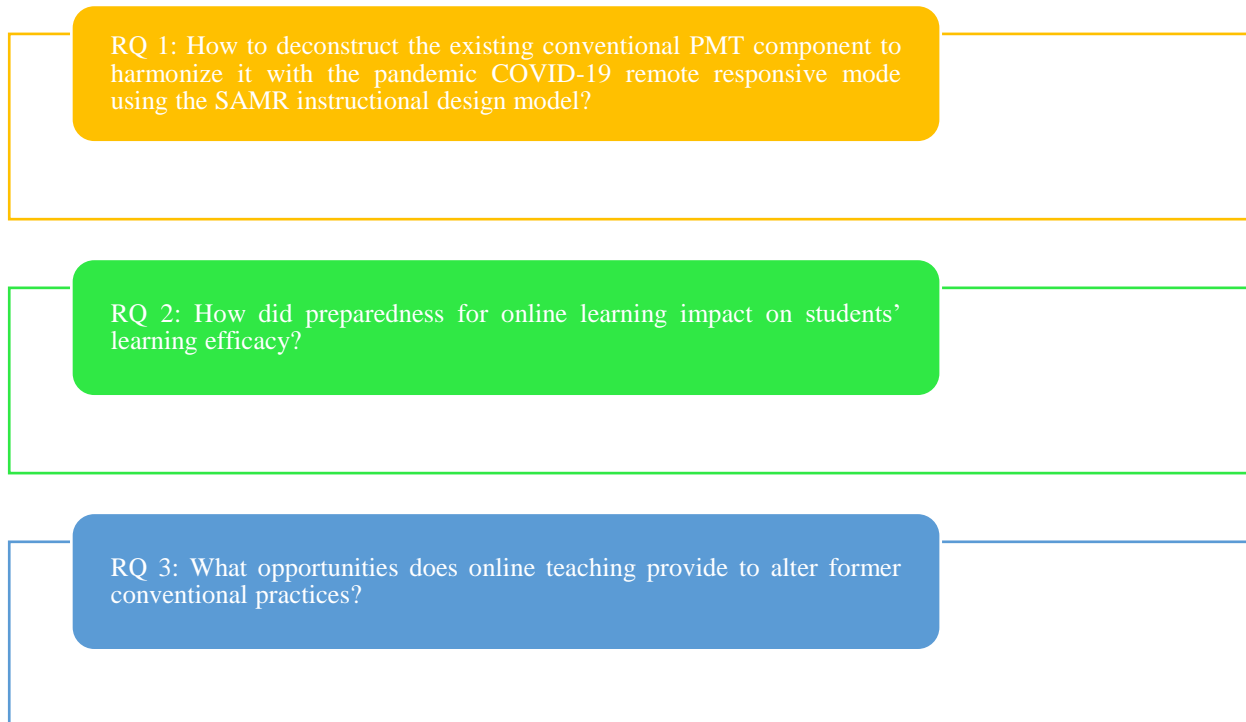


Figure 1: Research questions

Literature Review

There is a wide spectrum of concepts in existing literature on online teaching and learning. These concepts entail different meanings however, they are, sometimes, used interchangeably. Bozkurt and Sharma (2020) views distance education as a process characterised by 'distance in time and/or space' and to remote education as a context of 'spatial distance'. The term 'online learning' is widely used but with a variety of meanings. However, this study will focus on the online learning ecology as the learning space that enable teachers to teach, interact with their students while providing a panoply of scaffolded learning events in a remote scenario. In such learning design, the curative approach which embeds flexibility, responsibility, issues of agency, choices of learning possibilities which is visible in different roles and the nature of interaction among learners is adopted.

During the COVID outbreak, many teachers and academics found themselves suddenly into an unanticipated immersion in online teaching methods and practices for which most were either unprepared or ill-prepared (Trust et al., 2020). This overnight shift was important to ensure continuity of education as well as mitigating learning loss. However, this sudden change was challenging for many of the practitioners to transfer their traditional classroom teaching to a novel learning environment which required sound knowledge of online pedagogy, and a set of technical and interpersonal skills. This transition was also challenging for students. Some of the biggest challenges in this sudden and unanticipated transition have been inadequate network connections in developing nations (VanNuland et al., 2020); insufficient home conditions (e.g., only one device for family and that device needed by parents working from home); and lack of experience or training in the use of technology.

The term Remote Emergency Teaching (Hodges et al., 2020) was coined to capture the difference between this teaching environment and the more considered practices of faculty who had experience with online teaching prior to the crisis. Indeed, the adaptation consisted primarily of posting readings online and preparing video lectures that students could access through their learning management system (LMS) and the use of WhatsApp was also popular. Current literature

reveals an ‘emergency remote teaching’ (Bozkurt and Sharma 2020, i) or ‘emergency eLearning’ (Murphy 2020, 492) and to challenges associated with poor online teaching infrastructure, inexperience of teachers, the information gap (i.e., limited information and resources to all students) and the complex environment at home (Zhang et al. 2020).

Theoretical Foundations

SAMR instructional design model

SAMR instructional design model is an acronym for substitution, augmentation, modification, and redefinition (Puentedura, 2003) as depicted in the figure below:

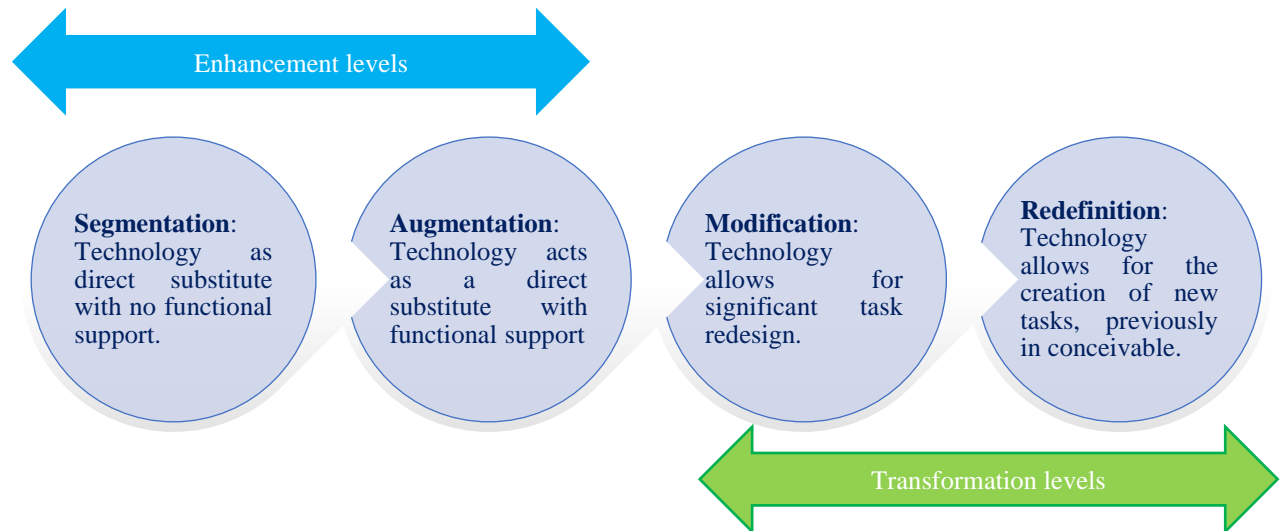


Figure 2: SAMR instructional design levels

The first two levels; substitution and augmentation deal with the technological enhancements aspects while modification and redefinitions focus on the technological transformational process.

Community of Inquiry

The Community of Inquiry theoretical framework was defined and developed based on the idea of Communities of Practice (Wenger, 1999) working groups in which learning was a fundamental purpose and function. The CoI model extended the Communities of Practice model by focusing on groups in which teaching and learning were the primary functions and objectives of the group. The CoI represents a process of creating a deep and meaningful through collaborative learning community and the core principles is that meaning is constructed through inquiry and critically shared thoughts and ideas. The three critical interdependent elements of the CoI are (1) social, (2) cognitive, and (3) teaching presence.

The essence of social presence deals with the environment issues; that is, feeling of trust, open communication, and group cohesion which contributes to the social development of the group by stressing affective concerns. Cognitive presence reflects the core learning approach, the inquiry process which is a scientific approach. It is characterized by critical inquiry and reflection. Regarding teaching presence, it ensures that purposeful progression and sustainability of the community in terms of creating meaning and shared understanding while creating an environment of shared responsibility and control. Teaching presence pertains to the instructional component of online learning where technology is used properly to engage students. From a metacognitive perspective, students learn how to learn, and this make them better learners moving beyond the mastery of content. The shift in the roles of the learners and the teacher is visible in the online space. This is supported by an extensive review of the research where Garrison (2016) argued that teacher presence is instrumental to effective online learning when the teacher together with the learner co-constructs the learning environment which supports collaborative meaning construction. In similar events, the online teachers are more effective when creating effective learning environments where students take a lead role in their learning (Boettcher & Conrad, 2021; Dabbagh et al., 2019; Savin-Baden, 2007).

According to Garrison (2011), it is emphasized that strong social, cognitive and teaching presence are critical to the success of an online course. In the recent systematic review of literature on online learning, Valverde-Berrococo et al.’s (2020), concluded that “Community of Inquiry emerges as the most relevant theoretical framework ...” in the studies they examined.

Creativity

In the review of literature, specific characteristics of creativity are shared across varied definitions in the literature. Henriksen et al. (2018) explain that “the definitional challenge of creativity speaks to its ill-structured, multi-faceted

nature, which is emergent, contextual, and complex in expression” (p. 2). Creativity includes new or original ideas and effective or impactful products (Zhou & George, 2003; Kaufman & Sternberg, 2010; Sternberg, 2016). Sternberg (2018) describes that “creative work challenges existing ways of seeing and understanding the world” (p. 50). He further explains that creativity can vary between cultures and is “bounded by the constraints of time and place” (p. 50). While Boden (2004) classifies creativity into three categories: combinational, exploratory or transformational. Combinational includes combining the familiar in novel ways. Exploration leads to developing or creating new ideas/products within an existing framework, and transformation consists of generating entirely innovative ideas/products outside any conventional framework which was previous impossible but now possible. Nonetheless, there are challenges to teaching creativity online as teachers tend to remain in their comfort zone while they should be exploring novel ways to teaching online in a creative manner.

Critical thinking

The term critical thinking can be challenging to define as compared to creativity. Johnson and Hamby (2015) describe that “there is an overabundance of problematic definitions” and that “it is not at all clear that these definitions are equivalent or even compatible”. According to Hansson (2019) difficulty in defining critical thinking is that the specificity of critical thinking varies across different domains and subject areas. However, Mulnix (2012) argues that while the skills associated with critical thinking may depend on domain knowledge, they are, in fact, not domain specific. To simply the understanding of critical thinking, Willingham (2008) explains that “in layperson’s terms, critical thinking consists of seeing both sides of an issue, being open to new evidence that disconfirms your ideas, reasoning dispassionately, demanding that claims be backed by evidence, deducing and inferring conclusions from available facts, solving problems, and so forth”. Nevertheless, he also asserts that critical thinking “is very much dependent on domain knowledge and practice” and therefore, as a stand-alone skill, it can be challenging to teach. Teaching critical thinking online can be exploited in various ways, including discussion forums requiring students to critically reflect on several perspectives on a problem based on different assumptions or analyse a theory/concept through deconstructing into strengths, challenges, opportunities, and threats.

The key to teaching critical thinking and creativity is to ensure that students can inquire, imagine, do, and reflect on their learning.

Methods

A mixed method research design is a procedure for collecting, analysing and merging both quantitative and qualitative methods in a single study to better understand a research problem (Cresswell, 2014). In this study, a convergent mixed-method design was used where the quantitative and qualitative data were merged concurrently to gain a deeper understanding of the right mix that supports the students’ learning, relationship between instructor-to-student and student-to-student interactions and collaboration in determining the efficacy of online teaching and learning during COVID-19 pandemic. The quantitative data and results provided a general picture of the research problem while the qualitative data was used to help explain and elaborate on the quantitative results (Cresswell, 2014).

Study context

The aim of the PMT is to develop lesson planning, instructional and communication skills of students as well as to develop their ability to critically reflect on their own teaching, based on self-evaluation and feedback obtained from peers and tutor(s). By so doing, the students should be able to design, implement appropriate lessons for teaching and learning in their respective subject areas. Moreover, they should be actively engaged in evaluating their own teaching in a scaled-down simulated classroom environment.

The PMT is a 45-hour component which is split into 15 hours in semester 1 and delivered by the education tutor while the remaining 30 hours in the second semester and delivered by the subject area tutor. Part 1 focuses on lesson planning and part focuses on peer-micro teaching where students are required to engage in a video-taped simulated classroom setting which within a time frame of 15 minutes. The video-taped lessons are used for critical reflection.

Prior to mapping the SAMR instructional design model and applying the CoI theoretical framework in the re-design of the PMT component for an online format, a decision-matrix (Table 1) was employed to maintain accuracy and relevance.

Table 1: Decision-making matrix

	Questions	Possible challenges & Predicted pedagogical gains
Context	<ul style="list-style-type: none"> • What should be the level of technology integration? • What is the level ICT skills of the students? • Are the students familiar with online learning? 	Possible challenges <ul style="list-style-type: none"> ○ Technology apprehension ○ Learning loss ○ Technical issues with recording of the simulated classroom ○ Social presence while fostering student distance and disconnection

	<ul style="list-style-type: none"> • What are the affordances of technology? • How to sustain the online learning? 	<ul style="list-style-type: none"> ○ Disengagement in online learning <p>Predicted Pedagogical gains</p> <ul style="list-style-type: none"> ○ Engage in collaborative learning ○ Engage in peer-to-peer learning ○ Engage in peer-review ○ Reinforce digital skills ○ Reflective practitioner ○ Acceptance level of online learning ○ Transfer the skills in their own practice, that is, positively influencing their practices
Tools and resources	<ul style="list-style-type: none"> • What are the technological tools that would be most relevant for the PMT? • What are the communication channels that would be most convenient to encourage peer-to-peer interactions and collaboration? • How the identified technological tool/s would be used to articulate the tasks? 	
Tasks	<ul style="list-style-type: none"> • How to leverage the online learning design (online learning activities) of the PMT with the students' online learning profile? 	
Learners (Students)	<ul style="list-style-type: none"> • How to prepare the students to accept online learning and sustain the engagement? • How to support (social/cognitive/teaching presence) the students in the online learning space? • What would be the technical support requirements of the students? 	
The relations between the four	<ul style="list-style-type: none"> • How to relate the context with the tools and resources, the tasks and the learners' profile? 	

The decision-making matrix guided the both the pre- and the course online activities. The student background including their knowledge, technology, and online preparedness survey was deployed. This pertinent information helped in the accurate design of the online learning architecture.

The background survey served to understand the student's prior knowledge of part I of the PMT component, together with their interest, goals, and motivation for the PMT part II through this novel mode of learning. The students ICT competency and their online skills were instrumental in understanding the students' preparedness for the online learning. By so doing, the design of the online learning space encapsulating the instructional resources and activities supported an inclusive, diverse, and equitable principles.

This scientific and systematic method supported the claim made by Caruthers and Friend (2014), that the thirdspace referred to as transformational online space where all members of the class shares authority and the teacher actively and purposefully supports each member's strengths and growth potential.

Similarly, knowing and understanding the architecture of the online learning space including the MS Teams platform and other peripheral technologies was vital. The MS Teams platform with its features was relatively new with affordances for interactions, collaborations, live presentations that triggers critical, and creative thinking. Certainly, it was important for the online tutor to pedagogically exploit these affordances for active critical inquiry engagement as the initial step that challenges in revisiting the thoughts process of the students. A student progresses through levels of awareness once they encounter a moment of surprise (Hadzigeorgiou, 2014; Rutenberg-Rozen, 2020).

Mapping SAMR instructional design model and Community of Inquiry framework

Based on the data gathered from the pre-survey course, diligent design using the SAMR instructional design model was articulated to map the PMT content into an online learning environment ensuring an optimal Online classroom and learning culture. The CoI theoretical framework supported the online pedagogy.

Table 2: Mapping of SAMR instructional design model

SAMR instructional design model	
<p>Segmentation: Technology as direct substitute with no functional support.</p> <p>Augmentation: Technology acts as a direct substitute with functional support</p>	<p><u>Enhancements level</u></p> <p>I. Segmentation: The existing in-class instructional resources were replaced by digital versions with no change in the content. The delivery was also altered for the online learning space. This ease the accessibility of the resources.</p> <p>The live sessions on MS Teams were recorded so that students can revert to the online sessions repeatedly and have the flexibility of control on their learning.</p> <p>II. Augmentation: The digital enhancements that were incorporated were multimedia, hyperlinks to YouTube video channels, peripheral technologies like FlipGrid and Multimeter. A wide spectrum of affordable, intuitive, and user-friendly digital technologies was introduced so that the students could explore to enhance their tasks. However, the content remained unchanged. For example, students could use the FlipGrip to develop their simulated lessons while self-analysis it.</p>
<p>Modification: Technology allows for significant task redesign.</p> <p>Redefinition: Technology allows for the creation of new tasks, previously in conceivable.</p>	<p><u>Transformation level</u></p> <p>III. Modification: This level involved the use of MS Teams, FlipGrid, WhatsApp, and Multimeter, to support the both the live synchronous and asynchronous sessions. The embedded log system feature with MS Teams was useful for automatically generated online attendances, while the chat feature was beneficial for sustaining discussions and collaborations asynchronously and gave the students the opportunity to fully use the chat feature to post their queries, responses, and share their feelings of the online lessons.</p> <p>IV. Redefinition: At the level, the PMT tasks that was previously done in the classroom setting was fundamentally transformed providing opportunities for the students to design, develop, and implement their simulated lesson using digital technologies. The students shared their simulated lessons to the class via MS Teams in an authentic manner.</p>
<p>Implications:</p> <p>I. Online classroom culture A set of rules for online behaviour, communication, and collaborative was prepared with the students so that students most importantly feel connected with the community in an organic manner, and they also understand the boundaries together with the expectations to collectively support meaningful learning (Hattie, 2015; Lemov, 2020).</p> <p>II. Online learning culture As the online tutor, it necessitated me to introduce at least one creative activity in the online session that led to critical and creative thinking, subsequently assisting in the evaluation of the class progression in the online mode of learning (Boettcher & Conrad, 2021; Dabbagh et al., 2019; Savin-Baden, 2007). A wide array of learning activities was designed (Boettcher & Conrad, 2021; Dabbagh et al., 2019) aligning with the learning objectives of the PMT component but is also encapsulated interactivity, collaboration, problem-solving, peer-review to maintain student to maintain student interest, motivation, and engagement. This lead to forge a strong learning culture.</p>	

Likewise, the data guided a progressive implementation of the Community of Inquiry theoretical framework for designing the online course ecosystem as illustrated in the table below.

Table 3: Progressive implementation of Community of Inquiry Theoretical Framework

Community of Inquiry: The three elements	
Social presence	<p>MS Teams online conferencing was integrated in the online delivery as it supports student-student and student-teacher interactions culminating rich discourses (instructional benefits) which not only unlocks students' potential of critical thinking but also promotes open communication and group cohesion. The potential of this online conferencing democratize access to the students and allow the students to express freely and adhering to the norms set by the learning community. The break-out room feature was also powerful in triggering group work.</p> <p>Additionally, the WhatsApp tool was used to reinforce the belongingness to the learning community in a more social manner. These micro levels of innovation help students feel part of their learning community.</p>
Cognitive presence	<p>The conventional tasks were redesigned to adapt to the online learning space. In this transformational process, the tasks were scaffolded aligning with the level of technology integration to naturally connect the students to their novel learning context. The learning tasks were scaffolded as learning online takes more time than face-to-face learning (Nilson et al., 2018), This further created learning opportunities for the students to engage with this novelty in an incremental manner by critically inquiring and reflecting on</p> <p>The breakout room feature was used for guided discussions that was facilitated by the online teacher. The feature allowed shifting roles of the students and the teacher where students were co-constructors of knowledge and collective thinking also emerged.</p> <p>FlipGrid was used both as individual and collaborative student authoring which ignited their metacognition level. The deep involvement with the FlipGrid provided the students with the opportunities to critically self-reflect on their own simulated lessons prior to constructively reviewing their peer's simulated lessons.</p> <p>This approach also helped build a student's sense of safety in a new learning environment, check their learning progress and consolidated learning.</p>
Teaching presence	<p>The three elements of teaching practice (Garrison et al., 2000) that is instructional management, building understanding and direct instruction was carefully considered in designing the online learning setting to support collaborative meaning construction. Building the learning environment was the cornerstone of the emerging and sustaining of knowledge acquisition, interactions, and collaborations (peer-to-peer & student-teacher), culminating in significant and productive learning. In this design, the roles of the students and the teacher were well defined with shared responsibilities as they would be contributing to the success of the design. To promote independent learning, it is crucial to recognize the role of collaboration in learning. Creating a strong community helps students connect and engage with their peers (Conrad & Donaldson, 2004; Lehman & Conceicao, 2014) while providing emotional support when students are challenged (Veletsianos, 2020). Direct instructions were thoroughly planned to ensure smooth transition to the novel learning setting as well as to provide timely feedback to the students. Hence, students' contributions are valued and critically assessed thereby promoting dialogue.</p>

Data analysis

A mixed method was used to collect data allowing for triangulation and complementarity to ensure credibility of the study findings with respect to students' experiences with the online learning approach for the PMT. Triangulation was an ongoing process that involved the use of multiple data sources and checking for findings from different sources that converge and corroborate (Miles & Huberman, 1994). Quantitative data included students' pre-test and post-test scores, online attendance, and overall performance on the digital simulated lesson. Prior to the start of the course, an online questionnaire was administered all participants to investigate their previous experience with online learning, Internet experience, ICT competencies and online skills and their demographic background. These variables were used as control in this study. Qualitative data were obtained from focus group discussion (FGD) with students' and teacher's online observations. The IBM SPSS Statistics version 21.0 was used to treat the quantitative data while the qualitative data was analysed manually.

Results

The table below illustrates the main research constructs explored.

Construct	Source
Perceived Learning	Student Survey from Hiltz (1994)
Instructor-to-Student Interaction	Student Survey from Johnson et al. (2000)
Student-to-Student Interaction	Student Survey (5 items) from Johnson et al. (2000)
Motivation [Adapted from Academic Motivation Scale- College Version & Intrinsic Motivation Inventory (Ryan, 1982)]	Lavender (2005); Vallerand, Pelletier, Blais, Briere, Senecal, & Vallieres (1993); Vos et al. (2010)

The results indicated that students found the new approach to be a positive experience and preferred it to the traditional modes of instruction. The students reflected on tangible and intangible benefits gained during the PMT online sessions.

Students' Demographic Information

A total of 60% of the sample population was female while 40% were male with a rate of 100% participation. 93.75% of the students possessed a master's degree while 6.25% had their bachelor's degree as highest education qualification. The study revealed that none of the students had prior knowledge or experience in online learning.

Table 4: Descriptive statistics of the research construct

	Student's Perceived Learning	Student's Motivation	Instructor-Student Interaction	Student-Student Interaction
N Valid	32	32	32	32
N Missing	0	0	0	0
Std. Error of Mean	.095	.052	.074	.110
Std. Deviation	.535	.296	.420	.622
Variance	.286	.088	.176	.387
Minimum	1	2	2	1
Maximum	3	3	3	3

Table 5: Relationship between Perceived Learning & Student-to-Instructor interaction

		Participant's Perceived Learning	Instructor-Student Interaction
Spearman's rho	Participant's Perceived Learning	Correlation Coefficient	1.000
		Sig. (2-tailed)	.711**
		N	.000
		N	32
Spearman's rho	Instructor-Student Interaction	Correlation Coefficient	.711**
		Sig. (2-tailed)	1.000
		N	.000
		N	32

** . Correlation is significant at the 0.01 level (2-tailed).

The correlation coefficient 0.711 which is between 0.5 to 1.0 reveals that there is a strong positive relationship between students' perceived learning and instructor-to-student interaction. Moreover, given that the p value which is 0.00 is less than 0.01 signifies that there is strong evidence to suggest a relationship between students' perceived learning and instructor-to-student interaction.

Table 6: Relationship between Perceived Learning & Student-to-Student interaction

		Participant's Perceived Learning	Student-Student Interaction
Spearman's rho	Participant's Perceived Learning	Correlation Coefficient	1.000
		Sig. (2-tailed)	.842**
		N	32
	Student-Student Interaction	Correlation Coefficient	.842**
		Sig. (2-tailed)	1.000
		N	32

** . Correlation is significant at the 0.01 level (2-tailed).

The correlation coefficient 0.842 which is between 0.5 to 1.0 reveals that there is a strong positive relationship between students' perceived learning and student-to-student interaction. Moreover, given that the p value which is 0.00 is less than 0.01 signifies that there is strong evidence to suggest a relationship between students' perceived learning and student-to-student interaction

Table 7: Relationship between Student's motivation & Student-to-Student interaction

		Participant's Motivation	Student-Student Interaction
Spearman's rho	Participant's Motivation	Correlation Coefficient	1.000
		Sig. (2-tailed)	-.296
		N	32
	Student-Student Interaction	Correlation Coefficient	-.296
		Sig. (2-tailed)	1.000
		N	32

The correlation coefficient -0.296 which was between -0.1 to -0.29 reveals that there was a weak negative relationship between students' motivation and student-to-student interaction. Moreover, given that the p value which was 0.101 was more than 0.01 signified that there was not enough evidence to suggest a relationship between students' motivation learning and student-to-student interaction.

Table 8: Difference between pre-test and post-test scores

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Score of Participants before <i>Online Classroom Experience</i>	56.31	32	7.896	1.396
	Score of Participants after <i>Online Classroom Intervention</i>	70.44	32	10.029	1.773

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Participant's score before <i>Online Classroom Experience</i> - Participant's score after <i>Online Classroom Intervention</i>	-14.125	6.627	1.172	-16.514	-11.736	-12.057	31	.000

t-test was performed to test the difference between the the pre-test score ($M=56.37, SD=7.896$) and post-test score. Prior to conducting the analysis, the assumptions of normally distributed difference scores were examined. The assumption was satisfied, as the skewness and kurtosis levels were estimated at -0.425 and 0.392 (Posten, 1984). The null hypothesis

of effectiveness of the online classroom was $t(31)=-12.057, p<0.001$. This reveals that the relationship between student's achievement score and the online classroom experience was statistically significant and strongly positive.

Online delivery platform

The MS Teams as institutional platform was used to deliver the online sessions. An online orientation session was held with the students to familiarize them with the MS Teams features and providing them with an enhanced exposure to the online learning environment. From my observations and discussing with students, this provided them with relevant insights on the online learning experiences. It was also highlighted that the confidence level of the students was boosted.

Perceived usefulness of technology

The seamless, user-friendly, reliable nature and with the features of MS Teams facilitated organized group discussions using both the chat and break out room options. These facilitated interactions, open communication, group cohesion and mutual respect. During the real-time interactions, students' shifting roles allowed them to share responsibilities and take control of their learning. Moreover, students were engaged in higher cognitive activities during the simulated oral presentations peer-review process.

Online interaction and collaboration

The interactions and collaborations among students were evident since the first online session. Alongside, a growth was observed during the running of the subsequent online sessions. It was also noted that students were engaged in the learning process, and they were asking lower- to higher-order questions. Though online group activities were present and facilitated by the online tutor, it was interesting to highlight that peer collaboration was emerging organically, and this inquiry-based approach and collaborations led to critical thinking and reflection. The flexibility in the design of the online activities made it possible to intuitively re-design those during the live online sessions for adaptability purposes.

The levels of interactions, engagement, collaborations revealed that a right balance of social, cognitive, and teaching is crucial. However, we should be mindful of the degree of intervention of these three elements: social, cognitive, and teaching presence as these directly proportional to the nature and purpose of the online events.

Based on the observations, and discussions with the students and the online learning progress, it can be deduced that careful planning guided by the appropriate instructional design and learning design framework can enhance the online teaching and learning efficacy while triggering metacognition.

The shifting roles of the students was noted which indicated that they were taking control of their learning by leading conversations, engaging in independent and collaborative tasks. Creativity and critical thinking were apparent in the simulated lesson prepared by the students and their self- and peer-appraisal of those tasks.

Findings from the FDG pertaining to the overall learning experience reported that students were fully satisfied and felt comfortable though this approach was new to them, and they had few apprehensions prior to the start of the course. Besides, those students agreed to continue learning online given that similar course design would be offered. A few of the students already visualized a change in their practice by embracing similar approaches. Few anecdotal evidence of the effectiveness of this approach were:

"I never thought that I would be able to learn effectively online"

"My online confidence and skill have improved"

"It has been a challenging yet enjoyable, and fruitful online learning."

"I never imagined PMT could be done online."

Teaching implications

In terms of teaching implications, it is fundamental to be knowledgeable as this would help in accurate and relevant design of the online learning spaces, together with the engaging resources and activities. This implies advocacy of lifelong learning, adaptability skills, mindset growth, ability to co-construct and collaborative with students in an inclusive environment, and reflective practitioner in learning for sustainable development practices. Being mindful of these practices, teacher education programmes could be transformed in an incremental way.

Conclusion

The aim of this research was to share the gained experience as a result of the pedagogical experiment designed to help postgraduate students to embrace online learning during COVID-19 crisis where educational landscape was unsettled. The other associated benefits were the development of online learning skills considered important for the 21st century. Nevertheless, one of the strongest lessons learnt from this experience was the role of the teacher as designer of the online learning engaging in purposeful critical discourse and reflection to construct meaningful learning experiences for the learners. It is also important to acknowledge COVID-19 has unsettled the education landscape and we should view it as a common problem and confirm mutual understanding with intelligent collective and sustained efforts for the uncertainty, complexity, and fragility of the unknown future of education. Moreover, as practitioners, we should be receptive to change. Even the research findings are promising the results cannot be generalize given the nature of this research. Future

research may focus on gathering a larger data set and may also benefit the institution decision-making for online teaching and learning practices guided by shared visions and collective actions in partnership with practitioners.

Word count: 3973

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