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## Exploring Cross-Cultural Teacher Perspectives on Student Engagement in Virtual Learning Environments During The COVID-19 Pandemic

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# Exploring Cross-Cultural Teacher Perspectives on Student Engagement in Virtual Learning Environments During The COVID-19 Pandemic

## Abstract

The rapid transition to emergency remote teaching during the COVID-19 pandemic posed challenges for teachers, students, and higher education institutions, impacting students' learning and engagement in the learning process. Based on Self-Determination Theory, this paper employs a collective case study research methodology to examine teachers' strategies for supporting students' learning and engagement in virtual learning environments during emergency remote teaching in the pandemic era, with the goal of offering guidelines to assist teachers in fostering student learning and engagement in these virtual settings. The inductive thematic analysis of eight semi-structured interviews with teachers from Spain, Oman, Nigeria and Cambodia revealed some challenges faced by teachers in engaging their students in virtual environments and some teaching and support strategies that teachers adopted to enhance students' engagement in virtual classrooms. The study synthesised a set of strategies for teachers in higher education to support students' engagement and learning in online environments. Teachers' autonomy, structure and involvement support strategies had a behavioural, emotional, cognitive, and agentic engagement on students' learning process. The paper discussed limitations and future research endeavours in online teaching and learning and students' engagement.

## Practitioner Notes

1. Shifting to emergency remote teaching during the COVID-19 pandemic influenced students' learning and well-being, and engagement in the learning process
2. This paper reports an investigation of teachers' strategies to support students' learning, engagement and well-being in virtual learning environments during emergency remote teaching in the pandemic era
3. The aim of this paper is to develop a set of guidelines to help teachers in higher education support students in virtual and distance learning environments.
4. The inductive thematic analysis of semi-structured interviews with teachers from Spain, Oman, Nigeria and Cambodia revealed some challenges faced by teachers in engaging their students in virtual environments.
5. Teachers' autonomy, structure and involvement support strategies had a behavioral, emotional, cognitive and agentic engagement on students' learning process.

## Keywords

Emergency Remote Teaching, Case Study, Higher Education, Learning Engagement, Self-Determination Theory, Qualitative

## Introduction

The COVID-19 pandemic has caused an unprecedented crisis in many areas, such as economic, social, health, education and tourism (Buheji et al., 2020; Cifuentes-Faura, 2021; Mofijur et al., 2021). Educational systems around the world had to adapt quickly to the new situation by adopting Emergency Remote Teaching (ERT). Not all educational institutions were prepared for this sudden shift (Dutta, 2020; Sahu, 2020; Rashid & Yadav, 2020), especially those with fewer technological and human resources. This led to several issues, from teachers who had not previously used information and communication technologies as a means of teaching (Revilla-Cuesta et al., 2021), to students who did not have electronic devices at home and found it impossible to attend and participate in online classes (Faura-Martínez et al., 2021; García-Peñalvo et al., 2021).

This sudden shift to online teaching required teachers to adapt to new instructional tools and online teaching pedagogies (Crawford et. al., 2020) and to manage their teaching time (Dhawan, 2020). In addition, Chang and Fang (2020) reported that teachers unfamiliar with online teaching had a negative impact on implementing remote teaching during the pandemic. Similarly, Rapanta et al., (2020) found that teachers were not able to successfully deliver online instructions because they lacked the necessary pedagogical and content knowledge required for online teaching.

This exceptional situation required some extra effort. In addition to preparing quality teaching materials (Mitchell, 2014), teachers had to adapt their teaching methods to match online delivery (Crawford et. al., 2020). Online teaching also required students to be highly motivated to help them adapt to the new way of studying and learning, and to manage their time efficiently (Posey & Pintz, 2006). Students, as well as teachers, demonstrated insufficient experience with this form of teaching and lacked the necessary resources and adequate devices or media (Al-Naabi et. al., 2022; Al-Naabi & Al-Abri, 2021; Alismaiel et al., 2022a, 2022b; Cifuentes-Faura, 2020; Crawford et. al., 2020). All these issues had a negative impact on students' learning and students' engagement during the pandemic which called for a serious need for research investigating ways to support students' engagement (Cifuentes-Faura et al., 2021; Crawford & Cifuentes-Faura, 2022; Tan et al., 2022; Eri et al., 2021). In addition to the challenges of student engagement identified in the literature, the researchers gathered contextual and anecdotal evidence from teachers within educational institutions, which revealed low levels of student engagement in online classrooms. As a result, teachers have been actively seeking different strategies to enhance student engagement. This serves as an additional motive to carry out this investigation.

Therefore, this study attempted to identify teachers' strategies used to enhance student engagement in virtual environments, contributing to the literature with new evidence at the cross-sectional level. Given the widespread adoption of online teaching and learning during the pandemic, which is expected to continue in the

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post-pandemic pedagogy, the investigation sought to provide guidelines for teachers in higher education to effectively engage and support students in virtual and remote learning contexts. The study was guided by the following research question: How do teachers in higher education across four international contexts perceive student engagement in virtual learning environments during the COVID-19 pandemic?

In addition to advancing knowledge in online pedagogy and teaching strategies, the findings of this study can guide teachers in higher education to overcome challenges associated with students' learning, engagement and motivation in online courses. Also, based on the findings of this research, teachers as well as course designers will modify and restructure their courses to allow for higher levels of student engagement. In addition, higher education institutions can follow the strategies identified in this paper as a basis for teacher training initiatives and professional development provisions.

## **Literature**

The review explores the relationship between motivation, engagement, and student learning in online courses, drawing on Self-Determination Theory (SDT) as a theoretical framework. SDT highlights the importance of fulfilling students' psychological needs for autonomy, competence, and relatedness to foster meaningful engagement and optimal functioning in learning environments. Engagement is viewed as active involvement driven by a sense of autonomy, competence, and relatedness. The review identifies four dimensions of engagement: behavioural, emotional, cognitive, and agentic engagement.

### **Self-Determination Theory and Students Engagement**

Motivation and engagement based on the Self-Determination Theory (SDT) emphasise the fulfilment of psychological needs for autonomy, competence, and relatedness (Ryan & Deci, 2000). Motivation in SDT encompasses intrinsic motivation, which is driven by internal factors and personal interest, and extrinsic motivation, which involves external rewards or pressures (Ryan & Deci, 2000). Engagement, on the other hand, refers to the active and invested involvement in activities, driven by a sense of autonomy, competence, and relatedness (Reeve, 2012). By satisfying these needs and promoting intrinsic motivation, SDT fosters meaningful engagement and optimal functioning in learning environments.

SDT consists of three core components: autonomy, competence, and relatedness (Ryan & Deci, 2017; Deci & Ryan, 2000). Autonomy involves volition and self-direction, competence relates to feeling effective and capable, and relatedness pertains to connections and support in social interactions. These components interact and influence individuals' motivation, well-being, and engagement (Ryan & Deci, 2017). It provides a theoretical framework that can explain the relationship between behavioural, emotional, cognitive, and agentic engagement in learning contexts. SDT posits that individuals have three basic psychological needs: autonomy, competence, and relatedness. When these needs are satisfied, individuals are more likely to experience intrinsic motivation and engage in activities willingly and actively (Ryan & Deci, 2000).

Learning engagement is a contributing factor to students' learning that can help learners develop knowledge and competence while attending online courses. It consists of four key areas: behavioural, emotional, cognitive, and agentic engagement (Buelow et al., 2018; Wang et al.,

2014; Woo & Reeves, 2007). A combination of the four engagement areas is required for learning to take place (Chiu, 2021; Reeve, 2013).

Active participation in course activities, such as assignments and discussions, is a key aspect of behavioural engagement (Buelow et al., 2018). This type of engagement can be linked to Self-Determination Theory (SDT) through the need for autonomy. When students perceive a sense of autonomy and have the freedom to make choices and control their actions within the learning environment, they are more likely to engage behaviourally by actively participating, following instructions, and completing tasks. In the context of online learning, behavioural engagement refers to the extent to which students consistently and actively engage in learning activities, fulfil assignments, attend online sessions, and interact with course materials and resources (Fredricks, Blumenfeld, & Paris, 2004). Examples of behavioural engagement in online classes include regularly logging in, submitting assignments punctually, actively participating in discussion forums, and actively seeking clarification or assistance when needed.

Emotional engagement refers to students' attitudes and impressions regarding their instructors, peers, and the overall course experience (Buelow et al., 2018). This type of engagement can be linked to Self-Determination Theory (SDT) through the need for relatedness. When students perceive a learning environment that is supportive and caring, where they feel connected to their peers and teachers and engage in positive social interactions, they are more likely to experience positive emotions and emotional engagement in their learning. In online learning environments, emotional engagement encompasses the presence of positive emotions such as interest, enjoyment, curiosity, and a sense of belonging, as well as the absence of negative emotions like frustration or boredom (Skinner & Belmont, 1993).

Cognitive engagement encompasses students' assessment of the course's relevance and importance to them (Buelow et al., 2018). This type of engagement can be connected to Self-Determination Theory (SDT) through the need for competence. When students have confidence in their abilities and perceive themselves as capable of meeting the challenges posed by the learning tasks, they are more inclined to invest cognitive effort, engage in deeper processing, and experience a sense of mastery and cognitive engagement.

Agentic engagement refers to students actively taking initiatives that positively contribute to teaching and learning within the course (Chiu, 2021; Reeve, 2013; Reeve & Tseng, 2011). This type of engagement can be connected to Self-Determination Theory (SDT) through the needs for autonomy and competence. When students are provided with opportunities to exercise autonomy, regulate their learning, set goals, and monitor their progress, they can demonstrate agentic engagement by taking ownership of their learning, making decisions, and exhibiting self-determined behaviour.

SDT serves as a theoretical framework for this study, enabling an understanding of how meeting the needs for autonomy, competence, and relatedness can promote behavioural, emotional, cognitive, and agentic engagement in online settings during the pandemic. SDT has guided the development of the data collection instrument, the data analysis, and the interpretation of the findings.

## **Student Engagement in Online Courses**

Improving and sustaining student engagement and increasing opportunities for students to develop educational competencies is a much needed and clear goal for educators (Fitzpatrick et al., 2021). Improving student engagement is related to improving student persistence, achievement and retention (Kuh et al., 2008; Hoi, 2023). Student engagement is the energy and effort students put into their learning community, which can be observable through cognitive or affective behaviours (Bond, 2020).

Apart from its contribution to students' learning and academic success, student engagement is essential for students' satisfaction with online courses and online course completion rates (Buelow et al., 2018; Kuh, 2003; Robinson & Hullinger, 2008). For example, Willging and Johnson (2019) identified that many low-level activities, high difficulty, and demands of activities, lack of interaction, and lack of interest in the courses had a negative influence on students' satisfaction and completion of online courses. In addition to these issues, Dumford and Miller (2018) found that most online courses encouraged quantitative reasoning over collaborative learning, which negatively influenced students' engagement. Robinson and Hullinger (2008) also reported that student-faculty interaction in the course and active and collaborative learning impacted students' completion of online courses. They added the level of academic challenge as another factor contributing to students' satisfaction and completion rates.

Based on the National Survey of Student Engagement (NSSE), five academic areas influenced student engagement: level of academic challenge, a supportive campus environment, enriching educational experiences, student-faculty interaction, and active and collaborative learning (Ewell, 2010). To determine engaging activities on online courses, Dixson (2010) found that interaction between students, and the instructor, and between students and the course content through discussion forums and active learning assignments can develop a social presence that can enhance student engagement.

## **Teachers' Strategies for Enhancing Student Engagement in Online Courses**

Engaging students in online learning presents significant challenges for teachers, as they must employ strategies to stimulate interaction, sustain student interest, and maintain motivation (Muir et al., 2022). Autonomy support, as conceptualized by Assor et al. (2002), involves teachers using strategies to encourage students to achieve personal goals and endorse positive learning behaviors within the course. To foster autonomy support in online courses, teachers should consider students' learning styles and preferences when designing activities, offer choices, and limit additional demands (Alamri et al., 2020; Lee et al., 2015). Providing opportunities for self-regulation, goal setting, and reflection is also crucial (Bidarra & Carvalho, 2020). Strategies such as promoting active learning, encouraging self-assessment, facilitating online discussions, and supporting the development of metacognitive skills further enhance students' autonomy in online settings (Teo, 2021).

In addition to autonomy support, teachers should provide navigation support by offering various learning resources and assisting students in selecting appropriate materials (Alamri et al., 2020; Bedenlier et al., 2020; Lee et al., 2015; Lafuente-Lechuga et al., 2023). Personalized learning opportunities empower students to make decisions aligned with their goals and seek help from

peers and instructors (Alamri et al., 2020; Lee et al., 2015). Autonomy support contributes to behavioral engagement by improving students' concentration, time management, and navigation within the online course (Bedenlier et al., 2020). Moreover, when teachers provide this support, students develop positive attitudes toward the course and enjoy the activities, leading to emotional engagement (Skinner et al., 2008). Additionally, students can engage in negotiation and communication with teachers regarding their learning, progression, and goal achievement, reflecting agentic engagement (Lafuente-Lechuga et al., 2020; Reeve, 2013; Reeve & Tseng, 2011).

Creating a structured course environment is vital for promoting emotional engagement. A clear course structure allows students to understand their roles and expectations (Chiu, 2021; Vansteenkiste et al., 2009). To achieve course structure in online settings, teachers should organize activities and assignments effectively, facilitate collaborative idea expression among students, guide virtual lessons, and provide constructive feedback (Chiu, 2021; Chiu & Mok, 2017; Hartnett, 2015; Vonderwell et al., 2017; Xie et al., 2006).

To enhance relatedness, emotional engagement, and behavioral engagement, teachers must employ strategies that foster positive student-teacher relationships in the online environment, including empathy, affection, warmth, caring, and enjoyment (Skinner et al., 2008). Establishing high levels of relatedness in online courses can be achieved through communication channels such as emails, discussion forums, and online conferences and meetings (Fredricks et al., 2004).

Perets et al. (2020) suggested several strategies to significantly enhance student engagement in virtual classrooms. These strategies include incorporating diverse questioning techniques during synchronous lessons, implementing regular timed assessments, and utilizing self-reflection plugins to facilitate teaching pace adjustments. Additionally, improving students' access to reliable internet connections and ensuring well-structured virtual teaching schedules are vital measures that institutions should take (Perets et al., 2020). Ahshan (2021) proposed a comprehensive framework consisting of activities and strategies to promote active student engagement in remote teaching and learning during the COVID-19 pandemic. The framework integrates synchronous teaching, active learning activities, and an e-learning management system to facilitate interactive learning (Ahshan, 2021). Furthermore, Venton and Pompano (2021) found that emphasizing active learning in online classes resulted in higher levels of student engagement. Collaborative exercises and regular attendance in synchronous class meetings were appreciated by students, demonstrating the utility of active learning strategies in both online and in-person classroom settings (Venton & Pompano, 2021).

The review underscores the significance of motivation and engagement in online learning and provides insights into the strategies employed by teachers and institutions to promote student engagement. Referring to the argument made in this paper, teachers' strategies to enhance student engagement need to be further explored to enhance online teaching and learning practices following the pandemic.

## **Method**

### **Research Design**

The study employed a qualitative explanatory collective case study methodology to conduct an in-depth investigation of the research problem (Creswell, 2018). A qualitative methodology the ability to explore complex phenomena in-depth, capture participants' perspectives and experiences, and generate rich and contextually grounded insights (Creswell, 2013). An explanatory case study approach allows a comprehensive understanding and provide explanations for a specific phenomenon or case by extensively analysing one or a limited number of cases, thereby uncovering underlying causes, relationships, and contextual factors (Yin, 2018). This research design involves a thorough examination of individual cases to generate insights into the interplay of relationships, processes, and mechanisms (Baxter & Jack, 2008). The selection of this methodology was deemed appropriate as it facilitated a comprehensive examination of geographically diverse and multiple cases (Berg, 2001). Additionally, the collective case study design facilitated the description and comparisons of virtual learning environments across the four countries under investigation.

### **Sample**

A purposive sampling technique was followed to recruit the research sample. The research sample included eight university lecturers from different institutions from the four countries. Their teaching experience in higher education ranged from 7 to over 15 years and they all experienced online and remote teaching during the COVID-19 pandemic. The lecturers taught different subjects in three fields: Business Studies, Education, and Languages.

### **Data Collection**

A semi-structured interview approach was employed for data collection. The utilisation of semi-structured interviews was not only consistent with the qualitative case study design but also allowed for a thorough exploration of the research topic, facilitating the collection of comprehensive and detailed data (Guest, Namey, & Mitchell, 2022). The flexible nature of the interviews, along with the ability to probe and adapt the questions, enabled a more profound comprehension of the teachers' perspectives and experiences.

To ensure a systematic and comprehensive data collection process, an interview guide was developed and rigorously reviewed by the research team. Content validation and language review were conducted by a group of teachers, ensuring the accuracy and clarity of the guide. The interview guide comprised three main sections, namely, forms and context of students' engagement, teachers' strategies to support student engagement, and the benefits and challenges associated with supporting student engagement in online settings. Each section consisted of five to ten probing questions, allowing for in-depth exploration of the research topic. Additionally, the interviews aimed to gather general data on students' engagement in online classes during the pandemic.

### **Data Analysis**

The study employed a combined approach of inductive and deductive thematic analysis, following Braun and Clarke's (2006) six-step process, as outlined in Table 1. Data familiarisation was achieved through the transcription of interviews conducted by all authors. Following coding of the data, a thematic search was conducted and discussed among team members. Through a series

of revisions, two themes were defined and named: challenges faced by teachers in engaging students in virtual learning environments, and teaching strategies and support strategies for enhancing students' engagement. Additionally, a deductive thematic analysis was conducted, using pre-existing themes derived from the research question and objectives (teaching strategies and support strategies for better student engagement) and searching for corresponding codes within the data.

To ensure rigor, collaboration, and reflexivity (Creswell & Miller, 2000), the authors provided subsequent rounds of review and revision of the analysis through email correspondence. To ensure trustworthiness and confirmability in the study, measures were taken to address researcher biases and maintain objectivity (Lincoln & Guba, 1985). Peer debriefing, a process of seeking feedback and input from experienced qualitative researchers or colleagues, was employed as a form of external validation (Padgett, 2017). This practice contributed to enhancing the rigor and trustworthiness of the study by incorporating diverse perspectives, identifying potential biases, and providing valuable insights for critical reflection and refinement.

**Table 1.** Thematic analysis procedures

<b>Phases of data analysis</b>	<b>Description of the analysis process</b>
1. Familiarisation with the data	Transcribing the data, reading through the data and taking initial notes to get familiar with the data.
2. Coding the data	Highlighting sections of the data and labelling the text to describe the content.
3. Generating themes	identifying patterns, concepts, or categories within the data that are meaningful and relevant to the research question or objectives.
4. Reviewing themes	Critically examining and refining the identified themes by checking their coherence, consistency, and relevance to the research data
5. Defining and naming themes	Providing clear descriptions and labels for the identified patterns or concepts within data
6. Writing the final report and findings	Writing up the analysis of the data and the findings.

The next section provides an in-depth discussion of the themes. The team used Atlas. Ti software for data analysis.

## Results

The analysis identified two main themes: challenges faced by teachers in engaging students, teaching strategies, and support strategies to enhance students' engagement in virtual classrooms. This section presents the results of the semi-structured interviews with all the participants. Participants are identified as Teacher 1A (Country 1, Teacher A) .... Teacher 4C

(Country 4, Teacher C). Table 2 presents a summary of the identified themes and some related example codes.

**Table 2.** A summary of themes and example codes.

<b>Themes</b>	<b>Example codes</b>
Challenges faced by teachers in engaging students	inability to adapt to online technologies. inability to adapt/modify the curriculum for online delivery students' negative attitudes towards online learning students' lack of participation in virtual classes many students in virtual classrooms students' inability to build a community of learning in virtual classes the unpreparedness of institutions and teachers to use/manage online learning platforms. Internet connectivity issues
Teaching strategies to enhance students' engagement in virtual classrooms	adopting collaborative and social learning methodologies assigning group assignments using breakout rooms and online polling platforms minimizing students' workload in the course adding weekly quizzes replacing final exams with projects using observation checklists to monitor performance and provide feedback
Support strategies to enhance students' engagement in virtual classrooms	Teacher support strategies: individual virtual meetings with some students using informal communication platforms for out-of-class communication Institution support strategies: providing technical support for teachers and students providing training to students on using online platforms sharing some technical tips for teachers and students on institutions' websites providing poor students with laptops and electronic gadgets for learning

### **Challenges Faced by Teachers in Engaging Their Students**

The participants articulated a set of challenges which were classified into different groups of challenges. First, all teachers reported adjustment challenges that caused students, teachers and higher education institutions some inconveniences in adapting to online teaching and learning in the ERT during the pandemic. For example, Teacher 2A stated that teachers were not able to

adapt their teaching curriculum for online delivery. In addition, Teacher 3B stated that many teachers were not able to adapt to online teaching technologies which had a negative impact on teaching and learning. With respect to students, Teacher 2B stated, “students faced many technical issues and they were not able to join online classes because they were not accustomed to online teaching and learning platforms.” Likewise, Teacher 3A said, “since students were not prepared for this shift, most students formed a negative attitude towards online teaching and learning”. Apart from teachers and students, institutions also faced a challenge in the shift to online teaching. Teacher 1B mentioned that their institution tried out various teaching platforms at the beginning of the pandemic. Also, 3B reported that their institution faced difficulty in changing the traditional assessment to fit the online instruction at the beginning. However, this challenge was addressed by providing teachers with training as mentioned by Teacher 1A, Teacher 2A, Teacher 2B and Teacher 3B. Teacher 2A reported that their institution amended the marking rubrics of some assessments and replaced some traditional quizzes with assignments, projects and presentations.

In addition to adapting issues, teachers reported many technical issues that students and teachers faced in online classes. For example, Teacher 1A stated that students faced logging issues that hindered them from attending classes. Additionally, Teacher 1B said, “students faced many technical issues and internet connectivity issues and they were not able to attend all classes and do all their assigned work”.

Students’ disengagement and lack of participation were prevailing challenges that were identified by all teachers. For instance, Teacher 2B mentioned that students did not participate in the virtual discussion although they were present in the class. Following the same line of thought, Teacher 3A reported that interaction was very scarce in online classes especially when the class had a large number of students. Teacher 3B associated disengagement and lack of interaction with internet connectivity issues and students’ unpreparedness for online learning. All the participants agreed that students’ participation and engagement in the virtual classroom had improved during the course of the ERT.

Despite the technical issues that students faced during the pandemic which contributed to low student engagement, teachers mentioned that they gained good experiences and their accumulated experience in online teaching and learning during the pandemic contributed positively to students’ engagement. Teacher 2A said, “At the beginning, I wasn’t able to use all the features provided in Moodle, but after the second semester of teaching online, I learned how to use most of the features. This helped me to increase students’ collaboration.” Also, the professional development that institutions offered during the pandemic helped teachers on enhancing students’ engagement. Teachers also reported that the technical support provided during the pandemic for both teachers and students influenced students’ engagement. Teacher 2B said, “I could see the impact of the institutional training provided to students since many students were able to use the learning platforms easily and they didn’t need a lot of guidance.” Students also gained experience throughout the period and this helped in getting them more engaged in the virtual classrooms. Interestingly, teachers’ experiences in the four countries were almost identical with some minor differences in tools and platforms used in the online delivery of the courses. Teachers used some methods to measure students’ engagement in the class. The most common way through course assessments such as quizzes, presentations and projects.

Also, some teachers reported using class observation checklists to keep track and enhance students' engagement in virtual classrooms.

Finally, the participants reported some issues related to students' wellbeing. Since students could not freely interact and convey their concerns to their teachers, they had experienced some psychological disconnections to their studies, peers and teachers. Teacher 3B reported that students felt stressed because they were not used to online learning and they were not accustomed to online teaching and learning platforms. Moreover, Teacher 1A stated that students felt worried about their performance and grades in the courses because they did not experience online testing before COVID-19. According to Teacher 2A, students not being able to make connections with their peers in the class affected their well-being. Apart from students, teachers themselves were stressed to prepare the teaching materials and to learn new teaching platforms and assessment platforms for their teaching. This negatively impacted their well-being during COVID-19.

### **Teachers' Strategies for Enhancing Students' Engagement**

With regards to strategies used by teachers to enhance students' engagement, teachers reported using a set of strategies that can be grouped into two main categories: Teaching strategies and Support Strategies. The results indicated that teachers' strategies in the four countries were different from the strategies that teachers use in face-to-face classes before the pandemic (see Table 3).

**Table 3.**  
*Teaching Strategies Before and During the Pandemic*

<b>Before the Pandemic</b>	<b>During the Pandemic</b>	<b>Differences</b>
Using a variety of teaching activities.	Using collaborative learning approach with the use of synchronous chatting feature and breakout rooms.	Less interaction in virtual classrooms
Using project-based learning	Asking students to conduct group presentations in virtual classes.	Less ability to engage all students in virtual classrooms
Asking students to conduct class presentations	Minimising pressure on students.	Students felt uncomfortable to participate in virtual classrooms
Administering quizzes after each session	Providing written feedback	Teachers' unable to vary their teaching strategies for virtual environments
Involving students in group discussion and group presentations	Administering weekly online quizzes	Teachers' unable to clearly monitor students' progression in the course
Making learning more personalised by providing personalised support	Calling students by names in the virtual sessions	
	Encouraging students to be on camera during virtual settings	

## Teaching Strategies

The participants reported using different teaching strategies to support students' engagement in the courses and to maximize students learning. For instance, teachers use collaborative learning and social learning approaches. Teacher 2A said that he used group work and assign different tasks to students using breakout rooms in virtual classes. Likewise, Teacher 1B used the breakout rooms to help students discuss different topics and share ideas with the class. Moreover, Teacher 3A assigned group assignments for students to complete in small groups. Teacher 1B asked students to conduct group presentations on different topics and the teacher allowed the students to discuss and plan their presentations in groups. Similarly, Teacher 3B asked students to prepare videos and share them in Google Classroom. Minimizing students' workload and pressure was another strategy followed in virtual classes. Teacher 3A said, "reducing pressure on students by removing some content from the syllabus helped students become more engaged and focused on their studies."

The participants used short weekly quizzes to ensure students' understanding of the content being delivered. Teachers provided constructive written feedback on students' performance in the weekly quizzes and based on students' results, the teacher adapted their teaching. Teacher 2B said, "the weekly pre-class quizzes ensured students' understanding of the course content and their engagement in the course". Teacher 3B added, "quizzes encouraged students to be well-prepared for their virtual classes." With the inclusion of weekly quizzes, teachers reported amending courses summative assessment. Teacher 1A mentioned reducing questions in some major assessment tasks. Also, Teacher 2B said that in some courses they replaced final exams with projects. Weekly quizzes and projects allowed students to be more engaged with their peers, with the content and with the teachers. Teachers had to closely monitor students during their project work and provide feedback.

To maximize students' participation in the virtual classes, the participants used some strategies. All participants stated that they called students by name to answer questions in the live sessions. Teacher 1B mentioned that calling students by their names enhanced classroom management and ensured students' attention class. Using the same strategy, Teacher 2A said that this strategy was useful to better understand students' thinking levels and performance in the class. Two of the participants- Teacher 1A and Teacher 3B developed an observation checklist in which they recorded the frequency and accuracy of their student's participation in the class. They said that the strategy helped them focus on students and modify their teaching based on their students' needs. Also, they mentioned that the strategy was useful in providing feedback to students.

## Support Strategies

The participants described two support strategies that were used to support and engage students in virtual learning during the pandemic: teacher support strategies and institutional support strategies. Teacher support strategies were the strategies used by the teachers to support their students in learning, engagement, and well-being. For example, teachers used individual virtual meetings to discuss students' issues and concerns. Teachers had various meetings to answer students' queries about courses, give extra support to weak students, and provide technical support. Teacher 3A used Telegram –a social networking application- to keep in touch with the students after class. Teacher 1A schedules individual meetings with the students before and after

the class using Google Meet. Teacher 1B asked students that required some support to stay in the virtual class to address their issues and the teacher joined the virtual class early to welcome students and solve their issues. Teacher 3B used an observation checklist to record students' issues and to address them by e-mail.

Some institutional support was provided to students. Teacher 1A and Teacher 2B stated that their institutions provided some virtual technical training for both teachers and students in using the online learning platforms. Teacher 1A mentioned that students were trained at different intervals of the academic year, with some instructions and tips provided on the institutions' webpage. All participants reported that their institutions provided virtual technical support platforms for their students. In addition, Teacher 2A mentioned that some students who came from poor families were provided with laptops. Likewise, Teacher 1B and Teacher 3A reported that their institutions had similar plans to support poor students and provide them with smart gadgets for their learning.

## **Discussion**

Previous research has established that student engagement, encompassing behavioural, emotional, cognitive, and agentic engagement, is a crucial factor in developing knowledge and competence (Buelow et al., 2018; Wang et al., 2014; Woo & Reeves, 2007). In the current study, lecturers, students, and higher education institutions in the four countries faced various challenges in online teaching and learning during the pandemic. Institutions encountered difficulties in adapting to digital platforms, while teachers and students struggled with the adjustment to online teaching and learning due to their limited experience with educational technology. These challenges had a negative impact on students' behavioural, emotional, cognitive, and agentic engagement, as they felt disconnected from teachers, peers, and the physical learning environment. Consequently, students experienced a loss of learning opportunities, leading to adverse effects on their academic performance and the quality of online teaching (Buelow et al., 2018).

Despite these challenges, the findings demonstrate that teachers employed strategies that positively influenced the four areas of student engagement (behavioural, emotional, cognitive, and agentic) while addressing the three psychological needs (autonomy, competence, and relatedness) proposed by SDT. Teachers implemented various teaching methods, such as live conferences, virtual group discussions, breakout rooms, project-based assessments, live presentations, and video-recorded presentations. These approaches fostered active student participation and provided autonomy support, contributing to increased behavioural engagement (Buelow et al., 2018; Wang et al., 2014). Teachers' prompt response to student queries through informal communication platforms also enhanced behavioural engagement.

Moreover, teachers redefined assessment rubrics and incorporated project-based assessments and presentations to support students' cognitive engagement. Higher education institutions adopted diverse online learning platforms and social networking websites for teaching and learning purposes. They adjusted their assessment methods and criteria, reducing students' workload while facilitating the attainment of course learning objectives. Teachers' virtual presence, clear language, and explicit instructions in live conferences, virtual group discussions, breakout rooms, project-based assessments, and live presentations contributed to students'

emotional engagement. Overall, these strategies addressed the three psychological needs outlined by SDT.

To alleviate the emotional and psychological burden on students, higher education institutions provided training support for adapting to online learning. They also modified exams into assignments, projects, and presentations, reducing students' stress and fostering emotional, behavioural, and cognitive engagement. Teachers allocated additional time for students to express their concerns, ask questions, and seek help both during and outside regular class time. They offered extra support to low-performing students through synchronous and asynchronous means, including email and discussion forums. Teachers encouraged students to contact them through social networking sites and email for follow-up questions. Personalized approaches, such as calling students by name during online conferences and using observation checklists to assess student needs, allowed teachers to adapt their teaching based on individual observations.

## Conclusion

Based on SDT and the four levels of learning engagement, this study aimed to explore strategies used by higher education teachers to engage students in online learning during the COVID-19 pandemic. Challenges were observed among teachers, students, and institutions during the transition to online teaching and learning, primarily due to limited technological adaptability. These challenges adversely affected students' engagement in the online learning process. To address these issues, teachers and institutions implemented various strategies, including adjusting means of teaching (autonomy support), modifying teaching methods, revising assessment rubrics (competence support), and creating a caring learning environment (relatedness support). These supportive strategies successfully fostered behavioural, emotional, cognitive, and agentic engagement in online learning.

Based on the findings of this study, teachers can follow some practical measures to enhance students' engagement in online learning. First, teachers should aim for a more collaborative participation, where students participate and intervene in the explanations online. This can be achieved using chat, breakout rooms, discussion boards and discussion forums, in addition to calling students by their names during the virtual sessions. For a higher cognitive engagement, teachers can use weekly quizzes, assignments, projects and presentations in place of traditional ways of assessment. Teachers should also provide online tutoring so that they can use the learning platform features. Teachers need to provide support and feedback to students and provide personalised attention and support to students.

Although the dataset represented four different countries, the study is limited to using only one data collection method, a semi-structured interview. Triangulating data and collecting some quantitative data from a larger sample might have provided richness and wider perspective to this study. Finally, the study is limited to some subjectivity level that is attributed to thematic analysis although some meeting and collaborative measures were used to ensure rigor and reflexivity.

Future research might investigate the issues that teachers faced when implementing the support strategies mentioned in this study. Also, some future research work might focus on how students have viewed the support strategies provided by their teachers in the virtual classroom during the pandemic, and which support was more valued and beneficial for their studies.

## **Conflict of Interest**

The author(s) disclose that they have no actual or perceived conflicts of interest. The authors disclose that they have not received any funding for this manuscript beyond resourcing for academic time at their respective university. The authors disclose no use of artificial intelligence during the development, writing, or revision of this study.

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