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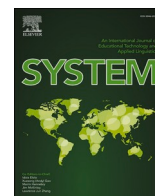
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The interaction patterns of pandemic-initiated online teaching: How teachers adapted

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ABSTRACT

This study investigated how teachers adjusted their teaching practices for online teaching during the COVID-19 pandemic in Vietnam. In the study, we collected data from ten teachers within the Department of English at a university in Vietnam through semi-structured interviews via Zoom. During the interviews, the participants shared how they organised their teaching activities and addressed challenges in engaging students. To analyse the data, we focused on the variety of interaction patterns (teacher-student, student-student and student-content) in online teaching. The results showed that most of the teachers deployed activities for two main types of interaction: teacher-student, and student-content, but not for student-student interaction. Teachers also reported that they received limited online teacher training and had to learn by themselves how to engage students remotely. While the university tried to support teachers, no consistent online teaching guidelines were provided. The study suggests that higher education institutions should offer training opportunities and provide teachers with clear guidelines for online teaching.

1. Introduction

As a result of the COVID-19 pandemic, in many places around the world, teachers were forced to teach online without any preparation. The pandemic led to a sudden change in modality without warning or advice as to how teaching should be conducted in an online format. Face-to-face classroom teaching ceased, and remote teaching and learning commenced. However, there was evidence that before the pandemic, many teachers did not know how to incorporate online technology (Godwin-Jones, 2015). This had not changed until the pandemic, according to evidence from studies across different settings. For example, teachers in Turkey, Iran, Poland and Portugal were found to have difficulties in designing learning activities and giving students feedback when they had to teach online (Aşık et al., 2020). They had limited technological training (Canals & Al-Rawashdeh, 2019; Taghizadeh & Hasani Yourdshahi, 2020), and little experience in online teaching (Jeong, 2017; Moser et al., 2021; Taghizadeh & Amirkhani, 2022). Consequently,

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spontaneous interaction between students and teachers decreased significantly in the online environment compared with the face-to-face classroom context (Mehall, 2020).

In Vietnam, teachers who had to transition to online teaching faced significant challenges (Quy Hien, 2020). Before the pandemic, many Vietnamese teachers were found to lack adequate knowledge and experience in applying technology to the design of courses in order to create collaborative learning, construct knowledge and facilitate interaction in the online classroom (Diep et al., 2019). In addition, they employed lecturing as a main technique in classroom teaching due to the strong influence of Confucianism (Trinh & Mai, 2019). In this respect, Vietnamese students were reported to be passive. They only listened to their teachers tentatively, took notes and memorised what they had recorded in the classroom (Bui, 2019). Technology proved to be another challenge with the sudden transition to online teaching, as only a few universities had invested in facilities for online teaching and learning. Moreover, teachers reported receiving limited technological and pedagogical support from their own institutions (Hanh, 2020). Investigating how teachers responded to the unexpected switch to online teaching, therefore, provided insight and understanding into how they organised their activities under unprecedented conditions. The study investigated how Vietnamese teachers at one university conducted their online teaching during the pandemic, and, in particular, how they organised interactions to enhance student engagement and address the challenges of lack of student engagement, technological limitations, and lack of pedagogical support.

2. Literature review

Research on online teaching during the pandemic shows that most teachers used passive delivery methods, mainly synchronous video conferencing (Atmojo & Nugroho, 2020; Johnson et al., 2020; Means & Neisler, 2020). Some teachers employed recorded videos (Johnson et al., 2020), quizzes or learning platforms (Atmojo & Nugroho, 2020) and collaborative projects (Morgan, 2020). However, these studies did not indicate how effective the activities were for online learning and teaching, nor did they describe how these activities were organised to maximize the interactions among students, teachers, and materials. The following section reviews the interaction patterns among these parties and challenges teachers faced while organising interaction in teaching online during the pandemic.

2.1. Types of interactions in distance education

Jung et al. (2002) classified online interaction in a different way: academic, collaborative, and social interaction based on learning, satisfaction, and engagement. However, it is not always easy to distinguish the difference between academic and social interactions among teachers and students. The authors defined academic interaction as interaction between students and content or between students and teachers (Jung et al., 2002). Collaborative interaction refers to interaction among learners to solve a problem in groups. Social interaction takes place when instructors encourage or promote social integration. However, Moore (1989) divided online interaction in distance education into three different types: student-content, student-teacher, and student-student.

Student-content interaction is “the process of intellectually interacting with the content that results in changes in the student’s understanding, the student’s perspective, or the cognitive structures of the student’s mind” (Moore, 1989, p. 2). In other words, students interact with subject matters through materials such as videos, lectures, textbooks or notes to create meaning.

Student-teacher interaction is the interaction between the student and the teacher who plans the curriculum, prepares the lesson, presents the knowledge, organizes discussions, and motivates students (Anderson, 2003; Anderson & Garrison, 1998; Moore, 1989). In distance teaching, the student and teacher interaction could be conducted synchronously through online conferencing tools or asynchronously through a learning management platform such as Moodle, emails, or discussion boards.

Student-student interaction is the interaction between one student and others within a group, with or without the presence of the teacher (Moore, 1989). Student-student interaction could happen synchronously or asynchronously through online digital tools.

The current study adopts Moore’s definition to examine the student-student interactions in online teaching because it is not easy to distinguish collaborative, academic and social in Jung et al.’s definition. For example, student-student interactions or teacher-student interactions could be both academic and social at the same time. This study focused on these three types of interaction—student-student, student-content, and student-teacher—to analyse how teachers organised their online teaching during the pandemic.

2.2. Roles of interactions in distance education

Interactions have been documented to be essential in distance education. There is evidence for the correlation between each type of interaction (student-teacher, student-student, and student-content) and learning outcomes (Abrami et al., 2011; Bernard et al., 2009). These interactions have also been found to strengthen students’ cognitive development (Bernard et al., 2009). Students appreciated the benefits of online interactions for their learning (Gosmire et al., 2009; Madland & Richards, 2016). However, Anderson and Garrison (1998) pointed out that different types of interaction are not equally important. For example, Kyei-Blankson et al. (2019) found that students perceived teacher-student and student-content interactions to have greater influence than student-student interaction.

2.2.1. Student-content interaction

The purpose of student-content interaction is to seek agreement or disagreement, understand the materials and relate to what one already knows or does not know (Tuross et al., 1994). Anderson and Garrison (1998) highlighted this meaningful interaction type as students’ active engagement with materials that helped them learn. For example, students reported that interacting with videos in online courses enables them to understand learning procedures and content (Guohua Pan et al., 2012). However, the study did not

report how the interaction was achieved. Moreover, while it was found that students appreciated high quality videos, they only watched them passively but did not actively perform other tasks or discuss with other peers (Martín-Monje et al., 2018).

Despite the positive impact of student interaction with course materials on their learning outcomes, there was little research on how students interacted with materials, what kinds of materials students interacted with, and how teachers facilitated the interaction (Fatma & Mustafa, 2016; Zimmerman, 2012). In a USA study, for example, university students were documented to access course materials depending on what they perceived would influence their performance in assignments and assessments (Murray et al., 2012). However, these studies did not indicate whether this interaction happened voluntarily or was required. Therefore, teachers should not assume that students would make use of materials effectively without any facilitation (Xiao, 2017).

2.2.2. Student-teacher interaction

Teachers' interaction with students aims to facilitate content and technology use, manage student records, advise on problems, and assess their learning (Wilson & Stacey, 2004). Anderson and Garrison (1998) emphasised the importance of student-teacher interaction, and stressed the significance of teacher support regardless of the mode of delivery (face-to-face or online). Teachers could interact with students to support them emotionally and academically through online meetings or learning management platforms. Student-teacher interaction was reported to contribute positively to the students' satisfaction and learning (Sher, 2009). These studies, however, did not describe how teachers organised the interactions. While it was supposed that student performance was associated with teacher actions and feedback, student satisfaction levels were reported to be tied to interpersonal communications (Dennen et al., 2007). What remains unclear is kinds of teacher actions are needed to foster student satisfaction and improve student outcomes.

2.2.3. Student-student interaction

Student-student interaction supports reflection and deliberation in an asynchronous discussion in which students can construct meaning with their peers (Anderson, 2003), give and receive peer feedback and, together, establish a collaborative learning environment (Mehall, 2020). In terms of peer-to-peer relationships, online discussions provide students with opportunities to connect with peers socially and academically (Cho & Tobias, 2016) and to support each other (Gosmire et al., 2009). With regard to content, Chieu and Herbst (2016) found that discussions among the students would trigger more engagement and reflection, which contributed significantly to deep learning; therefore, students greatly appreciated the peer-peer interaction for their online course (Uusi-autti et al., 2017).

However, as Martyn (2005) and Pawan et al. (2003) pointed out, discussion among students did not happen automatically, but needed to be nurtured by the teacher's structuring of the discussion, grading students' effort, requiring students to participate, conducting hand-in assignments, or posting questions. During peer discussion, students were found to focus only on their experiences relating to the situation rather than on critical points of view or counter arguments (Pawan et al., 2003). It was therefore suggested that teachers should encourage deep learning that focuses on meaningful exchanges for student-student discussions in the online courses (Garrison & Cleveland-Innes, 2005). However, an area that remains under-researched is how teachers can best facilitate student discussion that fosters critical reflections and create quality student-student interaction during online teaching.

2.3. Challenges in organising interaction in online teaching

Many studies have investigated the obstacles teachers faced in organising interactions, for example their low technological literacy (Gillett-Swan, 2017; Harsch et al., 2021; Taghizadeh & Ejtehadi, 2021; Taghizadeh & Hasani Yourdshahi, 2020). Teachers' digital literacy was found to be one of the key factors in organising interaction online (König et al., 2020; Rasheed et al., 2020), alongside teacher confidence and their readiness to teach online, which contributed to their success in organising online-teaching activities (Downing & Dyment, 2013; Gao & Zhang, 2020).

Another major challenge for teachers' organisation of interaction was their insufficient pedagogical knowledge about online teaching (Downing & Dyment, 2013; Gao & Zhang, 2020). The reason was that teachers already had to take various pedagogical, social, managerial and technical responsibilities while teaching face-to-face (Kebritchi et al., 2017). They also had to deal with different types of interactions in online teaching (Taghizadeh & Amirkhani, 2022) because of the lack of visual cues and other communication barriers (Kebritchi et al., 2017). An already heavy workload may contribute to teachers' reluctance to learn new skills (Zamani et al., 2016) which can then impact their online teaching.

There were also many other difficulties that online teachers faced while trying to have more interaction with students, for example time management (Comas-Quinn, 2011; Huang, 2019; Zheng et al., 2016), lack of resources, e.g., digital textbooks and materials (Zheng et al., 2016), and inadequate facilities like computers, phones, or internet access (Subekti, 2021; Taghizadeh & Ejtehadi, 2021). A lack of institutional policies supporting online learning was also found to discourage teachers from engaging in online forums (Comas-Quinn, 2011; Zheng et al., 2016).

Most of the above studies, however, were conducted before the COVID-19 pandemic, and their participants usually had prior experiences in teaching online courses or received pedagogical and technical support from the schools where they taught. During the pandemic, studies on online teaching (Atmojo & Nugroho, 2020; Johnson et al., 2020; Means & Neisler, 2020) have mainly focused on reporting activities—e.g., online synchronous or recorded videos that teachers employed and their effects—but not how teachers organized interactions between themselves, their students and class materials. To fill this gap, the current study examined how teachers with limited knowledge and experiences of online teaching conducted their teaching practices virtually. The interaction patterns (teacher-student, student-content, and student-student) proposed by Moore (1989) are employed as a theoretical framework to analyse how teachers organized their online teaching during the pandemic. The study aims to answer the following research

questions:

1. How do Vietnamese TESOL teachers organise interactions in their online teaching during the pandemic?
2. What challenges do Vietnamese TESOL teachers face in organising these types of interactions?

3. Methodology

3.1. Design

The study employed a qualitative research design to gain in-depth, detailed understanding (Creswell, 2014; Dörnyei, 2007) of pandemic-initiated online teaching, with the reasoning that during the pandemic, the sudden shift to an online format might lead teachers to employ different asynchronous and synchronous activities for teaching.

3.2. Participants

Ten English teachers in the English Department at a Vietnamese university participated in the study, all of whom were compelled at short notice to teach online with limited technological and pedagogical support. Eight of them held a M.A. Degree in Applied Linguistics and two of them had a Ph.D. in Education. These participants ($n = 10$) had an average of 15 years of teaching experience (see Table 1). However, none of them had any prior online teaching experiences before the pandemic.

In terms of technological knowledge, three of them had taken courses related to information and communication technology previously. One of them is an ICT teacher, training student teachers to employ technology for their future careers, but had not delivered full online courses before. Four teachers (D, E, F, J) reported that they had used technology before the pandemic: they had either used learning platforms such as Edmodo or Google Drive to send students materials to read, or asked them to do a quiz before teaching in class. Three of these four teachers had also sent students videos to watch before class and two teachers of them had asked students to discuss in groups or pairs outside the classroom but had not suggested any platform for the discussion. While the teachers had not engaged in online teaching before the first COVID-19 outbreak, their uses of educational technologies like Edmodo learning management system and online videos suggested that they had some technological knowledge and employed few technological tools commonly used for online learning.

All of these teachers were asked to teach online for 8 weeks from late February to April 2020 during the first COVID-19 outbreak in Vietnam. They were instructed to use Zoom (business version) by their university. All the teachers taught language skills such as speaking, listening, reading and writing. Three of the teachers taught pronunciation, teaching methodology, and research methodology, and one taught ICT for pre-service teachers. All the teachers reported that they employed live lectures to deliver the lessons. Each lesson lasted 100 min with about 30–40 students.

3.3. Data collection procedures

For data collection procedures, one of the researchers first emailed all the teachers in the department to provide an information sheet about the study and seek their voluntary participation. Eleven teachers agreed to participate in the project. Interviews were scheduled for all the voluntary participants, however, only ten attended the appointment. A semi-structured interview technique was adopted, as it allows for in-depth exploration into how the teachers organise interaction and the challenges they encountered. This qualitative data collection method was found to be helpful in investigating participants' perspectives, experiences and attitudes in

Table 1
Teachers' professional experience.

Teachers	Educational Background	Teaching experience	Online learning and teaching experiences before the pandemic	Individual teaching techniques
Teacher A	M.A.	8 years	Not yet	Live lesson, record the live lesson for students to watch later
Teacher B	Ph.D.	17 years	Majored in ICT in teaching English. Participated in online courses in Australia	Live lesson, record the live lesson for students to watch later
Teacher C	M.A.	10 years	Took some courses in ICT	Live lesson, used some free videos on YouTube for students to watch
Teacher D	M.A.	8 years	Participated in online courses	Live lesson, asked students to make their own videos.
Teacher E	M.A.	8 years	Not yet	Live lesson, audio-recording her voice and let students listen before live lesson
Teacher F	M.A.	13 years	Not yet	Live lesson, used some videos from YouTube
Teacher G	M.A.	20 years	Not yet	Live lesson
Teacher H	M.A.	25 years	Not yet	Live lesson
Teacher I	Ph.D.	32 years	Not yet	Live lesson
Teacher J	M.A.	12 years	Participated in online courses, taught ICT courses	Live lesson, used videos from public sources

developing or changing practices (Harvey-Jordan & Long, 2001).

All interviews were conducted on Zoom and audio-recorded. Each of the interviews lasted approximately 35–45 min. The researchers then transcribed the interview recordings verbatim. All the questions were aimed at investigating how these teachers organised the interactions for their online teaching during the pandemic, and identifying what difficulties they had while organising these interactions.

3.4. Data analysis

A thematic analysis method (Charmaz, 2014) was adopted for data analysis to explore how teachers organised interactions during their online teaching. The interview transcripts were coded through an iterative process, starting with open nodes which were meaningful. The researcher paid attention to the three types of interactions: student-content, student-student, and student-teacher, and the teachers' difficulties in organising these types of interactions. The emerging themes helped to answer the two research questions on how teachers organised activities, and their challenges in organising interactions during their online teaching. Moore's (1989) framework with three types of interactions (student-student, student-content and student-teacher) was used as a guideline for analyzing the data and categorising the activities reported by teachers when teaching online.

4. Results

Regarding the first research question about how the teachers organised their interactions, the findings showed that all the teachers ($n = 10$) facilitated student-content interaction before interacting synchronously with students, however, less than half of them ($n = 4$) organised student-student interaction in the form of an online forum before or after the synchronous meetings. These results are elaborated on in Section 4.1. Section 4.2 presents the answer to the second research question, on the challenges teachers faced when organising interactions while teaching online, in terms of lack of online experience and training, school policies, and technical problems.

4.1. How teachers organized interactions during online teaching

4.1.1. Teachers organising student-content interaction

The results indicated that all of the teachers ($n = 10$) used free digital tools such as Edmodo, Facebook, or Zalo to contact students, to send them learning resources such as a soft copy of the course book or videos, and to direct students to read, watch or do a relevant assignment. Some teachers did not use any learning management system or platforms for this, as one teacher reflected: 'I sent them through emails [...] all students, 50 or 60 students' (Teacher-I).

Additional assignments that other teachers created for their students to interact with the materials varied. Some teachers ($n = 4$) created quizzes to check whether students had interacted with the materials and understood them. Sometimes, they asked students to prepare a mini presentation to be delivered during the synchronous class: 'I still ask them to give me some presentation online. Yeah, so yeah, they may, okay, find some information, read something and enjoy something and they work together online, and then later they give me a presentation.' (Teacher F).

These activities were aimed at having students interact with materials before the online synchronous class. The teachers could check whether students had done their homework, but did not mark them due to lack of time. Only one teacher used an automatic grading function from the learning platform to mark students' works, which could save time grading multiple choice questions, reporting: 'I use Google Forms for them to do the quiz' (Teacher B). Three teachers reported that they checked their student homework before the pandemic and kept doing the same thing while teaching online during the outbreak.

During the synchronous meetings, six out of ten teachers called on students to check if they had interacted with materials. As reported by the teachers, most of the students tried to complete the assigned work before attending the online synchronous meetings with their teachers. One teacher reflected: 'It seems that most of them did it [read the materials]' (Teacher G).

For online teaching during the pandemic, recordings of the synchronous sessions are also considered learning materials. Three teachers reflected that they allowed students to view synchronous Zoom classes in case they had technical problems. However, these teachers did not raise any questions or set up any tasks to engage them further with this type of material. A teacher recalled that students may want to view the recording for several reasons:

After the class, I cut and edit the video. And I sent ... I also sent a video after the meeting to the students if they wanted to view the lesson again. And for those who were in the rural area and did not get easy access to the internet, they could also have access to the lecture later on. They could watch the lecture again if they wanted. (Teacher E)

The findings showed that more than half of the teachers (6 out of 10) simply asked students to interact with the materials but did not provide further explanation of the content or check their understanding. Students were mainly asked to read the materials but not to share their opinions or discuss with other students. While four teachers used quizzes to check whether students had done their homework, only one marked students' homework to check students' understanding of materials. Most of the teachers did not ensure students really understood the materials, which suggested that while some teachers organised activities for student-content interaction before class, little was known regarding the quality of such interaction.

4.1.2. Teachers organising student-teacher interaction

During the pandemic, the teachers reported organising both asynchronous and synchronous interactions with students. Asynchronous interactions happened when teachers sent announcements and assignments to students, or sometimes answered their questions asked on social media sites such as Facebook, Zalo or a learning platform like Edmodo. One teacher (Teacher F) reported using Edmodo, Google Drive and sometimes emails to send materials out for each class. Facebook was a commonly used tool, as most of the teachers ($n = 8$) used social media to communicate with the students. However, the communication did not involve critical questions that students could discuss asynchronously.

Regarding synchronous interactions, all the teachers interacted directly with students in Zoom classes and screen shared their PowerPoint slides. All the teachers employed a one-way transactional teaching approach wherein teachers lectured, and students listened passively. The process was quite monotonous, as reported by a teacher: 'To deliver the lesson, I already prepared slides, PowerPoint slides on the lesson contents [...] I clicked the mouse and delivered the lesson' (Teacher I). One possible reason for this one-way communication approach was the unstable internet connection. The teachers had to turn off all students' microphones and videos, even their own videos so that the audio was not distorted, as pointed out by one of them: 'I only lectured on Zoom [...] when I used Zoom, I turned off all microphones and cameras because the connection was not stable [enough] to allow that much interaction' (Teacher E).

Obviously, most of the teachers ($n = 9$) noted that some students did not really engage in the online lecture and acknowledged that they could not supervise or interact with all students at the same time. One teacher admitted: 'We could not control whether the students were working with me or not. We were not quite sure what they were doing at that time' (Teacher A). This suggested there was little student-teacher interaction during the online lectures except for one-way presentation of information by the teachers. To attract students' attention and engage with them more, these teachers tried to invite them to answer questions. One teacher reflected: 'I called [on] them randomly. And I noticed the one who was the best and the one who was the weakest, the ones who usually ignored the classes, just called them and asked them to do the exercises.' (Teacher B). While randomly calling on students may force them to stay more focused and engaged in the lesson, it may not enhance the quality of student-teacher interaction.

Our results showed that most of the teachers tried to interact with students both asynchronously, through answering questions and sending materials, and synchronously, through setting up tasks for students to complete during Zoom lessons. However, the student-teacher interactions organized by teachers seemed to be quite limited in scope, one-off in manner, and superficial in depth, even though they used quite a variety of tools, and employed both one-way and mutual communication in synchronous or asynchronous forms.

4.1.3. Teachers organising student-student interaction

Before the pandemic, two of the teachers had already been asking students to work in groups to prepare a presentation before presenting in class. These teachers continued to employ the same technique in their online teaching. Most of the teachers appeared not to facilitate student-student discussions or organise activities for student-student interactions during the period. Only two teachers tried to create an online forum where students could interact with each other. One of them mentioned: 'I sent them videos of the sample talks and asked them to watch the videos and put their comments under the video, and we had open discussion over the video.' (Teacher J). Participation in the discussion forum, however, was not a compulsory task for students. Therefore, most of them did not participate in the discussion. Students only sought clarification of information and asked questions regarding the assignment, but did not share their opinions or display their critical thinking skills, as one teacher reported: 'They just asked me questions when they were not clear about assignments or about the topic, but they did not really frequently comment on each other's video'. (Teacher J).

During the synchronous meetings, only two out of ten teachers (Teacher D and J) organised group work for students to interact with each other and facilitated the discussions on Zoom. Two other teachers gave group work in their asynchronous activities that required students to roleplay and video-record a conversation for submission, (Teacher A and F), as explained below:

I guided them how to use [tools] as well and record a conversation like role-play. One was a waiter and the other was a customer or one was the receptionist, and one was the guest, and they submitted the recording to me, the video one. (Teacher A)

The activity required students' collaboration, but the teachers reported they did not check how students interacted with each other to complete the task.

While four teachers (A, D, F and J) did organise student-student interactions, some did not organise any synchronous discussions to engage students in sharing ideas or seeking agreement or disagreement. Teacher B, for example, explained that she did not organise the interactions among students because of the nature of her course – reading. Meanwhile, Teacher C supposed that the students had internet connection problems or limited time to participate in the online discussions: 'The internet connection is rather unstable, and they [students] cannot access the internet' (Teacher C). While there were differences in teachers' organisation of student-student interaction, it was noteworthy that teachers with prior experiences in learning online organised more student-student interactions than the others.

4.2. Challenges in organising interactions

4.2.1. Lack of online pedagogical training

It was reported that the university instructed teachers how to use Zoom only in terms of the operation of the technology, and not its pedagogical use. As a result, these teachers who did not have any prior knowledge of online teaching struggled to engage students during their online meetings, to set up interactions, and to deal with unengaged students during their Zoom classes. One of the teachers

reported, 'We just learn from each other. We learn on the spot' (Teacher I).

Teachers had to learn on the job how to engage students during their classes, doing whatever they thought might work. Despite their efforts, they admitted to not being able to boost student engagement and manage their classes while lecturing online. One of the teachers recalled: 'I had to think of different ways to make sure that student[s] did their homework, did the assessment[s], and the ways to check their participation or their commitment in the activities' (Teacher A). They learned from trial and error, and taught themselves how to teach online as the lockdown proceeded.

4.2.2. School policy

It was also reported that the university did not have a consistent assessment policy that motivated students to have more interaction with the materials and with their peers. As instructed by the university, online participation was not assessed as part of student learning; therefore, some students did not feel obliged to take part in online synchronous meetings or to have interactions with their peers and instructor. One teacher reported that 'Not many, not all students are enthusiastic in participating [in Zoom classes]. There is no regulation.' (Teacher E).

Moreover, the institutional management board did not have a clear policy regarding online learning during the pandemic, so they only considered it as additional time for students. Therefore, they required teachers to cover the teaching content that they had delivered online via Zoom during the lockdown once again when the pandemic was over. One of the teachers suggested: 'Maybe they should recognise our effort.' (Teacher F). The fact that their time, hard work and struggle to teach online during the lockdown was given little to no credit made teachers felt undervalued and their efforts unappreciated.

4.2.3. Technical problems

All teachers (n = 10) complained about the limited quality of the internet connection, which adversely influenced students' engagement in online class meetings, and even lesson delivery at times. One teacher elaborated:

One of the biggest drawbacks was the slow internet connection They [students] were not living in this city, in the town, but they lived in the countryside where they got unreliable and unstable internet connectivity. (Teacher H)

One of the senior teachers, with limited technological skills, reported having regular technical difficulties communicating with students and setting up the online interactions. He had to ask family members and colleagues to assist him with using digital tools to deliver online lessons effectively: 'I asked my wife, I asked my colleagues. Then we could use Zalo, or Messenger.' (Teacher J). Thanks to this support from others, he learned how to use these technologies to interact with students, which he had not been able to do before the pandemic.

Overall, teachers appreciated that the university purchased Zoom business accounts and the technical training that was provided for them. However, they faced a range of obstacles in setting up interactions for their online teaching: unstable internet connections, limited knowledge of online teaching, minimal technical skills, and also the lack of a clear school policy for online learning. These challenges intensified the pressure on inexperienced teachers learning to teach online as it happened, while dealing with a heavy workload, working from home, and navigating the lockdown that affected every aspect of their lives.

5. Discussions and recommendations

This section discusses how teachers organised three types of interactions (student-content, student-teacher, and student-student), and the challenges for arranging these types of interactions as the response to the research questions. It also highlights the contribution of the current study and suggests some implications for research and practice.

5.1. The three types of interactions

5.1.1. Student-content interaction

The results showed that teachers assigned materials for students to read before attending Zoom classes, but some did not check whether students interacted with the materials or facilitated the discussion on readings. As a result, some students did not prepare for the lesson in advance or did not engage with the materials. This can be explained by the argument of [Garrison and Cleveland-Innes \(2005\)](#) that when teachers did not set up critical discourses, students did not engage much with their materials. It means that interaction alone was not enough for deep learning that focused on meaning. The reason is that some of the students only accessed materials to complete the quizz. In fact, they did not focus on the meaning, but on surface learning to achieve the outcome with minimal effort.

The current study was conducted in Vietnam, where students are somewhat passive, and expect teachers to tell them what to do. Vietnamese students often consider teachers as the main source of knowledge and prefer 'structured learning, specific objectives, detailed tasks, and clear instructions' ([Bui, 2019](#), p. 164). In this respect, the results of the current study aligned with those found in previous studies on teaching and learning in various contexts. These students' passive learning style and teacher dependence are typical in Asian countries under the influence of Confucianism, where homework checking is commonly used as a control mechanism rather than a learning one. Even students at a university in the USA were reported to access materials depending on what they perceived would influence their assignment and assessment ([Murray et al., 2012](#)).

Previous studies provide evidence that learning outcomes are improved when students spend more time interacting with materials ([Fatma & Mustafa, 2016](#); [Zimmerman, 2012](#)). For instance, Thai tertiary students were reported to show improved language skills and academic performance when they were asked to do homework ([Songsirisak & Jitpranee, 2019](#)). This evidence is the basis for an

important recommendation for increased student-content interaction in Asian contexts with similar cultural backgrounds to Vietnam.

The current study supports the argument that student-content interactions should be encouraged using homework tasks such as watching videos, reading materials, participating in online forums, writing reflective essays, completing worksheets, doing quizzes or engaging in asynchronous discussions. Such homework tasks have been found to positively contribute to students' academic performance (Johnson-Curiskis, 2006). It is also recommended that teachers should be more flexible in guiding students on what to do, and should check their homework regularly, where possible, in line with Xiao (2017)'s finding that teachers should not assume that students will use materials effectively.

5.1.2. Student-teacher interaction

With regard to student-teacher interaction, although teachers tried to engage students both asynchronously and synchronously, they relied heavily on presenting content by screensharing slides and simply lecturing, rather than fostering two-way communication with students. The teachers' one-way lecture styles, combined with students' passive learning styles resulted in some students showing little engagement, and a lack of in-depth learning involving devised solutions and shared opinions. While other authors like Trinh and Mai (2019) found that lecturing was the main technique that teachers used for teaching in the face to face classroom, the current study extends the literature on student-teacher interaction to include online teaching during the pandemic.

Before the pandemic, six out of the ten teachers employed lecturing as their main teaching method in classroom-based practices. They continued to use this method when transitioning to online teaching. This finding is line with Derakhshan et al.'s (2021) study, which reported that teachers mainly used lecturing during their online teaching. One reason for this could be the influence of Confucianism on Vietnamese education, under which philosophy the teachers are supposed to give lectures to students, and the students have to listen attentively and take notes (Bui, 2019). In addition, the teachers were confident with this teaching method, since they were more familiar with it, hence they kept doing it despite the changing conditions caused by the pandemic.

Another reason might be that teachers did not have enough insight about the importance of interaction, nor receive pedagogical training on how to design, structure and facilitate online teaching. They only taught intuitively based on what they thought to be effective. The results suggest that it is important for teachers to encourage student-teacher interaction by asking questions to engage students in online synchronous discussions. This finding agrees with Wilson and Stacey (2004) on the significant role of the teacher in facilitating deep learning experiences through interaction.

In contexts where lecturing is the main teaching technique, it is recommended that teachers manage student engagement by combining asynchronous and synchronous activities. The teachers in the current study felt this to be effective, which is in line with the finding of Moorhouse (2020). The current literature provides feasible solutions to encourage student-teacher interaction, for example the use of pre-recorded videos to present materials (Martín-Monje et al., 2018), which was reported to facilitate the students' learning process and help them understand the content better (Guohua Pan et al., 2012). When content delivery was done through high quality videos (Martín-Monje et al., 2018), the synchronous meeting could be much shorter, focused on reviewing materials, and teachers could have more time for interactive activities such as quizzes, answering students' questions or conducting group discussions, which helps boost student-teacher interaction.

5.1.3. Student-student interaction

The findings showed that four teachers out of ten organised activities where students could interact with each other, such as online asynchronous forums or synchronous discussions, but did not always supervise or facilitate the discussion. It was also revealed that teachers with previous online learning experience and good knowledge of ICT tended to organise more student-student interactions than those who did not.

While there is evidence for the benefits of online asynchronous discussion among students (Cho & Tobias, 2016), the current study found a lack of student-student interaction because most lecturers did not set up and lead the discussion. This reflects previous research suggesting that online discussions do not automatically start, but need to be organised and facilitated by the teachers (Pawan et al., 2003). In the same vein, Garrison and Cleveland-Innes (2005) pointed out that, without teachers' structure and leadership, deep learning activities such as collaborative practice and peer discussion will not occur.

Another reason for the lack of student-student interaction is the dominance of the teachers. In Vietnam, teachers are considered the only source of the knowledge and students have to listen to their teachers, take notes and memorise them. In other words, teachers are knowledge transmitters, and students are knowledge receivers (Bui, 2019; Trinh & Mai, 2019). Teachers also lacked understanding of online teaching so they tried to replicate their traditional lecturing methods used in the face-to-face classes, where teachers could organise spontaneous activities such as group work, pair work or projects. However, in the online environment, they found it hard to organise these activities, so they only employed lecturing techniques as it was the easiest solution. Finally, Vietnamese learners often expected teachers to tell them what to do, rather than turning to other sources of knowledge (Bui, 2019).

The study suggests that teachers could include more online asynchronous and synchronous peer discussions, while setting up critical discourse for students to discuss, and trigger their critical thinking skills and deep learning (Chieu & Herbst, 2016; Garrison & Cleveland-Innes, 2005). However, if teachers do not design peer interaction as part of learning, students will not do it, which leads to the absence of deep learning (Garrison & Cleveland-Innes, 2005). This is in line with previous studies on the benefits of mandating discussion as part of the end-of-course assessment, so that students feel more motivated to participate in sharing their opinions (Vrasidas & McIsaac, 1999).

The results highlight the significance of teacher design: for example, when teachers included the requirement to find the solution for a situation in each post, students engaged more in sharing their opinions and seeking agreement or disagreement (Chieu & Herbst, 2016). This finding is congruent with previous research that supports the use of collaborative projects, forum discussions and peer

review activities for students to interact with each other (Martin et al., 2019). In addition, the study further argues that teachers could also use these types of activities to increase student-student asynchronous interactions, in line with prior studies on the ability of asynchronous discussions to create more student-student interactions (Johnson-Curiskis, 2006).

In responding to the research question on how teachers organise interactions in online teaching, the current study contributes to further understanding of the importance of practices that facilitate student-content, student-teacher and student-student interactions.

5.2. Challenges for teachers' organization of interactions

Concerning challenges in organising online interactions both synchronously and asynchronously, most teachers reported that they did not have any online teaching experience, and had to learn how to organise the activities for students to interact by trial and error. Although the university supported them in learning how to use Zoom, the training was only in the basic use of the technology, not its pedagogical implications. These findings are consistent with previous studies on the difficulties of teaching online due to lack of knowledge about the online learning and teaching environment (Zamani et al., 2016). Teachers struggled with their technological literacy, their competence in making quality videos, and operating the online courses (Rasheed et al., 2020). Along the same lines, McGee et al. (2017) point out that even experienced online teachers reported that they needed support, particularly with examples of good online teaching practices that they could follow. The current study, therefore, strongly argues for the need for both pedagogical and technological support for teachers who have to switch to online teaching during the pandemic, particularly those who are inexperienced.

The results showed that the teachers expected their schools to provide them with support not only in acquiring the technical skills for each type of digital tool, but also in learning how to use them pedagogically to enhance the different types of interaction. They wanted guidelines which are practical and hands-on so that they can easily follow and put them into practice. The results also revealed the teachers' hopes for the institution to implement a consistent learning management system in courses across the whole university, to provide peer support and mentoring, and to set up an online community to share their best practices.

The current study argues that making online discussion and participation part of assessment, and daily assignment completion mandatory, could enhance student-content and student-student interaction. Meanwhile, teachers' use of diverse assessment forms that integrate both formative and summative assessment can result in more student engagement in online learning activities. The study suggest that teacher support could follow Baran-Łucarz's (2014) professional framework, which covers pedagogy, content, design, technology, management and communication for online formats, and clear policies about assessment in online teaching.

6. Conclusions

This study found that most of the teachers surveyed organised few activities for student-student interaction. For student-content interaction, all the teachers provided homework assignments, but some did not check whether students interacted with the materials or not. In terms of student-teacher interaction, the teachers tended to use the traditional approach for teaching synchronously by lecturing while sharing screens online, and communicated asynchronously with students via different platforms. They tried to engage students by calling on them during their lecturing, but some students showed no engagement.

The study recommended that both synchronous and asynchronous activities should be utilised to organise more collaborative activities like online forums or group discussions for student interaction. Instead of one-way lecturing during Zoom classes, teachers could create videos to deliver content to students beforehand to increase student-content interaction during online synchronous meetings. For material provision, teachers could include various exercises and record their students' learning efforts and progress. During the synchronous meetings, teachers could review the materials, answer students' questions, and raise further issues for discussion. The study highlighted the need for more and better pedagogical and technical training for teachers, and for clear guidelines from the universities for online learning as the basis for teachers' practices.

7. Limitations and future research

This study, despite its contribution, has certain limitations. For example, it does not investigate teachers' evaluations of different activities. It has also not explored the effectiveness of particular activities for meaningful interactions. Further research could investigate teachers' assessment of practices and activities. In addition, the study has not investigated teachers' beliefs about online teaching. Future research may further understanding on teachers' beliefs and practices for online teaching. Furthermore, it may be beneficial to examine how the nature of the courses affected the way the teachers taught, as was mentioned by some interviewees. Finally, the current study has not examined how the institution's curriculum affected the interactions. Future study could be undertaken to investigate how such factors as course content and curriculum impact the way that teachers organise interaction patterns.

Authorship statement

Van Thinh Le: Conception and design of study, acquisition of data, analysis and/or interpretation of data, Drafting the manuscript, revising the manuscript critically for important intellectual content, Approval of the version of the manuscript to be published. **Ngan Ha, Nguyen:** Conception and design of study, acquisition of data, analysis and/or interpretation of data, Drafting the manuscript, revising the manuscript critically for important intellectual content, Approval of the version of the manuscript to be published. **Tran Le Nghi:** Conception and design of study, acquisition of data, analysis and/or interpretation of data, Drafting the manuscript, revising the

manuscript critically for important intellectual content, Approval of the version of the manuscript to be published. **Luan Thanh, Nguyen:** acquisition of data, Drafting the manuscript, revising the manuscript critically for important intellectual content, Approval of the version of the manuscript to be published. **Thi Anh, Nguyen:** Conception and design of study, analysis and/or interpretation of data, Drafting the manuscript, revising the manuscript critically for important intellectual content, Approval of the version of the manuscript to be published. **Minh Trang Nguyen:** Conception and design of study, acquisition of data, analysis and/or interpretation of data, Drafting the manuscript, revising the manuscript critically for important intellectual content, Approval of the version of the manuscript to be published.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.system.2022.102755>.

Appendix A. Some questions for the interviews

Background information

Age, experiences, technology skills before teaching online

Main questions

- 1 What digital tools do you use?
- 2 Did you train students before teaching online?
- 3 Can you describe how you organized your teaching and learning online during the pandemic? What kinds of digital tools did you use? How did you use each digital tools? Which tools are frequently used? Why?
- 4 How did you give students' feedback?
- 5 Which digital tools do you think were the most effective? While you were teaching online, did students in your class pay attention? How did you know students paid attention? How did you improve students' engagement?
- 6 How did you encourage students to engage during your online courses?
- 7 What difficulties did you have while you were teaching online?
- 8 Do you think students were satisfied with your courses?
- 9 How did you assess students' progress?
- 10 What do you think you need to improve?
- 11 What support do you think the university should give you while you are teaching online?

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