Remote Learning in Higher Education During the Pandemic: A Study of the Experiences of Chinese International Students at United Kingdom and United States Universities in 2020/21

Xiaokun Yang*

University of Sheffield, Sheffield S10 2TN, United Kingdom

***Corresponding author:** Xiaokun Yang, xyang200104@163.com

Abstract: During the COVID-19 pandemic crisis, many universities around the world made a drastic change by transferring most of their offline classes to emergency remote learning (ERL). The aim of this study was to explore how Chinese students, who studied in United Kingdom (UK) and United States (US) universities during the 2020/21 academic year, perceive their experiences of remote learning. As the UK and the US have two relatively advanced education systems, the arrangements of their universities for ERL and their support for international students are worth exploring. Moreover, during the ERL, a portion of Chinese students had online classes in their home countries instead of the country in which their universities are located. Therefore, semi-structured interviews were carried out to explore the academic experiences and social interaction of students who studied in UK and US universities, while remaining in China. The data were analyzed using the thematic analysis method. The findings showed that ERL was perceived negatively by students despite its flexibility in areas of academic learning experiences and social interaction.

Keywords: COVID-19; Emergency remote learning (ERL); Chinese students; Academic experiences; Social interaction

1. Introduction

COVID-19 was declared as a pandemic by the World Health Organization (WHO) on March 11, 2020 [1]. In the context of education, the lockdown of countries is equivalent to the lockdown of the education system [2]. Based on the United Nations Educational, Scientific and Cultural Organization (UNESCO) [3] data, on April 13, 2020, a month following the declaration of COVID-19 as a pandemic by WHO, more than 1.134 billion students, accounting for over 72% of the world's enrolled learners, were affected by the 117 country-wide closures.

It is rare to see a sudden shift to online learning on such a large scale in emergency. Emergency remote learning (ERL) might share some similarities with distance education at first sight since it is conducted on digital learning platforms with physical separation between teachers and students. However, unlike the former, distance education is planned to be conducted at such physical separation in the first place [4]. Distance education is an education pattern in which individuals are not restricted by learning resources and time [5]. Accompanied by the rapid development of digital technology and the internet in recent decades, distance education has gradually become an important part of educational institutions [6]. It is appreciable that distance education had already been used by higher institutions even before the pandemic.

The shift to ERL during the lockdown forced traditional teaching and learning to be replaced by distance education. Although distance education is not new, its application in emergency situations such as the pandemic can be challenging. Teachers, digital technicians, and even students were not adequately prepared to handle this unexpected situation. For instance, most university professors have never taught online before or have limited experience and only attempted to upload teaching materials for students to learn [2]. Similarly, most students have never experienced a complete online learning environment that requires collaboration with both their teachers and classmates using technologies [2]. Thus, it is crucial to explore the challenges in this unique experience and make improvements to better prepare for potential future disruptions.

In the past few years, research related to ERL has been emerging. However, literature on international students' experiences of ERL is limited. Therefore, the online learning experiences of Chinese international students who have been kept away from UK and US universities in 2021 were explored, and the following research questions were addressed: "How did ERL during the pandemic shape the experiences of Chinese international students?" This question can be further divided into two specific questions: (i) How did ERL impact students' academic experiences? (ii) How did ERL influence students' social interaction?

2. Literature review
2.1. Definition of distance education and emergency remote learning
According to Moore [7], distance education used to be regarded as a pedagogical concept that described the relationships between teachers and learners when they are separated by space and/or time [8]. Over two centuries, distance education has transformed from mail and letter to radio and television, and now to web-based technologies [8,9].

Later, distance education was traditionally defined as obtaining education opportunities through satellite, audiovisual, computerized, and multimedia technology tools [10]. Nowadays, distance education or e-learning mainly refers to virtual learning processes that are supported by the online interface system, including the computer, social media, internet, database, and web technology [11]. In view of its flexibility, distance education has been regarded as a promising innovation, which allows students to study at their own time and place in a "self-paced" learning environment [12,13].

More recently, due to the lockdown, educational activities in countries around the world mainly took the form of distance education. However, such distance education is a crisis response and should be regarded as ERL, distinct from the traditional definition and context of distance education. Prior to the COVID-19 pandemic, teachers had limited experience with online teaching [14], and the process of transferring to online classes also lacks careful design and developmental process [15]. As a result, Hodges *et al*. [16] highlighted the difference between well-planned online courses and the crisis-response, "emergency remote teaching (ERT)," a term used interchangeably with ERL [17-20]. Once the crisis or emergency situation abates, the normal teaching or educational methods will be resumed; thus, the main purpose is not to re-establish a healthy educational ecosystem, but rather to provide occasional education and teaching support in a way that can be reliable and quickly set up during emergencies or crises [16].

2.2. Emergency remote learning: Learning efficiency and satisfaction
2.2.1. Student-teacher interaction in synchronous and asynchronous classes
Online classes can be categorized as recorded (asynchronous) or live (synchronous) [21]. Synchronous classes require faculties and students to be present online simultaneously to facilitate interaction through virtual platforms, such as Zoom [22,23]. Asynchronous e-learning utilizes tools such as discussion boards and e-mail to foster teacher-student relationships even when offline [24]. Students generally prefer synchronous classes over asynchronous ones due to their effectiveness and potential for learning communities [24,25].

Interaction is essential in education, especially the interaction between teachers and students, which affects many different aspects of learning. A study has shown that among the dimensions of ERL, the teacher-learner interaction dimension is a significant element that could affect the satisfaction of learners [26]. During the pandemic, the lack of interaction has created many problems in the shift to ERL. For instance,

after transferring to ERL, almost 90% of students in a university reported that they felt the level of interaction in the course decreased, and approximately 70% of students considered that the change in the level of interaction had negative impacts on their learning [27].

In terms of interaction during classes, synchronicity is often regarded as a vital indicator of interaction, and most students attach great importance to it. For example, Ramo *et al.* [28] found that students showed preference for live lectures on video conferencing platforms (*e.g.*, Zoom), as these lessons offered opportunities for interaction with their classmates and teachers in real time, thus making the lessons more interesting. There were also students who expressed that they are more motivated and engaged in synchronous remote learning when compared to asynchronous learning [29]. In another study, several students pointed out that synchronous classes provide a sense of "attending" lectures, which helped with keeping them motivated and engaged [27]. This positive impact of synchronous remote learning might be partially attributed to the social presence and verbal immediacy in real-time interaction, which could improve students' satisfaction and motivation [29-33].

Besides, the interaction issue also involves how teachers make use of digital technology and design their classes under the ERL context. Students tend to have fewer opportunities to communicate with teachers during the ERL period because of the limited time or space of virtual communication. In a study by Özer *et al.* [34], a student described that they could ask questions anytime when they were at school, but with online classes, they could only communicate with the teachers within the limited class hours. Moreover, the spontaneous chances for students to interact with the teachers before/after class or during the teachers' office hours cannot be replicated adequately during ERL instruction [35]. Although there are challenges that might be beyond the teachers' control, students' responses from surveys have indicated that teachers can in fact control some of the factors, such as students' questions during lectures [36]. In short, from a student's perspective, teachers could provide more support for a smooth transfer to ERL, especially in terms of opportunities for communication and discussion.

2.2.2. Impacts of remote learning on students' study environment
Amid the COVID-19 pandemic, students had to take online classes from their homes or dormitories due to travel restrictions, and many universities had to operate under online teaching patterns. Some students could not adapt to the new academic environment at home, as they were used to face-to-face classroom learning [37].

According to Huang [38], 40% of students do not have an effective learning environment at home due to various reasons, such as distractive noises and digital devices, leading to low learning efficiency at home. Likewise, 45.6% of students found it difficult to find their own quiet space to have ERL in their family environment, according to Giusti *et al.* [39]. Accountability should be emphasized in classroom education, especially for students with self-discipline issues. For instance, previous studies have shown that students may have difficulties focusing on lectures while on the phone because "now no one is keeping me accountable" [40].

2.2.3. Time difference
Studies on remote learning during the pandemic have shown the impact of time zone differences on international students [41-44]. Ciano *et al.* [45] suggested that time zone differences should be considered when designing ERL courses for international students. Even within the same country, Pacific Time Zone students found starting classes at 9 a.m. (EST) challenging [46]. For Chinese students studying in the US or UK, the time difference requires them to adjust their daytime activities and sleeping schedules, which may lead to health problems [46,47]. Time zone differences can also create inequalities in learning conditions, with international students staying up late to attend synchronous classes [48]. Organizing synchronous online teaching can also be challenging for teachers due to different time zones [48,49].

2.3. Social interaction
Matarirano *et al.* [50] found that during the COVID-19 pandemic, students were forced to stay at home and

away from their social ties, implying that ERL has negative impacts on students' social lives. Schools are responsible for fostering students' academic learning and socio-emotional development, the "hidden curriculum" that covers the social and cultural characteristics of schools [51]. However, remote learning makes it more challenging for teachers to arrange "out-of-class" opportunities and activities that support socialization. Students have to take the initiative to organize and create opportunities for socialization in distance education [52].

Studies have shown that students feel isolated from their lecturers and peers during the ERL period [53,54]. Due to social distancing measures, it is difficult for students to interact with their teachers and peers; international students experienced difficulties returning to their campuses, while exchange students were restricted to their residence [55]. Kedraka *et al*. [56] found that the most missed aspect of university life by students during the COVID-19 pandemic and ERL was social interaction. Specifically, 76% of students missed their classmates, 76% missed social interaction, 70.6% missed face-to-face communication during lessons, and 61.4% missed their teachers [56]. Students have also realized that ERL lacks interpersonal communication experiences and connections with other students [57] and does not provide a sense of community [57,58].

2.4. Advantages of emergency remote learning during the COVID-19 pandemic
Despite the aforementioned challenges, ERL has some advantages. For instance, remote learning provides flexibility to those who cannot access education in a fixed time and space [59-63]. In addition, ERL can help students save expenses since they do not have to spend money on stationeries and transportation [62]. A study has shown that students were also satisfied that ERL saved the traveling time between classes [61].

3. Methodology
This study aimed at exploring the ERL experiences of Chinese students at UK and US universities during the COVID-19 pandemic period. For this study, an interpretivist, qualitative approach was used in order to provide an in-depth and explanatory understanding of the participants' social world through exploring and understanding their social and material environments, experiences, and opinions [64].

3.1. Participants
Four Chinese students including two US university students (one male and one female: US-F and US-L) and two UK university students (one male and one female: UK-Z and UK-G) were interviewed. They were having ERL in China during the 2020/21 academic year because of the pandemic. However, since UK and US universities have different arrangements for their ERL (*e.g*., some US universities partnered with Chinese universities and allowed students to take offline classes on the university campus in China), both types of ERL were included in this study.

3.2. Positionality
According to Savin-Baden *et al*. [65], positionality reflects the position that a researcher chooses to adopt in a given research. Positionality could influence the whole research process [66]. I took into account of my role in this study as a researcher. All of the participants were my acquaintances, and we had discussed their ERL experiences before the research. Hence, I recognized the need to lessen the influence of bias toward their responses in the data collection process. As I went through the whole process, I also had some preconceived notions and experiences with ERL. Therefore, in order to ensure objectivity in the research process, I made an effort to avoid being influenced by my own past experiences.

3.3. Data collection
The purposive sampling technique, where the researcher identifies participants who can provide information based on their experiences or knowledge, was used [67]. Therefore, the screening was done by emailing potential participants with questions to check if they have experiences relevant to this study. Before the interview, each participant signed two copies of the "Adult-Participant Consent Form," as per

required by the research ethics committee at the University of Sheffield. The one-on-one interviews ranged from 3 minutes to 60 minutes. The semi-structured interview method was adopted in which open-ended questions were posed so that the participants could answer freely. It also allowed the researcher to probe answers with improvised follow-up questions [68].

3.4. Data analysis
The audio recordings of the interviews were transcribed by software tools to automate the process. Thematic analysis was conducted to recognize the patterns within and across data related to the participants' lived experiences, opinions, practices, and behavior. Based on the procedures described in previous studies [69], the transcripts of all four interviews were read and analyzed for major themes, which were combined based on commonalities.

4. Results and discussion
4.1. Impacts of emergency remote learning on students' academic experiences
4.1.1. Mixed experience of classroom interaction
In this study, the majority of participants valued interaction in ERL. This finding is consistent with previous research on remote learning prior to the pandemic, which pointed out that students in online learning environments may have limited interaction, including student-teacher interaction, student-student interaction, and student-content interaction [70]. The general lack of communication and interaction in ERL has also been mentioned in a report on the COVID-19 pandemic [9].

Overall, the participants agreed that live classes have many advantages, especially in improving in-class interaction and student engagement. Two students (UK-G and UK-Z) preferred live classes over recorded ones. The interaction with their teachers and classmates or even the mere presence of them meant a lot to the participants. For instance, participant UK-G expressed, "I really enjoy having the live class more than the recorded one. I can interact with the teacher and my classmates, and it lets me feel more engaged and active." This is similar to a study done by Ramo et al. [28], who found that students are more interested when they can interact with their classmates and the teacher through breakout rooms in Zoom during lessons. Moreover, participant UK-Z shared that having classmates attend synchronous classes together gives him a sense of "being in the classroom." This is consistent with the findings of previous studies that have demonstrated increased engagement among students with the presence of others in live classes. In addition, participant UK-G stated that the guidance of teachers in leading them to the next topic improved their ability to focus, highlighting the importance of immediate teacher support for students to keep up with the lesson.

Beyond teachers' guidance in lesson contents, immediate feedback from teachers is also important. US-F and US-L felt that they could ask questions at any time during live classes, as they could communicate directly with the teacher and receive the answers immediately. Apart from teachers' guidance and feedback, both of which are associated with learning efficiency, synchronous classes provide more inspiration. Participant UK-G emphasized on the importance of real-time group discussions during live classes, as she could listen in to different perspectives shared by her classmates, and she believed that "every discussion is a clash of ideas."

Although live classes allow students to engage with each other in real-time, other factors might compromise the advantage of such synchronous interaction. This is because there is a choice between turning the microphone or camera on and off during live classes. All of the participants were reluctant to turn on their cameras, whether in large lectures or small seminars, except upon request by their lecturers.

All participants cited time difference as the reason for attending live classes late at night and often felt self-conscious about their appearance in front of the camera. Moreover, the participants also preferred keeping their microphones off due to disinterest or lack of confidence in their English proficiency. However, they were well aware of the fact that the probability of interaction decreases in breakout rooms or discussions when they do not turn on their cameras or microphones. Participant US-L noted that group discussions were mostly silent since nobody turned on their cameras or microphones, resulting in a lack of engagement. US-L further said, "It is usually late at night, and students like me in China are usually

exhausted because we already have offline classes during the day. Hence, I cannot concentrate well and do not want to answer in class even through the chat box." In short, if most students do not turn on their microphones and cameras, the efficiency of interaction and benefits brought by live classes may be affected.

Students' in-class interaction is also related to the lesson design and the use of technology by teachers. The active communication in remote learning provided by teachers could yield better results [71]. For instance, participant UK-Z mentioned a successful experience in which his teacher made use of the green screen. Upon placing the slides on the green screen, his teacher placed himself at the bottom left of the slides. This made UK-Z and his classmates feel more like a face-to-face lesson, which helped them focus, as they were more likely to interact with the teacher in that situation. This shows that the thoughtful use of digital technology can enhance the efficiency of learning during lessons in some ways.

While well-planned online classes enable effective interaction, failures to adapt to ERL may have the opposite effect. Participant UK-Z's experience with an older professor who struggled with technology highlighted the need for teacher training. Inadequate technology preparation is a major challenge in hybrid or online learning environments. Trainings should address adapting course content for online classes. Participant US-F encountered a teacher who just read from the slides, with limited interaction. US-F said, "I felt that my teacher did not design and provide interesting lesson contents and interaction through proper use of technology. I thought that the class was so boring." According to Adedoyin *et al*. [72], most teachers are still not prepared to provide high-quality teaching remotely.

4.1.2. Time difference causing changes in learning and sleeping patterns

The participants in this study who were physically located in China felt that their learning efficiency was reduced, as they were forced to change their learning patterns due to the time difference. For instance, the participants who attended UK universities reported that they go to bed on average 2–3 hours later than their regular bedtime as their classes end at 2 or 3 a.m. in their own time zones. Moreover, their entire daily learning schedule was forced to be put off: the usual morning activities were postponed until afternoon, and the afternoon ones until evening. They found it difficult to even get a good night's sleep, resulting in the lack of energy during both day and night and the inability to focus on learning. Participant UK-Z stated, "It was so difficult to achieve high learning efficiency at night when I have to change my learning pattern and go to bed later than usual." Participant UK-G shared that although she usually stays up late, she spent most of her time on leisure activities instead of learning. Therefore, she felt as though she was not doing enough for academic work late at night. The participants attending US universities had an even tougher schedule, as they had offline classes during the day and attended online live classes in the US time zone. Thus, when forced to take online classes at night due to the time difference, achieving the same learning efficiency as during the day became a challenge. This impacted the students negatively. It is also unfair for those in other time zones to postpone their studies until the evening for synchronous online teaching [48].

Moreover, there is often a delay in the feedback from teachers because of the time difference, and students do not get the answers to their questions in a timely manner. As a result, the time to complete the learning tasks lengthens. According to Villa-Rojas *et al*. [73], teacher-student interaction is challenging if students are in different time zones or have restrictions on accessing the online discussion tools. The participants reported that arranging the time for their one-to-one online meetings with their teachers took a lot of time due to the time difference. Xu *et al*. [74] also reported that because of the eight-hour time difference between China and the UK, creating a schedule suitable for both supervisors and students was a challenge.

4.1.3. Internet access problems

During the COVID-19 pandemic, several Chinese students returned to China and participated in the ERL organized by UK or US universities. However, there was hindrance to their learning due to the internet censorship and the Great Firewall. As Wang [43] has pointed out, ERL is at risk of technological failure because of their high dependence on technological infrastructures, such as transoceanic networks and electronic devices. In this study, all the participants encountered problems with internet connection and the

use of the virtual private network (VPN) in China. They felt that it had negative impacts on their learning efficiency and motivation.

The participants encountered some network-related difficulties during online live classes in China, such as blurred and fuzzy screens due to network latency, as well as bad-quality audio transmission. UK-Z and US-F noted issues with their teacher's voice being cut off at times and presence of electrical noise, likely due to unstable internet connection caused by the VPN used in China to bypass the Great Firewall. Similarly, Wang [43] found that Chinese international students faced uncertainties and disruptions in ERL due to VPN instability. The lack of stable internet access may affect learning negatively, including compromising students' understanding of lesson content and limiting their interaction with the teachers. For example, UK-Z shared his difficulty in understanding the teacher during class, while US-F experienced a time when she did not even hear the teacher call on her to answer a question during a live class. All these failed experiences might pile up and lead to low motivation for learning. Participant US-F said, "I think it is unnecessary to attend such classes where nothing can be heard and the learning effects are poor." As suggested by Breines et al. [75], the limitations of technical infrastructure could cause frustration among international students and affect the efficiency of online courses.

In addition, Chinese students also face problems accessing certain academic sources due to the Chinese internet censorship. According to Gueorguiev et al. [76], ERL poses extra challenges when a lesson contains content that the Chinese government considers sensitive. Participant UK-G had regular weekly film screening to watch the assigned film but some of the movie titles or links provided were blocked in China. In such context, students would need to spend more time on resource acquisition, thereby reducing their learning efficiency and passion for learning. Participant UK-G shared, "I lost enthusiasm for some content, and my expectations were frayed because I had already spent too much time looking for resources." Even worse, they are prone to anxiety or depression when the materials and information cannot be found. As emphasized by Wang [43], the inability to access educational information and certain websites could create feelings of displacement and insecurity in the students' overall immobile state in ERL.

4.1.4. Lower concentration when studying at home

The participants mainly studied at home since home provides a quiet environment. However, the participants found it difficult to concentrate at home, which may have reduced the learning efficiency. The participants shared that they usually studied in a quieter place at home, such as their bedroom or study room, especially when they need to interact with others. For example, participant UK-G pointed out that she usually had live seminar classes in her own room and kept her younger siblings from entering her room. She believed that a quiet environment is essential for interaction with the teacher and her classmates. Similarly, Massis [77] stated that quietness, as a critical factor impacting learning effectiveness, is needed for students to study and reflect. According to van der Voordt [78], students prefer a quiet place over a busy place, as they seem to do better in a quiet environment. Based on this, Rahiem [18] discovered that students preferred studying in a quiet and comfortable place during the pandemic period, such as closed rooms or family rooms at home. On the contrary, the home environment is not an ideal learning place for all learners. For instance, participants US-F and US-L shared that they often became distracted and laid down on their beds when they were having classes because of the late-night classes, which seriously affected their learning efficiency. Their experiences shared commonalities with the claim that the home environment is relaxing, which is even harder for them to focus on tasks than in the classroom [79-81].

4.2. Reduced social interaction

Findings from this study showed that the impacts of ERL are more complicated than merely having negative effects on students' social aspects. Although for some students, their normal social mentality and activities were affected by the ERL, most of them felt that their social life was not seriously affected. They felt that they could find ways to compensate for it.

UK-Z shared that he usually stayed at home during the ERL period and it was difficult for him to have face-to-face contact with his friends or classmates. Therefore, his normal social mentality was affected,

resulting in anxiety and social phobia. He pointed out, "I'm missing the days when I could freely meet my classmates face-to-face without any social restrictions." Similarly, Kedraka *et al.* [56] stated that the social aspect is the part that most students miss the most of their university life. When talking about the causes of his social phobia, he shared that as he had not met people face-to-face for such a long time, his ability to interact with people offline and analyze their facial expressions and verbal movements might have deteriorated. This was the main reason he had social phobia.

On the other hand, all the other participants did not feel their social life was affected, and despite the fact that they could not meet many of their local American or British classmates in their universities, they did not feel troubled. For them, ERL, resulting from the pandemic, enabled them to interact more with their family members and friends in China. For example, UK-G mentioned that she felt less lonely than when she was taking offline classes in the UK, as her family and friends are in China. Moreover, she also had the opportunity to play the drums and travel with her family on weekends. She felt fulfilled and happy socially when she had ERL in China. She even mentioned the word "happy" several times during the interview. From her point of view, ERL had impacted her social life in a positive manner. In addition, US-L had a positive attitude toward the influence of ERL on her social interaction. She shared that she had managed to build close rapport with her family during this period, as she had not been in China for such a long period of time due to her studies in the US; she and her family were very happy with the family union. UK-G and US-L also shared that they would usually go out to meet their old friends over dinner and spend some time together during their free time in China. According to Elmer *et al.* [82], as social distancing measures minimize face-to-face interactions and random encounters with other people, individuals tend to focus on the relationships that are close in space, most meaningful, and most established; these relationships may exist outside the student community, such as at home and within the family [83]. Social interactions with "old friends" also fall within relationships that are "most established," *i.e.*, friendship circles that have been previously established [83].

This finding can be understood with the identity of Chinese students in western countries. It has been reported that racial or ethnic minorities, as well as international and lower socioeconomic status students are more vulnerable to the risk of social isolation [84]. Particularly, the quality of social support received by Asian students, who have been classified as "other or multiple" racial or ethnic groups, has significantly reduced [84]. As a result of social isolation due to the pandemic, the probability of depression among Chinese students might increase, but allowing them to return home and reunite with their families and peers might be just what they need. Due to racial homophily and, to a lesser extent, ethnic homophily, Chinese are more likely to make friends with Chinese [85], and when Chinese students return to their home country and meet those who share the same culture, the feeling of social isolation may diminish. US-L even said, "We are so happy that we wish that the US side would never have face-to-face classes again (in terms of social interaction)."

4.3. Future recommendation

All the participants hoped that some components of ERL would be integrated into face-to-face teaching when it resumes in the future, so as to save time and improve learning efficiency. They expressed their desire for large lectures and short one-on-one tutorials to be moved online, while other classes that require interaction with their classmates to remain offline. By taking advantage of ERL, it saves accommodation and transportation costs as well as the commuting time, especially for those who live far from the campus [86]. According to UK-G, she would no longer need to spend 30 minutes walking to the campus just for a 15-minute tutorial and it would be more beneficial for her time management in terms of learning if this kind of blended pattern could be adopted in the future.

5. Conclusion

In this study, the ERL experiences of Chinese students in UK and US universities during the COVID-19 pandemic period were explored. The findings suggest that the efficiency, effectiveness, and motivation for learning may be affected in ERL despite its potential advantage of flexibility in terms of time and location.

Time differences, poor internet access, and ill-suited home environment could lead to low learning efficiency among students. Additionally, lacking the sense of "attending" lectures and reduced classroom interaction may negatively impact students' motivation to learn. Furthermore, remote learning may have detrimental effects on students' social interactions, ultimately affecting their ability to learn. These outcomes largely result from technical problems and the inadequate support from schools and teachers.

The findings from this study suggest three improvements for online teaching and learning. Firstly, in lesson design, the feelings and perspectives of students should be considered, and it should fit the specific context of online teaching and learning, including the time at which classes start, the duration of each lesson, and the adjustment of teaching methods. Secondly, it is necessary to further improve teachers' technology skills to enhance the quality of remote teaching. Lastly, concerning students' social interaction, universities should provide additional support and address the challenges faced by international students in social interactions, whether during remote learning or when they return to campus.

It is worth noting that several factors may have contributed to the limitations of the findings. Firstly, the findings are mainly based on students' personal reflections on their ERL process, potentially overlooking some external factors that could influence their perspectives. Additionally, the varying lockdown policies across the Chinese cities where the participants lived were not considered, which could have had impacted their ability to adapt to their study environment. In consideration of these factors, the findings of this study might have some limitations. In addition, only students' perspectives were considered in this study; the perspectives of other stakeholders such as teachers or universities were not considered. The perspectives of teachers and the support provided by universities should be examined in future research.

Disclosure statement

The authors declare no conflict of interest.

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