Article

Similar Impact, Different Readiness: A Comparative Study of the Impact of COVID-19 on ECTE Practice

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Abstract: COVID-19 lockdowns forced universities to deliver classes wholly online, resulting in various impacts on higher teacher education institutions (TEIs) that were differently prepared for such a change. However, few studies have explored the impact of the pandemic on the shift of early childhood teacher education programs to online delivery, especially from a cross-national comparative perspective. To address this gap, this study compared how early childhood teacher educators (ECTEs) in one Australian and one Chinese TEI viewed and coped with the challenges caused by online teaching during the lockdowns. A total of 14 ECTEs participated in this triangulated qualitative study: six from the Australian TEI and eight from the Chinese TEI. Thematic analysis was used to analyze the research data. The results indicated that the Australian ECTEs were better prepared for online education than their Chinese counterparts regarding proficiency and advance in using online teaching platforms, trying different kinds of teaching styles, and their online teaching skills, literacy, and competence. However, the coded data showed that the participant Australian and Chinese ECTEs shared similar views on the negative impact of the change, such as producing ineffective interaction, broken social-emotional connections, heavier workloads, and drained staff. The findings suggest that TEIs from Australia and China need to develop contextually appropriate strategies and innovative solutions to cope with the lockdown challenges.

Keywords: online teaching preparation; country-comparative study; COVID-19 impact; early childhood teacher education practice

1. Introduction

The COVID-19 pandemic accelerated the global digital transformation of early childhood teacher education programs [1,2]. Different countries implemented very different policies according to their contextual backgrounds [3,4], resulting in high levels of variation globally in teacher readiness and the actual implementation of online teaching in the ECTE programs of teacher education institutions (TEIs). Teacher readiness for online teaching is a multifaceted issue that is affected by the teacher's readiness, the institution's readiness, and contextual readiness for online teaching. Many researchers have discussed teacher preparation for online teaching before the pandemic [5,6]. Others have since focused on the impact of COVID-19 on teaching in early childhood settings [7–10]. However, little research has explored the effects of the pandemic on the shift of early childhood teacher education programs to online delivery based on their online teaching readiness, especially from a cross-national comparative perspective. To address this gap, this study compared how early childhood teacher educators (ECTEs) in one Australian and one Chinese TEI viewed their online teaching during COVID-19 pandemic lockdowns and how they coped with the challenges. In particular, this study explored how ECTEs, even when supported by institutional readiness, struggled to prepare for online instruction to future ECE teachers in uncertain circumstances such as the COVID-19 pandemic. These findings addressed ECTEs' perspectives on online teaching in the age of the COVID-19 pandemic. This could

help TEIs support their educators contextually and institutionally and help them develop and implement online teaching policies and programs that recognize and focus on the particular needs of ECTE training. The following two questions guided this research:

1. How well did ECTEs prepare for online teaching in the Australian and Chinese TEIs?
2. How did COVID-19 impact their online teaching based on their readiness?

2. Literature Review

2.1. Teachers' Readiness for Online Teaching

Teacher readiness for online teaching is a multifaceted issue that is affected by the teacher's readiness, the institution's readiness, and contextual readiness [11,12]. Exploring how these three kinds of readiness affect teachers' online teaching is critical to understanding what changes are needed to ensure effective online teaching to ECE teachers. However, until recently, there have been no unified standards to measure teacher readiness for online teaching, although the concept has been researched for decades [13–15]. Most studies have used teachers' online teaching knowledge, skills, and competency to assess their readiness for online teaching [16–18]. More specifically, a teacher's basic technological knowledge, which includes the ability to use online teaching platforms and present materials and activities to students via online teaching platforms, et cetera, is considered the lowest level of readiness for online teaching [19,20]. Besides this fundamental level of technological knowledge, instructors also need a pedagogical approach, such as the online flipped classroom, course design, communication, and technical skills, for online teaching readiness [21–23]. Most recently, some researchers have used the teachers' Technological Pedagogical Content Knowledge Framework (TPACK) self-efficacy to demonstrate their readiness for online teaching [3,18]. However, others have been critical of efforts to define teacher readiness from the above perspectives [5,24]. They think examining teachers' opinions about their institution's readiness for online teaching is necessary to fully understand teachers' perceptions of preparedness [3,25].

2.2. Institutional Readiness for Online Teaching

Institutional support is critical to teachers' readiness to teach online [3]. In this respect, several studies have shown that teacher readiness is affected by the technical support offered by their higher education institutions [26,27], their online pedagogical teaching support [28], their commitment to online teaching [29,30], and their leadership in digital transformation in teaching [31,32]. More specifically, institutions that provide teachers with the above support can motivate and lead teachers to transform into effective online teachers. In contrast, lacking support and training in the above aspects can negatively affect teachers' transformation into online educators [33]. The transition to online teaching due to COVID-19 provided a contextual background for institutions to upgrade their policies to support teachers' online education. However, teachers were given only limited support and training, from essential technical support to the e-teaching vision and culture built [34–37], especially in developing countries such as Ghana [38,39]. Moreover, some studies found that the transition to online teaching was too sudden due to the pandemic, and institutions had too little time to prepare to provide the e-infrastructures, technical, pedagogical support, and online teaching environment teachers needed [40]. Inevitably, teachers' views of their institution's online teaching readiness, related goals, and vision influence their overall perceptions of their preparedness and competence to teach online [41]. Therefore, examining individual and institutional readiness for online teaching is necessary. However, neither teachers nor institutions are homogeneous: there will be contextual differences, especially across countries [3]. This is why it is critical to assess teachers' readiness for online teaching from a macro perspective, that is, the contextual background.

2.3. Contextual Readiness for Online Teaching

It is well-established that teachers' readiness for online teaching is subject to their contextual background [42]. Existing studies have found that differences between individu-

alism and collectivism, for instance, could affect the acceptance of technology for teaching and learning [43]. In collectivist cultures, subjective norms and technology self-efficacy were more significant predictors of technology use, while perceived usefulness was more influential in individualistic cultures [44]. These studies on the relationship between culture and technology acceptance demonstrate the significance of the cultural environment in comprehending the diversity of teachers [45–48]. Moreover, other studies have shown that culturally de-centralized countries are more innovative in technology use than centralized countries [49]. However, few studies have explored how differently Chinese and Australian universities reacted to the move to online teaching in ECE settings during COVID-19 based on their contextual background, which will be addressed in this study.

3. The Context and Framework of This Study

This research aims to explore how the different contextual backgrounds shaped online teaching during COVID-19 in an Australian and a Chinese TEI by combining a micro (individual)–meso(institutional)–macro(contextual) framework with a community of inquiry framework

3.1. The Micro–Meso–Macro Framework

How instructors react to rapid transitioning to online teaching due to COVID-19 is affected by micro, meso, and macro factors. The research also shows that determinants that are strongly influenced by micro-level factors are also affected by meso- and macro-level factors [50,51]. This study used this micro–meso–macro analytical framework to explore how participant ECTEs from the two participating universities prepared for large-scale online teaching at the onset of the COVID-19 pandemic and the impact of the pandemic on their online instruction based on measures of readiness. In this research, the micro level comprised individuals' reactions to online education, more specifically, the ECTEs' responses to online teaching; the meso level can be seen as the institutional reaction to online teaching, which means the HEI's readiness for online education explicitly; and the macro level demonstrates the contextual willingness for online teaching (see Figure 1).

3.2. The Community of Inquiry Framework

A community of inquiry framework was used to examine whether the participant ECTEs were satisfied with their large-scale online teaching during COVID-19 since the micro–meso–macro framework was insufficient for analyzing online teaching experience. This framework proposes that the education experience occurs through the interaction of three core elements: teaching presence, social presence, and cognitive presence [52,53]. Teaching presence is the planning that goes into creating a course and assisting student learning while the system is active [54,55]. Social presence refers to the capacity of participants to project themselves socially via the communication medium [55,56]. Finally, cognitive presence reveals how individuals generate meaning and comprehension [55,57]. Prior studies indicated that teaching, social, and cognitive presence positively influenced the educational experience [58]. In particular, teaching presence was found to activate students' learning enthusiasm and motivation [59], while social presence enhanced students' class participation frequency and satisfaction [60–63] and reduced their sense of loneliness [64,65]. In addition, students with a higher perception of cognitive presence had higher academic achievements [66,67]. Moreover, the three presences positively affected each other [68]. For example, teaching and social presences promoted class engagement and enhanced the cognitive presence of online learners [69]. In addition, learners' cognitive presence positively influenced teaching and social presence [70]. However, some researchers proposed revisions to the framework by adding more presences, such as learning presence [71–75], learner presence [71,72], emotional presence [76], and instructor presence [77], since the three original presences were not accepted globally, partly because it is difficult to measure and justify the specific three presences. Moreover, research on how the three presences work for online classes, especially for large-scale online courses

due to COVID-19, is limited. The limited literature has demonstrated that, compared to face-to-face courses, these three presences did not bring out compelling educational experiences for online classes since it was challenging to maintain the presences in such classes [78–80]. For this reason, this study drew on the micro–meso–macro framework and the community of inquiry framework as the foundation for its exploration of the impact of the pandemic on large-scale online teaching based on readiness.
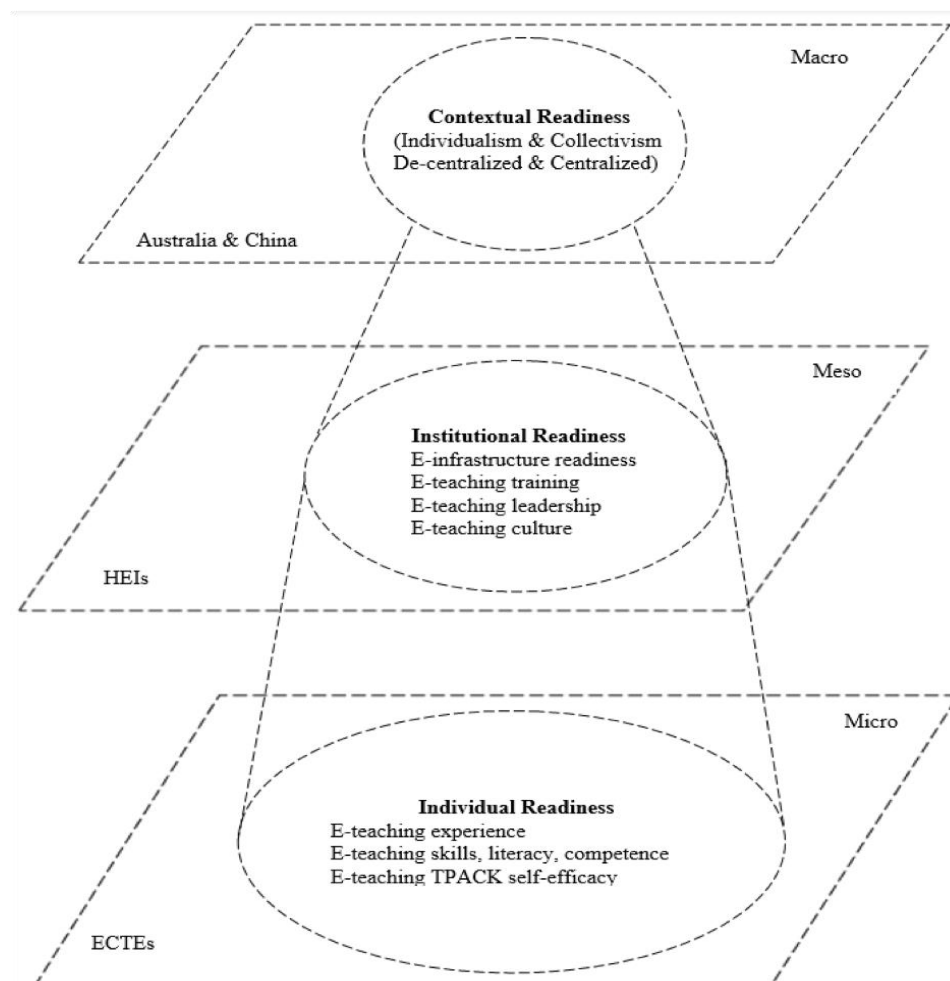

Figure 1. Micro–meso–macro Framework.

4. Materials and Methods

4.1. Sample

The participant Australian university was pseudonymized as case A university, and the corresponding participant Chinese university was coded as case B university to protect confidentiality. Six participants from the case A university and eight from the case B university were involved in this research. Both universities are among the leading TEIs for early childhood teacher education, ranking in the top 10 in their countries. Most participants were female, accounting for 83.3% from the case A university and 87.5% from the case B university. Half of the participants from the case A university were aged between 35 and 44 years (50%), while most of the participants from the case B university were between 25 and 34 years (37.50%) and 45 and 54 years (37.50%). In addition, half of the participants from case A university were lecturers (50%). In contrast, most of the participants from the case B university were associate professors, accounting for 75%, and the remaining 25% were lecturers (see Table 1).

Table 1. Demographic Characteristics of Participants.

	Participants from Case A University (n = 6)		Participants from Case B University (n = 8)	
Gender	Frequency	Percentage	Frequency	Percentage
Male	1	16.67%	1	12.50%
Female	5	83.33%	7	87.50%
Age Group	Frequency	Percentage	Frequency	Percentage
25–34	0	0%	3	37.50%
35–44	3	50%	2	25%
45–54	1	16.67%	3	37.50%
55–64	2	33.33%	0	0%
Position	Frequency	Percentage	Frequency	Percentage
Lecturer	3	50%	2	25%
Associate Professor	1	16.67%	6	75%
Professor	1	16.67%	0	0
Tutor	1	16.66%	0	0

4.2. Procedure

This research used a case-study method to provide an extensive and in-depth description of how Australian and Chinese early childhood education program teachers' teaching was affected by the COVID-19 pandemic. First, ethical approval was obtained from the Arts Human Subjects Ethics Subcommittee of the first and second author's university (Reference No: 520221092136090). Second, the first author purposively sent invitation emails to the ECTEs at the case A and B universities who were eligible for the research. Third, the ECTEs willing to participate in the interviews were asked to sign a consent form and read the proposed interview outline. Fourth, the first author sent a Zoom interview invitation link to the participants who had signed the consent form. Fifth, the Zoom interviews were recorded for data analysis.

The data collected during the research were classified into primary materials (the recorded Zoom interview, in which the participants were anonymous) and secondary data (collected to provide general background information and contexts about participant instructors and universities). Interviews were conducted via Zoom because it was not feasible to do face-to-face interviews at either institution during the lockdowns. The case B university was affected by the strict lockdown laws in its area, according to China's Zero-Case policy. In the case A university, most participants worked from home, as required where feasible by the university.

4.3. Data Analysis

The study's qualitative data analysis involved several critical steps, including transcribing and translating, coding, categorizing, and synthesizing. The three data analysis steps were interrelated. First, concerning transcription and translation, the first author transcribed the recorded material from the case B university into Mandarin and then into English during the coding, categorizing, and synthesizing stage. At the same time, the recorded materials from the case A university were transcribed directly into English. The transcriptions were checked against the recorded material for accuracy and completeness. The participants were consulted to verify the transcription if there was any uncertainty. The translation of the transcriptions from Mandarin into English was checked for accuracy by an external bilingual academic from the case A university since the second and third authors could only access the extracts of already coded data because they may have recognized some of the participant ECTEs as they all work in the early childhood teacher education program. Second, regarding coding, thematic analysis was used to analyze the research data, and Nvivo software was used to assist with the coding and categorizing data (see Table 2 for details of the coding framework). Third, considering categorizing and

synthesizing, the major themes were organized to create a conceptual schema to answer the research questions. Specifically, two distinct themes—different readiness and similar impact—were identified for this research.

Table 2. Similar Impact Coding.

Node	Code	Subcode	Extract
Similar impact on online teaching	Ineffective online class engagement (53.43%)	1 Online text-based teaching is ineffective 2 Online collaborative way of teaching is ineffective	1 I cannot use physical cues for online teaching 2 The challenges for me specifically are the collaborative aspect of the way I teach. You cannot get into small groups and work collaboratively and closely with each other
	Broken social-emotional connection (25.50%)	1 Felt isolated from students for online teaching 2 No joyfulness and surprising inspiration in online teaching 3 Difficult to build friendships and mentorship via online teaching	1 The students actually miss out a lot on the connections doing online 2 There is no joyfulness and surprise moment in online teaching since we interact with the dead computer without emotional feedback 3 It is difficult to build the relationship in a Zoom class, you just kind of disconnect and just end the meeting
	Heavier workload and draining out (29.05%)	1 Spent more preparation time for online teaching 2 Difficult to keep students focused on online teaching 3 Difficult to receive students' instant feedback for online teaching	1 I spent more time doing the online class preparation, for example, the PPT slides, the video clips, etc. 2 I have to keep probing to guide the students to focus on the online class, which is exhausting. 3 I ended up really exhausted after my classes because you're not getting any feedback from students

5. Results

5.1. Different Readiness

5.1.1. Online Teaching Platform Readiness

Concerning the teaching platforms, all participants from the case A university used iLearn for asynchronous teaching and Zoom for synchronous instruction. In contrast, 37.50% of the participants from the case B university used VooV Meeting and WeChat, 37.50% used VooV Meeting and ChaoXing, 12.50% used VooV Meeting and DingTalk, and 12.50% used VooV Meeting and the case B university's online teaching platform (see Figure 2).
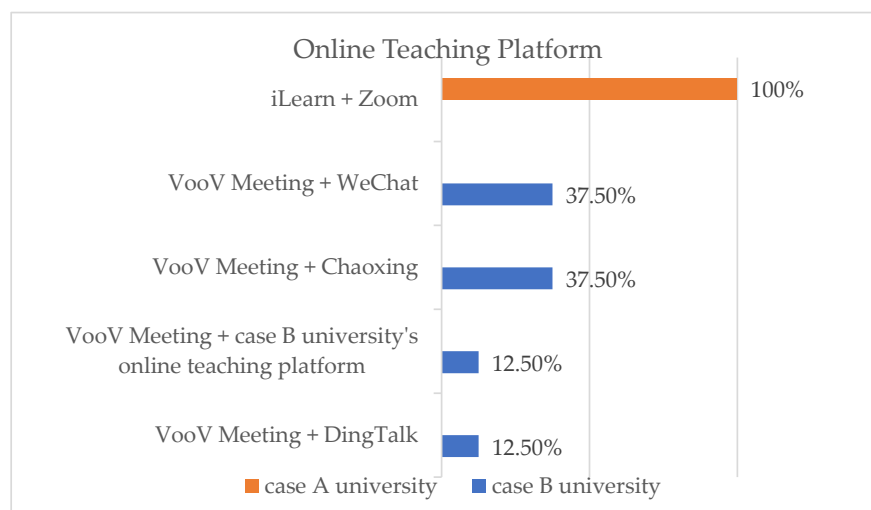

Figure 2. Online Teaching Platform.

The findings indicated that all six participant staff from the case A university consistently used the same two online teaching platforms for their online teaching during the pandemic: iLearn and Zoom. iLearn is an "all-in-one" work tool for teaching management since it stores curriculum data and assists with developing, mapping, approving, and publishing curriculum items such as courses, units, and components. All six staff from case A university had been using iLearn to coordinate their onsite teaching for years before the COVID-19 pandemic began. Unsurprisingly, all six consistently used iLearn to carry out online education during the COVID-19 pandemic.

I used iLearn for the overall management of the unit even before the pandemic, and iLearn has been mandatory at my university for a long time. (Amelia)

All six participants from the case A university also used Zoom for synchronous online lectures and tutorials. They all chose to use Zoom because it was easy to approach and suited many people, and the case A university had licensed the software for all the staff and students. The participating staff mentioned that they got used to Zoom teaching progressively, although they found it challenging to use initially.

I found Zoom was more flexible than other platforms since I just shared the Zoom link with my students for the day, then broke them up into groups online. As time went on, I think my students and I all became more confident and comfortable with the online experience through Zoom. (Jack)

The participants from the case A university did not have to struggle to develop a unified online class management platform at the onset of COVID-19 since iLearn had been mandatory at the university for over a decade. They were more concerned about how to engage students in an online class and how to have efficient online interaction and communication via online teaching platforms with students.

I did not need training on how to use the platforms since I was already very familiar and comfortable with online teaching in that way, but I needed the just-in-time support on engaging students and getting their instant feedback to make sure that my online education was working. (Grace)

Compared to the case A university participants, the ECTEs from the case B university indicated that they did not use a unified online teaching platform. Rather, over one-third used VooV meeting and Chaoxing, another one-third used VooV meeting and WeChat, and the remaining third were evenly split between using VooV meeting and the case B university's usual online teaching platform, VooV meeting, and DingTalk online teaching software. Thus, although all the participants from the case B university used VooV meetings for their synchronous online teaching, they used different auxiliary software to support their asynchronous teaching and unit management. The main reason for this was that unlike the case A university with iLearn, the case B university had not developed a university-wide online teaching software system. Rather, the university allowed teachers to choose the platforms they thought were best suited to their teaching. Consequently, the participating staff chose their platforms based on their perceptions of the convenience and familiarity of the media.

I chose Wechat and VooV meetings for my online teaching since I used Wechat for my daily correspondence and VooV for my daily meeting even before the pandemic lockdown. I did not want to spend time getting familiar with another platform for online teaching. (Jing)

However, the lack of a unified teaching platform brought confusion for both ECTEs and students at case B university. Generally, each ECTE used two to three media for their unit teaching. Students with more than ten units needed to download and become familiar with all the different platforms their instructors used.

The ununified teaching platform is not efficient for my online teaching. For example, I have to inform students via WeChat, upload the unit material to Chaoxing, and do synchronous

teaching via VooV meetings. Students also got confused if each instructor, like me, used two to three platforms, especially when the student had more than ten units. (Fen)

The participating ECTEs at case B university also said the platforms were not perfect, but although they could be cut to fit their online teaching, they still would have preferred a unified "all in one" software system that could help the management of their units.

I prefer a unified online teaching management platform instead of shifting from different platforms, which is far more convenient. (Fen)

5.1.2. Flipped Classroom Readiness

Over half (67%) of the ECTEs from case A university adopted the online flipped classroom method during the pandemic. Comparatively, only a quarter of participants from case B university used flipped classroom teaching (see Figure 3). Three causes might explain this difference, the first being the availability of a curriculum management system, the second being the individual instructor's pedagogic preference, and the third being that case A university already had considerable experience in flipped classroom teaching.
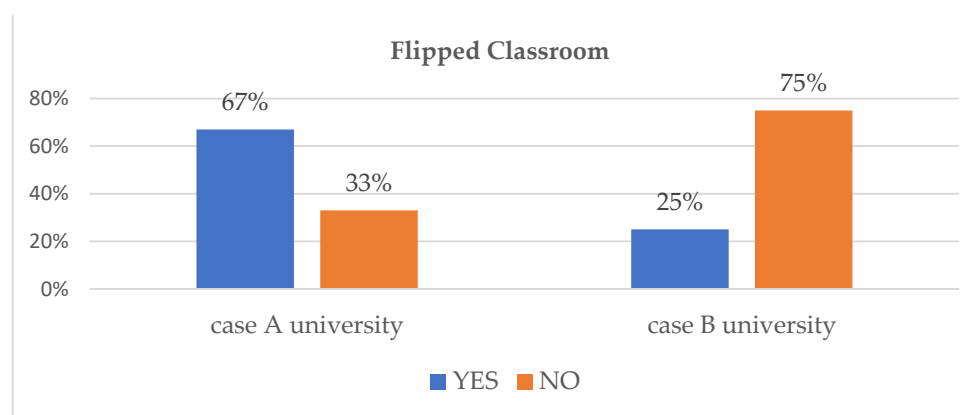

Figure 3. Flipped Classroom Readiness.

A flipped classroom typically combines pre-recorded lectures and online available reading material with some kind of mediated engagement for guided discussion and/or problem-solving. Therefore, a flipped classroom requires a curriculum management system or learning management system that allows instructors to upload videos and manage the retrieval of teaching materials. Because the instructors have to set up the expectations of the class, provide students in advance with all the necessary learning materials, such as video clips and reading material on the platform, and invite students to engage in discussion or other online communication in a solely online environment. The case A university's ECTEs had been using the iLearn platform for these purposes for a considerable time through the university's involvement with Open Universities Australia. This institutional experience gave the ECTEs a head start and an outstanding motivation to try online flipped classrooms, as more than half of the participant instructors had experience with flipped classrooms even before the pandemic.

I have been doing the flipped class for years, even before the pandemic. I'd rather my students come to class with some level of understanding instead of coming in blank without knowing the basic concept. (Jack)

In contrast, the case B university only transferred to online teaching in 2020, with the pandemic outbreak. As a result, there was no unified and licensed online teaching platform ready and mandated for use by all instructors across the university. All participants from the case B university, therefore, had to focus their efforts more on shifting and adjusting themselves to online teaching instead of simply applying different teaching pedagogy, such as the flipped classroom method, although some had heard about the method:

"I had heard about the flipped class but did not use it". (Hua)

A flipped classroom needs ECTEs to spend more time on preparation. For example, the ECTE has to pre-record the lectures, structure the units, and set up ordered and coherent guides for the students to learn. In addition, a flipped classroom assumes students' learning autonomy because it requires self-directed learning. The ECTE, therefore, must design a course that can cater to students who have not read and prepared the learning material before class. Finally, the flipped class method must also build an active learning environment that engages students and cultivates their learning motivation. The ECTEs from the case A university consistently used flipped classrooms online because they found them an efficient way to engage students:

"It [the flipped classroom] is very efficient. It engages the students at a higher level". (Jack)

5.1.3. Online Teaching Digital Skills and Competencies

Online teaching platforms and flipped classroom teaching positively impact ECTEs' online teaching skills and competencies when the ECTE has access to more advanced online teaching platforms and can try different teaching methods such as flipped classrooms and traditional teaching. As a result, the staff's online teaching skills and competencies will improve impressively. For example, flipped classrooms require teachers to have better online teaching ability, video-making skills, and more online teaching skills.

[A] flipped classroom makes me have to advance my teaching skills, like how to make videos, and improve my online communication skills as well. (Jack)

In contrast, without a platform that allows flipped classroom teaching, there is no way to conduct a flipped classroom, limiting the ability to teach online. For example, 75 % of the instructors from the case B university reported that they had drawn on traditional teaching methods, simply transferring face-to-face teaching to online presentation without rethinking or redesigning their teaching content and strategies.

I did not redesign my curriculum content to do online teaching, [I] still maintain the traditional way of teaching. (Xu)

5.2. Similar Impact

Although teachers from the two universities had different preparations for online teaching, they had similar concerns. These concerns were about the problems of ineffective interaction, broken social–emotional connections, and heavier and more draining workloads. These problems particularly affected the courses that traditionally involved major practical components, such as performing arts courses and early childhood teaching education units.

5.2.1. Ineffective Interaction

One issue contributing to the participants' experiences of ineffective online interaction is that online teaching is text-based communication. The instructor-participants found that the absence of body language, especially facial expression, led to less engagement and interactivity since they could not use verbal cues to engage students in the online class, especially when 13 out of the 14 participants from these two universities allowed their students to turn their cameras off so that they were not visible to the instructor.

I do not force students to turn their cameras on, which is voluntary. This led to a situation where I was unsure what the students were doing on the camera's other side. I rarely think of them [sitting] still as in the face-to-face classroom. Some may lie in bed or walk around the living space with their earphones on. Under this condition, I do not think the students can engage well in the class. For example, some students still repeatedly come to ask questions about the concept I taught previously. (Fang)

A lack of social presence can also put some shy, sensitive, or inactive students in a disadvantaged position. Even in face-to-face classes, these students may rarely raise

their hands to ask questions or engage with the class. However, in face-to-face classes, instructors can use facial language and subtle cues, such as smiling at students, making eye contact with them, and walking around them, to encourage them to engage in the class. In online, text-based teaching, such subtle caring and verbal cues are difficult to emulate. As a result, participants thought that online courses put inactive students in an even more disadvantaged position.

> *Some students may get confused in the face-to-face class based on their body language. I can say "are you ok" quietly to them instead of explaining the confusion to the whole group or calling the student out in front of everyone in the online class. It is more of a disadvantage for the quieter students in the online class.* (Mia)

Another difficulty with ineffective interaction online was how to replicate collaborative ways of teaching.

> *The challenges for me are the collaborative aspect of how I teach. For example, I cannot sing and keep a beat with a whole class with all our internet all over the place. Moreover, you cannot get into small groups and work collaboratively and closely with each other since that is really physical and needs spontaneity.* (Olivia)

The instructors found it challenging to involve students in collaborative work online, specifically group discussion and presentation. Compared to face-to-face group discussions and presentations, they found that their online versions were neither efficient nor effective. In addition, they believed that online collaboration did not benefit students' cognitive development when it was unable to encourage students to share, think, discuss, and collaborate cognitively.

> *I need students to think and reflect on what they have learned from the case study instead of putting information in their heads. Without reflective thinking and discussion, I do not believe students can really get the message.* (Fang)

5.2.2. Broken Social-Emotional Connection

More than a quarter of the participants (25.50%) reported feeling isolated from their students during their online teaching. More specifically, they felt unable to forge the usual social–emotional connections with their students since they felt limited by the online-only knowledge delivery mode. The participants believed that instructors needed to have an emotional engagement with their students, even in online classes, for engagement and debate to propel learning.

> *The students actually miss out a lot on the connections doing online. It's just there is no way they can get those relationships that are so important for long-term professional development. Students and researchers have all the incidental conversations that push ideas forward.* (Grace)

Moreover, without this social–emotional connection, they found they missed the joyfulness and surprises that inspired their teaching.

> *There is no joy and surprise moment in online teaching since we interact with the dead computer without emotional feedback.* (Hua)

In addition, participants reported finding it challenging when teaching online to build the friendly relationships and mentorship opportunities that made university more than just knowledge delivery and learning. They had been used to having casual coffee meetings and walking around the campus with their students to build connections. However, it proved challenging to try to find equivalent ways to create those connections online. Moreover, they found it more difficult to include mentorship via Zoom classes.

> *The students who are shy or someone might not have done very well in their assignments. So they want to catch you for a private moment about how to do better in grades or something like that. I think it's much harder for the students to do that in Zoom class. Because in the Zoom class, you just kind of disconnect and end the meeting.* (Amelia)

5.2.3. Heavier Workload and Draining Out

Participants reported that they experienced a heavier workload and felt drained by online-only teaching. There were reasons for this phenomenon. First, the participants had to spend more time preparing for online-only teaching. For example, they could present concepts and ideas vocally using body language when teaching face-to-face. However, these presentation cues were not easily transferred to online education. Participants had to make presentation slides and video clips in a highly structured way to gradually guide students toward understanding the material. It was also much more time-consuming to upload teaching materials to the platforms so students could access them.

I spent more time preparing the online class, for example, the PPT slides, the video clips, etc. However, this preparation is not necessary for onsite teaching. (Hua)

Second, the participants reported spending more time structuring online classes in ways designed to help students remain focused on their studies.

I have to keep probing to guide the students' focus in the online class, which is exhausting. (Jack)

Third, the instructors felt drained by the process, especially as they were not sure whether their students understood the teaching points because they did not receive instant feedback from the students on whether or not their online teaching was working.

For me, it was draining because, as I said, it's hard to bounce off the kind of feel of the room if it's just silent. So I ended up really exhausted after my classes, and I got really exhausted. And because you're not getting sound feedback from students. (Olivia)

6. Discussion

As the first comparative empirical study on the impact of COVID-19 on online teaching in early childhood teacher education settings in an Australian university and a Chinese university, this study found participant ECETs had similar negative experiences with online teaching, though with different levels of readiness. This section will discuss the seemingly contradictory findings guided by the following two research questions.

(1). How well did ECTEs prepare for online teaching in the Australian and Chinese TEIs?

This study found that participant instructors from case A and B universities had different readiness levels for online teaching. Specifically, participant ECTEs from the case A university were comparatively better prepared for online education than counterparts from case B university regarding proficiency and advancement in using online teaching platforms, trying different kinds of teaching styles, and using their online teaching skills, literacy, and competence.

These findings are consistent with results reported in the literature review that teachers' readiness for online teaching is affected by their institutional and contextual readiness and can be explained mainly by the micro (individual)–meso (institutional)–macro (contextual) analytical framework. The case A university's ongoing commitment to transforming into a digital campus was demonstrated through the significant investment in institutional readiness for online teaching and the university staff's training for digital skills, literacy, and competence. In particular, the case A university began in 2003 with online units in flipped classroom style mode for their Open Universities Australia (OUA) units. The university initially used Blackboard as a management system before switching to iLearn in 2012 as their delivery system, firstly for the Open Universities units, which were all taught solely online. The university began incorporating on-campus teaching into iLearn in 2012, gradually integrating their OUA units to match the two-semester system at the case A university around 2017 and had fully integrated both on-campus and online versions of their units into single units with different modes of study just before the pandemic. Thus, case A university had considerable online teaching experience before the pandemic.

Comparatively, the case B university had not developed a comprehensive e-infrastructure for online teaching and digital transformation as early as the case A university had. For

example, case B university had not built its own all-in-one web-based software platform such as iLearn. Thus, the participant ECTEs from case B university did not have access to a unified and technically advanced online teaching platform and had not been able to try different teaching styles and upgrade their online teaching skills and competencies progressively. This could explain why participant ECTEs from the case B university were not well-prepared for large-scale online teaching compared to their counterparts from the case A university during the COVID-19 pandemic. The findings can also partly be explained from the macro level (contextual background). The results are consistent with the literature that individuals from an individualistic culture have more chances and freedom to use technology than their collectivist counterparts. Moreover, the former is more likely to be innovative than the latter. However, since culture is a complex concept and is affected by various aspects, this small qualitative case can only partly verify the previous findings. More large-scale quantitative research is needed to check these conclusions.

(2). How did COVID-19 impact their online teaching based on their readiness?

Despite the marked differences in preparation, both Australian and Chinese participants perceived that the pandemic had a similar negative effect on online teaching. One reason for this was that the pandemic required this transition to online education to occur at speed on a much broader scale, which proved challenging to participants from both universities. The other related reason was consistent with the community of inquiry framework finding that standard online teaching methods used by the participant ECTEs in these two case-study universities could not guarantee the delivery of the kind of social presence, teaching presence, and cognitive presence that fields such as teacher education required, particularly for early childhood education. As a result, few participants were satisfied with the effectiveness of their online teaching efforts, even when their university provided online teaching support, because they could not realize these essential presences. The qualitative data show that their online teaching could not guarantee social presence since 13 out of the 14 participants allowed their students to turn off their cameras during class. The teaching presence was also lacking, since most participants expressed their need for online pedagogical teaching training as they could not just transfer the teaching content from face-to-face to online without updating their teaching pedagogy. The participating ECTEs were also not satisfied with their and their students' cognitive presence either, since they thought that online teaching was not beneficial for developing students' critical thinking skills, and this required their students to have discussions with each other and put their thoughts forward.

The findings are consistent with the content of the community of inquiry framework, suggesting that education experience occurs only when online classes can guarantee a teaching presence, social presence, and cognitive presence. However, the findings also indicate that the current community of inquiry framework needs to be updated in line with the suggestions of the scholars mentioned in the literature review [72,75]. For example, emotional presence should be added to the current framework since participants reported experiencing a heavier workload and psychological stress when engaging in large-scale online teaching for long periods. Other scholars have also put forward this suggestion [76]. In addition, other researchers suggested adding learner presence and learning presence to the framework [72,75]. This would also require a research focus on the student experience with online teaching during the COVID-19 pandemic.

7. Conclusions, Limitations, and Implications

The study found that although readiness happened differently, the pandemic had a similar negative impact on large-scale online teaching for ECTEs at the case A university and the case B university. The qualitative data also demonstrated that the participant universities remained as they began, at different starting points in the race to develop large-scale online teaching, even though global expectations are that online teaching will remain the norm even after the pandemic ends. Therefore, universities from countries as differently situated as China and Australia will continue to face common challenges regarding online

education, despite differences in their institutional and contextual readiness. This suggests that collaborative or cooperative efforts to address the shortcomings of this form of teaching could benefit all universities facing similar issues.

The study, however, has some inherent limitations. First, the research results and conclusions are not representative and cannot be generalized to other research since it was a small-size qualitative research project. However, this limitation is acceptable since qualitative research aims to interpret the nature of phenomena instead of generalizing facts. Further large-scale quantitative analysis for a country-comparative study is needed, perhaps also comparing different teaching areas. Second, the data resources limit the ability to draw firm conclusions since only Zoom interviews and secondary data were used due to the various restrictions during the COVID-19 pandemic. Using more methods and collecting more data from the participant universities were necessary to fill out the picture, but this was not feasible while COVID-19 restrictions remained in place.

Nevertheless, this study has some theoretical value and practical implications. First and theoretically, the study showed that instructor readiness for online ECE teaching was deeply affected by their respective institutional and contextual readiness. Second, neither group of participant instructors was happy with the effectiveness of their online-only teaching efforts, finding significant losses in the teaching experience and its outcomes. While the first can be addressed by institutions moving to install coherent and institution-wide management systems that support online teaching, the second suggests that urgent work is required for institutions involved in teaching specific courses to find innovative ways to address the problem of teaching skills that demand a high level of interaction online. It would be more widely beneficial if this work could be conducted collaboratively across countries since the ECTE program in both institutions was clearly affected in a similar way.

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