Article

Language Teacher Pedagogic and Digital Literacy Development Through Virtual Peer Mentoring: A Collaborative Action Research

Grace Yue Qi*
Massey University, New Zealand

Chujie Dai
Guangdong Ocean University, China

Abstract
Language teachers' pedagogic and digital literacy skills are key competences that enable effective, critical and reflective teaching practice. This study focuses on a virtual peer mentoring (VPM) programme tailored for language teacher professional development, involving two teachers, a mentee and a mentor, in a New Zealand university. The VPM programme aims to support the mentee teacher new to tertiary teaching and a distance mode of delivery on Zoom, the platform also used for teaching practice. Informed by the CARR framework and collaborative action research, the VPM programme undertook a cyclic process – *collaborative planning, actioning with peer support, reflecting* and *reimplementing/readapting* – to explore the mentee teacher's pedagogic and digital literacy development over a year, amidst the global pandemic. We, as teachers-as-researchers, gathered the multimodal data, including online teaching recordings, in-class online chat between the two teachers and learners, a stimulated recall interview, and self-directed written journals. Undertaking a robust thematic analysis, the findings revealed the mentee teacher's transformative pedagogical practices and enhanced digital literacy skills reflected in her online teaching sessions. Peer mentoring eased the pressure of the mentee teacher who, otherwise, needed to solely explore the affordances of Zoom and to address learners' needs in various contingent moments. Her teaching innovation, by integrating pedagogy and technology and practising reflexivity, has hence shone through. The study underscores collaborative efforts and actions in the iterative peer mentoring process that warrant language teacher capacity building for continued professional development in a digital age.

*Corresponding author. Email: g.qi@massey.ac.nz

1. Introduction

There has been a consensus that language teachers should equip multifaceted competences to address the needs of diverse learners in the 21ˢᵗ century (Guichon & Hauck, 2011). Given a large number of studies on emergency responses in the COVID-19 disruption, researchers have reminded us of challenges in providing adequate and coherent resources for language teacher development, particularly in transition from face-to-face to online teaching (Gacs et al., 2020; Paesani, 2020). Cheung (2021) undertook a case study of a Hong Kong ESL teacher's online teaching via Zoom and identified pedagogical beliefs, context and professional development as the three factors affecting teacher technology integration in their online class during the pandemic. These factors relate to Compton's (2009) online language teaching framework in which three domains, technology, pedagogy and evaluation, importantly intersect with teacher knowledge and ability development. In other words, there has been an expectation of the integration of technology and pedagogy for effective language teacher education and training (Hauck & Kurek, 2017).

The literature has indicated that the integration of multimodal technology and pedagogy through teacher preparation programmes can bring lasting changes, potentially transforming teaching practices (Desjardins & Peters, 2007; Hubbard, 2008). As Guikema and Menke (2014) note, "teachers who have experienced collaborative digital communities are less likely to use technology as an instructional tool and instead view it as an object of instruction" (p. 267). This view is associated with findings revealed in Kurek and Turula's (2014) study that only the multiliterate teachers acknowledged the affordances of technologies and consciously explored varied pedagogical options as they had at hand. In addition, the literature has also widely reported peer support resulting in effective language teacher development. For instance, Qi and Wang's (2018) study investigated a group of tertiary-level teachers of Chinese language in Australia who used a mobile-mediated social media app to form their own community of practice (Lave & Wenger, 1991) that emerged for their professional development. Such teacher-initiated community enables the teachers to "participate, share experiences and respond to others" (Parnham et al., 2018, p. 3), and to develop affection and collegiality as important foundations to their development at both personal and professional levels (Qi & Wang, 2018).

Findings of a qualitative study focusing on 113 Turkish pre-service English teachers' digital literacy practices by Akayoğlu et al. (2020) further confirm aspects arising from the above discussions. Their study reveals that language teachers' pedagogic and digital literacy development relies on i) their developmental understanding of pedagogical purpose in relation to digital technologies and how they can address these purposes in practice, and ii) teacher educators' modelling of digital tools integrated in varied teaching contexts. These perspectives resonate with our study as we explore a mentee teacher's developmental pedagogic and digital literacy skills through a virtual peer mentoring programme with a mentor teacher. This professional development programme took place in a distance offering of Chinese language courses in a New Zealand university between 2020 and 2021. The following section reviewing key areas of language teacher development in a digital age will help us identify the gaps that our study aims to fulfil.

2. Language Teacher Development in a Digital Age

2.1 Technological skills

How language teachers integrate technology pedagogically in their teaching practice has long been an issue that concerns researchers and language teacher educators. Further to Shulman's (1986) pedagogical content knowledge (PCK), Mishra and Koehler (2006) propose technological pedagogical content knowledge (TPACK) that highlights teachers' viable understanding of the interactions among technology,

pedagogy and content in their instructional design and planning to address the needs for learners in online environments. Since then, TPACK research has become an emerging research interest in language education. Most relevant studies have devoted to examining language teachers' TPACK through a quantitative survey adapted from existing inventories used in other subject areas (Tseng et al., 2020). For instance, Kharade and Peese (2014) explore pre-service language teacher improved problem-solving strategies through learning from exemplary teachers, observing the modelling of teacher educators, and reflecting on their practical outcomes. This process demonstrates a significant difference between the pre- and post-surveys in terms of TPACK scoring. Another professional development programme by Ansyari (2015) focuses on English teachers' learning to teach integrated with technology and design principles. This quantitative study again demonstrates an increase in the teachers' knowledge of each sub-domains of TPACK, and each intersection between technology, pedagogy and content. However, little research on TPACK has specified demanding competence or skills should teachers acquire for the fast-growing online language teaching.

According to Stickler et al. (2020), computer assisted language learning (CALL) scholars have summarised basic skills needed by language teachers, including using emails, word processing, internet use, software installation and application (e.g., Hu & McGrath, 2011), interactive Web 2.0 (e.g., social media platforms) (e.g., Stickler & Shi, 2016), and system security and maintenance skills (e.g., Peeraer & Van Petegem, 2011). To enable communicative, learner-centred language teaching, teachers need to develop confidence in integrating technologies into learning enhancement because "a lack of competence goes together with a lack of confidence" (Peeraer & Van Petegem, 2011, p. 980). Often teacher training or professional development programme, however, do not tailor these skills.

2.2 Digital literacy and practices

In contrast to simple technological skills which have often been reduced to technical skills, digital literacy and practices have embarked on a new possibility for exploring language and literacy learning that is linked to learners in their everyday digital practices. Pegrum et al. (2022) define digital literacy as "the individual and social skills needed to effectively manage meaning in an era of digitally networked, often blended, communication" (p. 5). It is argued that digital literacy comprises the interactions between learning, digital technologies and literacies, whereby it should be seen as beyond simple knowledge of technicality. As Dudeney and Hockly (2016) articulate it:

> Knowing how to use Facebook is a skill; knowing how to use it to build a community of life-minded individuals and use that community for professional and personal development is a literacy (p. 117).

To draw on a clear line in distinguishing digital literacy and technological competence, Tang and Chaw (2016) exemplify it as follows:

> [T]o be digitally literate, one does not just know how to find information from the web, but also has the ability to understand and assemble information from different print or digital sources. Digital literacy involves the mastery of ideas and is not just about using the technology itself (p. 56).

Both interpretations of digital literacy confirm the argument shared amongst the literature; that is, everyday online social skills for online communications and engagement and using new or advanced technologies for meaning-making do not naturally transfer or apply in learning occurred in educational contexts (Akayoğlu et al., 2020). Language learners may have sound knowledge of using certain digital tools but still lack the skills to transform the "practical, social use of technology to a more rigorous, pedagogical use" (Dudeney & Hockly, 2016, p. 116). This raises the urgency of need for language

teachers who provide scaffolding in training learners to use new media effectively, critically and reflectively in online learning spaces (Hampel, 2014). Language teacher professional development, as Dudeney and Hockly (2016) note, should ensure language teachers acquired with technical skills, an awareness and understanding of affordances and importance of technologies, and knowledge and skills of integrating technology into teaching practice.

2.3 Integrating pedagogic and digital literacy skills

Fundamental of technology integration is language teachers' capabilities to design, facilitate and organise a co-constructed, learner-centred, communicative language learning environments, afforded by technologies (Stickler, 2022; Stickler & Hampel, 2010). Integrating technologies into teaching practice should be seen as an important way of language teachers fostering students' language socialisation, collaboration and active participation (Compton, 2009). A number of previous studies have demonstrated ways in which teachers online strive to support learners in developing learning autonomy (e.g., Hu & McGrath, 2011; Levy et al., 2009). Hu and McGrath (2011) emphasise the need for language teachers to carefully consider every aspect of teaching a language mediated by digital technologies, specifically with reference to supervision, learning resources and strategies, feedback provision and collaborative learning. Aligning with the ultimate goal for learners to achieve learning autonomy, language teachers should be prepared to engage in "pedagogy for autonomy" (Smith, 2003). In other words, teacher needed strategies should not limit to online learning facilitation, but more importantly, can be potentially transferrable to learners for their independent and collaborative learning with peers and teachers in educational settings and beyond (Compton, 2009).

To further support language teachers in acquiring the strategies of integrating pedagogic and digital literacy skills into online teaching practice, Collins and Liang (2013) suggest online professional development should help teachers to practise solving the problems they are likely to encounter in real teaching contexts. While complex issues surrounding culturally and linguistically diverse learners may not be easily addressed through a non-tailored training programme, online teacher development should create "flexible, accessible and efficient" avenues in the hope of closing the gap between teacher preparedness and the learners' needs (Collins & Liang, 2013, p. 441). Wang et al. (2010) propose a holistic model for online language teacher training, called Practice, Reflection and Collaboration (PRC). This model, based on their previous study, consists of a two-stage training process – platform training and teaching practice. They highlight the importance of constant reflection and collaboration among trainee teachers as a way of achieving both their professional and personal development.

2.4 Reflective practice

The account of reflection is particularly important as it has long been developed for language teaching. Reflective practice (Dewey, 1933), further developed by Schön (1983), foregrounds the educational field. Rather than only focusing on individualistic reflection, Wallace (1998) expands the conception of reflective practice as it leads to successful teaching featuring collaboration and problem-based inquiries. As Farrell (2015a, 2015b, 2022) notes, reflective practice provides teachers with opportunities to awareness building of what they do and the reasons for doing so. He also reminds us that "a weak form of reflective practice is no more than a thoughtful event where teachers informally evaluate various aspects of their professional expertise" (Farrell, 2008, p. 2). If teachers do not know how they can manage any contingencies in teaching practice as a result of reflection, their reflection consequently can lead to "unpleasant emotions without suggesting any way forward" (Wallace, 1998, p. 292). Teachers need to be "systematically reflecting on their own teaching and taking responsibility for their actions in the classroom" (Farrell, 2008, p. 1). This positive appraisal of undertaking reflection resonates with our

present study as teachers systematise their reflection process by "collecting data about their teaching and examining their attitudes, beliefs, assumptions, and teaching practices, and use the information obtained as a basis for critical reflection about teaching" (Richards & Lockhard, 1994, p. 1). Godínez Martínez (2022) conducts a 22-month longitudinal action research with 24 teacher educators and two in-service English language teachers in Mexico. The findings revealed that teachers who had an open mind to experience challenges in practice were more willing to undertake reflective actions based on their critical inquiry, collaboration with researchers and modelled practices by their peer colleagues. This study has proven collaborative reflective practice which enables teachers and teacher educators effectively engaged in the reflective process and also allows personal-level continuous professional development.

Reviewing the literature on language teacher development, focusing on their pedagogic, technological skills, digital literacy and reflective practice, raises the concern that only the paucity of research has explored language teacher professional development in a digital age. Language teachers' knowledge, skills and practice continue to evolve in addressing learners' needs in multimodal learning environments. The following identifies a theoretical framework in which this present study is situated, informing a collaborative, reflective and critical language teacher professional development process in a time of crisis and beyond.

3. Theoretical Framework: Intersecting the CARR Framework and Collaborative Action Research

Informed by constructivist learning theories, and Community of Practice (CoP) and Community of Inquiry (CoI) models, Qi (2023) proposes the CARR framework, a virtual peer mentoring framework, concerning language teacher development in online multimodal environments. This CARR framework highlights a cyclic process – *collaborative planning*, *actioning with peer support*, *reflecting*, and *reimplementing/readapting* – afforded by digital technologies in a virtual peer mentoring programme. The CARR framework underscores peer mentoring as the "iterative cycle of analysis focusing on inquiry-based, collaborative learning and development" (Qi, 2023, p. 301). By exploring the intersection of multimodality and online teaching, this framework-informed cyclic process enabled social practices developed between the mentor and mentee teachers while they constantly exposed to and navigated uncertainties, challenges, and new possibilities in online multimodal environments.

This CARR framework entwins with action research which has gained growing attention as a research-based inquiry in applied linguistics and language teaching (Burns, 2011; Edwards & Burns, 2015; Mackey & Gass, 2022). The action research process highlights teachers' engagement that allows for teachers' voices to be heard and valued, thereby research findings can be more applicable to teachers in their everyday practice (Allwright & Bailey, 1991; Crookes, 1993). In other words, action research centres around teachers, empowering teacher agency and underlying the equality between researchers and teachers (Goodnough, 2010). Advocating "teacher-as-researcher" (Edwards & Burns, 2016), action research emphasises the process that enables teachers to make inquiries into problems in contexts and researchers joining the teachers to negotiate and collaborate to intervene the problems. As Burns (2010) defines, action research "[it] involves taking a self-reflective, critical, and systematic approach to exploring your own teaching contexts" (p. 2). It highlights the primary purpose of action research which is to "bridge the gap between the ideal (the most effective ways of doing things) and the real (the actual ways of doing things) in the social situation" (Burns, 2009, p. 290).

Action research can take on many forms, and one of them is collaborative action research (Feldman, 1999). Collaborative action research shifts away from an individualistic focus on individual teachers teaching and learning in their own classrooms to emphasise "change in social situations as the result of group problem-solving and collaboration" (Burns, 1999, p. 12). This perspective, as Kemmis and

McTaggart ([1988](#)) suggest, considers the collaborative dimension as a group achievement through the "critically examined action of individual group members" (p. 5). Having a largely populated women in (language) teaching, touched upon feminist research where women's ways of knowledge construction are context-dependent and personally and relationally oriented (Belenky et al., 1986; Golombek, 1994), collaborative action research provides an avenue for language teachers, particularly the female cohort, to strengthen their voices and bring research and practice closer together in effective ways ([Burns, 1999](#)).

Our study focused on two female tertiary language teachers in a virtual peer mentoring programme that emanated a continued professional development system informed by the intersection of the CARR framework and collaborative action research. This theoretical framework foregrounds the collaborative nature of mentoring that warrants the mentee teacher's developmental trajectories in terms of pedagogy and digital literacy in online multimodal environments. The next section entails the study design and the undertaking methods to examine the mentee teacher's developmental process in a time of crisis.

4. The Study

4.1 Context

The mentor and the mentee teachers, who are also co-authors of the paper, participated in the virtual peer mentoring programme (VPM hereafter) designed for language teacher professional development in a New Zealand university between 2020 and 2021 in the amidst of the COVID-19 pandemic. The first author initiated the programme because her colleague responsible for distance delivery was on leave, and she realised that it could be an opportunity for an early career academic who might be interested in teaching development for future career endeavours. This idea associated with her personal experience that before landing in a full-time academic position she was given teaching opportunities as a PhD candidate, and that her portrayed (language) teacher educator identity encouraged her to support other emerging academics. She approached the second author who was her co-supervising PhD candidate and stranded in China at the time. As she noted in her written reflection:

> I approached her because she told me before she would be willing to gain tertiary teaching experience so pursuing an academic career upon her PhD graduation. Also, her PhD is about online language teaching, in a different context though. (Mentor)

The second author accepted the invitation to facilitate synchronous tutorials provided to the learners enrolled in the distance mode of Chinese language intermediate courses. The same cohort of students, who took one course in semester two 2020 and continued with the other one offered in semester one 2021, were involved when this project was undertaking. Both courses adopted the flipped classroom approach ([Wang & Qi, 2018](#)); that is, learners were expected to learn and master key grammar points and vocabulary by using materials provided on the course site with necessary support from teachers and peers. When the learners attended online synchronous tutorials, learning activities were then to facilitate them to consolidate knowledge and practise and use the language in varied contexts. The tutorials for each course ran weekly in two alternate contact times (evening and noon) to cater for the needs of distance learners who were mostly studying part-time. Learners were able to attend one or both times to interact with the teacher and other peers synchronously on Zoom as the teaching platform. Video recordings were available for students, who were absent in live sessions, or regarded them as resources for revision.

4.2 Participants

The mentor was the course coordinator and is an experienced language teacher and researcher. She designed both courses and the VPM programme tailored to support online language teachers, such as the

mentee teacher, who at the time had little experience in teaching languages at tertiary level in the New Zealand context. The mentee was a novice teacher, despite her prior experience of teaching Chinese in the face-to-face classroom and distance Chinese in one-to-one settings. Participating in the VPM programme was her first time tutoring a group of learners online in a Western context. She was motivated to accept the invitation because she believed this experience would enrich her teaching experience and career development. Given her PhD was about online teaching practice, she was also keen to understand challenges learners may experience in her facilitating tutorials.

4.3 Ethics, principles and rights in collaborative action research

Kemmis and McTaggart (2005) propose the "spiral of self-reflective cycles" (p. 563) to indicate that a single researcher can undertake action research. However, our study, employing the theoretical framework emerged from the intersection of the CARR framework and collaborative action research, emphasises *collaboration* between two *teachers-as-researchers* in a social practice in which they were both voluntarily engaged. This aligns with the five characteristics identified by Locke et al. (2013, p. 112):

1) A praxial focus: practice is ethically examined in terms of its effects or ends and there is a dialectical relationship between theory and practice.
2) A recursive process, in which we draw on the CARR framework informed cyclic process (Qi, 2023).
3) Non-hierarchical collaboration and partnership.
4) Critical self-reflexivity: teachers as researchers are "aware of the ideological imperatives and epistemological presuppositions that inform their research as well as their own subjective, intersubjective, and normative reference claims" (Kincheloe & Mclaren, 1994, p. 140).
5) Dissemination, in which we collaborate to disseminate our findings to engage with other practitioners and researchers in the field as a crucial aspect of action.

Although our study was based on our own practice, we must consider the impact of data collection, reflection and action on others, such as language learners involved in the process, particularly when we planned to disseminate our practice. We ensured our intervention for learners' needs by taking into account moral rights of learners, duty of care for learners, and tasks related to learning (Locke et al., 2013).

4.4 Research questions

Informed by the CARR framework (Qi, 2023), both teachers-as-researchers engaged in each stage of the cyclic process each week, over a year. Employing the collaborative action research methodology (Burns, 1999), we asked:

> How and in what ways can a tertiary language teacher be continually supported in developing their pedagogical practice and digital literacy in response to the needs of learners in online multimodal environments?

4.5 Data collection and analysis

To answer the research question, we collected multimodal data from multiple sources, including 1) online teaching recordings, 2) in-class online chat between the two teachers and learners, 3) a stimulated recall interview, and 4) self-directed written journals. We adopted a robust thematic analysis (Braun &

Clarke, 2006). The first author read all the data twice and made notes to record her initial analysis on each dataset. She then arranged a meeting with the second author to explain her interpretations according to her notes and invited the second author to comment on them and share her thoughts on the analysis. The first author revisited the data and meeting minutes. Followed by another meeting, both researchers reached an agreement on the themes generated from two cases selected by the mentee teacher.

In what follows, we present the two cases, exemplifying how the mentee teacher was supported by the mentor in developing her pedagogic and digital literacy skills to cater for her students' needs in the CARR informed cyclic process.

5. Case One: Designing and Implementing a Dictation Task as a Weekly Warm-up Activity

The mentee teacher recounted a case displayed her trajectory of "collaborating" and "actioning with peer support" with her mentor teacher in line with the CARR framework. A few critical periods below presented her development of pedagogic and digital literacy skills as she attempted to design and implement one dictation task.

Indicated by learners in previous offerings who sought support, including "more connections between the learnt and the new in the tutorials" and "feeling not enough practice and interaction within the tutorial time" (student evaluation comments in 2019), the mentee teacher proposed a dictation task to help learners refresh their learnt new vocabulary and key sentences prior to the tutorial. Further support might she address as if necessary for students. In her delayed reflective accounts, she explained that her decision of using dictation as a learning opportunity in relation to her previous language learning and teaching experience:

> I believed it was helpful when I was learning a foreign language. When I was learning English, the teacher employed dictation, and when I taught in Thailand, I used this task too. I think it is a good method to examine learners' listening and Chinese Hanzi recognition skills, such as whether they can remember the target characters, know how to write/type them, or identify them among other characters. I think the dictation task can help learners improve these skills, and help the teachers know and follow up learners' learning progress. Therefore, I often use dictation. (The mentee teacher)

Initially, the mentee teacher designed to implement the dictation task with the content in coverage of two lessons. This means that she can kill two birds with one stone – that one task can support in reviewing the knowledge introduced in the previous lesson and checking on learners' mastery of the basic contents of a new lesson in a week. However, after observing one lesson implemented as such, the mentor suggested to only focus on the content introduced in the previous session and add a different activity to the end of the tutorial in support of students' consolidation and mastery of the new contents in a week. In the mentor's reflective journal, she realised, while observing the mentee teacher's session that "the design did not seem to work well for some students[…] at least when I was observing the class, I found some students really struggled to react to the sentences or words that were supposed to be mastered before the tutorial for that week." The mentee teacher took the suggestion to re-adapt the dictation activity to focus on the "review." The mentee teacher later explained in the stimulated recall that distance learners were generally "time jealousy because of their full-time worker status." With only one hour in-class time, she was also afraid that she "could not allocate too much time in a revision activity; otherwise, learners might feel bored and pressurised." Their mentoring support in improving the planning stage in line with CARR demonstrates their collegiality and social practice in one weekly warm-up activity presents contextual dependent and learner-centred developmental practice over time (Burns, 1999).

In facilitating the dictation task, as an important stage of CARR – *actioning with peer support*, the mentor teacher took part in the chat on Zoom and supported the mentee teacher with the task delivery. The mentor understood online teaching expected teachers to be "multitasking", which as she narrated in the reflection, "multitasking is challenging, and for my mentee, that's certainly true." She assisted the mentee by providing students with feedback on Zoom chat and provided in-time suggestions to her mentee through the Zoom afforded private messaging (see Figure 1). The mentee teacher reported this type of in-time support for learners was "beneficial" although private messaging for her was "a little intimidating" as she put in her written reflection. As a novice teacher in an unfamiliar teaching environment and context, she was overwhelmed by the amount of information she had to process simultaneously while she was teaching – checking on learners' answers, thinking about how to provide imminent feedback if there was an error, managing a suitable speech pace and so on. With the mentor's support, as the mentee teacher reported in the stimulated recall, "that was such a big relief!" However, private messaging to provide suggestions to her in-time could have added extra pressure on her. This points out the challenging aspect in this stage of CARR which explains *actioning with peer support* emphasising peer support in the action of delivery (Qi, 2023). It aims to draw on unique approaches and strategies that the mentor teacher might be able to offer to the mentee teacher for her emotional and intellectual development in the contingent moment.

As shown in Figure 1, the mentor noticed one learner (SS5) who was a little behind than his peers in typing out the words required. As the mentor teacher recalled, "he might be struggled by comprehending or locating the words through the Pinyin input," therefore she offered him a hint to help him recount the words he should have known. She later suggested the mentee teacher repeating the words/sentences for students to process in the private chat, and the mentee actioned immediately. The mentor's support relieved the mentee teacher from juggling between delivering task and providing feedback, so the mentee teacher could invest her energy in better implementing the dictation task and facilitating the session, and gradually developing her multitasking capacity needed for online teaching practice. This process presents agency as the key in responding to unplanned incidents and demands (White, 2018) enabled by the Zoom chat function, and the mentor teacher who were socially present on Zoom in supporting the mentee teacher to facilitate personalised learning and to accommodate individual learner's needs.

Figure 1

An Example of the Mentor Teacher Supporting the Mentee Teacher in Providing Students with Feedback on Zoom Chat in a Dictation Task

Zoom chat

15:03:50 From SS1 : 2. 我没吃炒饭，也没喝茶。

15:04:03 From SS2 : 2. 我没吃炒饭，也没喝茶。

15:04:08 From SS3 : 我没吃炒饭也没喝茶、

15:04:08 From SS4 : 我没吃炒饭，也没喝茶

15:04:34 From Mentor : wo

15:04:45 From SS5 : 我没吃炒饭，也 没喝茶

…

15:06:35 From SS5 : 你想去看电影吗

…

15:06:54 From Mentor: Good job, SS5!

Note: The dictated sentences were "我没吃炒饭，也没喝茶。(I didn't eat fried rice nor drink tea)" and "你想去看电影吗 (Do you want to watch a movie?)"

Although the Zoom chat seemed working well as indicated in Figure 1, the mentee teacher noticed sometimes learners might be confused or found it difficult to process multiple messages from both teachers and peers. As a result, they might dismiss the teacher's written feedback and sometimes misinterpret it in the tutorial session. In Week 4, the mentor teacher started to experiment the whiteboard featured on Zoom to provide necessary support for learners while the mentee teacher was attentive to facilitating the task (see Figure 2). The mentor intervened the dictation task by using the whiteboard to demonstrate handwritten Chinese characters (Hanzi hereafter), while learners were typing on the chat. Through this, every learner could identify the correct form of Hanzi, the process of writing Hanzi and compare and self-correct their own typed-out sentences. In the post-session reflection, the mentor thought it went quite well but queried if there could be a feasible way for learners to also use the whiteboard than the chat for this dictation task. The mentee teacher was hesitant to take it on because "it might take me a long time to explain how to use the whiteboard to the students in the session, given the task was only a warm-up activity for maximum five minutes." Later in her written journal, the mentee teacher questioned herself, "why not trying it once and see how it goes?" Nevertheless, she attempted it in Week 7, where she displayed the whiteboard and gave learners the options of either using the whiteboard or staying on the chat. Figure 3 shows one of the learners typed Hanzi on the whiteboard, while others still preferred the chat. Checking on both spaces – the whiteboard and the chat, the mentee noticed Student SS3 had trouble to type out Hanzi, 星期 (weekend, *xingqi*) because of his incorrect Pinyin input for the Hanzi in "shinchi". The mentee noticed and demonstrated the correct Pinyin on the whiteboard as shown in Figure 3, while verbally drawing the student's attention to the correction. She reflected her decision of using the whiteboard in this session, "it offered an alternative choice to the learners who wanted to explore different functions and affordances of the Zoom platform, and it was more effective for me to provide feedback." She appreciated the affordance of the whiteboard that enhanced the facilitation of the activity because "it enabled the learner who encountered difficulty of particular words to figure out the mistake and correct by himself, and this approach also reminded other learners of how a word should have been spelt out in Pinyin." The new approach allowed for tailored support for learners who had difficulty to input the Hanzi on keyboard, and meanwhile provided digitally enabled flexibility for more personalised learning during the session.

Figure 2

The Mentor Teacher's Experiment of Using Zoom Whiteboard to Provide Feedback and Support for Students in Week 4
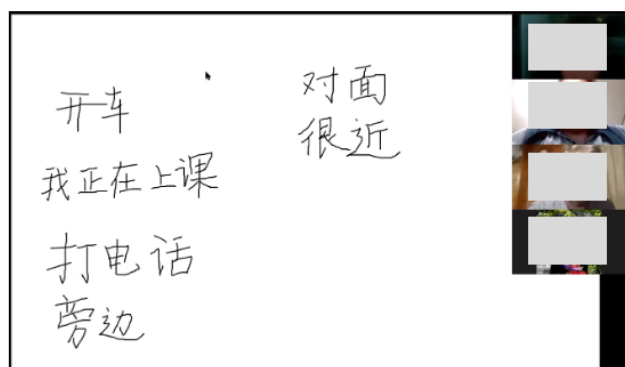
Texts on the whiteboard	Translations
开车	drive a car
我正在上课	I'm having a class
打电话	make a phone call
旁边	beside, next to
对面	opposite to
很近	near, close

This case study demonstrates the three stages of the CARR framework: the two teachers planned the task collaboratively; during the implementation, the mentor offered timely support on the Zoom chat; after implementation, they reflected on the use of multimodality that the Zoom platform could afford for effective learning and teaching. The mentor demonstrated the use of the whiteboard and suggested ways in which she could improve learning experience, later addressed by the mentee. In this cycle, with the peer support, the mentee developed her pedagogical practice and further explored the affordances of the Zoom platform, consequently improving her digital literacy. The mentee's initial design of the dictation task aimed at how she might scaffold learners in this review-type task, alongside selecting words and sentences appropriate for the task in fulfilling her teaching objectives in line with traditional second language acquisition pedagogy. Reminded by the mentor to emphasise the needs of learners, the mentee teacher eventually realised there were varied aspects and details to be considered before, during and after the implementation. The entire process was iterative, cyclic informed by the CARR framework that enabled the mentee in exploring the possibilities for her students in practice (Qi, 2023).

Figure 3

Students Were Given Choice of Using the Whiteboard or the Chat for the Dictation Task in Week 7

Texts on the whiteboard in blue	Translations
每个星期三我都有中文课。	I have Chinese class every Wednesday.
天气好的时候我就去游游泳。	I would go to go swimming if the weather is good.

Zoom chat:

15:02:35 From SS4: 梅个星期三我都有种文课

15:03:35 From SS4: 每个星期三我都有中文课

15:03:40 From SS3: 每个 shinchi 三我都有中文课

15:04:01 From SS5: 每个星期三我都有中文课

Note: The dictated sentence was "每个星期三我都有中文课 (I have Chinese class every Wednesday.)". SS3 had trouble with the word "星期三(xingqisan, Wednesday)".

6. Case Two: Being and Becoming Digital Literate on the Zoom Platform

This case specifies the mentee teacher's digital literacy skills developmental processes, concerning the two stages of CARR framework – *reflecting* and *reimplementing/readapting*. Undertaking the cyclic process beginning from *reflecting* implicates that a new potential of activity design and implementation through peer mentoring may take place.

The mentee teacher selected two sessions that were appealing to her in the stimulated recall interview with the mentor. One of them, which she pointed out was apparent for her professional development, was

none of her learners turned on their camera in a session. Before this incident, as reflected in the journal, she had not realised being able to see learners' live image could have had an enormous impact on a teacher. Drawing on her own experience, when attending online seminars, she often chose turning off the camera because she believed "as long as the presenter could hear my audio response, the interaction was unaffected." However, being a teacher who was unable to see the learners in class urged her inquiry on "how challenging it could be" as she narrated in the stimulated recall,

> If the learners do not use webcam, and I cannot see them, it will become a big challenge to me. When I could not see them nor hear any sound from them, I would feel insecure and be worried about my Internet connection, e.g., whether I am still on Zoom. It would not be a problem if I could see them and know their reactions to what I said. I relied on learners' facial expressions and behaviours. They don't have to say something – making a nod in fact indicates they are there listening. If I saw a frown, I could adjust my teaching approach. Being able to observe their reactions could help me make appropriate and timely pedagogical decisions. (The mentee teacher)

This experience deepened the mentee's understanding of social presence, which is important in the online teaching environment (Garrison et al., 2010). She and her learners co-present in an online tutorial in which they are supposed to co-inquire and co-construct learning. For online language learning, such social presence is particularly significant, as this learning is situated in a (digital) social practice (Barton & Potts, 2013). After the session, she shared her feeling with the mentor, and later they decided to signal students by encouraging them to use the camera verbally in the next tutorial.

Besides camera-in-use, the mentee teacher also recalled a session in which she was teaching of asking for directions. At the activity design stage, she planned to use the maps of the cities where her learners have resided or visited in real-life, and to invite them to talk about these cities. She believed that using authentic materials, such as Google Map, which related to learners' lived experience, could stimulate their interest in engaging more in the activity. She prepared different screenshots of familiar areas on Google Map, making sure each of the learners could have an equal opportunity to practise speaking (see Figure 4). When implementing the activity, as Figure 5 shows, through the Zoom chat, the mentor suggested to re-organise it as a pair work, by asking one learner to describe his/her neighbourhoods and the other to use the annotation tools to draw a map accordingly on the whiteboard. The mentee reacted by facilitating the activity in a modified version (see Figure 6). Later, the mentee teacher critically reflected the activity (re)implementing process in their stimulated recall interview:

> In my design, I expected Google maps could facilitate learners to describe real locations and this activity would be perceived useful for learners as it reflected their real-life contexts. When one of the learners was asked to answer the questions displayed on the slides, others could rehearse their own answers privately. However, this was still teacher centred. By modifying the activity organisation, the learners were not restricted by maps, and were empowered to express freely and creatively. And they could feel more in control in the learning experience. (The mentee teacher)

This revised activity indeed provided an avenue for collaborative learning. Not only were the learners' describing images in speech and drawing as means of engagement, the rest of the learners in the tutorial could also enjoy and learn from the process. As a result, more interactions between learners-teacher and learners-learners, such as they were actively clarifying their intentions or correcting each other's expressions in a friendly way. The modified attempt to facilitating the activity offered learners a more enjoyable learning experience and provided them with opportunities to explore multiple functions on Zoom that created affordances for learners and the mentee teacher to navigate and engage in this online social practice (van Lier, 2004). This experience fosters the mentee in realising the importance of exploring the technological affordances and creating new affordances for student-peers' interactions with the support of digital technologies.

Concerning the two critical sessions, we can see the mentee teacher enacted her agency to being and becoming a reflective teacher in the peer mentoring process through the VPM programme (Farrell, 2015b). She undertook reflection-in-action (e.g., addressing the mentor's suggestion), reflection-on-action (e,g., constantly reflected on her approaches as soon as the session ended with the mentor teacher) and reflection-for-action (e.g., recorded her thoughts, actioned for prioritising the learner needs and adopted learner-centred pedagogical approach in her design and implementation of activities) (Farrell, 2022). These reflective approaches have allowed her with confirmation that she is growing to become a competent teacher to teaching online. Equipped with this confidence, she further envisaged her potential of being digital literate, such as applying "breakout rooms to implement group work activities to encourage learners to interact with each other." In her stimulated recall interview, she also shared her implementation of a storytelling activity to encourage learners to create their storylines in small groups for about five minutes. Each group presented their co-authoring stories in the main room where everyone returned to learn from and exchange ideas with one another.

Figure 4

Using Maps to Practice the Giving Directions in Chinese

Translations:
Let's talk.
1. Is the museum far from the botanic gardens?
2. Is the art gallery far from the botanic gardens?

Figure 5

The Mentor's Suggestions to the Mentee in Private Messaging during the Activity Implementation

Zoom chat	Translation
15:53:25 From Mentor To Mentee (privately) : we can stop at SS1, and ask them to talk about their own house surroundings	we can stop at SS1, and ask them to talk about their own house surroundings
15:53:48 From Mentee To Mentor (privately) : 好的 这个结束就问	OK, I'll do that when I finish this task.
15:53:59 From Mentor To Mentee (privately) : 做这个： everyone prepares for 1 minute, and talk about your house surroundings:	Do this activity: everyone prepares for 1 minute, and talk about your house surroundings:
15:54:13 From Mentor To Mentee (privately) : share the whiteboard to prepare for this task	share the whiteboard to prepare for this task
15:54:27 From Mentor To Mentee (privately) : 我来画一个画	Let me draw a picture

Figure 6

Modified Activity in Pairs Enabling Learners to Draw and Practice the Language
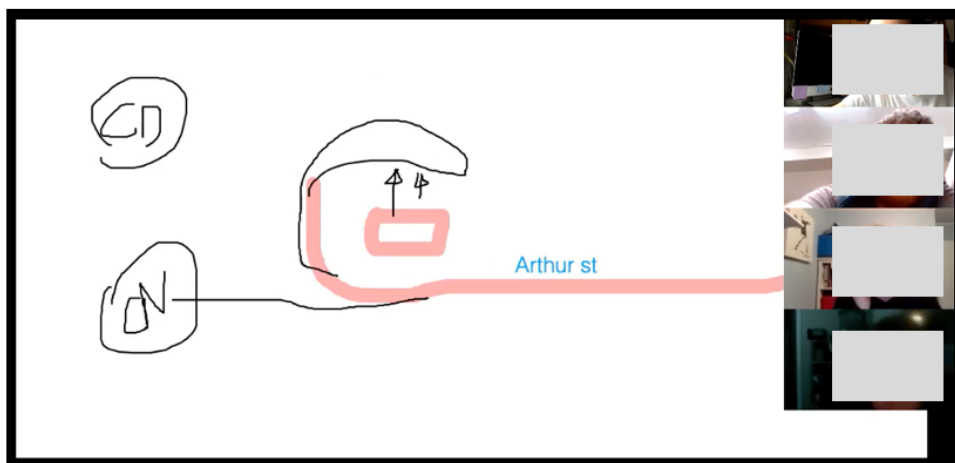
7. Discussion

Both case studies selected by the mentee teacher as to demonstrate her engagement in the cyclic process of the CARR framework informed her professional development with the support of the mentor teacher throughout the two semesters. The two teachers' collaboration not only demonstrated in the first stage of the CARR framework for designing activities, but more importantly, across all stages and in critical, reflective and effective ways (Hampel, 2014). Collaborative reflective practice is vital in their agency enactment for re-designing, re-implementing and re-adapting activities for more effective learning (Farrell, 2022). For instance, the mentor teacher modelled new ways to benefit learners' language and literacy learning through the whiteboard embedded in the Zoom platform. The mentee teacher took this idea into account in her reflection and addressed her concerns in her stimulated recall with the mentor teacher before implementing the new approach in her session later. This process was crucial for the mentee teacher as she realised her authority in her teaching with a strong sense of prioritising learner-centredness, although she knew she was well-supported by the mentor teacher. Continuing with her critical reflection on her pedagogical approach and practice of implementing the dictation task, she eventually decided to give her learners options, staying on the chat or using the whiteboard, for their own learning. This decision-making was indeed meaningful for her learners to develop their digital literacy capacity, and also for herself to become digital literate in her role as a learning facilitator. As Godínez Martínez (2022) concludes in his study, our study also alludes that collaborative action research enabled both the mentee and mentor teachers to co-construct new understandings about the teaching contexts, the learners, their needs and learning environments, and of theory and the practical reality through individual reflexivity and collective knowledge and growth. This is the realisation of "teachers-as-researchers" (Edwards & Burns, 2016).

Online interactions between the two teachers were contingent as well as congruent. Regardless of intimidating in-time private messaging from the mentor teacher, their established relationship, from initially as the PhD supervisor-PhD candidate, to become the mentor-mentee in a teacher professional development setting, has ensured their strong belief in *collaboration* (Locke et al., 2013; Qi, 2023; Wang et al., 2010). This virtually, Zoom-enabled, peer mentoring leveraged and contributed to both teachers' developmental reciprocity and collegiality (Qi, 2023). Focusing on the mentee teacher's pedagogic and digital literacy development, their ongoing collaboration throughout the cyclic process in the VPM programme resulted in their displayed disposition, flexibility, and continued development of reflective qualities important for practitioners. The mentee teacher selected critical moments reflecting her self-

consciousness, agency and growth that settled her in embracing innovation as part of her transformative teaching practice. She has become a reflective practitioner undertaking reflections in-action, on-action and for-action. Her growth of competence aligning with her confidence in online language teaching (Peeraer & Van Petegem, 2011) has elicited in her teaching innovation, such as valuing and readapting tasks for learner engagement and joyous learning for socialisation.

8. Conclusion

This investigation, employing the intersection of the CARR framework and collaborative action research, strongly advocates peer mentoring as an avenue provided for both novice and experienced teachers-as-researchers to collaborate (Nguyen, 2017; Qi, 2023). The two teachers have demonstrated their achievement of collaboration enabled the mentee teacher's growth through inquiring into addressing learners' needs and challenges, sharing experiences, modelling new possibilities pedagogically, and developing individual and collective knowledge, competence and confidence in online multimodal learning environments. Limitations of the study cannot be overlooked as only two teachers, a mentee and a mentor, in higher education, were involved, though, by approaching a longitudinal design, emphasising the development of the mentee teacher's pedagogic and digital literacy skills. There might be concerns over whether such virtual peer mentoring programme in line with the CARR framework could be taking place in school contexts. We suggest integrating the CARR framework with collaborative action research as we have achieved in this study, particularly for teachers in the school sector who usually have no spare time for any additional development possibilities. Our two case studies exemplifying the mentee teacher's growth have also demonstrated the potentiality of applying the CARR framework in contextually dependent and learners with diverse needs situations by starting from one of the four stages. It means that the CARR framework features the flexibility and adaptability and can be a modifiable template for future research focusing on tailored (language) teacher training and professional development programmes (Qi, 2023). The collaborative repertoire emerged from this study, certainly not a new concept, has once again suggested a trajectory of fostering effectively, critically and reflectively continued professional development in response to online teaching needs.

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Dr Grace Yue Qi is a Senior Lecturer and Researcher in the School of Humanities, Media and Creative Communication, Massey University, Aotearoa New Zealand. Her current research interests lie in the epistemological and ontological intersections of language, culture and technology, as well as the humanistic orientation of language education. She is particularly interested in language teacher agency, identity construction and negotiation and tailored ongoing training and professional development for language teachers' transformative practice. Her recent projects and publications also include curriculum design and pedagogy for learning diversity, multilingual education, decentring languages/languaging, and early language policy and planning in Australasia.

Dr Chujie Dai is a Lecturer in Guangdong Ocean University. She holds a PhD in Applied Linguistics from Massey University, New Zealand. Her research focuses on teaching Chinese to speakers of other languages (TCSOL), teacher development, and online teaching and learning.

线上同伴协助指导增进语言教师教学法与数位素养发展：协同行动研究

祁越 *
梅西大学，新西兰

戴楚洁
广东海洋大学， 中国

摘要
语言教师的教学法与数位素养是实现有效、具有批判性及反思性教学实践的关键能力。本研究着重描述了如何通过一个专为教师专业发展量身定制的在线同伴协助指导（VPM）项目协助一位初次接触新西兰高等教育环境的语言教师发展和提升这两方面的能力。通过线上平台Zoom，该项目有新西兰一所大学的两位语言教师参与，其中一位为同伴中的 "徒"，另一位则为"师"。在 CARR 教师发展框架以及协同行动研究（collaborative action research）的启发下，VPM 项目强调一个同伴协同发展的循环过程，即：协作教学规划、在同伴支持下的教学过程、教学反思、教学设计及形式的重新实施／调整。本研究中"徒"在 2020-2021 年期间通过这一循环得到了教学法与数位素养能力的提高。视教师为研究者身份，我们采集了多模态数据，包括线上教学录像、教师之间以及与学生在教学中线上聊天室的互动文本、教师之间的一次刺激性回忆访谈、和教师自主性反思教学日记。通过严谨的主题性分析，调查结果展现了"徒"在线上教学中教学实践的变革和数位素养能力的提升。同伴协助指导减轻了"徒"的压力，特别是在"师"的陪伴下， "徒"无需独自探索 Zoom 功能或同时处理教学中的突发事件，而可以更关注学习者的需求。因此， "徒"有更多精力探寻将教学与技术相结合的教学法，实现反思性教学的创新和突破。本研究强调同伴协助指导中，教师协同合作确保了语言教师的能力培养，以及实现数字时代下可持续性语言教师专业发展的可能性。

关键词
协同行动研究；同伴协同指导；语言教师；数位素养；专业发展

祁越博士，高级讲师，博导，专注应用语言学研究，主要研究方向为多语言教育及语言政策，教师发展，以及科技辅助学习。现就职于梅西大学人文、媒体及创新型传媒系。

戴楚洁博士，讲师，毕业于新西兰梅西大学人文、媒体及创新型传媒系。主要研究方向为汉语国际教育，教师发展，远程教育。现就职于广东海洋大学文学与新闻传播学院。