

Teaching with Technology in the Post-pandemic Digital Age: Re-imagining language teaching in a time of technological normalisation and generative-AI

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Technology has long been a valuable resource for language teachers to use to support their teaching and student learning (Li, 2017). Despite efforts from educators, scholars, and policymakers, however, the full integration of technology into language teaching, or ‘normalisation’ defined by Bax (2003) as “the stage when a technology is invisible, hardly even recognised as a technology, taken for granted in everyday life” (p. 23), had not been evident in language classrooms in many contexts (John, 2018). Following the steps of ‘normalised’ technology integration in other human domains (e.g., banking, travel, medicine, entertainment), this special issue examines how technology might be reimagined in the language teaching context.

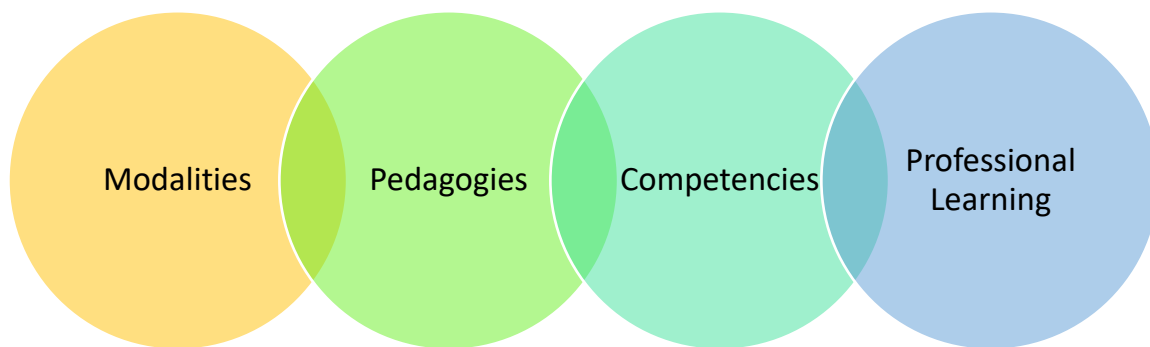
In 2020, the COVID-19 virus emerged and rapidly spread around the world, leading to the closure of schools and suspension of in-person teaching. Language teachers were generally inexperienced, ill-prepared, and lacked the required digital competence for the demands of using technology for teaching (Wang & Stockwell, 2023; Wong & Moorhouse, 2021). Yet, teachers had to devise, often through a process of experimentation, context-specific technological solutions. This led to rapid technological and pedagogical innovations in response to the pandemic and a re-conception of language teaching for online modalities (Moorhouse & Kohnke, 2021). High-resource contexts saw teachers adopting video-conferencing software (e.g., Zoom) to teach synchronous online language lessons in tandem with learning management systems (e.g., Google classroom) for asynchronous teaching (Wong and Moorhouse, 2021). In low-resource contexts, teachers utilised whatever technology was available, such as mobile phones, to connect with learners through instant messaging platforms (e.g., WhatsApp) to disseminate learning materials, facilitate interaction, respond to student questions, and collect students’ work (Amin & Sundari, 2020).

As we slowly emerge from the pandemic, its effects on every aspect of human life are starting to be understood. Early findings in some contexts suggest that after the pandemic, there has been a greater utilisation of technology for language teaching, and now technology is embedded in teachers’ practices (e.g., Moorhouse, 2023). Have we now reached Bax’s interpretation of ‘technological normalisation’? Indeed, language teachers seem to have increased confidence and competence in using technology for teaching. At the same time, technological advancements have not stopped. Speculations and debates regarding the disruptions and opportunities generative AI (e.g., ChatGPT) will bring to language teaching, learning, and assessment are now the talk of the town in schools, universities, and language institutions worldwide (Yeo, 2023). Generative AI is the part of Artificial Intelligence that leverages deep learning models to generate human-like content, including audio, code, images, text, simulations, 3D objects, and videos. Generative AI draws on existing data and the internet to generate texts. It can also generate new and unexpected outputs in response to varied and complex prompts (e.g., languages, instructions, questions) (Lim et al., 2023).

This special issue in *RELC Journal* entitled, ‘Teaching with Technology in the Post-pandemic Digital Age’ aims to help us understand the effects the pandemic has had on teaching with technology and postulate whether we are now in a time of technological normalisation in language teaching, especially as we enter the era of generative-AI. In this editorial, we present key implications of the **XXX** papers in this special issue in terms of:

- Where technology is being used by language teachers and how technology has redefined the ‘language classroom’ (modalities)
- How language teachers are reconceptualising teaching with technology (pedagogies),
- What knowledge and skills teachers need to use technology for teaching (competencies), and
- How teachers are learning to use technology for teaching (professional learning).

We hope that this issue adds to the understanding of language teaching in a time of technological normalisation and generative-AI.



Modalities – Redefining the language classroom in the digital era

Technology has enabled language teaching to transcend physical spaces and even physical realities. Teachers can find themselves conducting language lessons that are synchronously online, face-to-face, or hybrid (a combination of face-to-face and synchronous online). Teachers may be teaching through only one mode, or blending online and face-to-face modes, or asynchronous and synchronous online modes (bichronous) in a teaching sequence. Teachers may even be teaching in immersive virtual reality (VR) environments, such as the Metaverse. Technology has, therefore, redefined the concept of the ‘language classroom’ from a physical space in a set location to any space, virtual or physical, where teachers and learners interact, asynchronously and/or synchronously, with the shared aim of language learning.

The effects of the modality of the language classrooms were one of the most evident aspects of teaching during the pandemic. It created a situation where all teaching and learning were mediated through technology. Initially, adopting technologies such as video-conferencing

tools (e.g., Zoom, Microsoft teams) to teach synchronous online lessons was seen as a quick and easy way to shift the physical classroom online as an emergency response. Yet, teachers soon realised that teaching synchronously online was very different from teaching face-to-face. Lessons were less dialogic, characterised by long silences, blank screens, and limited interaction (Cheung, 2023). Practitioners and scholars observed that synchronous online lessons required new pedagogical practices explicitly considering the teaching and learning modality (See for example, Moorhouse et al., 2022). However, the effects of the synchronous online teaching modality on students has largely been ignored by researchers. **Hafner and Xia (2023) address this issue by presenting the experience of one group of students engaged in project-based learning during the pandemic. The authors draw our attention to the socio-technical divide that can emerge during remote teaching and provide teaching strategies to bridge the divide as we enter a post-pandemic digital age.** It seems necessary for teachers to be aware that students' social, linguistic, and cultural differences may significantly affect their expectations, behaviors, technological competence, engagement, interaction, and, ultimately, their language learning in different language classrooms. More research needs to be done for us to gather a more complete understanding of students' practices during synchronous online lessons.

As we enter a post-pandemic era, the use of blended modalities for language teaching are increasingly significant. Teachers and learners are now interacting with each other and learning content synchronously and asynchronously, digitally, and face-to-face. This is in large part due to the proliferation of digital tools that can be used for the dissemination of multimodal learning materials, asynchronous interaction, and submission of assignments. Digital tools such as Padlet (see Oh, 2023 for a report of Padlet), Nearpod (see Carey, 2023, for a report of Nearpod), Flip (see Chen & Wong, 2023 for a pedagogical innovation involving Flip), SmartBoard (see Coronel, 2023 for a pedagogical innovation with SmartBoard), and Perusall (see, Tavares, 2023 for a pedagogical innovation involving Persusall) allow for increased fluidity between in and out of class time. For example, Oh (2023), a secondary school teacher in Hong Kong, describes how she uses Padlet to facilitate discussions, illicit student contributions, support independent and collaborative research and for students to share their multimodal learning products, as part of a learning sequence that blends in and out of class work. Over time, these digital tools have become more intuitive, easier to use, and accessible. This has increased their usability for language teaching. It is now easy for teachers to engage students in learning activities that transcend time and space.

Looking forward to our future beyond the pandemic, discussions and debates centre around VR modalities. With VR headsets and digital platforms, students can be immersed in a realistic imitation of a real or imaginary environment and interact with other learners, teachers, bots, and avatars in real-time. VR's potential for language teaching and learning has attracted much attention from researchers and practitioners (for example, Wu et al., 2021). In this special issue, **Dooley (2023) reports on a pilot study that explored the effects of a three-month-long VR intervention on 10-11-year-old Spanish EFL learners' target language production. They found that while the production of English in VR was less controlled and less accurate than in traditional face-to-face oral activities, there were more examples of spontaneous language use, increased mediation between learners, and higher levels of production and comprehension than expected.** The findings are promising and add evidence to support the further exploration of VR as a language classroom.

As VR technologies develop and are combined with generative AI technologies, VR as a language classroom will become easier to use, more accessible, and, therefore more

sustainable. We can imagine a future where language learners can interact orally in 3D virtual worlds with generative AI chatbots as avatars that have been provided with important information about the learner, such as their proficiency, interests, cultural backgrounds and needs. The chatbot will be able to act as a language coach, conversation partner, and take-up roles in role plays. Teachers will be able to capitalise on the AI immersive virtual environment to better personalise the learning experiences of diverse learner groups.

Pedagogies – Reconceptualising teaching with technology in the digital era

What constitutes effective pedagogy in language teaching is a question practitioners and scholars have pondered for years. However, there is a common consensus now that the teacher as the ‘sage on the stage’ is no longer possible in the technologically advanced society (Meniado, 2023). Technology has made information, materials, and resources readily available to anyone anywhere, including language learners. Video-hosting sites, such as YouTube, offer more content than anyone could view in a lifetime. In addition, there are now a plethora of digital platforms that language learners can use to access personalised, self-paced, self-directed instructions and assessments anytime and anywhere they want, depending on their needs and interests (Meniado, 2023). These advances, significantly affect the professional practices of the language teacher.

In his viewpoint article, Meniado (2023) argues that in the post-pandemic digital era, teachers need to be language learning facilitators – monitoring learning, personalising learning experiences and customising feedback. He argues that technology has made it easier for teachers to assess students’ proficiencies and needs, and this in turn, can allow us to provide tailored materials, activities and experiences, and individualised feedback that draws on data analytics. Digital tools, such as *Kahoot!* can be easily integrated into language lessons to replace pen-and-paper quizzes, while enhancing the learning experiences and providing instant analytics to teachers and students on their performance (Kohnke & Moorhouse, 2021).

Technology has also increased opportunities for collaboration and knowledge co-construction within the learning process. Drawing on the work of Li (2017) and others, Meniado (2023) highlights the ways teachers can utilise digital games, social media applications as well as telecollaboration (online language exchanges) to create more collaborative language learning environments. Teachers can use technology to support students’ skills development. For example, **Kyeong-Ouk (2023) examined the effectiveness of integrating voice recording or video recording functions of social networking services, e.g. KakaoTalk, into mobile-assisted language learning in Korean EFL university students’ speaking practice and communicative competence. The study reported positive results and illustrated how technology could enhance language teachers’ practices.** Importantly, in this special issue, Prof Robert Godwin-Jones argues in the *Conversation with Expert* piece that teachers should embrace a “relational pedagogy” where the role of learners, and materials, such as technology, are “understood in relation to the context of learning” (Yan and Moorhouse, 2023). Technology should be seen as part of a variety of human and non-human resources that teachers can draw upon to help learners achieve their language learning goals (Godwin-Jones, 2023).

Looking ahead, generative AI has the potential to offer new and innovative ways to support both teaching and self-directed learning. AI image generator tools such as DALL-E2 can help teachers instantly create relevant images for use in lessons. Generative-AI chatbots, such as ChatGPT, can generate tailored lesson plans, create personalised and graded texts, construct writing templates, and provide scaffolded language exercises and activities (Kohnke, et al.,

2023, Lee, Shin and Noh, 2023). AI has the potential to significantly impact language teachers' practices. It will be important for teachers to have the competencies needed to capitalise on the affordances of generative AI tools while being critically aware of their drawbacks and limitations. Important to this will be the teacher's role in guiding students to use generative AI as a tool to support learning, rather than a tool to complete assessed assignment tasks on their behalf (Yeo, 2023).

Competencies – Revaluating the knowledge and skills required for language teaching in the digital era

Technology has expanded the skills and knowledge required to be a language teacher and widened the scope of their roles. Teachers are expected to be digitally competent. In addition, teachers are expected to support students' development of a range of skills and literacies, including self-directed learning skills, critical literacies and digital competencies. The scope of language teaching and the skills and knowledge now required to be a language teacher go far beyond language teacher education in many contexts.

The pandemic highlighted the need for a digitally competent language teaching profession. There is substantial literature from around the world detailing the challenges and struggles language teachers had in using technology for remote teaching (See Moorhouse and Kohnke, 2021 for a review). It is important to acknowledge that even technology-competent teachers who used technology before the pandemic in their practices, struggled, at least initially, with remote teaching. As mentioned previously, the online modality and the physical modality require different professional practices, and, therefore competencies (Cheung, 2023; Farrell and Stanlik, 2023). Nonetheless, teachers who considered themselves to be more digitally competent before the pandemic adapted more quickly to online teaching during the pandemic.

As we enter a post-pandemic era, it is likely time for us to reevaluate the knowledge and skills required for language teaching so we can ensure teachers are ready for the profession. But what constitutes a digitally-competent language teacher? The answer is not an easy one to address and is likely to be context-specific. Models, frameworks and standards, such as TPACK (Mishra and Koehler, 2006), European Framework for the Digital Competence of Educators (DCE) (Redecker and Punie, 2017), and Professional Digital Competences (Instefjord and Munthe, 2017), and the TESOL Technology Standards (Healey et al., 2011) have all been used to conceptualise the competencies language teachers need for teaching (e.g. Baser et al., 2016; Wong and Moorhouse, 2021). For a competence framework to be actionable, it needs to be comprehensive, understandable to teachers, adaptable to specific-contexts and modifiable to consider future advancements. In this vein, we present a modified PDC framework that includes three aspects:

1. **Technology proficiency:** Language teachers need awareness of the availability, functionality and limitations of digital technologies that can be used for language teaching and learning.
2. **Pedagogical compatibility for language-teaching:** Language teachers need to be able to implement digital technologies into their practices while considering contextual factors to enhance and/or transform their teaching, student learning, and assessments.
3. **Risk, wellbeing, sustainability and ethical awareness:** Language teachers need to be able to effectively assess the risks associated with using technology, be mindful of teacher and learner wellbeing, adopt sustainable technological practices and ensure technology is used ethically and responsibly.

As technology advances and new technology emerge, the competencies needed to teach will change. Indeed, specific digital tools require specific competencies. For this special issue, Moorhouse et al. (2023) uses the PDC framework to analyse technology reviews published in teaching and learning journals over a five-year period. In the review, the authors provide an overview of the digital tools language teachers can use in their teaching, their pedagogical affordances and important considerations related to risk, wellbeing and ethics teachers should consider when considering to use specific tools in their practices. The authors argue that technology reviews are a good space to raise language-teacher awareness of the kinds of digital tools available for language teaching. However, teachers need to consider the pedagogical compatibility of the digital tools and the risks associated with using the tool in their context.

Looking forward, the digital competencies language teachers will need is likely to increase as generative-AI technologies become more widespread. **In this special issue, Hockly (2023) postulates the positive and negative effects that AI-driven educational technologies could have on English language teaching. The author highlights the need for principled use of AI-driven education technologies and the development of strategies to manage their drawbacks.** Kohnke et al., (2023) likewise provide an illustration of the specific forms of PDC that teachers need to use ChatGPT for teaching. The authors highlight that teachers' awareness of the ethical use of ChatGPT has to be an essential aspect of teacher competence.

Professional Learning - Rethinking professional development in the digital era

Technological advancements mean that the competences needed to be a language teacher have increased, but have also increased the types and accessibility of professional development opportunities for language teachers. **Wang and Stockwell (2023)**, in their viewpoint article, remind us that “teachers are human, and are learners of technology themselves” (p. X). For teachers to be able to teach in different modalities effectively, they need sufficient instructional support. In addition, teachers need to recognise the affordances and constraints of their teaching modalities and “create useful and appealing tasks, activities, and assessments that can be sustained” (Wang and Stockwell, p. X) in increasingly diverse and fluid teaching modalities.

During the pandemic, technology became the primary means for language teachers to develop the knowledge and skills needed for remote teaching. Teachers utilised self-access materials, such as YouTube tutorials, but also participated in online professional learning communities (PLC) (e.g. Facebook group), and events. The shift of teaching conferences, seminars and workshops to online modalities allowed teachers – regardless of financial or physical difficulties preventing them from attending in-person events – to attend online. This increased access. It also created a novel context for scholars to explore the use of technology to facilitate professional development and how teachers engaged in professional development during times of crisis (Moorhouse & Wong, 2021). For example, **Ramadani et al (2023)** explored how language teachers in Indonesia applied the principles of exploratory practice to overcome a variety of pedagogical puzzles associated with online teaching. **Lee et al., (2023)** explored, through action research, the ways technology could be integrated into school-based professional development. While **Li and Walsh (2023)** present the case of one pre-service English language teacher as she engaged in technology-enhanced reflection and development during a part of an online PLC in her professional teaching practicum in a Hong Kong secondary school. The findings of all three studies point to the benefits technology can bring

in facilitating practitioner research as a space for the partnering of teachers with their students, educational experts, and their peers.

Looking forward, the kinds of professional development options are going to increase. Teacher training and methods of delivering professional development is already becoming more diverse. Teachers can attend webinars, events and courses online. Educational platforms such as Coursera allow teachers to take accredited courses with universities, organisations, and institutions around the world. While Google, Microsoft and Apple have online training programmes specifically designed for educators, micro, nano or bitesize learning modules that focuses on a specific knowledge or skill will make it easier for teachers to fit learning into their busy schedules and incrementally (Meniado, 2023). However, as it becomes easier to create content designed to promote teacher development, it raises the issue of quality. Therefore, teachers need to also become more critical of the professional development they receive and consider its utility in their context. Greater emphasis needs to be place on developing teachers' ability to engage in practitioner research, so they can implement context-specific innovations, monitor their implementation, and evaluate their effectiveness.

Concluding Remarks

This special issue attempts to bring together leading and emerging scholars as well as teacher practitioners from diverse international contexts to explore the use of technology for teaching in the post-pandemic digital age. The contributions provide evidence for the role technology is now playing in language teaching globally. The use of technology now seems to be a norm in language teaching in many contexts. However, with the rapid development of AI technologies, we still seem to be playing 'catch up'. For language teachers to stay relevant and remain "major players in the education process" (Hattie, 2012, p.25) we need to keep up with technological trends and pedagogical advancements, but also recognise the unique role teachers have in building and facilitating communities of learning. This role may be even more important in an age of technological normalisation and generative-AI.

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