

Interview

Emerging Technologies and Research Designs in Technology-Enhanced Language Learning: An Interview with Mark Pegrum

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Abstract

This wide-ranging interview explores current topics of discussion in TELL, including digital literacies, mobile and emerging technologies, and the forms of digital learning in diverse contexts in the Global North and South. Lessons to emerge from the shift to emergency remote teaching during Covid-19 are mentioned, followed by a broader discussion of digital design frameworks that educators can use to support their learning designs. Alongside commentary on the limitations of contemporary academic publication processes, there is a focus on major research needs, and specifically on the value of educators carrying out design-based research.

Keywords

DBR, digital learning designs, digital literacies, Global North, Global South, research designs, XR

Mark Pegrum is an associate professor in the Graduate School of Education at The University of Western Australia in Perth, where he is the Deputy Head of School (International). In his courses, he specialises in digital technologies in education, with a particular emphasis on mobile learning. His current research focuses on digital literacies and especially attentional literacy; mobile and emerging technologies, including extended reality (XR); and the forms digital learning takes in diverse contexts across the Global North and South.

Thank you, Mark, for agreeing to be interviewed for the *International Journal of TESOL Studies*. I genuinely appreciate that I could have this opportunity to talk with you. As you are an expert in the field of technology-enhanced language learning (TELL), could you kindly talk about why you have become so interested in this research area? Do you have any special skills or knowledge about the area of study?

It's a great pleasure to talk to you, Gavin.

My TELL journey began way back in the early 90s when a brand new computer laboratory was installed in the Faculty of Arts at The University of Western Australia. At the time, I was doing

postgraduate studies as well as tutoring in French and German, and one of the French lecturers approached me and said: “You’re young; you can run the computer labs!”. I had to quickly figure out how to use the Mac computers to connect to the internet, and I began to design student tasks around the limited content that was available back in those days. For example, in one task, students were asked to come up with a detailed itinerary and plan a budget for a trip to France, using authentic French language websites; in another task, they had to find a Francophone pen pal or join a Francophone club and send emails in French. From there, I gradually began to design educational websites alongside my teaching. By the early 2000s I was employed at the University of Dundee in Scotland to co-ordinate one of the first fully online programmes for language teachers, with participants scattered around the world – at that time our main communications were in chatrooms and on asynchronous discussion boards, though participants also sent in teaching videos.

When I started out, there were no courses or qualifications you could do in this area, so like many others who’ve worked in TELL for some time, I’m largely self-taught. Despite the technological limitations in the early days, I could see the potential to create engaging forms of learning, leverage authentic materials, and bring people together from across the globe. So that’s how I set out on this journey!

As an esteemed scholar of TELL, could you please share with us your research experience in TELL?

My research over the past decade or so has focused on three main areas and their points of intersection. My first focus has been digital literacies, which my co-authors Nicky Hockly, Gavin Dudeney and I define in our newly released second edition of *Digital Literacies* as “the individual and social skills needed to effectively manage meaning in an era of digitally networked, often blended, communication” (Pegrum et al., 2022). As an extension of this work, I’ve recently begun to develop a concept of “attentional literacy” in collaboration with Agnieszka Palalas, where we draw lessons from ancient mindfulness traditions to help support digital and mobile wellness in the context of contemporary attention overload, both inside and outside education (Pegrum & Palalas, 2021).

My second focus has been mobile and emerging technologies, which I surveyed globally in my book *Mobile Learning: Languages, Literacies and Cultures* (Pegrum, 2014), followed by an updated survey in *Mobile Lenses on Learning: Languages and Literacies on the Move* (Pegrum, 2019), in both cases looking at the whole range of technologies being employed in formal and informal education across the Global North and the Global South. Of course, as time goes on, we’re seeing an evolving technological environment (think: AR, VR, and AI and its embodied forms in smart assistants and robots), intertwined with our evolving sociopolitical environment (think: superdiversity and the backlashes against it), in turn intertwined with our evolving informational environment (think: fake news and “alternative facts”). These changes open up new possibilities for education, and simultaneously make new demands of education. All the while, we have to keep adjusting and updating our digital literacies frameworks.

My third focus has been digital education in varying contexts beyond those we hear about most often in the research. In particular, that has meant digital education in the Global South, as covered in some of the case studies in the books I mentioned earlier. I’ve been fortunate to be involved in very informative research projects based in Cambodia (working with my colleagues Grace Oakley, Thida Kheang and Krisna Seng; see e.g., Oakley et al., 2021) and in Timor-Leste (working with graduate researcher Monty King and colleague Martin Forsey; see e.g., King et al., 2019), which have allowed me to reflect on the similarities and differences in digital possibilities, and also in digital literacy needs, across such contexts.

You have brought up a quite enticing point about digital literacies. New opportunities and challenges have been seen in language education due to the evolving technological, sociopolitical, and informational environments. Can you elaborate more on what teachers and learners can do to improve their digital literacies?

Language teachers have long gone beyond the teaching of language itself to teach about culture and intercultural competence; in the same way, in our contemporary era of digital and blended communication, language teachers need to go beyond the teaching of traditional literacies to teach digital literacies. Teaching language alone is no longer enough (if indeed it ever was!) as students need the literacies to be able to interpret, create and disseminate meanings in digital and blended channels. Moreover, digital literacies are tightly interwoven with *21st century skills*, sometimes called *soft skills* or *graduate attributes*, such as creativity and innovation, critical thinking and problem-solving, collaboration and teamwork, and autonomy and flexibility. Certain digital literacies also offer a starting point for thinking through larger pedagogical issues such as how to decolonise the curriculum, and how to link language education with diversity and sustainability.

In terms of where to begin, it's worth consulting some of the recent work carried out on digital literacies by various national governments and ministries or departments of education, depending on your location, as well as international bodies such as UNESCO and UNICEF (e.g., [Law et al., 2018](#); [Nascimbeni & Vosloo, 2019](#)). There are of course many digital literacies frameworks, each with its own points of emphasis, but there is typically a lot of common ground between them. One example of a framework designed specifically for language teachers is the Framework of Digital Literacies 3.0 from the second edition of *Digital Literacies* mentioned earlier. In this book, Nicky, Gavin and I discuss what digital literacies mean for language teaching and learning, and offer pointers on how to operationalise them in the classroom.

What different types of technologies are commonly used in language education based on your knowledge?

This varies enormously across contexts. The enforced shift to *emergency remote teaching* ([Hodges et al., 2020](#)) by schools, colleges and universities at the time of the Covid-19 lockdowns revealed the great disparities that remain in access to digital hardware, software and connectivity – and that doesn't just mean differences between the Global North and the Global South, but differences within countries and even cities, including in some of the wealthiest parts of the world. Teachers therefore had to adapt to their contexts: while some were able to communicate with their students through live videoconferencing software embedded in institutionally supported learning management systems, others found themselves limited to conversing on messaging apps.

But no matter which technologies were available, over time many teachers found innovative ways to use them, as they always have done. In my abovementioned book, *Mobile Lenses on Learning*, which came out just before the global pandemic, I cover a wide range of case studies of digital innovation in language learning including, for example, the use of gamified literacy apps for Syrian refugee children in Jordan; the use of WhatsApp for teacher education in the Kakuma refugee camp in Kenya; the use of Facebook with a remote Indigenous community in Australia; the use of digital storytelling exchanges between Australia, China and Japan; the use of a social robot in the US; and the use of AR learning trails and games in North America and Europe as well as Japan, Hong Kong and Singapore. A degree of pedagogical innovation is almost always possible with sensitivity to the technological constraints and possibilities of the local context.

Based on your experience and observations, what are some major challenges facing language teachers if they want to experiment with emerging technologies? What are your suggestions to them?

Nowadays, as educators, we're increasingly called upon to act as designers of learning experiences tailored to our students' needs. To do this effectively, we have to know both our technological and our pedagogical context(s) well.

Regarding technology, persistent divides remain both between and within the Global South and the Global North, as I've said. Emerging technologies like AR, VR and various forms of AI typically require powerful devices and fast connections, and experimenting with them is therefore restricted to well-resourced settings, most often within the Global North.

Regarding pedagogy, it takes time for both teachers and students to adapt to new approaches. As a teacher, think about how much development and support you might need, and draw on the expertise of colleagues in your professional learning networks. Think, too, about how much learner training your students might need. It's a good idea to innovate iteratively. Start small: introduce new technologies and new ways of using them one at a time, and in a relatively low-stakes way if possible. Once you've seen what works, or doesn't, implement modifications or extensions, thus building your technological-pedagogical repertoire step by step.

The whole process of technological-pedagogical innovation lends itself to *design-based research (DBR)*, which is effectively a form of action research that has recently come to prominence in digital education. As educators working in a DBR cycle, we might identify a need to create or improve a learning design; explore the relevant research; set up a new or modified design; evaluate the effectiveness of this design; adjust or extend the design, possibly leading to a new DBR cycle; and finally share the results in order to help establish design principles that can support colleagues in their own learning designs.

Are there any theoretical or pedagogical frameworks you would like to recommend to language teachers who intend to include new technologies in their teaching?

There are quite a number of digital design frameworks around. As with digital literacies frameworks, each has its own points of emphasis, but there is some overlap between them. Punya Mishra and Matthew Koehler's widely-referenced TPACK Framework reminds us that the optimal learning designs are likely to emerge at the intersection of teachers' Technological, Pedagogical and Content Knowledge. Ruben Puentedura's SAMR Model offers a way of operationalising technologies in the classroom, and suggests that teachers may move through four levels of learning designs respectively involving Substitution, Augmentation, Modification and Redefinition. While some have argued that this model is technology-heavy and lacks an adequate empirical base, teachers regularly report that they find it useful in conceptualising and improving technology-enhanced lessons. Experienced users of technology often find value in Sonny Magana's newer T3 Framework, which emphasises tasks over technologies and students' learning roles over teachers' designing roles, and includes additional levels relative to SAMR in order to capture the potential of new technologies to support inquiry design and even social entrepreneurship. I've also recently come across the PICRAT Model by Royce Kimmons, Charles Graham and Richard West, which I think holds promise for pre-service teachers in particular.

Other well-known frameworks which provide useful insights for teachers include Diana Laurillard's Conversational Framework, Gráinne Conole's 7Cs of Learning Design, Randy Garrison and colleagues' Community of Inquiry (CoI) Framework, and Daniel Churchill's Resources, Activity, Support and

Evaluation (RASE) Model. Mobile-specific frameworks include Matthew Kearney, Kevin Burden, Sandy Schuck and colleagues' iPAC 2.0 Framework, and my own 3 Mobilities Framework. I'd say it's worth teachers familiarising themselves with the insights generated by a range of frameworks, before perhaps narrowing their focus to the one or two that work best for them and their students (but always with the option to revisit other frameworks or consider newly emerging frameworks).

Yes, I totally agree with your points here. Teachers should exercise their agency to explore which frameworks or models work for their students during a specific period of time. Now, I would like to talk about what researchers can do in TELL. I know you have edited and are editing special issues on TELL. Could you kindly share some pointers for authors? As an editor, what do you usually look for? How do you evaluate the quality of submissions?

Your question about research is very timely. It seems to me that we're facing a systemic problem in research, not just in TELL but across all academic areas. The current culture of performance and productivity in educational institutions is putting more and more pressure on educators to publish, resulting in a slew of formulaic research conceived and written with quick publication in mind. An anonymous academic, writing in *The Guardian* back in 2017 ([Anonymous Academic, 2017](#)), captured this phenomenon perfectly with the term "cookie-cutter research". In the field of TELL, we're seeing far too many "simplistic, technicist, relentlessly positive and upbeat studies", as I put it in my 2019 *Mobile Lenses on Learning* book. The situation is made worse by editors and reviewers who expect research to be presented within narrow templates with pre-set structures, pre-set sections and pre-set types of conclusions. Inevitably, these templates suit some kinds of research but not others. Such overly narrow expectations typically result in rather utopian studies focused on technological efficiencies, in place of studies which ask the bigger and harder questions about why and how we should, or should not, be using digital technologies in education. Moreover, such expectations typically freeze out more original perspectives and voices at precisely the time when the global challenges we're facing in education and elsewhere demand that we make space for diverse viewpoints and innovative approaches.

Fortunately, despite this, there is still a considerable amount of valuable research that finds its way to publication. Special issues of the kind you mention can be helpful in bringing a concentrated focus to important and often newly emerging areas. As an editor (and indeed as a reader) I'm looking first and foremost for original insights which add to what I already know or, better still, change my current thinking and perspectives. I believe there's room for rigorously argued theoretical analyses as well as rigorously designed empirical studies, which in both cases should situate themselves relative to existing studies through a literature review which is suitably broad and/or deep, depending on the subject area; should use statistics only where they add to our understanding and never simply to present a veil of rigour, bulk out a paper, or bamboozle readers; should arrive at conclusions that are both justified and accessibly presented; should talk about what didn't work as much as what did work (we often learn more from our failures than our successes!); and should have been carefully proofread to ensure clarity. In terms of study designs, I'd like to see more publications reporting on action research or design-based research projects which have been carried out by classroom practitioners, especially projects with participatory designs involving students' input.

Thank you for bringing up so many interesting and valuable thoughts! I would like to explore more about the research methodology in TELL. What is the latest development of the research methodology in our field? Quantitative, qualitative, or mixed-methods approach?

When it comes to empirical research, there's a place for both qualitative and quantitative approaches. To somewhat overgeneralise, the former are often suited to exploratory projects, and the latter to evaluating more established phenomena, especially at a larger scale. But these approaches complement each other, and in the interests of getting away from methodological silos, there is value in combining them. Going a step further, however, I'd say that not all research needs to be empirical – while such research obviously offers an important perspective on the world, it is not without its limitations – and even research which is empirically based can and should take more diverse forms than those we commonly come across in TELL forums. Amongst other things, I'd personally like to see far more in the way of action research and DBR (as I mentioned earlier); ethnographic and narrative inquiries; discourse analysis; Delphi studies; critical reflections by experienced practitioners; and well-argued theoretical analyses.

You also talked about design-based research (DBR), which is indeed a novel concept in TELL. Could you talk a bit more about DBR and suggest some background reading materials for our readers?

DBR is well-suited to complex, shifting educational and sociopolitical environments where there are many open questions about how best to engage in technologically-enhanced teaching and learning. It is broadly similar to action research but places greater emphasis on design as well as on the interconnection of theory and practice, and it often involves close collaboration between researchers and practitioners. It can lead to the development of generalisable *design principles*, somewhat akin to *best practices*, though we should remember that designs (and practices) must always be customised to the particular needs of particular students in particular contexts. At its most progressive and democratic, DBR can even involve students as co-designers and co-researchers. Some good places to start reading about DBR include publications on digital and mobile learning by Cook and Santos (2016), Bower (2017), and Rasi and Vuojärvi (2018); note that Cook and Santos use a slightly different term, *design research*. References to DBR in the context of language teaching and learning may be found in Burns et al (2022) and Pegrum et al (2022).

I am sure it has come to your attention that many recent publications would like to highlight Covid in their titles and throughout the manuscripts. Some editors and researchers have argued that we should focus on pedagogy, psychology, and technology, instead of making Covid a unique point about a paper. But some believe we should be allowed to talk about what is happening nowadays, i.e., Covid. What do you feel about this change in our field?

I think it depends very much on why and how Covid is mentioned. If Covid is being highlighted as a way of appearing novel and scoring a quick publication, then it's problematic. But if Covid is genuinely part

of the background conditions from which a study emerged, then it should certainly be commented on. We should probably bear in mind, though, that in the area of digital education, Covid is unlikely to ever be the main subject of a research paper: rather, a paper might be about the limitations of emergency remote teaching implemented during the time of Covid, or it might be about the impact of digital inequality on access to learning in a time of lockdowns, or it might be about the value of HyFlex approaches in a time when illness frequently restricts face-to-face attendance. So Covid is a key part of the background conditions in all of these cases, but it wouldn't be the main subject of any of these papers.

The final question has bugged me for a few years. Do you think there is research inequality between TELL researchers who have major grants and those who don't? Let me explain myself: our research field is very different from other applied linguistic or linguistic research. To publish in top journals, it seems that researchers sometimes have to use the most up-to-date technology (e.g., in 2022, VR, AR, AI). Yet, this presents a vital question: researchers who are working in less developed areas or with little funding may not get a chance to publish their work as they may ONLY access "outdated" technology. As such, the divide between TELL researchers will keep growing. Do you find it a big problem?

There's no doubt that research is needed into new and emerging technologies; for instance, Yuju Lan and I are co-editing a forthcoming special issue of *Language Learning & Technology* focusing on extended reality (XR), which of course encompasses both VR and AR. But what's important, from the point of view of language teaching, is the pedagogical application of the technologies rather than the technologies themselves. I think there's scope for educators to conduct research on a whole range of technologies which may be appropriate for different learners in different contexts; the key question is not how new the technologies are, but how pedagogically and contextually effective they are. After all, the most useful technologies for learning are the ones that teachers and students actually have: it's just as important for us to develop design principles for the use of WhatsApp or WeChat in language learning (bearing in mind that these and other well-established platforms are never static, but keep evolving) as it is to develop design principles for Augment or Unity, or for voice assistants, or for social robots. That said, these latter tools are likely to be among the everyday technologies of the future, and as they become more accessible to more teachers and students, there will be a need for research into whether and how they may be of value in meeting diverse needs in diverse settings.

There's one final point I'd make here. A crisis of attention is currently looming as one of the most important social issues of our time, as flagged up in recently popular books by the likes of Burkeman (2021) and Hari (2022). At the core of this crisis, as I've suggested in my co-written paper mentioned earlier (Pegrum & Palalas, 2021), is a combination of digital distraction (as our attentional capacity is exhausted through our online foraging habits, exacerbated by tech companies' relentless algorithms), digital disorder (as our sense of reality is overwhelmed by a torrent of misinformation, disinformation and fake news), and digital disconnection (as we falter in our ability and willingness to connect across differences). While such topics have been discussed in mindfulness research for some time, many educational researchers are just beginning to recognise the extent of the current crisis. So, in other words, we don't only need research into how to use digital technologies more; we also need research into how to use them less, or at least how to use them in ways which promote a balance of the analogue and the digital, and which can support greater digital and mobile wellness for our students and ourselves.

Thank you so much for your time and valuable comments. I am sure our readers will benefit from your insightful answers. Again, I appreciate your time and valuable thoughts.

Thank you, Gavin, for your thought-provoking questions. It's been great chatting to you!

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