7   Conclusions: A Lifelong Perspective on Mobile Language Learning

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Abstract

This concluding chapter provides a synthesis and commentary pertaining to the studies presented in this collection and it highlights some of the key opportunities and issues associated with mobile language learning. Five notable themes running through the case studies are identified, namely breaking down barriers; unfettered flow of information; frequent interaction and reflection; enjoyment and perception of personal gains; and finally, multiplicity of technologies, modalities and methods. These themes highlight key strengths of mobile approaches to teaching and learning, with special reference to out-of-class environments where teachers and researchers often have more scope to try out something new. They also draw attention to how these strengths play into lifelong learning. The chapter highlights some emerging trends and possible developments in mobile and ubiquitous learning in a rapidly changing world and in relation to known barriers to the uptake of innovations.

Introduction

Mobile learning already has a 20-year history in terms of experimental learning designs and evaluations, adoption in formal and informal learning, and an increasingly global outlook with good prospects for supporting sustainable development (Chung, Hwang, & Lai, 2019; Khaddage, Müller, & Flintoff, 2016; Kim, 2020). Its uptake – and sometimes lack of uptake – has been dependent on many factors, including affordability, digital competence, perceived need to innovate, perspectives on valued educational outcomes, how much autonomy is accorded to teachers and students, availability of relevant language resources, and considerations around

keeping learners safe from harm. Importantly, teachers will always look for evidence that a new pedagogical approach or tool has been shown to work and they want to be confident they can make it work with their students.

The present collection offers a good deal of evidence and should instil plenty of confidence. The studies provide a range of inspiring and thought-provoking examples and valuable reflections. Hopefully they will encourage teachers, researchers and other stakeholders to keep looking both within and beyond their own sector (primary, secondary or tertiary education) now and in the future. The discovered ideas or design principles should ultimately help many more students progress in their learning and transition from one education level to the next. Key prerequisites for teachers are an open mind and professional discretion or leeway to undertake something new. Mobile learning researchers and practitioners share a rich history of innovation and thinking outside the box, going beyond conventional boundaries defined by classroom-based and curriculum-driven education. It is little wonder that many interesting mobile learning examples were first developed for less formal settings such as field trips, museum visits or excursions to botanical gardens, and were often based around outdoor activities and project-based assignments (e.g. Chang, Shih, & Chang, 2006; Mulholland, Collins, & Zdrahal, 2005; Ogata et al., 2008). "Out-of-class" mobile activities have continued to be developed, including for the school playground or canteen (Hwang et al., 2014), for learning while out and about in a city (Kukulska-Hulme et al., 2017) and in many other "authentic" environments (Shadiev, Hwang & Huang, 2017). There has also been growing interest in how learners are using mobile devices in self-directed ways, usually focused on investigating students' individual habits, preferences and practices (e.g. Bradley & Holley, 2013; Chen, 2013; Lai & Zheng, 2018).

On the basis of a review of literature covering both formal and informal mobile learning in the period 2012–2017, Viberg, Andersson and Wiklund (2018) concluded that, at least in papers published in English, "the concepts used to describe informal learning are mainly alluding to positively coded aspects, such as 'casual', 'spontaneous', 'democratic' and 'holistic', creating an impression that informal learning, in different ways, is preferable to formal learning" (p. 9). Yet classroom-based practices have also benefited significantly from innovative and transformative mobile approaches that have helped promote collaboration among students, facilitated creation and sharing of digital artefacts, provided a means of recording and rehearsing student performances, supported learners with special educational needs, and so on. There is now abundant evidence that mobile devices and mobile activity designs can support learning at all stages of the educational journey and across the lifespan (Seta, Kukulska-Hulme & Arrigo, 2014), in formal and informal settings and in the virtual and physical spaces that connect these different settings (Wong et al., 2015). Nevertheless, informal settings may still offer more scope for teachers and researchers to try out new methods, to tap into students' enthusiasms for topics that truly interest them, and to involve a wider range of people (e.g. parents, volunteers, experts, the wider community).

Mobile Learning Past and Present – a Scholarly Literature Perspective

In this collection, Burston draws our attention to the great breadth of published literature on mobile language learning. His analysis reminds us that concerns with language learning challenges, and communication challenges in a wider sense, are not only the preserve of language teaching professionals and researchers. Indeed, Burston points out that the majority of MALL studies are presented in publications that are not specifically about language learning or teaching. Some are in journals devoted to mobile technologies and mobile learning, and many

are in publications in diverse fields such as computer science, engineering, technology, tourism, business, management, healthcare, disability studies, psychology and others. Some have titles that do not readily signal their relevance to language learning or mobile technology. The reasons for it might be complex, but the result is that studies which are potentially of interest can be easily missed or are hard to find. Smarter search strategies can help identify larger numbers of relevant studies.

Yet search strategies will need constant refreshing as the mobile learning field continues to evolve. To take an example, the label "informal learning" may have less prominence in journal article titles than was the case in the past, except for some titles of papers offering literature reviews and analyses (e.g. Khaddage, Müller, & Flintoff, 2016; Viberg, Andersson, & Wiklund, 2018). This is possibly due to researchers' and teachers' increasing interest in the use of everyday mobile applications and services that might be used both informally and in a more formal manner, thus blurring the boundary between these spheres. The titles of such papers might mention a mobile app or platform or mode of communication, rather than highlighting informal learning. Pimmer et al. (2019) have remarked that although mobile instant messaging "is a massive communication phenomenon and its educational use can be seen as a genuine form of mobile learning, it has been studied to a limited extent to date" (p.102). Their study on effects of instant messaging under different conditions explored school-to-work transitions among recent graduates from training institutions for nurses in Nigeria who used the messaging app WhatsApp. Although WhatsApp is commonly associated with everyday casual messaging, in this case its moderated and structured use enhanced the nurses' learning in terms of their knowledge acquisition and helped them avoid feelings of professional isolation as well. Furthermore, they could use WhatsApp in whatever other ways were helpful to them. Thus, it

could be said that the instant messaging served a dual purpose of supporting both formal and informal learning.

Another notable hurdle in making use of available published literature is that, without necessary background knowledge, it might be difficult to understand a study that is presented using unfamiliar specialist language or that has a focus on advanced technical solutions. Inevitably, educators are more attracted to publications that have a clear focus on pedagogical aspects of mobile learning and present clearly articulated learning designs that can be tried out and adapted to their own context. Such learning designs take account of available technologies but do not focus on technology per se. They highlight key actors in a learning activity (teachers, learners, others) with their roles and interactions at various stages of the learning process; the flow of information (provided or created materials, updates, means of communication); and envisaged outcomes in relation to specific goals or standards but also less tangible outcomes such as enjoyment, group cohesion or the development of positive attitudes towards a subject.

Key Themes in the Collection

The studies presented in this collection amply illustrate how mobile approaches enable connections to be made across diverse learning contexts and how portability offers specific advantages. There is always a proper concern with linguistic gains or attainment in some specific skills related to language or communication, but what shines through in these studies are the overall characteristics of the situations created by the researchers/teachers: in these situations, we can clearly visualize what the learners are doing, the broader skills they are developing, their perceptions of the activities they are engaged in and their motivational gains. Several strong, overlapping themes are evident in and across the studies, and these are briefly explained below. One possible representation of these themes is shown in Figure 7.1. They point to certain

strengths and benefits of mobile learning that are sure to be carried into future educational
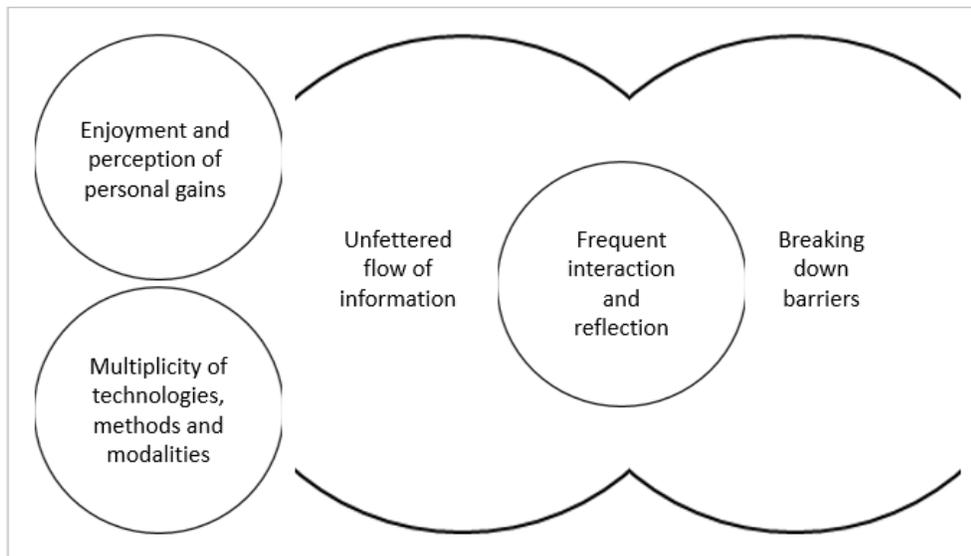
designs.

Figure 7.1

Theme 1: Breaking down Barriers

Technology integration in education has long been subject to first-order barriers such as

insufficient time to develop a new activity or a lack of technical support, and second-order

barriers including beliefs about technology and established classroom practices (Ertmer, 1999).

Whilst mobile learning does not equate with removing barriers, it does extend the times and

places potentially available for learning, it engages peer support for some technical problem-

solving, and it smooths the way to new thinking and practices when it is aligned with people's

positive everyday experiences of smartphone use or their personal enjoyment of watching

movies or reading for pleasure (Kukulska-Hulme, 2012; Pettit & Kukulska-Hulme, 2007).

Recent mobile learning studies, such as the ones in our collection, show how mobile learning can

help break down generational and cultural barriers by involving people from across a wider

range of ages and backgrounds than would be typical within an individual school or college environment. They show how it is possible to connect learners across age groups and classes and how to support transitions between different places or phases of study. They also demonstrate how everyday personal technologies can be used as part of formal or semi-formal learning.

Theme 2: Unfettered Flow of Information

Education systems and practices frequently function in a top-down way, which can result in restricted access to learning materials and means of communication. The use of mobile technologies can change our thinking around who creates and owns content, how it is accessed and shared, and who should communicate with whom and when, thus perhaps introducing more democratic ways of working and widening participation. Learners who were previously excluded from education can benefit, for example nomadic people for whom it is difficult to attend conventional schooling (Aderinoye, Ojokheta, & Olojede, 2007). In our collection Ilic writes about his learners having enhanced freedom of communication, characterized by ease of use, speed of use, and flow of information. Bortoluzzi and colleagues describe how their participants can search for resources, upload resources, and tag and comment on them from any mobile device. This relative freedom of information flow is supported by mobile technologies that facilitate content sharing and by attitudes that recognize the educational value and practical benefits of this mode of operation.

Theme 3: Frequent Interaction and Reflection

An important attribute of mobile devices is that they enable people to be in touch more frequently and can support more frequent interactions with learning content. Whilst frequent contact or interactions can easily tip over into being much-too-frequent, they can offer many

benefits including more regular or more extensive language learning (e.g. Tsai, 2019) and flexible collaboration on a task (Jaldemark et al., 2018). Frequency can be managed through appropriate structuring, facilitation and setting expectations. Frequent but discrete learning episodes may sometimes be perceived as being fragmented and contrary to the idea of reflective learning. However, the case studies in this collection demonstrate that it is possible to deliberately build in and emphasize reflection, to counteract the potentially fast pace of mobile learning and the risk of overwhelming learners with too many stimuli or demands on their time. This is emphasized in the study by Ilic which draws attention to the importance of developing students' metacognition, and in the study by Bortoluzzi and colleagues where reflection was foregrounded as an important stage of learning among student teachers and other participants when looking back on their performances, though challenges in providing space for reflection were also mentioned.

Theme 4: Enjoyment and Perception of Personal Gains

As the field of mobile learning has developed, so there have been calls for more scrutiny of whether mobile approaches result in significant learning gains and reviews of learning outcomes (Burston, 2015; Pimmer, Mateescu, & Gröhbiel, 2016). This has been partly a reaction to the fact that early studies often reported that students were very positive about their mobile learning experiences, but some of these studies lacked evidence about the students' progress or achievements. Furthermore, there was a novelty effect that may have influenced students' perceptions. Yet students' affective responses to learning experiences are still important, especially if we adopt the position that favourable learning experiences contribute to the formation of positive attitudes towards education or language learning, that may in turn influence whether people choose to continue learning beyond their current level and in their future jobs. In

this collection, students' perceptions are often reported and emphasized. Morgana's study reports students' enjoyment of their reading and their positive perceptions of the use of tablets for extensive reading, while Griggio and Pittarello quote students talking about their perceived personal gains in terms of improvements in their skills and their growth in confidence and competence as a result of good learning experiences in a cross-cultural virtual exchange.

Theme 5: Multiplicity of Technologies, Methods and Modalities

Mobile learning studies often investigate activities centred on specific mobile devices, but increasingly mobile devices are merely a way to access online services that may also be accessed from laptops, tablets, wearables or smart home speakers. As noted in the pedagogical framework proposed by Kukulska-Hulme, Norris & Donohue (2015), there are many new channels and media for learning and for interpersonal, multimodal communication that may be used for language teaching and learning, to practise the target language, and to interrogate changes in language usage or meanings. Learner preferences can play an important role, if they have access to two or more devices or a variety of applications. A book read on one device, when stationary, may be listened to on another when walking. A discussion begun in a formal online forum may be continued informally across social media platforms, private messages and calls, enriched by photographs, videos, emoji and gifs. Bortoluzzi and colleagues recount how the "focal virtual hubs" for their storytelling activities were the online website and online community but that these are complemented by WhatsApp groups created by the educator and participants and by the Twitter account of the project. The studies in this collection also testify to the multiplicity and richness of methods of research data collection to gain insights into diverse dimensions of learning experiences, for example through e-journals, logs, interviews, surveys, observations and samples of students' work.

Looking to the Future

Through their innovative learning designs and the feedback they collected from participants in their projects, the authors in our collection have signalled many emerging trends for the future of mobile language learning. The activities they describe are predominantly learner-centred, but they are also embedded in social networks and systems of peer support. Fundamental yet complex skills such as storytelling, extensive reading, collaboration and reflection are exemplified here at specific stages of education, but they are applicable at all stages and build solid foundations for a lifetime of formal and informal learning, and increasingly a blend of these traditionally different forms.

As recommended by Reinders and Benson (2017), "It is vital that future research places greater value on the role of the individual learner. Looking at his or her life and learning outside the classroom is an excellent starting point." (p.14). Their lives and learning are largely social, and we have to find ways to continually update ourselves on how these lives and ways of learning are changing. In one example, CEMS (2019) has published recommendations for educational transformation from master's students worldwide who engaged in a global project to interview educators and experts and to give a voice to student experiences and opinions. Identified issues and barriers to transformational change were key stakeholders (e.g. declining teacher engagement and motivation), curriculum (e.g. lack of curriculum flexibility, slow identification of new trends and issues), communication (e.g. lack of bottom-up communication between students and teachers), process (e.g. inefficient processes to introduce change) and cultural heritage (e.g. resistance to change, attitudes towards lifelong learning, a testing and Key Performance Indicators-based system creating a cultural mindset of their value). Even though mobile language learning is ostensibly a worldwide activity, there are many local considerations

that determine its future and the above issues will be relatively more or less prominent in any teacher's work environment.

It seemed not so long ago that student mobility and contextual learning would be the predominant driving forces for innovation in mobile learning (e.g. Kukulska-Hulme, 2010). In 2020, in the midst of a pandemic that is having deep impacts on education, we are forced to revisit some of our basic assumptions and priorities. Perhaps the development of augmented reality applications that assume learners are physically mobile and wandering across a city to explore its linguistic landscape or engage in games will falter for a while, but virtual experiences will likely attract more attention. On the other hand, there is an emerging popular discourse around the value of neighbourliness, local community and camaraderie in the face of crises and challenging times that may impact on education and adoption of learning technology.

Mobile learning is a resilient approach and we can be confident about the relevance of many technological developments on the horizon, including the rise of chatbots and intelligent assistants (like Amazon Alexa, Apple Siri and Google Assistant) that might be used for conversation and pronunciation practice in language learning and for general study support, as well as for keeping abreast of the news at a time of a rapid change. Mobile learning has been leading the way in enabling transformational practices as well as supporting more mundane yet vital activities such as vocabulary memorization and grammar practice. It is less developed in relation to pragmatic language and has not directly addressed the challenges of helping learners to cope with unexpected vocabulary, for example the recent vocabulary related to health matters, statistics or legal issues, which is required in order to understand and participate in what is going on in the world.

Conclusions

Large numbers of educators have embraced mobile language learning, yet for many others it is still a complete novelty. Some have experimented a little and are looking to expand their repertoire. This collection offers a select but highly pertinent range of examples. The five themes identified in this chapter complement other themes that have already been widely discussed in the mobile language learning literature to date, such as authenticity, seamlessness, personalization, communication and collaboration. Those major themes are also evident in our studies.

Much is now known about the potential and the reality of mobile language learning, enabling critical reflection as well as well-founded advice to those who are incorporating mobile approaches into their curricula and teaching and learning methods. Thus, the field of mobile language learning has gradually moved towards more mature reflection on its achievements and directions of travel. Hopefully the desire to view its potential and applicability across educational contexts will continue to grow and will strengthen prospects for technology-enhanced lifelong learning.

Figure 7.1 Five notable themes running though the studies.

References

Aderinoye, R. A., Ojokheta, K. O., & Olojede, A. A. (2007). Integrating mobile learning into nomadic education programme in Nigeria: Issues and perspectives. *The International Review of Research in Open and Distributed Learning*, *8*(2).

Bradley, C., & Holley, D. (2013). Empirical research into students' mobile phones and their use for learning. In D. Parsons (Ed.), *Innovations in Mobile Educational Technologies and Applications* (pp. 318–333). Hershey, PA: IGI Global.

Burston, J. (2015). Twenty years of MALL project implementation: A meta-analysis of learning outcomes. *ReCALL*, *27*(1), 4–20.

CEMS (2019). #Speedupeducation: Student-driven recommendations for educational transformation. A report compiled from CEMS Master's in International Management Business Projects undertaken between January–August 2019. https://e3ec0879-f0c6-42cd-9b8e-f1b451be89b8.filesusr.com/ugd/7cf55c_6bdb1f283e9844499c1fb63cab7149a2.pdf.

Chang, C.Y., Shih, K.P., & Chang, H.R. (2006). Some studies on technology support for outdoor mobile learning. In E. Pearson & P. Bohman (Eds.), *Proceedings of ED-MEDIA 2006 – World Conference on Educational Multimedia, Hypermedia & Telecommunications* (pp. 1170–1177). Orlando, FL: Association for the Advancement of Computing in Education (AACE). Retrieved from https://www.learntechlib.org/primary/p/23152/ (accessed July 28, 2020).

Chen, X.-B. (2013). Tablets for informal language learning: Student usage and attitudes. *Language Learning and Technology*, *17*(1), 20–36.

Chung, C. J., Hwang, G. J., & Lai, C. L. (2019). A review of experimental mobile learning research in 2010–2016 based on the activity theory framework. *Computers & Education*, *129*, 1–13.

Ertmer, P. A. (1999). Addressing first-and second-order barriers to change: Strategies for technology integration. *Educational Technology Research and Development*, *47*(4), 47–61.

Hwang, W. Y., Chen, H. S., Shadiev, R., Huang, R. Y. M., & Chen, C. Y. (2014). Improving English as a foreign language writing in elementary schools using mobile devices in familiar situational contexts. *Computer Assisted Language Learning*, *27*(5), 359–378.

Jaldemark, J., Hrastinski, S., Olofsson, A. D., & Öberg, L. M. (2018). Editorial introduction: Collaborative learning enhanced by mobile technologies. *British Journal of Educational Technology, 49*(2), 201–206.

Khaddage, F., Müller, W., & Flintoff, K. (2016). Advancing mobile learning in formal and informal settings via mobile app technology: Where to from here, and how?. *Journal of Educational Technology & Society, 19*(3), 16–26.

Kim, J. (2020). Voices of youth in reconceptualising and repositioning the role of mobile learning for sustainable development. *Information Technology for Development*, 1–17. https://doi.org/10.1080/02681102.2020.1749537.

Kukulska-Hulme, A. (2010). Learning cultures on the move: Where are we heading? *Journal of Educational Technology and Society, 13*(4), 4–14.

Kukulska-Hulme, A. (2012). Language learning defined by time and place: A framework for next generation designs. In J. E. Díaz-Vera (Ed.), *Left to My Own Devices: Learner Autonomy and Mobile Assisted Language Learning* (pp. 1–13). Innovation and Leadership in English Language Teaching, 6. Bingley: Emerald Group Publishing Limited.

Kukulska-Hulme, A., Gaved, M., Jones, A., Norris, L., & Peasgood, A. (2017). Mobile language learning experiences for migrants beyond the classroom. In J.-C. Beacco, H.J. Krumm, D. Little, and P. Thalgott (Eds.), *The Linguistic Integration of Adult Migrants / L'intégration linguistique des migrants adultes: Some lessons from research / Les enseignements de la recherche* (pp. 219–224). Berlin: De Gruyter Mouton.

Kukulska-Hulme, A., Norris, L., & Donohue, J. (2015). *Mobile pedagogy for English language teaching: A guide for teachers*. London: British Council.

Lai, C., & Zheng, D. (2018). Self-directed use of mobile devices for language learning beyond the classroom. *ReCALL*, *30*(3), 299–318.

Mulholland, P., Collins, T., & Zdrahal, Z. (2005). Bletchley Park text: Using mobile and semantic web technologies to support the post-visit use of online museum resources. *Journal of Interactive Media in Education*. Special Issue – Portable Learning: Experiences with Mobile Devices. A. Jones, A. Kukulska-Hulme and D. Mwanza (Eds.). http://jime.open.ac.uk/2005/24/.

Ogata, H., Hui, G. L., Yin, C., Ueda, T., Oishi, Y., & Yano, Y. (2008). LOCH: Supporting mobile language learning outside classrooms. *International Journal of Mobile Learning and Organisation*, *2*(3), 271–282.

Pettit, J., & Kukulska-Hulme, A. (2007). Going with the grain: Mobile devices in practice. *Australasian Journal of Educational Technology, 23*(1), 17–33.

Pimmer, C., Brühlmann, F., Odetola, T. D., Oluwasola, D. O., Dipeolu, O., & Ajuwon, A. J. (2019). Facilitating professional mobile learning communities with instant messaging. *Computers & Education*, *128*, 102–112.

Pimmer, C., Mateescu, M., & Gröhbiel, U. (2016). Mobile and ubiquitous learning in higher education settings. A systematic review of empirical studies. *Computers in Human Behavior*, *63*, 490–501.

Reinders, H., & Benson, P. (2017). Research agenda: Language learning beyond the classroom. *Language Teaching*, *50*(4), 561–578.

Seta, L., Kukulska-Hulme, A., & Arrigo, M. (2014). What have we learnt about mobile LifeLong Learning (mLLL)? *International Journal of Lifelong Education*, *33*(2), 161–182.

Shadiev, R., Hwang, W. Y., & Huang, Y. M. (2017). Review of research on mobile language learning in authentic environments. *Computer Assisted Language Learning*, *30*(3–4), 284–303.

Tsai, K. J. (2019). Supporting extensive listening with mobile technologies. *Journal of Asia TEFL*, *16*(2), 711.

Viberg, O., Andersson, A., & Wiklund, M. (2018). Designing for sustainable mobile learning – Re-evaluating the concepts "formal" and "informal." *Interactive Learning Environments*, DOI: 10.1080/10494820.2018.1548488.

Wong, L.-H., Chai, C., Aw, G., & King, R. (2015). Enculturating seamless language learning through artifact creation and social interaction process. *Interactive Learning Environments*, *23*, 130–157.