

Word count: 8,477(including figures), 8,121 (excluding figures)

MOBILE LEARNING REVOLUTION: IMPLICATIONS FOR LANGUAGE PEDAGOGY

Agnes Kukulska-Hulme, Helen Lee and Lucy Norris

Abstract

Mobile technologies including cell phones and tablets are a pervasive feature of everyday life with potential impact on teaching and learning. “Mobile pedagogy” may seem like a contradiction in terms, since mobile learning often takes place physically beyond the teacher’s reach, outside the walls of the classroom. While pedagogy implies careful planning, mobility exposes learners to the unexpected. A thoughtful pedagogical response to this reality involves new conceptualizations of what is to be learnt and new activity designs. This approach recognizes that learners may act in more self-determined ways beyond the classroom walls, where online interactions and mobile encounters influence their target language communication needs and interests. The chapter sets out a range of opportunities for out-of-class mobile language learning that give learners an active role and promote communication. It then considers the implications of these developments for language content and curricula and the evolving roles and competences of teachers.

Keywords

Mobile language learning; mobile pedagogy; learner autonomy; smartphones; tablets

<A> Introduction

In a globalised 21st Century, competence in other languages contributes to effective communication and collaboration with people from diverse cultural backgrounds in all areas of life, education and work (Boix Mansilla and Jackson 2011; Partnership for 21st Century Skills 2015; Skills CFA 2013). Logically therefore, language learning should be an important lifelong pursuit, carried out in a variety of ways according to changing social, educational, and working life imperatives, as well as personal interests and needs. New technologies make a lifelong commitment to language learning much more feasible and attractive than was the case in the past. In particular, mobile technologies are uniquely suited to supporting language learning on an on-going basis, in a range of settings, according to a person's ability and adapted to their needs (Gu, Gu and Laffey 2011; Hsu, Hwang and Chang, 2013; Ng, Lui and Wong 2015). They are uniquely personal tools with the potential to promote exposure to target languages, capture communication difficulties as they occur, prompt on-going reflection, and enable selection of affordable learning resources to suit an individual's preferences and situation-specific needs.

Although mobile learning offers certain benefits in the classroom, the use of mobile devices also potentially extends learning beyond the classroom setting. In fact, as noted by Brown (2010), "the distinguishing aspect of mobile learning is the assumption that learners are continuously on the move" (7), perhaps in outdoor settings or in places where everyday life and leisure activities merge with learning. This poses new challenges, since classroom pedagogy implies careful planning, while mobility outside of class exposes language learners to the unexpected: linguistically challenging situations that could not be predicted, chance encounters with online resources and apps, offers of informal connections to target language speakers all over the world. A thoughtful pedagogical response to this reality involves new conceptualizations of what needs to be learnt and new activity designs to promote learning.

Such a considered response also recognizes that learners may act in more self-determined ways beyond classroom walls, where online interactions and mobile encounters influence their language *communication* interests and needs (see Díaz-Vera 2012). Beyond the classroom, mobile technologies have become integrated into the fabric of people's everyday lives, enabling learning opportunities to take place in a multiplicity of real world settings. Many learners today will instinctively curate and communicate their everyday lives through social media platforms and the capturing functions of their devices. Yet mobile applications have failed to reflect these everyday curation and communication practices and also communicative language teaching models (Kukulska-Hulme and Shield 2008). Burston (2015, 16) bemoans "the lack of pedagogical innovation and failure of even the most recent MALL (Mobile-Assisted Language Learning) projects to exploit the communicative affordances of mobile devices."

Dichotomies between formal and informal learning may also require reconsideration for a new pedagogic age of more fluid transitions between these spheres. Due to the near-ubiquity of mobile devices (although access is not universal), language learning now increasingly traverses the classroom and learning takes place "in virtual spaces and out in the world" (Kukulska-Hulme 2013, 2). At the same time, learners must not be left unguided and unsupported (Laurillard 2007). Therefore, in this chapter we address questions as to how teachers can exploit mobile technology to adapt and transform their practice by enabling authentically communicative learning opportunities for their students both in the classroom and beyond the classroom out in the world. First, we consider how teachers need to rethink and adapt their teaching and what models have been elaborated to help them conceptualise changes they can make to their pedagogical practices with technology.

Next, we review relevant published overviews and research studies in mobile language learning, and available guidance for teachers. We suggest a contemporary

pedagogic skills-set designed for teachers and educators interested in implementing mobile devices in their current practice and programs. Multimodal mobile interaction is highlighted as a new frontier of language learning research and practice. We go on to propose our perspective on mobile language learning beyond the classroom: the Mobile Pedagogy framework (Kukulska-Hulme, Norris and Donohue 2015) developed for English language teachers is described, and through it, transformational language learning task designs integrated with mobile approaches are exemplified and considered in detail. Finally, we present examples of tasks employing MALL, and highlight components with reference to the framework suggested here in order to draw out the essential elements comprising a mobile pedagogy for language learning. We conclude by identifying challenges for the successful implementation of MALL approaches and guiding principles for teacher education.

<A> Adapting language teaching to mobile learning

** Adaptation in language teaching**

Widdowson (1990, 2) recognised the need for language teaching constantly to adapt in response to changes happening in the world, when he wrote:

The contexts of language teaching, like the more social contexts within which they are located, are continually changing, continually challenging habitual ways of thinking... Unless there is a corresponding process of critical appraisal, there can be no adaptation, no adjustment to change.

Adaptation means being cognizant of social discourse that takes place in the real world where language items such as demonstratives and deictic adverbs “are focussed on the sociocultural conception of the spaces we live in” (Scollon and Scollon 2003, 36). Balancing in-class and out-of-class learning may be challenging but can be achieved by teachers regularly scheduling reflective scenarios to engineer “noticing” of language (Schmidt 2001) from captured mobile data being brought back into the classroom. Kukulska-Hulme and Bull

(2009) highlight the importance for learners to fully exploit the functions of their devices in order to observe and record language in use as a way to support language acquisition.

While course books based on the communicative approach have continuously striven to replicate the real world and to script authenticated language, teachers' engagement with mobile learning offers an important departure from this relative artificiality. As a result, teachers face the challenge of identifying and creating synchronous real world learning tasks that are skilfully woven into the everyday. The approach involves teachers drawing on existing training but also developing new knowledge as to how to integrate both virtual and physical settings in innovative ways in order to focus on target structures, grammatical forms, communicative skills, and to explore recycled and newly-emergent vocabulary. Therefore, teachers need to carefully evaluate how learners are already using their mobiles, assess what is communicatively possible for a particular group of learners, and then gradually grade tasks accordingly, as they would in the classroom. A sense of community building through online and face-to-face peer support is even more vital for learners in their autonomous endeavours, in that when they inevitably meet problems there is a fellow learner and teacher behind them to support them.

To help teachers conceptualise changes they can make to their pedagogical practices with technology, a number of models have been elaborated. Cardullo et al. (2015) suggest that the alignment of emerging technologies with Puentedura's (2010) Substitution – Augmentation – Modification – Redefinition (SAMR) model could help teachers to see their potential when used in tandem with Bloom's revised taxonomy of the cognitive domain (Anderson, Krathwohl and Bloom 2001). Puentedura's SAMR model, similarly to the three technology functions proposed by Hughes (2005) (replacement, amplification, transformation), aims to enhance technology integration by aiding the analysis of technology use proposed by teachers to achieve the learning outcomes of a task. The SAMR model asks

if technology functions as a substitute for, or augmentation of, existing tools commonly employed for the same purpose, with some functional enhancement. At “transformational” levels, the SAMR model goes on to prompt an examination of how technology use might allow for modification, significant redesign of tasks or even prompt a radical redefinition of “previously inconceivable” tasks. A different framework designed for teachers constantly required to shift and evolve their understanding and knowledge with regard to the intersecting domains of technology, pedagogy and content, is the Technological Pedagogical and Content Knowledge (TPACK) framework (Koehler and Mishra 2009, 61). While both provide useful insights, neither the SAMR nor the TPACK were designed with language teaching in mind. Thornbury and Meddings point out that language is not a subject, it is a medium (2001). Therefore a framework for language teachers should ideally take the medium, or more broadly, communication modes and media, into account.

** Mobile language learning: guidance for teachers**

Published literature on mobile learning is extensive and includes publications specifically aimed at educators and trainers (e.g., Bannister and Wilden 2013; Kukulska-Hulme and Traxler 2005; Traxler and Wishart 2011). In mobile language learning, Pegrum (2014) provides both a broad perspective and specific guidance on how to teach language with mobile devices, what aspects of language can be taught, and what kinds of new literacies are needed. Research articles cover a wide range of issues including implications for policymakers, employers and the workforce (Beatty 2013), designing mobile-based classroom learning experiences (Hockly 2013a), and moving from Computer Assisted Language Learning (CALL) to task-based language learning with Mobile Assisted Language Use (MALU) (Jarvis 2015).

While mobile language learning may not yet be currently reflected in the curricula of English language teacher qualifications or professional development frameworks, there is

evidence of interest in mobile language learning from educational technology developers, publishers and teachers. Discussions around mobile language learning practices are well represented in English language teaching conferences, including fifteen presentations at the IATEFL 2015 conference, and seventeen in Canada at the TESOL 2015 conference. Practical guides to mobile Learning for English Language teaching include *Going Mobile* (Hockly and Dudeney 2014) and *Apptivities for Business English* (Sharma and Barrett 2015). Teacher interest in, and sharing ideas about mobile language learning can be seen in social media, blogs, webinars and online teacher resources, with inspiration taken from peers and influential others working in Modern Foreign Language Teaching and secondary contexts internationally (e.g., Byrne 2015; Dale 2015; Peachey 2015).

Difficulties may arise when mobile learners are empowered to act in more self-determined ways that may be at odds with current teaching practices, and more guidance on this aspect is needed. Kukulska-Hulme (2013) argues that language learners need to be re-skilled for a mobile world in which learner autonomy will be valued and needs to be supported. The concept of language learner autonomy (Benson 2013; Little 2007) has been put forward as a desirable aim in the context of educating learners who will be able to assume an active role in their learning process and continue learning beyond the classroom. It is not synonymous with individuals working in isolation, without any peer or teacher support. Little (2007) highlights how autonomy within language learning was not found to be directly linked to self-access materials and self-instruction but instead required the careful implementation of pedagogic principles relating to issues such as *learner empowerment, reflection, and target language use*. There are key strategies that teachers can adopt to foster autonomy in learners, such as providing opportunities to negotiate tasks, allowing them to select resources of interest and encouraging groups to make learning decisions. Learners must also be made

aware of their language achievements but encouraged to critically assess themselves and, importantly, understand how to develop strategies to enable them to achieve future goals.

Online mobile spaces can be effectively utilised to become regular private or public learning journals. For example, mobile blogs provide the tools for learners to store their reflections in text and other modes, such as video, as they move about their lives. Within mobile pedagogy and learning beyond the classroom, there is a strong need to support learners by incorporating regular dialogic exchanges between teacher and class as to how autonomous collaborations can best be structured, shared, and harnessed by learners as meaningful resources from which to motivate and learn (Laurillard 2007). Some teachers may feel ill-equipped to conduct such conversations with their learners; however, without pedagogic structuring, follow-up classroom work and clear explanations of identifiable aims and outcomes, many learners will struggle to develop autonomy.

Purushotma argues that while classroom environments and learning have evolved considerably, “the guidance students receive on how to continue learning a language outside of class has remained relatively the same” (2005, 81). Pegrum suggests that pedagogy associated with mobile learning depends on teachers, and their learners, seeing the benefits of both knowledge construction and collaborative networking, which “may require both teacher and learner training in the developing and developed world alike” (2014, 109). Professionally trained classroom educators will have strong existing skills and want to hone and build on these to reflect technological shifts in learners’ communication practices for the 21st century (as demonstrated in Figure 1).

(Figure 1 near here. See title in separate attachment)

Despite the growing body of publications offering guidance to teachers, there is, as yet, relatively little advice that would help teachers understand informal learner practices using multiple modes of communication, making use of mobile and social technologies across a range of physical settings ('digital and multimodal literacies' in Figure 1). We give a brief overview of this emerging research area in the next section before addressing wider issues of mobile language learning beyond the classroom.

** Multimodal mobile interaction: new frontiers of language learning**

Mobile devices are multifunctional tools that subvert definitions of communication exclusively derived from traditional notions of speech and written text. Their functionality permits learners to exploit a range of modal affordances: to orchestrate ensembles of speech and gesture in their captured videos or to juxtapose visual representations of the world side-by-side with their thoughts expressed in language. A multimodal stance on learners' interpersonal communication in the 21st century includes helping them to understand the dynamic interplay of modes such as gesture, image, sound, proxemics and space, and how

they can be brought together to form coherent meanings within a range of communicative and interactional scenarios (see Jewitt 2014 for an overview of multimodal research). Conversely, Kukulska-Hulme, Norris and Donohue (2015, 5) highlight the current “disconnect” between the world of language learning and the reality of multimodal processing; citing the notable contrast in terms of how learners engage with video consumption and creation beyond the classroom. Even basic digital skills, as highlighted by the UK Digital Skills Charter (2014) aiming to prevent digital exclusion, involve individuals and organisations being able to make successful video calls, engage with live chat, exploit social media, understand basic analytics, and crucially to communicate effectively through combinations of graphics, visuals, and text.

The communicative landscape is constantly evolving and pedagogical paradigms need to reflect these economic and societal shifts. As a result, learners’ experiences with new technologies represent the spaces where new literacies are created and shaped (Kress and Van Leeuwen 2001). There is increasing interest in the relationships between digital technologies and literacy, multimodal forms of communication and learning, and multimodal research methodologies to investigate learners’ interactive practices and experiences (Domingo 2011; Eisenlauer 2014; Flewitt et al. 2014; Jewitt 2006; Lee 2015). Domingo (2011) adopts a multimodal framework to interpret issues of culture, language and identity in terms of how design features are embedded in young people’s informal, collaboratively-shared videos. Eisenlauer (2014) discusses the multiple relationships between modes and the implications for mobile learning in that text and image in interplay can serve as effective means for acquiring a new language. However, the multimodal research focus also reveals incongruity of meaning between the modes of language and visuals in a commercial vocabulary app, with one fifth of the images “in conflict” (335): the visuals were sometimes unclear, decontextualized and potentially confusing for users.

Lee (2015) explores gesture within second language learners' interactions from a range of dispersed informal settings such as a local cafe. Learners are connected via the video conferencing program Skype accessed on mobile tablets and phones. She adopts an analytic framework that draws on gesture studies (Kendon 2004) and multimodal theories of interaction (Norris 2004) to explore meaning-making practices around acquisition in L2. Language and gestures operate in ensemble and act as a way to explore and negotiate a range of settings where virtual and material space merge in new ways. This type of communicative scenario can be motivating for learners but also requires new levels of multitasking skills; besides, communication can involve distractions due to levels of background noise present in some public settings. In the research, reflective opportunities via video playback are introduced to encourage critical noticing of language use and gesture in terms of coherency of meaning and effectiveness of multimodal communication.

<A> Mobile language learning beyond the classroom

Benson and Reinders (2011) have argued that studies of language learning and teaching in settings beyond the classroom are valuable because they provide alternative perspectives on social and cognitive perspectives involved in these processes. The powerful combination of out-of-class and mobile learning certainly calls for a re-examination of the aims and processes of language learning. We view language learning as the development of interpersonal communication resources, emphasising the importance of fostering learners' personal interests through harnessing their self-directed and everyday interactions out in the world. This is congruent with the Common European Framework of Reference for Languages (CEFR) (Council of Europe 2001) which adopts an action-oriented approach to learning in order to develop communicative competence. The framework highlights issues for learners such as autonomy, communication, fluency, and interactive speaking and listening skills. As we argue in this chapter, mobile devices provide new opportunities for teachers working with

a range of learners to help them achieve some of the CEFR assessment goals via mobile resources and settings out in the world.

One very pertinent example is the Fón project reported by Keogh and Ní Mhurchú (2009) who highlight the considerable challenge faced in fostering communicative competence in the Irish language. Factors such as the unpopularity and perceived difficulty of the language, combined with requirements to create spoken production opportunities that could be assessed, were met through the introduction of mobile technologies. The Fón project involved sixteen teachers and 368 learners; the students were able to phone ‘anytime and anywhere’ to orally answer a set of questions which were recorded for access and subsequent assessment by teachers. Results demonstrated that teachers felt that the system enabled Irish language learning to travel beyond the classroom and found it effective for monitoring progress. Learners reported very positive benefits with 78 per cent remarking that they were speaking and using more Irish than before the project. This project also illustrates how mobiles may prove essential in preserving cultural heritage and in motivating future generations to engage with old languages in new ways. Jones (2015) supports this view, arguing that digital resources, particularly when mobile, “have the potential to at least partly overcome the particular challenges of learning a language with a limited number of dispersed speakers” (6). In contrast to the Fón project involving teachers and their learners, Jones’ case studies of informal Welsh learning reveal that mobile learning in this environment makes use of spare time, multitasking and “supported a pattern of learning that was often both spontaneous and planned” (2015, 11).

** Language learning and cultural learning for work**

Nowadays, learners may study a language in ways that fit around their work and life routines. They could be aiming to achieve personal goals that include building cross-cultural relationships to join social communities, or to overcome cultural and linguistic barriers to

manage international teams of people and to articulate their ideas within a workplace setting.

Ros i solé, Calic and Neijmann note that:

[L]anguage learning involves not only acquiring information but also forming social relationships and engaging with new cultural backgrounds and emotional selves. Learners, then are, increasingly seen as part of a system that not only involves them in interaction with the social environment, but also engages their personal goals, desires, and day-to-day practices.
(2010, 40)

Mobile pedagogy carries implications for a range of targeted language learning scenarios, ranging from language for specific purposes through to English for international management and workplace learning. Teachers currently operating within these fields will be familiar with the specialised language training and pedagogy these learners require. For example, within successful business language training scenarios the learner's specific job description and workplace setting should ideally drive the syllabus, the focus of tasks, and the exploitation of a range of authentic materials as a way to reflect language as a contextualised part of their everyday work practice. It is the role of the trained teacher to synthesise theoretical language knowledge with the learner's business expertise and practical experience. Today, this involves a balanced pedagogic approach that exploits conceptual and experiential knowledge, and combines these with the integration of communication technologies to improve L2 in order to do a specific job.

Language needs and pedagogic solutions of global organisations frequently include language development through meetings, company presentations, negotiation skills and building effective social relationships. Lee (2012) demonstrates how authentic communicative tasks on *Skype*, combined with online capturing tools, can be pedagogically harnessed to help workplace learners improve their L2 spoken skills for their global videoconferencing meetings. Mobile devices now support several videoconferencing platforms for such meetings. Teachers can exploit these spaces to implement real-life

problem-based scenarios for learners to help them develop key skills for their jobs such as chairing, clarifying information, and developing cross-cultural competence. Today's workplace learners and organisations have already integrated mobile technologies into the workplace as part of their communicative networks and knowledge sharing practices, although business language pedagogy has sometimes lagged behind and failed to reflect these changes.

Mobile technologies can be successfully exploited by teachers and learners to enable communicative skills in L2 to be developed on the job. For example, aspects such as the portability, connectivity, and the ability of devices to capture language use and communication is ideally suited to the flexibility required for workplace learning and learners. Instead of teachers recreating workplace tasks that perhaps inaccurately reflect the workplace, learners themselves can autonomously use mobile video and audio functions on devices to illustrate and represent to their teachers the type of L2 tasks their jobs really require. From this point of view, task-based learning can be more effectively targeted and pedagogically scaffolded to address specific and emerging needs, and to more accurately reflect workplace culture and settings than is possible through generic business language teaching materials.

Dyson (2014) utilised mobile devices to encourage university students to share knowledge, to learn about the information technology sector via a vodcast project. The multimedia and collaborative aspects of devices provided the motivation to enable the students to represent their evolving knowledge in multiple ways in order to become increasingly familiar with the IT profession and the workplace setting they were aiming to enter in their future careers. Mobile technologies have also been exploited in the Qatar oil and gas industry to develop communication skills while people worked on the job. Workers

demonstrated improved performance and expressed a wish to engage in further learning opportunities with mobile technologies (Ally et al. 2014). On the other hand, it can be argued that mobile device on their own do not necessarily provide solutions to the type of complex tasks workplace learners have to perform in their L2. The technology should instead be seen as an enabler which will be most effective when combined with carefully-crafted communicative language teaching and a language teacher's expertise.

Eraut (2004) explains, within an informal workplace paradigm, that professional, managerial and technical performance are complex processes that entail simultaneous use of different types of knowledge that are acquired holistically. Workplace learning that involves experiential learning in isolation may affect the extent to which business people are able to think whilst performing their jobs in an L2 and, consequently, the quality of the knowledge available to them may be insufficient. Communicating in an L2, whilst learners are engaged in a series of demanding work-based tasks, can frequently result in *just in time* and *just get by* learning. Therefore, immediate communicative needs in workplace situations will often result in unconscious performances that require engineered reflection to transform them into more explicit sources of knowledge that learners can use to achieve improved task goals. Business learners should be encouraged by teachers working in and with organisations to regularly capture their communicative interactions on the job (within industry confidentiality boundaries). If these authentic scenarios are to be of long-term value it is essential that structured reflection highlights language and discourse skills but also important pragmatic issues; therefore reflection must be introduced at strategic points by an experienced teacher who interacts with learners as part of a democratic workplace team. Figure 2 illustrates the implementation of the teaching skills set from Figure 1. Figure 2 consists of a framework integrating classroom work with language usage in the world of work beyond the classroom. The teacher uses identified resources including learners' jobs and the work setting to design

authentic tasks and encourages learners to exploit video/capturing tools for post-task reflection in the classroom, developing digital literacies as well as language skills.

Following the tasks in Figure 2, the teacher will have also developed the digital pedagogic skills to understand the potential of social media for knowledge-construction. Sites are pre-identified and harnessed to create networking opportunities, bearing in mind sensitive privacy issues such as opting for a closed access group (see Figure 1 again). Students require careful guidance, combined with successful task design and reflective cycles based around social media and video, in order to transform their everyday social practice into effective language learning:

(Figure 2 near here. See attachment notes for title)

** Connecting in-class and out-of-class environments**

As described earlier, mobile learning implies an understanding of “how to utilize our everyday life-worlds as learning spaces” (Pachler, Bachmair and Cook 2010, 6). This is particularly resonant in out-of-class language learning, where teachers, and mobile tools and apps designed specifically for language learning often fail to exploit the connections between life and language learning. This may result from exclusive engagement with institutionally prescribed globally produced core materials and internationally homogenised assessment and testing systems. Enhanced communication between in and out-of-class environments taking learner and learning mobilities into account is key to effective mobile pedagogy, as is a view of language as dynamic, an emergent phenomenon across environments, where learning is a “jointly constructed and socially motivated process, contingent on the concerns, interests, desires, and needs of the user(s)” (Thornbury and Meddings, 2001). Unfolding learning and teaching processes across settings requires new teacher roles (e.g., scaffolding out of classroom language), as discussed in the previous section.

Emerging studies of language in a mobile world, e.g., English as an International Language (EIL) or English as a Lingua Franca (ELF), the international rise of English as a Medium of Instruction (EMI) and Content and Language Integrated Learning (CLIL) all provide evidence for “effective global cross-cultural communication as a strong driving force for language learning” (Kukulska-Hulme 2013, 11). Pennycook expands on this, claiming that

New technologies and communications are enabling immense and complex flows of people, signs, sounds, (and) images across multiple borders in multiple directions. (2010, 593)

As a consequence of this convergence, language teachers need to be able to work with more than language content, and become “(co-) designers of effective learning experiences for their learners” regardless of whether any technology is involved (Laurillard 2012 quoted in Hockly, 2013b, 2).

In this section we consider opportunities for out-of-class language learning to complement in-class teaching by harnessing teacher wisdom and mobile technologies within a framework for Mobile Language Pedagogy. Furthermore, we consider the roles in this for native versus mobile tools and apps and present some examples of mobile language learning activity designs. We begin by considering how a traditional out-of-class homework task might be reconfigured using mobile technologies to assist and enhance language learning.

The SAMR model referred to earlier (Puentedura 2010) informs the design of language learning activity by facilitating teacher examination of the role proposed for technology to carry out tasks. A written homework task, familiar to language teachers, often used for assessment, is examined here with reference to each layer of the SAMR framework. At the bottom of the SAMR ladder, technology may act as direct tool substitute, ‘with no functional change’ so that a pen and paper are substituted by processing software and a printer. The hand-written essay therefore becomes the word-processed essay, but handed in to the teacher in the same way. This is the S in SAMR; substitution. If, however, learner attention is directed by a task to use word processing tools such as the speech to text function, or to combine graphics into the text then there is added functionality to the tools being substituted (augmentation). The resulting work might be turned in to the teacher either in print form or digitally. Mobile devices may be used to research handwritten or word processed work, photograph the results, make notes, or voice record the process for later reflection. Language and the environments in which it is produced or reproduced, may be mobile, and devices support and capture learning between and across contexts and settings. Moving up the SAMR ladder from substitution, through augmentation, to the modification layer, Puentedura views technology as allowing for ‘significant task redesign’ (2010, 3). In our example this could mean asking students to write their essay as a blog post, so the teacher as sole reader, editor and critic is replaced by a wider audience of commentators with the

potential for expert and peer language and content feedback, joint reflection and discussion. The environments in which the blog can be added to, commented on and read in transit are mobile, enabled by learners' and teachers' devices. In the top R layer, Redefinition is when the creation of new previously inconceivable tasks are enabled by technology. Our essay, for instance, might become a multimedia, multimodal text, combining words (written and spoken), images (moving and still), and published rather than handed in, like the blog post. In this redefinition of a homework task, learner choice is valued, and cross-environment engagement is encouraged and enabled in tandem with those features of mobile devices that allow the recording, broadcasting and sharing of communication for subsequent study, reflection and improvement.

** Native mobile device features, generic and specific language learning apps**

Mobile devices can be seen to play various roles in the out-of-class language learning tasks described in the previous section. They can support both multimodal language production and reflection, a learner mobility central to bridging learning made across contexts of use. Additionally, mobile technologies provide potential opportunities for promoting reciprocal communication and facilitate engagement in reading and viewing activities. The activities described are enabled by the native features of mobile devices such as the camera, voice recorder or video functions, in combination with mobile internet tools that allow sharing and posting; 'mobile assisted' learning. A mobile or technology enhanced learning experience might, in our example, be the use of a generic app such as Evernote to collaborate in the production of a group multimodal text. This app would enable collaboration via shared digital notebooks combining text with images, video, hyperlinks, bookmarking functions, alerts and calendars. Evernote is not designed for the purpose of language learning, so is an authentic resource, but one that can be usefully incorporated into the arena of second language learning, with a free version. An account of one teacher's experience of using this

app originally described in her blog was reposted to ELT Jam on October 5, 2015. In this blog post Lana Haze provides valuable insights of planning teaching while on the move in a city. She describes bookmarking, tagging ideas, setting alerts, taking, editing and annotating photographs, making audio notes and capturing ideas “that would normally vanish after the third metro stop” as well as keeping notes on learners. In her view, this app enables the creation of “great speaking activities on the go with nothing but your phone” using geolocation and the Evernote atlas features. Comments on this post by other teachers describe how Evernote works to capture their professional development.

As mobile applications proliferate, it becomes more difficult for teachers and learners to understand how they differ from one another, what their most desirable features are, and what the pedagogical benefits to be derived from their use might encompass. The Mobile Pedagogy for ELT research project (2014), carried out by the Open University as part of a British Council research partnership, investigated these areas. Resulting insights gained from a study involving teachers and their learners resulted in a pedagogical framework to guide mobile assisted language teaching and learning (Kukulska-Hulme, Norris, and Donohue 2015).

<1> **A pedagogical framework for mobile assisted language teaching and learning**

The Pedagogical Framework (Figure 3) was developed to assist teachers in a process of reflection upon the adaptation of their teaching practice to mobile learning. It represents how teacher wisdom, learner mobilities, language dynamics and device features figure in language learning activities to be carried out in the range of contexts and cultural settings they occupy. Teacher wisdom utilises teacher experience, teaching strategies and effective task designs, which are all highly relevant in mobile learning. Central to enacting a mobile pedagogy is considering pedagogy in relation to the other three spheres of the framework. *Learner mobilities* include the places and times where learning might take place, as well as

the personal goals that motivate learners to keep on learning beyond the confines of the classroom. Echoing the mobility of learning and learners across contexts, the sphere of *language dynamics* recognises the mobility of language in a constant state of flux, partly due to the rapid evolution of communications technology with new channels and media available for language teaching and learning (e.g., social media). The sphere of *device features* and descriptions of the roles they might play in accessing and connecting to language learning opportunities is woven throughout the fabric of this chapter.

(Figure 3 near here. See attachment for title of figure)

Working outward from the four key spheres just described, we have four connecting concepts: learning outcomes, inquiry, rehearsal and reflection. There is no specified starting point for considering these concepts and how they will be enacted, although instructional design approaches often begin with the specification of outcomes. Examples of possible mobile language learning outcomes include, but are not confined to:

- identifying gaps in linguistic (and other) knowledge
- developing the habit of reflection on language learnt and processes involved
- learning to notice how language is used
- rehearsing
- experimenting
- developing digital (mobile) literacies
- learning to learn
- developing autonomy

The framework might help to evaluate how an activity leads to improved language proficiency and other outcomes. For instance, assessment is enabled by this facet of the framework, so, for example, analysis of spoken communication might be used to inform teacher evaluation, using learner or teacher recordings and aiding reflection and repair or correction. The second connecting concept, inquiry (conducted by learners) into changes within disciplinary knowledge and language data (e.g., expressions encountered) positions mobile devices as instruments for posing questions and seeking answers. Next, the territory where language might be rehearsed and practised by learners is extended by mobile technologies. As Van Lier points out, learners who only engaged with language during lessons would find themselves in the situation where “progress will either not occur or be exceedingly slow. The students’ minds must occupy themselves with the language between lessons as well as in lessons, if improvements are to happen” (1996, 42). Mobile learning can support a greater variety of language forms such as tweets (as summaries) and comments on multimedia posts. In Dr Diana Hicks’ review of a draft of *Mobile Pedagogy for English Language Teaching* sent to the authors of the guide (Kukulska-Hulme, Norris and Donohue

2015), the final concept of the framework, namely reflection, was noted to be potentially ‘as new to language teachers as the concept of mobile learning’. This concept includes the teacher helping learners reflect on their learning and what has and has not been learnt or understood, for subsequent fine-tuning, repair and repetition. Reflection also involves thinking about how to apply and progress learning, and setting (new) goals. These things, while prompted by teachers and their learners, are assisted by mobile devices, as in the example given earlier of a learner taking photographs and using a ‘think aloud’ protocol while writing an essay. Wearable devices can promote reflection by monitoring behaviour or emotional states and triggering recommendations and reminders (Santos et al. 2015). The *Mobile Pedagogy for English Language Teaching* guide contains examples of learning activities designed to bridge in-class with out-of-class learning and exploit the features of mobile pedagogy (Kukulka-Hulme, Norris and Donohue 2015). Figure 4 provides two examples.

SAMR	Example MALL activities	CEFR example descriptors	Digital technologies required
	<i>Teacher wisdom (effective task design & teaching strategies)</i>	<i>Language & learning outcomes, language dynamics</i>	<i>Device features, Learner mobilities</i>
Modification	A learner makes a voice/video recording of a speaking task done in class to share with partner for reflection and repair beyond class.	Can outline an issue or a problem clearly, speculating about causes or consequences, and weighing advantages and disadvantages of different approaches.	<ul style="list-style-type: none"> • voice or video recording • connectivity • access to internet e.g. LMS/virtual platform • curation/sharing/editing note-taking apps or tools
	Rehearsal and rerecording of task carried out and shared with the teacher for assessment in or out of a subsequent class.	Can help along the progress of the work by inviting others to join in, say what they think, etc.	<ul style="list-style-type: none"> • reference apps (dictionary or grammar reference, etc.)
	Reflections on learning and language posted on shared LMS/online space.	Can make a note of ‘favourite mistakes’ and consciously monitor speech for them.	<ul style="list-style-type: none"> • <i>learners & learning are mobile</i> • <i>in or beyond class; seamless</i> • <i>multimodal</i> • <i>authentic</i> • <i>collaborative</i>

Redefinition	A learner photographs and maps the places s/he studies in and the things used (e.g. apps, writing implements, favourite chair etc.) to make an online multimedia interactive image.	Can write straightforward connected texts on a range of familiar subjects by linking a series of shorter discrete elements into a linear sequence.	<ul style="list-style-type: none"> • camera • video or voice recording • connectivity (online sharing) • geolocation • access to LMS/virtual space • reference apps (google maps, dictionary/phrase book, etc.)
	Thinglink is used to share with the class (or teacher), as homework, or for assessment.	Can convey degrees of emotion and highlight the personal significance of events and experiences.	<ul style="list-style-type: none"> • <i>learners & learning are mobile</i> • <i>in or beyond class; seamless</i> • <i>multimodal</i> • <i>authentic</i> • <i>can be collaborative</i>

Figure 4: Example MALL activities, CEFR descriptors and digital technologies required

<A> Conclusions

In this chapter we have argued that mobile phones and other portable devices should enable new ways of learning that embrace learning beyond the classroom. A language learner can use these tools to face daily language challenges, as well as for longer-term development of personal communication resources that will continue to be revisited and enriched over a lifetime. Increasingly, formal learning takes place in informal settings, and informal learning in formal settings, therefore it makes little sense to keep these two spheres separate.

Professionally trained classroom educators are well-placed to help lead the mobile revolution and now face the task of spreading the message and implementing innovation in language

schools and institutions that may currently have little understanding of what it is to teach and learn a language communicatively with mobile technology. Moreover, teacher training courses must update their syllabus and training focus to begin to reflect the complex ways in which use of mobile technologies are impacting and transforming issues surrounding pedagogy, learning and modern-day literacy practices.

We must also remember that new learning skills and competencies will continue to be required as technologies and social behaviours continue to change and evolve. Some social exchanges in online and mobile environments are now polylingual rather than being confined to one language (Jørgensen 2008). In the near future, learners will begin to engage with the next generation of wearable devices and technology-rich surroundings where personal devices are part of a repertoire of tools, resources and social networks that will offer new opportunities for language learning and expansion of cultural knowledge. These opportunities will need to be fully understood by educators, policy makers, and learners, to make sure that the opportunities are not lost.

References

- Alley, Mohamed, Mohammed Samaka, John Impagliazzo, Abdulahi Mohamed, and Martha Robinson. 2014. "Workplace learning using mobile technology: A case study in the Oil and Gas industry." In Vol. 479 of *Communications in Computer and Information Science*, edited by Yasmin Bayyurt, Marco Kalz, and Marcus Specht, 250–57. Berlin, Germany: Springer.
- Anderson, Lorin W., David R. Krathwohl, and Benjamin Samuel Bloom. 2001. *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. New York, NY: Longman.
- Bannister, Diana and Shaun Wilden. 2013. *Tablets and Apps in Your School: The route to successful implementation*. White Paper. Oxford: Oxford University Press. Accessed June 19 2016.
<https://elt.oup.com/feature/global/mlearning/?cc=gr&sellLanguage=en&mode=hub>
- Beatty, Ken. 2013. *Beyond the classroom: Mobile learning the wider world*. Monterey, CA: The International Research Foundation for English Language Education. Accessed June 19 2016.
<http://www.tirfonline.org/english-in-the-workforce/mobile-assisted-language-learning/beyond-the-classroom-mobile-learning-the-wider-world/>
- Benson, Phil. 2011. 2013. *Teaching and Researching: Autonomy in Language Learning*, 2nd ed. London, UK: Routledge.
- Benson, Phil and Hayo Reinders (Eds.) 2011. *Beyond the Language Classroom*. Basingstoke, UK: Palgrave Macmillan.
- Boix Mansilla, Veronica, and Anthony Jackson. 2011. "Educating for Global Competence: Preparing our Youth to Engage the World." *Council of Chief State School Officers' EdSteps Initiative & Asia Society Partnership for Global Learning*. Accessed June 19, 2016. <http://asiasociety.org/globalcompetence>
- Brown, Elizabeth J. 2010. *Education in the wild: contextual and location-based mobile learning in action*. A report from the STELLAR Alpine Rendez-Vous workshop series, edited by Elizabeth Brown . Nottingham, UK: University of Nottingham, Learning Sciences Research Institute (LSRI). Accessed June 19, 2016.
http://oro.open.ac.uk/29882/1/ARV_Education_in_the_wild.pdf
- Burston, Jack. 2015. "Twenty years of MALL project implementation: A meta-analysis of learning outcomes." *ReCALL*, 27, no. 1: 4–20.
- Byrne, Richard. "Free Technology for Teachers." Website. Accessed June 19 2016.
<http://www.freetech4teachers.com/>

- Cardullo, Victoria M., Nance S. Wilson, and Vassiliki I. Zygouris-Coe. 2015. "Enhanced Student Engagement through Active Learning and Emerging Technologies." In *Handbook of Research on Educational Technology Integration and Active Learning*, edited by Jared Keengwe, 1–18. Hershey, PA: IGI Global. DOI:10.4018/978-1-4666-8363-1
- Council of Europe. 2001. "Common European Framework of Reference for Languages: Learning, Teaching, Assessment." Accessed June 19 2016. http://www.coe.int/t/dg4/linguistic/cadre1_en.asp
- Díaz-Vera, J. (Ed.) 2012. *Left to my own devices: Learner autonomy and mobile-assisted language learning innovation and leadership in English language teaching* (pp. 197–212). Bingley, UK: Emerald Group.
- Dale, Joe. Twitter feed. @joedale
- Digital Skills Charter. 2014. Accessed June 19 2016. <https://doteveryone.org.uk/digital-skills/digital-skills-charter/>
- Domingo, Myrrh. 2011. "Analyzing layering in textual design: a multimodal approach for examining cultural, linguistic, and social migrations in digital video." *International Journal of Social Research Methodology*, 14, no. 3: 219-30. DOI:10.1080/13645579.2011.563619
- Dyson, Laura E. 2014. "A vodcast project in the workplace: understanding students' learning processes outside the classroom." In *Communications in Computer and Information Science*, Vol. 479, edited by Yasmin Bayyurt, Marco Kalz, and Marcus Specht, 258–71. Berlin, Germany: Springer.
- Eisenlauer, Volker. 2014. "Multimodality in Mobile-Assisted Language Learning." In *Communications in Computer and Information Science*, Volume 479, edited by Yasmin Bayyurt, Marco Kalz, and Marcus Specht, 328–38. Berlin, Germany: Springer.
- Eraut, Michael. 2004. "Informal learning in the workplace." *Studies in Continuing Education*, 26, no. 2: 247–73. DOI: 10.1080/158037042000225245
- Flewitt, Rosie, Regine Hampel, Mirjam Hauck, and Lesley Lancaster. 2014 "What are multimodal data and transcription?" In *The Routledge Handbook of Multimodal Analysis*, 2nd ed., edited by Carey Jewitt, 44–59. London, UK: Routledge.
- Gu, Xiaoqing, Fengjia Gu, and James M. Laffey 2011. "Designing a mobile system for lifelong learning on the move." *Journal of Computer Assisted Learning*, 27, no. 3: 204–15. DOI: 10.1111/j.1365-2729.2010.00391.x
- Haze, Lana. 2015. "ELT and Evernote: A match made in heaven." Blog post on *ELT Jam*. Accessed June 19 2016. <http://eltjam.com/elt-and-evernote-a-match-made-in-heaven/>
- Hicks, Diana. 2014. Report on draft of *Mobile Pedagogy for English Language Teaching: A Guide for Teachers*. Personal correspondence.

- Hockly, Nicky. 2013a. "Mobile Learning." *ELT Journal*, 67, no. 1: 80–84.
DOI: 10.1093/elt/ccs064
- Hockly, Nicky. 2013b. *Designer learning: The teacher as designer of mobile-based classroom learning experiences*. Monterey, CA: The International Research Foundation for English. Accessed June 19 2016. <http://www.tirfonline.org/english-in-the-workforce/mobile-assisted-language-learning/>
- Hockly, Nicky and Gavin Dudeney. 2014. *Going Mobile: Teaching with Hand-held Devices*. Peaslake, UK: Delta Publishing.
- Hsu, Chih-Kai, Gwo-Jen Hwang, and Carl K. Chang, 2013. "A personalized recommendation-based mobile learning approach to improving the reading performance of EFL students." *Computers & Education*, 63: 327–36.
DOI:10.1016/j.compedu.2012.12.004
- Hughes, Joan. 2005. "The role of teacher knowledge and learning experiences in forming technology-integrated pedagogy." *Journal of Technology and Teacher Education*, 13, no. 2: 277–302. Accessed June 19 2016. <https://www.learntechlib.org/p/26105>
- ICELT. 2015. "Cambridge In-Service Certificate in English Language Teaching. Syllabus". Accessed June 12. <http://www.cambridgeenglish.org/teaching-english/teaching-qualifications/icelt/>.
- Jarvis, Huw. 2015. "From PPP and CALL/MALL to a Praxis of Task-based Teaching and Mobile Assisted Language Use" *Teaching English as a Second or Foreign Language*, 19, no. 1: 1–9. Accessed June 19 2016. <http://www.tesl-ej.org/wordpress/issues/volume19/ej73/ej73a1/>
- Jewitt, Carey. 2006. *Technology, Literacy, Learning: A Multimodal Approach*. London, UK: Routledge.
- Jewitt, Carey. 2014. *The Routledge Handbook of Multimodal Analysis*, 2nded. London, UK: Routledge.
- Jørgensen, Normann J. 2008. "Polylingual languaging around and among children and adolescents." *International Journal of Multilingualism*, 5, no. 3: 161–76.
- Jones, Ann. 2015. "Mobile Informal Language Learning: Exploring Welsh Learners' Practices." *eLearning Papers* 45. Accessed June 19 2016.
<http://openeducationeuropa.eu/en/paper/language-learning-and-technology>
- Kendon, Adam. 2004. *Gesture: Visible Action as Utterance*. Cambridge, UK: Cambridge University Press.
- Keogh, Katrina. A. and Judith Ní Mhurchú. 2009. "Changing policy and an innovative response: Teaching, learning and assessing Irish using mobile phones." In *Many voices: Language Policy and Practice in Europe. CIDREE Yearbook*, edited by Katrina A. Keogh, Judith Ní Mhurchú, Hal O'Neill, and Marie Riney 127–39. Brussels, Belgium: CIDREE. Accessed June 19 2016.

http://www.cidree.org/fileadmin/files/pdf/publications/YB_9_Many_Voices_-_Language_Policy_and_Practice_in_Europe_.pdf

- Koehler, Matthew, and Punya Mishra. 2009. "What is Technological Pedagogical Content Knowledge (TPACK)?" *Contemporary Issues in Technology and Teacher Education*, 9, no. 1: 60–70.
- Kress, Gunther, and Theo Van Leeuwen. 2001. *Multimodal Discourse: The Modes and Media of Contemporary Communication*. London, UK: Arnold.
- Kukulska-Hulme, Agnes. 2013. *Re-skilling language learners for a mobile world*. Monterey, CA: The International Research Foundation for English Language Education. Accessed June 19 2016. <http://www.tirfonline.org/english-in-the-workforce/mobile-assisted-language-learning/>
- Kukulska-Hulme, Agnes, and Susan Bull. 2009. "An overview of mobile assisted learning: noticing and recording." *International Journal of Interactive Mobile Technologies*, 3, no. 2: 12–18.
- Kukulska-Hulme, Agnes, and Lesley Shield. 2008. "An overview of mobile assisted language learning: From content delivery to supported collaboration and interaction." *ReCALL*, 20, no. 3: 271–89. DOI:10.1017/S0958344008000335.
- Kukulska-Hulme, Agnes and John Traxler, eds. 2005. *Mobile learning: a handbook for educators and trainers*. London, UK: Routledge.
- Kukulska-Hulme, Agnes, Lucy Norris, and Jim Donohue. 2015. "Mobile Pedagogy for English Language Teaching: A Guide for Teachers." *The British Council*. Accessed June 19 2016. <http://englishagenda.britishcouncil.org/research-papers/mobile-pedagogy-english-language-teaching-guide-teachers>
- Laurillard, Diana. 2007. "Pedagogical forms for Mobile Learning: Framing research questions." In *Mobile learning: towards a research agenda*, edited by Norbert Pachler, 153–75. London, United Kingdom: WLE Centre, IOE.
- . 2012. *Teaching as a design science: Building pedagogical patterns for learning and technology*. New York, NY: Routledge.
- Lee, Helen. 2012. "Developing communicative competence on Skype." Paper presented at the International Association of Teachers of English as a Foreign Language Business English Special Interest Group (IATEFL BESIG), Stuttgart conference, November, 16-18.
- Lee, Helen 2015. "Language learners and multimodal interaction via mobile devices: An exploration of online gesture" Paper presented at the conference on Multimodality and Cultural Change, The University of Agder, Kristiansand, Norway, June 10-12.
- Levy, Mike and Glen Stockwell. 2006. *CALL Dimensions: Options and Issues in Computer Assisted Language Learning*. Mahawah, NJ: Lawrence Erlbaum Associates.

- Little, David. 2007. "Language learner autonomy: some fundamental considerations revisited." *Innovation in Language Learning and Teaching*, 1, no. 1: 14–29. DOI: 10.2167/illt040.0
- Ng, SinChun., Kwok-Fai, Lui, and Wong, Yuk-Shan. 2015. "An Adaptive Mobile Learning Application for Beginners to Learn Fundamental Japanese Language." In *Technology in Education: Transforming Educational Practices with Technology*, edited by Kam Cheong Li et al., 20–32. Berlin, German: Springer. DOI: 10.1007/978-3-662-46158-7_3
- Norris, Sigrid. 2004. *Analysing Multimodal Interaction: A Methodological Framework*. London, UK: Routledge Falmer.
- Pachler, Norbert, Bachmair, Ben, and Cook, John. 2010. *Mobile Learning: Structures, Agency, Practices*. London, UK: Springer.
- Partnership for 21st Century Skills. 2013. "Framework for 21st Century Learning." Accessed June 19 2016. <http://www.p21.org/our-work/p21-framework>
- Peachey, Nik. Learning Technology Blog for English Language Teachers. (Blog). Accessed June 19 2016. <http://nikpeachey.blogspot.co.uk/>
- Pegrum, Mark. 2014. *Mobile Learning: Languages, Literacies and Cultures*. Basingstoke, UK: Palgrave Macmillan.
- Pennycook, Alastair. 2010. "Popular Cultures, Popular Languages, and Global Identities." In *The Handbook of Language and Globalization*, edited by Nikolas Coupland, 592-607. Chichester, UK: Wiley Blackwell.
- Puentedura, Ruben2010. "SAMR and TPACK Intro to Advanced Practice". Accessed June 19 2016. http://hippasus.com/resources/sweden2010/SAMR_TPACK_IntroToAdvancedPractice.pdf
- Puroshotma, Ravi. 2005. "Commentary: You're Not Studying You're Just..." *Language Learning & Technology*, 9, no. 2: 80–96.
- Ros i Solé, Christina, Jelena Calic, and Daisey D. Neijmann. 2010. "A Social and self-reflective approach to MALL." *ReCALL*, 22, no. 1: 39–52.
- Santos, Olga C., Mar Saneiro, Jesus G. Boticario, and Maria Cristina Rodriguez-Sanchez. 2015. "Toward interactive context-aware affective educational recommendations in computer-assisted language learning." *New Review of Hypermedia and Multimedia*, 22, no. 1-2: 27-57. DOI:10.1080/13614568.2015.1058428
- Schmidt, Richard. 2001. "Attention." In *Cognition and Second Language Instruction*, edited by Peter Robinson, 3-32. New York, NY: Cambridge University Press.
- Scollon, Ron and Suzie, B. K. Scollon. 2003. *Discourses in Place: Language in the Material World*. New York, NY: Continuum.

- Sharma, Pete and Barney Barrett. 2015. "Apptivities for Business English." E-book available from *The Round* website. Accessed June 12. <http://theround.com/resource/apptivities-for-business-english/>
- Skills CFA. 2013. "Languages and Intercultural Working – National Occupational Standards." Accessed June 19 2016. <http://www.skillsca.org/standards-qualifications/language-intercultural.html>
- TESOL International Association of Teachers of English to Speakers of Other Languages. Accessed June 19 2016. <http://www.tesol.org/>
- Traxler, John, and Jocelyn Wishart. 2011. "Making mobile learning work: case studies of practice." *ESCalate HEA Subject Centre*. Accessed June 19 2016. <http://www.cumbria.ac.uk/Public/Education/Documents/Research/ESCalateDocuments/MakingMobileLearningWork.pdf>
- Thornbury. Scott and Luke Meddings. 2001. "The Roaring in the Chimney." *Modern English Teacher*, 10, no. 3. <http://www.hlomag.co.uk/sep01/sart8.htm>
- UK Digital Skills Charter. 2014. Accessed June 19 2016. <http://www.go-on.co.uk/get-involved/digital-skills-charter/>
- UNESCO. 2016. "UNESCO Mobile Learning Publications." Accessed June 19 2016. <http://www.unesco.org/new/en/unesco/themes/icts/m4ed/mobile-learning-resources/unescomobilelearningseries/>
- Van Lier, Leo. 1996. *Interaction in the Language Curriculum: Awareness, Autonomy, and Authenticity*. London, UK: Harlow.
- Widdowson, Henry G. 1990. *Aspects of Language Teaching*. Oxford, UK: Oxford University Press.

Biographical Notes

Agnes Kukulska-Hulme is Professor of Learning Technology and Communication in the Institute of Educational Technology at The Open University and Past-President of the International Association for Mobile Learning. She is on the editorial boards of the *International Journal of Mobile and Blended Learning*, *ReCALL* and *SYSTEM*, and co-editor of *Mobile Learning: The Next Generation*. Her current research focuses on technology-supported learning for migrants, intelligent personal assistants, and language learning in smart cities.

Helen Lee has worked as a business language trainer for global organizations. She holds a Masters degree in TESOL and ICT from the University of Brighton and has presented at the University of Oxford, the British (BAAL) and the American Association for Applied Linguistics (AAAL). Helen is a member of the BAAL Special Interest Group in Language and New Media. Her doctoral research at The Open University focusses on language learning with mobiles.

Lucy Norris is a Visiting Research Fellow at the Institute of Educational Technology at The Open University, an independent international education consultant in the field of language teacher development and training, and published author of English language course materials. Her research & professional interests include language teacher development and digital literacies, and the role of technologies in supporting learning and teaching. She tweets as @MobilePedagogy.