Re-skilling Language Learners for a Mobile World

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Executive Summary

Ubiquitous access to mobile phones and other portable devices means that language learning increasingly straddles classroom-based learning and learning outside the classroom, in virtual spaces and out in the world. We know from studies of emergent learner-led practices that foreign language study can be enriched through easy access to resources selected to suit individual interests or needs. Yet learners' choices seem largely determined by what they happen to come across, rather than knowledge about which language skills are best improved through mobile learning. Existing mobile applications often fail to exploit connections between life and learning. This paper suggests which language skills can be enhanced through mobile learning and how learner-technology interaction supports that development, particularly opportunities for learners to extend or practice their communication with others. The paper also suggests that new skills may be required in relation to the next generation of wearable devices and increasingly instrumented, technology-rich surroundings where use of mobile technology integrates with other tools, resources, and social networks that continue to challenge traditional knowledge and skills.

Focus of this Paper

In our increasingly mobile world, portable technologies have assumed a central role in supporting continuity of learning across diverse contexts and physical settings as well as extending opportunities to learn. The advent of social media, the proliferation of mobile apps, and the wide acceptance of freely shared content have all enriched mobile learning experiences while also posing many new challenges. For language learners, it makes sense to acquire whatever skills and competencies will enable them to make full use of these developments. For better or for worse, the future of communication in foreign languages is intertwined with the future of communications technology and the evolution of languages in response to new means of self-expression and interaction on the internet. Together with their teachers and those who design language curricula, learners are well placed to influence how advancements in mobile media may impact on language teaching and learning.

However, although they may be proficient users of mobile phones and tablets, and use social media on these devices in their everyday lives, the majority of learners have not had the chance to consider the finer points of mobile language learning. Many consider portable devices to be just another way to receive a version of familiar types of content involving memorization, repetition, listening, and responding. The focus of this paper is on the use of mobile devices outside of the language classroom, which may have implications for the design of formal language teaching and learning. In particular, this paper focuses on re-skilling language learners for an increasingly mobile world, which means reviewing what skills learners need to have in order to not only survive, but thrive. In other words, how to equip them not only to use the target language they have been taught, but to seek actively to make it their own language, and part of their identity. It also implies valuing informal knowledge and expertise to a greater extent than it was valued previously. These shifts in

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perspective are pertinent to learners as well as all those who have an influence over the learning experience, including teachers, policymakers, and employers.

This paper reflects on which language skills can be enhanced through mobile learning and how the specifics of learner-technology interaction may support that development. 'Skills' may be considered too narrow a term, since language pedagogy should nowadays strive to develop the ability to communicate across cultural boundaries, to become self-reliant, and to continue to learn in diverse professional and social contexts over a lifetime. Language learners should also be able to utilize available technological means and understand their impacts on language evolution. In that sense, we are considering a range of competences, capabilities, and literacies. Finally, this paper raises the question of what may soon be required of learners in relation to wearable devices and increasingly instrumented, technology-rich surroundings where use of mobile technology integrates with other tools, resources, and social networks that may challenge traditional knowledge and skills.

Brief Literature Review

Making Connections between Life and Learning

A key challenge for educators in the 21st century is how to exploit or harness the everyday connections between life and learning that emerge in the course of intense personal use of mobile phones and tablets, interactions on mobile social media, and the interweaving of augmented reality and real life. Kukulska-Hulme and Shield (2008) noted that a transmission model of education was embedded in most mobile-assisted language learning programs and that this model was out of step with developments in communicative language teaching. The learning experience was predominantly content-driven with relatively few opportunities for learners to extend or practice their communication with others. Furthermore, mobile phones and other portable devices were meant to enable new ways of learning, emphasizing continuity or spontaneity of access and interaction across diverse contexts of use.

In the early adoption phase of any new technology for learning, it is common to find replication of traditional teaching. In that phase, there exist some isolated examples of innovative experiments that change pedagogical practices by using advanced technology. Chinnery (2006) gives an account of early initiatives in mobile-assisted language learning, including vocabulary and grammar, translation, voice recording, access to tutors, use of podcasts and videos, and some use of micro-blogging. He finally predicts that mobile learning would become a fashionable channel for language study.

Seven years later, mobile language learning has indeed become fashionable, although across the globe uptake is uneven. Significant initiatives such as English in Action (Walsh, Power, Khatoon, Biswas, Paul, Sarka & Griffiths, 2013) are having an impact in specific parts of the world. In the latter project which is located in Bangladesh, millions of people, approximately 12,000 of whom are language teachers, are improving their English through multimedia including mobile phones and MP3 players. As experience of mobile learning has grown and expanded across the globe to include many more teachers and learners willing to embrace mobile-enabled innovation, there are new opportunities to re-think and re-design both teaching and the associated processes for learner support (Kukulska-Hulme & Traxler, 2013). Mobile learning is thus gradually leading to reconceptualizations of learning materials, approaches, and practices. Researchers have long argued that mobile learning should help people use their situated everyday life experiences as impromptu sites or spaces to create

new opportunities for learning (Sharples, Taylor & Vavoula, 2005; Pachler, Bachmair & Cook, 2010). This notion implies that learners would need to adopt a new way of working whereby they habitually marshal diverse resources including materials and people to create a personal ecology that meets their needs (Luckin, Clark, Garnett, Whitworth, Akass, Cook, Day, Ecclesfield, Hamilton, & Robertson, 2010). In the meantime, mobile devices have been shown to facilitate the extension of learning beyond the classroom into other settings including the home. Research conducted by Hwang and Chen (2013) investigated how familiar situated contexts can facilitate language learning, such as studying food-related vocabulary during lunch in school. Learners could repeatedly listen to recordings in a familiar setting, giving them more opportunities to practice and to interact in the target language with their peers. It was also noted that students extended their learning from school to home and that learning took place spontaneously in their daily lives.

Giving Learners a Voice

Many traditional activities such as vocabulary learning and grammar practice are well suited to mobile access and should continue to be developed. However, realizing the true potential of mobile devices for language learning also involves reflecting on current attitudes and capabilities of learners and teachers. Language learning and practice on a mobile device can be seen as a stepping stone toward more experiences that mimic authentic communication challenges, which includes the ability to respond promptly and easily, much as one does in real life when answering the phone (Demouy & Kukulska-Hulme, 2010). Furthermore, thanks to use of mobile technology in combination with social media, the learner may be enabled "to enact and rehearse a personal voice" (Ros i Solé, Calic, & Neijmann, 2010, p. 51), which previously required direct access to target speakers or immersive experiences within one or more target cultures. In a similar vein, Ito, Matsuda and Okabe (2005) as well as Elliott (2010) have already noted that mobile technologies have a role in forming and restructuring identity, which is acknowledged to be a significant aspect of language learning. These observations substantially extend the scope and implications of what learners are currently doing with their mobile devices and therefore attitudes towards language learning and target language use are impacted.

On the basis of research with 45 students from eight different countries and regions, Hsu (2013) found that learners with different cultural backgrounds had varying attitudes towards mobile-assisted language learning (MALL). However, the exact reasons for their attitudes are unknown as experiences and expectations inevitably differ. Many students doubted they could practice all language skills in a mobile learning environment, but they may not have had opportunities to see or consider how it could be done. Positive attitudes towards mobile English language learning were identified among 189 undergraduate students at a university in Sri Lanka, many of whom felt the need to practice oral skills (Jamaldeen, Hewagamage & Ekanayake, 2012).
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Another recent study examined the attitudes of 345 higher education students in Sweden and China (Viberg & Grönlund, 2013). The researchers concluded that students had particularly positive attitudes toward the opportunity to personalize their learning, the chance to have an authentic learning experience (e.g., dealing with problems encountered in the real world, practicing in social communities, and generating their own learning environment/context), and the opportunity to exchange information and collaborate multi-modally with peers, teachers, and other experts. The hypothesis that cultural differences had some impact on attitudes was not confirmed.

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Since these studies were all relatively small in scale, they do not provide conclusive evidence on the relationship between current learner attitudes and mobile language learning, but they do give indications of which aspects learners may value the most, namely real communication, multi-modality, and the chance to make their learning more personally relevant. These goals may be realized through greater direct engagement with target language speakers, discussion of found examples of contemporary language usage, and learners being encouraged to capture their language difficulties as and when they occur. All of this is facilitated by use of mobile devices, although teachers need to guide learners in how this should be done.

Guiding Learners toward Self-direction

We know from studies of emergent learner practices (e.g. Kukulska-Hulme & de los Arcos, 2011; Kukulska-Hulme, Pettit, Bradley, Carvalho, Herrington, Kennedy, & Walker, 2011; Pettit & Kukulska-Hulme, 2007) that language learning can be enriched through access to resources selected by individuals to suit their personal interests or needs. In these studies of informal learning, participants recounted how they had used their mobile phones and other devices for a great variety of activities such as to make social contact, to access information, to read e-books, to listen to podcasts, to play games, to share videos and photos – among many other uses. Language learners reported finding new motivation to keep learning every day, discovering novel resources such as a user-generated pronunciation site, and embarking on new activities such as recording a conversation to discuss it later with a teacher. The studies suggest that learners' strategies and resource choices are largely determined by what they happen to come across as they browse the web and online app stores, and what they can find for free. Frustrations voiced by the learners included difficulties in practicing oral and writing skills, lack of feedback, and lack of interaction with other learners. There is little evidence that learners are basing their choices on knowledge about which language skills are best improved through mobile learning or which types of applications have specific features that will help them improve.

Song and Fox (2008) reported how student learners of English successfully used mobile devices to support learning at every opportunity, outside of class, thanks to a shared long-term goal to learn new vocabulary in English. It should be noted, however, that these students had been selected partly on the basis that they were autonomous learners and had positive attitudes toward technology. Few learners are so adventurous, experienced, or determined as to forge their own path to mastery of a target language, even with the benefit of abundant resources at hand. Laurillard (2007) has warned that even with powerful tools at their disposal, learners cannot be left unguided and unsupported. It follows that an incremental and thoughtful approach is needed to make effective use of mobile learning in a manageable way.

A learner-centred view suggests that mobile devices are personal tools that can also support self-directed forms of language learning and greater learner autonomy, and indeed there is an increasing body of evidence to that effect. Mobile blogging, collaborative reading, and greater learner control over when language practice takes place can all foster autonomy (see Díaz-Vera, 2012). Learning independence can also be encouraged through appropriate design of learning materials (Nunan, 1997), helping learners move from mere awareness of pedagogical objectives and content toward more involvement. Learners can be involved in setting their own goals and then creating and sharing digital resources – activities that are often linked to the world beyond the classroom. Kukulska-Hulme and Bull (2009) highlighted the applicability of Schmidt's 'noticing hypothesis' (Schmidt, 1990) to mobile learning

designs, explaining that since learners need to consciously notice language forms in order to take them in, mobile learning can assist this process by encouraging learners to pay close attention to how language is used around them and record their observations in the real world, subsequently sharing their notes in the classroom or informally. Similar possibilities for creation and sharing of language observations among learners began to emerge with work done by Pemberton, Winter, and Fallahkhair (2010) on a CloudBank system for mobile knowledge sharing. A concept emerged that was then developed through the SIMOLA consortium and their LingoBee app for crowd-sourced sharing of language and cultural items which learners are exposed to during experiences such as studying abroad (Adlard, Ottway, & Procter-Legg, 2012).

Language Skills and Strategies for Language Learning

A recent literature review of 54 papers on MALL published in English from 2007 to 2012, found that most empirical research studies focus on vocabulary acquisition, listening and speaking skills, and language acquisition (Viberg & Grönlund, 2012). The researcher found that studies on grammar learning, pronunciation, and writing skills are underrepresented. A lack of formal studies does not equate to lack of popularity or use, and both grammar and pronunciation practice are traditionally popular choices among learners, particularly at lower levels of proficiency. Speaking and pronunciation practice may also be successfully combined. For example, the ability to practice speaking and pronunciation, and to receive feedback from teachers, were positive factors identified in a successful project with young people using mobile phones to learn Irish. The researchers noted that students previously had relatively little enthusiasm for learning the language (Keogh & Ní Mhurchú, 2009). It is likely that the rising popularity of e-books will gradually encourage more reading in a foreign language, particularly in English where there is a bountiful supply of popular texts available, many of them for free. A recent study by Chen, Chen, Chen, and Wey (2013) found that in an experimental group of tertiary-level EFL students, easy access to e-books had a positive effect on reading attitudes, reading comprehension, and vocabulary learning.

Writing practice has received less attention, but the prospect of sharing short status updates and brief exchanges on social networks may be encouraging more writing practice, even if learners do it informally. With a phone in one's pocket, spontaneous opportunities to communicate in the foreign language or *about* the foreign language abound. Song and Fox (2008) reported the case of a student who, while waiting at an airport, entered into a dialogue with his friends on his mobile device about the meaning of an English word in the course materials they were all studying. While they also used a dictionary to check the meaning, the chance to discuss the word in this way demonstrates the unique affordance of mobile devices in an ecology of diverse resources accessed on the move.

Although consulting friends may be natural, asking for advice from an online community is increasingly common, and there is now also the possibility of readily finding answers to questions previously posed by other language learners. Viberg & Grönlund (2012) remark that MALL researchers have devoted very little attention to individuals' language learning strategies and learning styles. This knowledge would be valuable for educators when designing activities using mobile devices, and also for learners to help them achieve higher levels of proficiency. Indeed, little is known about how language learners search for answers and what new resources they may utilize.

Key Issues for Learners

Educators increasingly concur that 21st-century learners should be "active makers and shapers of their own learning" (JISC, 2009). The Framework for 21st Century Learning devised by The Partnership for 21st Century Skills (2009) describes the skills, knowledge, and expertise students should master to succeed in work and life, covering Learning and Innovation; Information, Media, and Technology; and finally Life and Career. The latter category includes self-direction as well as social and cross-cultural skills, among others. Mobile learning offers learners many opportunities to enact such skills but learners should strive to play an active part in making it happen.

Mobile language learners are a heterogeneous population which can be analyzed in any number of ways. However, it is useful to draw attention to particular groups that are both in need of mobile learning and for whom it possibly presents challenges (see Table 1). For example, although mobile technology can be a route to increased useful social interaction for learning, nothing is guaranteed. The social nature of learning is nowadays widely recognized; however, in mobile applications, social aspects are difficult to design well. Many learners already have their own social networks that may need to be integrated or just acknowledged. One example of social learning was a mobile blog for cultural information exchange, aimed at a group of Chinese students spending time in the UK (Shao, 2010), which was used successfully alongside personal blogs. Table 1 lists examples of learner groups, how they may benefit from mobile learning and also what issues they may face, including challenges of a social nature.

Learner group	Opportunities	Challenges
Students spending time in an institution abroad	Capturing and sharing resources for further study	Foreign students who stick together may lack input from natives
Young children learning a language	Curiosity and fun, acting as encouragement to learn	Game aspects may predominate
Immigrants	Social inclusion through increased interaction supported by mobile devices	Immigrants may miss opportunities to interact directly with natives
Distance language learners	Flexible practice in speaking and listening	Finding more ways to learn directly with and from others
Learners with disabilities or impairments	Assistive technology specific to language learners	Need for a more personalized approach
Global business professionals	Quick advancement of business objectives	Severe constraints on personal or work time
Disadvantaged teenagers	A chance to use digital skills in language learning	Little connection between school and life

Table 1: *Opportunities and challenges for specific groups in mobile language learning*

Personalization is another key area where learners could benefit from sharing unique needs and learning challenges, for example slight eyesight impairments, undiagnosed dyslexia, or barriers to using mobile phones in environments where they would like to study. Those with visual impairments or dyslexia need not be excluded if they are able to listen to digital talking books or podcasts instead of reading (Barton, Penny, & Riordan, 2007). Learners, therefore, have to get involved and participate in shaping mobile learning designs. A good example of participatory design of a mobile application for teenagers' compulsory Swedish

language homework in Finland is reported in Knutsson, Nissilä, Räsänen, & Carlsson (2011). This study also revealed the importance of structured learning activities. Students said they felt uncertain that they were learning anything when just reading Swedish newspapers or listening to pop music – typical everyday activities that can be done on mobile phones and tablets.

Rapid evolution of learner activities on their personal devices has led to mobile social and community interaction, internet access, use of location-based services, and user-led content creation (Kukulska-Hulme, 2010a). Learners need to keep asking their teachers – and one another – how these everyday activities may be harnessed for language learning. In another context, adult distance learners revealed their desire for extra speaking and listening practice, which was provided by enabling them to practice on their mobile phones (Demouy & Kukulska-Hulme, 2010). Without these requests and increased self-awareness on the part of students regarding their learning needs, the potential of mobile language learning will not be fully realized.

Key Issues for Teachers: Teacher Development and Pedagogical Implementation

Over their lifetimes, learners are likely to participate in episodes of formal and informal learning. Consequently, those who design curricula for formal learning need to be aware of how their teaching or guiding role fits into a broader picture of informal and out-of-class learning activities. Such activities need to be pedagogically supported if they are to be effective and efficient (Kukulska-Hulme, 2013). The framework for the adoption of mobile technologies and social media should therefore be lifelong learning, whereby people's experience is transformed and integrated into their biography, resulting in a continually changing person (Jarvis, 2006, p. 134). A key role for teachers is then to equip their students for lifelong language learning, and consider how mobile devices may support that aim.

Ideally, the first step for teachers is to become lifelong mobile learners, if they are not already, in order to be able to act as professional role models, one of the main roles of a teacher (Harden & Crosby, 2000). Continuous professional development for teachers works well on mobile devices, just as it does for other professionals, provided that they have access to a suitable phone or tablet (Walsh, Shaheen, Power, Hedges, Katoon, & Mondol, 2012). Peer support and technical assistance are other crucial elements. In their review of mobile learning research, Hwang and Tsai (2011) noted that teachers and working adults were rarely the focus of studies. They proposed that teachers' and working adults' mobile and ubiquitous learning should be investigated more fully in the future.

Teachers also need to understand that for some learners, mobile learning is a preferred way to learn. For example, MALL may be preferred due to peer support that can be accessed at all times on social networks, and MALL can bring out the best in people who have had unhappy educational experiences or have become marginalized. In another context where there was a need to engage young people in learning, Lankshear and Knobel (2003) have argued that it is important to allow for positive learning consequences to emerge through the educational process rather than focusing too narrowly on outcomes. This argument means allowing for "threads and trails of learning to take off in different directions" (p. 193). There are known tensions between this approach and a more outcomes-focused one. Yet while set outcomes are very important, positive learning experiences encourage lifetime language learning. Efforts must be made to combine these two approaches. The extent to which this can be done will depend on local circumstances and the demands of formal curricula which may be more or less strongly oriented toward formal testing.

Mobile devices and applications can nowadays play many roles, including that of a tutor, coach, motivator, research assistant, translator, interpreter, entertainer, speech recorder, and even a speaker (e.g., reading out a text on a speaker's behalf). Teachers are rarely supplanted by these functions, and their roles should be to guide learners in how to use devices in the best possible ways. In particular, teachers have an important role in identifying for learners aspects that may be disruptive or distracting. McFarlane, Roche, and Triggs (2007) identified three pedagogical models for mobile learning, from fully teacher-directed to fully autonomous learning, with 'teacher-set' activity in between. A similar set of models was subsequently proposed by Kukulska-Hulme (2010b), but with greater emphasis on the rich and varied learning resources and social networks available to learners and how these resources and networks may shape their experiences:

> *The Specified activity model* is based on the idea that learning material can be packaged and delivered to a mobile device. The learners make use of it, either on their own device or one that has been supplied. The emphasis tends to be on individual learning, but the same content may be delivered to a group. A learning activity is specified and learners are expected to carry it out; it may take place within a scheduled class, or continued beyond the class. For example, a project reported by Ally, Schafer, Cheung, McGreal, and Tin (2007) describes the provision of grammar lessons to foreign workers needing training in ESL in order to enter the workforce, and adult learners needing skills updating.

> *The Proposed activity model* is optional. Learners are free to complete the activity as they wish, and may adapt its use to suit their own needs. Hattingh (2006) describes how eight students were invited to listen on their MP3 players to podcasts of spoken Japanese recorded by their instructor. The podcasts were available to students to listen to where and when they wanted, although they were not required to do so. Tseng, Lu, and Hsu (2006) describe a system designed to offer learners of Chinese sentences that might be useful to them, and these are delivered depending on their physical location, e.g., a visit to a flea market to do some shopping.

> *The Learner-driven model* emphasizes self-initiated and sometimes innovative learning, using a mobile device as a responsive tool that can adapt to changing user needs in a variety of situations including travel. This model gives special attention to social interaction and communication initiated by learners and taking place among them, as well as with teachers. This approach is best exemplified by learners using social networks and blogs to discover and share language learning resources and games, including mobile apps. The idea here is that while a teacher is likely to be involved initially or on an ad hoc basis, learners become increasingly self-reliant and gain useful lifelong learning habits as a result.

Key Issues for Policymakers

MOTILL (2010) engaged with policymakers to draw attention to the fact that mobile learning has an extensive research literature and that it can be instrumental in promoting lifelong learning (Arrigo, Kukulska-Hulme, Arnedillo-Sánchez, & Kismihok, 2013; SARD, 2013). The recently published *Policy Guidelines for Mobile Learning* (UNESCO, 2013), extol the unique benefits of mobile learning which include the ability to bridge formal and informal settings. The guidelines suggest that for language learners these benefits may be realized through supplementary out-of-classroom practice, translation support when communicating with

target language speakers, and the capture of difficulties and discoveries which can be instantly shared as well as being brought back into the classroom for discussion.

Policymakers have an important role in promoting mobile learning – including language learning – and ensuring that it reaches those who are most in need of it. In relation to mobile learning, researchers have reported that some groups of learners have been researched and perhaps targeted more than others. Resulting imbalances should be rectified through funding being made available to support future research in areas of social and economic importance. Hwang and Tsai (2011) found that in the ten-year period between 2001 and 2010, most reported studies in mobile and ubiquitous learning research were in higher education, followed by elementary school and high school settings. Other settings were by implication less well represented. Kukulska-Hulme (2013) also found that many projects reported in the *mLearn* mobile learning conference series were concerned with students in schools and higher education, although the range and variety of learners involved in mobile learning opportunities reached far beyond these formal education settings. Learners targeted in less formal settings have included young adults who are not in education or the labor force; those who are in work as employees, professionals or apprentices; learners with special needs or disabilities; 'underserved' learners in the context of international development; and those who learn within local communities, as tourists and visitors, as parents and caregivers, and in groups designed for peer support. Nevertheless, Kukulska-Hulme (2013) found that a number of target groups were largely missing from the published literature, including: the older, retired population; learners in tight communities and families that lead very private lives; people with undiagnosed health problems that may deter them from participating in education; and learners who are underserved for reasons of relative poverty or inability to use the language of the country where they live. Researchers typically do not have sufficient financial resources to work with these hard-to-reach target groups to establish their practices and needs. Yet these groups must not be left behind when it comes to researching and improving their language skills.

From another angle, Frohberg, Göth, and Schwabe (2009) observe that advanced learners have been relatively neglected in mobile learning studies, in comparison with novice learners, whereas mobile learning can best provide support for advanced learning in context, such that learners can "apply knowledge and not just consume it" (p. 323). At all levels of education, learners need to demonstrate advancement or progress, which is often done by showing that they can successfully apply new knowledge. Mobile technologies, which can be used a variety of contexts, are a helpful tool in that process.

Future Directions and Issues of Concern

As the world increasingly enters the classroom through ubiquitous connectivity, mobile devices become multiple small windows on the world, bringing in new perspectives and resources. They allow for observations concerning language usage across a diversity of language contexts and settings. The possibilities created by these developments are exciting and disconcerting in equal measure.

Challenges around evaluation of language acquisition in informal settings and in everyday life abound. Similar issues have been raised in relation to informal online language learning. Sockett (2013) notes that while the practices of informal learning of English online are now well understood, "the language acquisition which results requires more detailed research" (p. 51). Constraints on attention and factors such as the private nature of informal language

learning make data collection particularly difficult. Special effort is needed if researchers are to avoid only measuring and assessing that which is relatively easy to observe or mark.

As lifelong learners, young people and students will progress to learning in the context of work and future careers. Issues in work-based contexts concern assessment and evidencing of learning. A number of these issues are detailed in Pachler, Pimmer, and Seipold (2011) which includes chapters on professional development and vocational learning. The Skills CFA is an educational charity which promotes skills and qualifications in the workplace across the UK. It provides several National Occupational Standards for Languages and Intercultural Working that cover the skills and knowledge needed to work with people from different countries or diverse cultures (Skills CFA, 2013). The areas covered lend themselves very well to mobile delivery, as they include working with short texts on focused activities that could be done in small chunks at various times to suit the target learners. Workers arriving in new a country from another culture similarly need convenient ways of learning. Palalas's (2012) research with immigrants taking up work in Canada resulted in guidelines for a mobile system to support the development of focused activities. Examples of these activities include listening skills for those who are learning English in relation to specific jobs, enabling them to practice at any time of the day or night. An important issue to watch out for here is that employees who are working and learning should not spend all their time in these activities, perhaps to the detriment of their social life or their health. In fact there seems to be considerable potential to combine lifestyle and healthcare applications with language learning, involving target learners in producing mobile application designs that will also help them achieve work-life balance.

Current work in the MASELTOV project (Mobile Assistance for Social Inclusion and Empowerment of Immigrants with Persuasive Learning Technologies and Social Network Services) is taking a new perspective on how immigrant populations can take advantage of mobile phones and other emerging technologies to support informal, incidental language learning, in the course of moving around a new city (Gaved, Jones, Kukulska-Hulme, & Scanlon, 2012). The project is working to define the informal language learning opportunities that can become available to immigrants as part of their daily routines and interactions with native residents. In collaboration with non-governmental organizations supporting immigrants, it is advising on how mobile and context-aware technologies can help realize this potential. Target learners may have low levels of literacy, although mobile phone use is common among these populations. In order to foster social inclusion, it is important to create opportunities for these informal learners (who may also attend some formal classes) to extend or practice their communication with others. Connecting people to social networks, both physical and virtual, will be part of the equation.

As we move into an era of 'seamless learning' (using mobile devices to connect learning experiences more easily across locations, social settings and time), we increasingly recognize that at times formal learning takes place in informal settings, and informal learning in formal settings (Wong & Looi, 2011; Wong, 2012), to the extent that a clear separation of the two is no longer sustainable. Furthermore, devices are becoming increasingly wearable and integrated into our highly instrumented surroundings. In these technology-rich settings where use of portable and wearable devices integrates with other tools, resources, and social networks, traditional knowledge and skills need to be mixed with new skills and competencies that will help learners make the most of their current context and surroundings. New mobile apps and wearable gadgets are emerging that enable immediate vocabulary look-up and quick translation; others substitute for a traditional interpreter by taking in speech in one language and reading it out in another. While these tools may be

viewed as a threat to language learning, they may also awaken a dormant interest in foreign languages and help build confidence in those who have not been successful the past. Knowing when and how to use these tools in socially appropriate ways, and hence also how to talk *about* them in the target language, is a new challenge for the current generation of language learners.

A smart learner in the 21st-century is one who adopts a lifelong learning attitude, recognizes that effective global cross-cultural communication is a strong driving force for language learning, and uses technology to enhance their language learning potential. While traditional skills of reading, writing, listening, and speaking remain the foundation stones of language learning, the new century calls for greater learner autonomy, flexible use of new tools, and sophisticated use of social networks to keep up with the pace of change.

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