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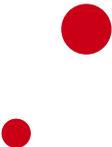
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Mobile Language Learning Now and in the Future

Introduction

The widespread ownership of mobile devices such as cell-phones, personal media players, personal digital assistants (PDAs), smartphones and wireless laptops means that ‘mobile learning’ is no longer in the preserve of technical experts and researchers with specialist knowledge. Teachers and learners have begun to integrate mobile technologies into everyday practices and there is evidence of efforts to invent exciting new scenarios of use. Language learning is one of the disciplines that looks set to benefit from these developments. Learners can make good use of the facilities to record and to listen to audio at any time, supported by the rising availability of podcasts and the ‘always on’ characteristics of portable devices which encourage spontaneous interactions. Mobile learning promises to deliver closer integration of language learning with everyday communication needs and cultural experiences.

We are still in the early days of the application of mobile technologies to language learning. Perhaps unsurprisingly, a number of early examples feature rather conventional approaches, reflected in activities that take some advantage of portability but do not yet appear to be exploiting the full range of potential. It seems that there is always a hunger for the comfortably

familiar basics: typically, vocabulary and grammar, in the form of structured modules and exercises. Mobile devices are well suited to support these kinds of activity, whose value should not be dismissed, but mobile learning has far more to offer. Predictably, innovators and early adopters with high levels of technical competence are dominating what is still an emerging field but this can and will change quite rapidly. The aim of this chapter is to take a look at the main directions in which mobile learning is evolving and to relate these developments to new possibilities for language learning. It is argued that to take full advantage of mobile learning, we need to focus on developing a new mindset for mobile language learning, a difficult but creative process that seeks to understand the essentials of mobile interactions in relation to the future of language learning.

Current state of mobile learning

‘Mobile learning’ is a useful umbrella term but it also obscures the various strands within the field and the diversity of projects and initiatives, not all of which have a focus on mobility. Mobile devices may be used for learning at home, in a classroom, in a social space, on field trips, in museums and art galleries, in work contexts or as part of everyday learning. Schools have demonstrated that mobile devices can be a very worthwhile tool to enhance and enrich the teaching and learning of many subjects. Imaginative projects have been documented in further and higher education and in community learning. The four main ways in which mobile devices are typically used at the moment are to support communication, for content delivery and creation, to encourage personal engagement, and in contextual learning.

Communication

One of the key advantages of mobile technology with regard to learning-related communication is considered to be the way in which it helps overturn traditional concepts of how

learning spaces should be organized. Communication with mobile devices can take place in more flexible arrangements than has been the case in traditional computer labs and formal classrooms. Basic handheld computer functionality is not yet quite good enough to support the richness of discussion and interaction amongst students that a fully student-centred conception of teaching would envisage. Nevertheless mobile collaborative learning is becoming more common, including where learners are working in groups and are able to communicate verbally while performing a task that is introduced or coordinated through their mobile devices.

Another advantage is the way in which mobile devices support spontaneous communication on the move, either one-to-one or among members of a group. Mobile technologies can be used as a way to facilitate remote participation in online activities that will be continued or completed at a desktop PC, for example connecting with others in online spaces such as blogs and wikis. The online space can become a focus point for a community of users, some of whom are accessing it largely by means of a mobile device.

Content delivery and creation

The main claim here is that up-to-date content may be delivered more rapidly to learners, just when needed. Measured delivery, when learning material needs to be accessed little by little over a period of time, is also facilitated by mobile devices, as is the creation of material by learners themselves. Portfolios can be developed on mobile devices and physically owned and carried around by learners. They can receive, assemble and carry around personally useful resources, and if the content is aural, a personal listening device is often the best way to access it.

As the Web continues to move rapidly from being a source of information towards supporting a vast range of user activity, there is a need to keep developing our understanding of what

is meant by content. Online activities such as social networking, publishing and bookmarking, spontaneous virtual chats and meetings, access to content feeds and the sharing of digital resources, are leading to new behaviours that may change learning experiences in significant ways. An example of this is the proliferation of ‘alternative’, informal content generated by groups of learners and alternative sources of support, other than those provided by the institution where learners are formally registered to study (e.g. <http://www.boredofstudies.org/>). It seems likely that these activities will continue to expand with mobile access and interaction.

Personal engagement

Although ‘personal engagement’ is not often identified as a separate category in the mobile learning literature, there are some good reasons for wanting to bring attention to this aspect. Alongside social interaction, more intensely personal uses of portable devices promise greater levels of engagement with learning. Besides, those who have a mobile device often appreciate having the option of mobile access to electronic learning materials, resources and people, even if they generally prefer desktop PC access or more traditional media. It is the element of choice that is particularly appealing.

Engagement may also be achieved through personalization. The benefits of a personalized experience have been demonstrated on many occasions, for example at Bletchley Park in the UK (Mulholland et al., 2005), where researchers have used mobile technology to encourage follow-up activities among visitors to the Bletchley Park museum. As they wander around the museum, visitors can express their interests in particular exhibits by sending text messages containing suggested keywords, using their mobile phone. This information is then used to create a personalized web site for each visitor to use when they get home, so that they can continue to explore information about their chosen exhibits and the associations between them.

Contextual learning

Mobile devices have a very special role in achieving a closer relationship between a physical location, the information it offers and the learning that is enabled by the availability of the device. In this respect, a number of projects are making good use of GPS (global positioning system) technology. Birmingham University researchers (Naismith et al., 2005) have trialed a system in Birmingham's Botanic Garden to support visitors with location-based information on a PDA, reflecting their interests and needs. Visitors were presented automatically with audio content upon entering different parts of the garden; they could then view additional multimedia content for that particular location, or capture their own observations about their surroundings. The Manolo project (2006) has amassed a good deal of experience in mobile fieldwork in subjects like archaeology, biodiversity and vegetation science. The archaeology students have used PDAs with GPS in field surveys; this has allowed them to collect field data in electronic form and to be more involved in processing and interpreting the data than was previously possible.

There have also been a number of interesting projects involving schoolchildren. In the Mudlarking in Deptford project (Sutch, 2005), schoolchildren have used PDAs to take part in, and to co-produce, a guided tour of a riverbed. A hand-held device with GPS capabilities delivers location-sensitive information when a child walks into node areas indicated on a map. Children are able to create multimedia content during their tour and alert other users to that content. The project aims to engage young learners in responding creatively to an environment that blends physical experiences with the history of the area they are exploring. In the Savannah project (Facer et al., 2005) a mobile game was designed for use by groups of children moving around in the school playing field, aimed at encouraging the development of children's conceptual understanding of animal behaviour in the wild. This learning experience enables the children to 'see', 'hear'

and ‘smell’ the world of the Savannah as they move around various zones in the playing field, acting like a pride of lions. There is a special designated indoors area where the children can reflect on how well they have succeeded in the game, develop their strategies and access resources to support their understanding. Innovative projects such as these are held up as examples that others might wish to follow.

There are many ways of classifying current mobile learning activity, amongst them a functional framework offered by Patten et al. (2006) that identifies seven categories of application with special emphasis on the benefits of activities based on data collection, location awareness and collaboration. There have been several attempts to review the rapidly growing body of literature on mobile learning, the various projects and case studies documenting mobile learning pilots and trials (e.g. Kukulska-Hulme & Traxler 2005, Attewell & Savill-Smith 2004, van der Merve & Brown, 2005). Key themes, issues and lessons learnt are being extracted and communicated to a wider audience, including education practitioners and those who have responsibility for strategic planning in relation to technology use in their organizations. The next section highlights some of the findings from these overviews.

Learning from mobile learning projects and case studies

Naismith et al. (2004) have demonstrated that mobile technologies can support quick feedback or reinforcement; immersive experiences such as mobile investigations or games; situated learning in an authentic context; access to information while moving around a specific environment; information sharing in collaborative learning; record keeping in informal and lifelong learning; and coordination of learning and resources.

The JISC Case Studies in Wireless and Mobile Learning, which reviewed innovative practice in the United Kingdom (Kukulska-Hulme, 2005) identified a number of benefits to

learners, including increased engagement and motivation, an improved understanding of subject matter and a good fit with collaborative work and group work. Outcomes for learners were discussed in terms of the development of reflective skills, discussion, oral and social skills, peer review, independent learning and competence in using information and communication technology. Students were able to keep in contact with a peer group whilst on work placements, and continuity of access between college and home encouraged further consolidation and familiarity. In some cases the portability of the media meant that learners could borrow a handheld device in order to complete missed classroom work in their own time. There was also support for evidence gathering in a 'lifelong learning' approach. The use of mobile technology served as a motivator, the variety of media and self-pacing attributes encouraging students to engage with learning material. Learners perceived themselves as having become more efficient and productive.

Mobile learning has much to commend it, but some negative experiences are also being reported. Lack of success may be due to inappropriate use for a given pedagogical context, or there may be issues of inadequate usability or insufficient thought having been given to the fact that material transferred to a mobile environment may need redesign. Communication is often a problematic aspect due to worries about the costs incurred by learners if communication and connectivity become additional financial burdens. Teachers also have a long way to go to become 'device-aware', i.e. to understand the potential, the features and limitations of wireless and mobile devices. In terms of the ability to view and interact with educational content on the move, the use of very small devices is often perceived as unpromising, but there is evidence that a small screen is not always a hindrance. For example Bradley, Haynes and Boyle (2005) mention that the small size of their PDA was viewed positively by students, who appreciated being able to have a quick look at the device while

walking, just before an exam, rather than having to carry a book or A4 papers; in those circumstances the small screen of the PDA did not seem to present a problem. This example shows that the user's experience must be seen in the context of what handheld access offers that would otherwise be inconvenient or missing.

In terms of the key issues that need to be addressed in mobile learning, Naismith et al. (2004) pointed out a few that are still current: for example that gathering and using contextual information based on a learner's location and activity may clash with the learner's wish for anonymity and privacy; that students may abandon their use of certain technologies if they perceive their social networks to be under attack; and that mobile activities outside the traditional classroom may not correspond with either the teacher's agenda or the curriculum. They noted that students may want to own and control their personal technology, but that this presents a challenge when they bring it in to the classroom, and they commented that effective tools are still needed for the recording, organization and retrieval of mobile learning experiences.

Within the European Kaleidoscope Network of Excellence Mobile Learning Initiative, a gathering of forty researchers in 2006 agreed on areas that are considered to be the current 'big issues' in mobile learning (Sharples, 2006). The report of the workshop addresses questions such as the conflicts between personal informal learning and traditional classroom education, methods for evaluating learning in mobile environments, and ways of supporting innovative educational practices. Innovative practice can be supported with scenario-based design, for example mobile device designers and educators can work together to imagine and describe new scenarios of learning. The next section illustrates an approach in which innovative practice is seen to emerge from the ways in which educators and learners are using their personal mobile devices in their everyday lives, including work, study and leisure. Their use of one or more mobile devices leads them to

engage in new activities that in some cases appear to represent a real change in personal or professional practice.

Everyday innovation by educators and learners

As noted in the introduction, the widespread ownership of mobile devices means that mobile learning is no longer in the preserve of technical experts and researchers with specialist knowledge. There is much more scope now for teachers and learners to integrate mobile technologies into their everyday life, work and study, generating new possibilities for spontaneous innovation. Researchers have begun to pay attention to these less formal, more user-driven uses, which have a particular resonance for all those involved in language teaching and learning.

A project at The Open University recently investigated how personal mobile devices are used by students and alumni from a global Masters Programme offered by the Institute of Educational Technology (Kukulska-Hulme & Pettit, 2006). The aim was to find out more about the ways in which those who are engaged in teaching and learning use mobile technologies, and in particular in relation to spontaneous learning and teaching practices and the intersection with daily life and work. The focus of the investigation was on the types of activity undertaken, innovative or unexpected uses of mobile devices, and any issues mentioned by participants. The research is intended to help inform those who are interested in the potential of mobile learning, who are designing learning with a specific type of mobile device in mind, or who own a mobile device but may not be making the most of it for their own teaching and learning.

The study included the use of four types of device, namely cellphones, smartphones, PDAs and mp3 players. The project's findings in relation to mp3 players were of particular interest because although mp3 players were widely used for entertainment, they also turned out to be useful in a much

wider range of activity. In terms of receptive use, participants reported downloading podcasts, audio books, documentaries, lectures, conferences, interviews and other listening materials from the web. In more active mode, they recorded conversations, lectures and conferences. Materials and listening exercises were sometimes distributed to students, and the voice recorder facility was used by teachers to capture students' spoken reflections on their learning. A connection with PC applications could be made by subsequently including audio files in a spreadsheet or Powerpoint slides. Participants were also quite active in transferring files to other media, perhaps for the sake of convenience: they copied audio courses and CDs onto their mp3 player and created mp3 files from Real Media lectures. The mp3 players were used as a backup, storage and transfer device and a means of sharing audio, video and photos. Although a favoured personal device, the mp3 player was also used in social ways, with the addition of speakers, to provide background music in workshops, to play sample music to clients and to play music to friends. It seems that compared to other devices, an mp3 player was particularly conducive to creative and social uses that had not been anticipated, since mp3 players were largely perceived to be personal entertainment devices for private listening.

The presence of activities relating to a foreign language (Greek, Japanese, Spanish) was noted in the same study, suggesting that languages may be a fruitful area for informal learning with mobile devices. Amongst participants in the study, mobile phones were used for learning Greek and for storing information in Japanese, whilst mp3 players were used "to understand Spanish better, with listening materials downloaded from the web" and "for recordings of Japanese language drills and dialogues". Another reported use of mp3 players was in "recording and playback for conversation analysis".

Mobile devices have opened up a vast range of possibilities for learning in ways that are convenient and suited to the needs of an individual within the context of their lifestyle.

Everyday innovation happens when a person discovers a way of using his or her mobile device to enhance an existing activity, to replace it with something more valued, or to undertake something that would not have been possible before. On the assumption that innovation in mobile language learning can be facilitated or encouraged, the next section offers some suggestions for looking afresh at the practices of language teaching and learning from the perspective the current state of knowledge in mobile learning.

Towards a new mindset for mobile language learning

Based on the experience of the current generation of practitioners who have embraced wireless and mobile technologies, the 'Current Uses' report from the JISC Landscape Study (Kukulska-Hulme, 2005b) offers education practitioners a set of recommendations for ways of thinking about the new technologies. They emphasize making time to understand new student audiences and new patterns of study that emerge when learners obtain access to wireless and mobile devices. Two of the recommendations are closely interconnected and focus on context and continuity:

- Review how wireless and mobile technologies might facilitate contextual learning, i.e. allowing the information available in a learners' location, and relevant to their needs, to be captured or delivered in context.
- Investigate the scope for continuity of learning, for example taking advantage of the availability of a portable device across contexts: in an institutional setting, a workplace setting and at home.

Although to a certain extent it has always been possible to engage in continuous and contextual language learning, mobile devices facilitate these modes of learning and multiply the possibilities of what learners can do. Petersen, Chabert and Divitini (2006) describe design considerations for the creation of a mobile community blog to support groups of langu-

age learners who find themselves in different geographical locations. In this case the community blog is a mechanism to enable learners on campus and those who are spending time abroad in a foreign country to communicate online in a convenient way. This approach would promote both contextual learning (students abroad contribute language and cultural content) and an aspect of continuity (students abroad and those on campus continue learning together).

Another recommendation from the JISC Landscape Study report (op.cit.) emphasizes anticipating the unexpected:

- Remain on the lookout for unexpected benefits or learning outcomes, as well as unanticipated disadvantages.

Recent projects have shown that mobile device users are inclined to use their device in ways that were not necessarily anticipated. In the Duke University iPod First Year Experience, in which foreign language courses found the use of iPods particularly valuable, students also reported finding the iPod “useful for studying in cases where the instructor did not specifically encourage its use or directly provide digital course content” (Belanger, 2005, p.9). A project at The Open University, UK (Kukulska-Hulme & Shield, 2006) conducted with a small number of language learner volunteers at residential summer schools in France, Germany and Spain, found that learners used their mobile devices in unpredictable ways. They did not necessarily follow advice they had been given about how they might use the devices; for example, rather than interviewing local residents, they preferred instead to record each other using the target language and to take photographs of items that they considered representative of the target culture, such as shop windows.

Conclusion

The suggestion, then, is that in the new landscape of learning with mobile devices, those involved with language teaching and learning would do well to bear in mind the above three

aspects: context, continuity, and openness to the unexpected. Placing these aspects at the centre of any new designs for language learning could lead to interesting new directions for its future. These would have to be supplemented by research into the new 'literacies' that learners need to develop to enable them to take full advantage of learning with mobile technologies. Cobcroft (2006) mentions critical, creative, collaborative and communicative literacies in her literature review in mobile learning in the university context. A key challenge for language educators is to help develop current thinking about the skills and understandings that the next generation of language learners needs in order that they may take full advantage of mobile technology for learning.

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