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EDITORIAL

Mobile learning as a catalyst for change

For many educators mobile learning is still something of a novelty. Yet there is a rapidly growing body of evidence, from both research and practice, showing that mobile technologies can be used very effectively as learning and communication tools by a surprisingly broad range of learners in a variety of settings. With its strong emphasis on learning rather than teaching, mobile learning challenges educators to try to understand learners' needs, circumstances and abilities even better than before. This extends to understanding how learning takes place beyond the classroom, in the course of daily routines, commuting and travel, and in the intersection of education, life, work and leisure. It also extends to understanding learners' previous experiences with mobile technologies, be it at school, in the home, at work or for entertainment, since those are formative experiences that may shape learners' expectations of what can be done with a mobile device or what constitutes mobile learning.

The articles and case studies in this special issue illustrate the breadth of the field that has come to be known as 'mobile learning' or 'mobile and contextual learning'. Early definitions of this field, which focused predominantly on the attributes of mobile technology, have given way to more sophisticated conceptualizations suggesting that mobility is the central issue (Winters, 2006). This denotes not just physical mobility but the opportunity to overcome physical constraints by having access to people and digital learning resources, regardless of place and time. The availability of mobile technologies means that learners can move about within a classroom or outside and still have access to digital information and means of communication with other learners, with their teachers and with the world, on their mobile phone or other mobile device. This simple fact introduces profound changes to established teaching practices that reverberate through education, initially in a low key way but building up to increasingly visible effects that cannot be ignored.

Kakihara and Sørensen (2002) have argued that mobility should not be linked exclusively to movement across locations and they examined three interrelated aspects of mobility: spatial, temporal and contextual. In fact 'context' has proved to be a useful overarching term covering interrelated aspects of mobility, including conceptual space, social space and how learning is dispersed across formal and informal settings over time (Kukulska-Hulme *et al.*, 2009). Context is also interpreted as something that belongs to an individual and is created through their interactions in the world (Luckin, 2010). The latest technologies use knowledge of learner contexts to adapt learning resources to their needs.

In this issue, Gaved *et al.* report on the use of small format laptops (netbooks) by secondary school learners conducting evidence-based investigations in geography across different activities and places, in both formal and informal learning contexts bridging school, field locations and home. This research shows how the device enabled learners to work on an activity in several locations across a longer period of time. The students participating in their studies adopted the netbooks quickly and home loans were very popular. The students helped one another to solve problems when they arose, which may be seen as the creation of a social space in support of mobility. Although the work has been undertaken in the context of secondary school inquiry projects, their findings regarding the educational affordances of the netbooks can be more generally applied to other learning contexts. They settled on the use of netbooks as a single device to support a range of learning activities, rather than using

a separate device for each activity, having established that portability and device management were critical aspects to ensure the adoption and sustainability of mobile learning. This is one of the critical decisions that have to be made in all mobile learning initiatives or projects. A single device offers consistency, it is easier to support technically and both teachers and learners can share good practices more easily. On the other hand, a range of devices may be more suitable for a variety of tasks and more compatible with learner preferences. The choice is not an easy one, and a range of factors will influence choices in different institutional and informal settings. Gaved *et al*. believe that distance learning institutions should consider the affordances and features of netbooks when recommending hardware to students, since netbooks support working across a number of contexts, helping students to fit in studies around other commitments and in different locations.

The ability to learn across various locations is also highlighted in the project described by Shohel *et al.*, which focuses on Bangladeshi teachers' experiences of participating in professional development in English Language Teaching as part of the English in Action programme, a major nine-year development programme which aims to equip twenty five million Bangladeshis with communication skills in English. The project is using iPod media players with preloaded professional development materials and classroom resources including videos and audio podcasts enhanced with text and images; battery-powered speakers are also available to facilitate use in the classroom. The teachers reported regularly using the iPod materials at home, in breaks and free periods at school, and while travelling between these places. The researchers anticipated that teachers would have some difficulty adapting to using the iPod and might have found it difficult to locate and use the resources available through the iPod, but this was not the case. This research also highlights the importance of the social space surrounding use of the technology: ongoing peer support, through arrangements such as pairing, clusters, and discussion in meetings and workshops. Mobile technology is used in this project to increase access to authentic teaching materials and to speed up the process of improving teaching.

Authenticity was also a concern of the project reported by Demouy & Kukulska-Hulme, in which distance learners used their own portable devices for additional listening and speaking practice within a French language programme. The use of iPods and MP3 players was quickly adopted by project participants. The authentic aspect of doing activities on the mobile phone appealed to some learners, however other learners would probably need to be helped towards recognizing the specific value of this type of mobile practice as a stepping stone towards authentic communication. Using the mobile phone was fairly challenging in the context of language practice including speaking; initial findings indicate that interactive speaking activities are not done easily in public places, in front of others or while doing something else, and the participants generally chose to do them at home. The participants could access learning activities on a DVD-ROM as well as on their mobile device, so this project explores a learning scenario where opportunities to learn are distributed across various media, creating an overarching context in which to interpret the mobile learning experience. Participants' comments catalogue the variety of settings where mobile devices were used, including on public transport, at work, in the streets, in public spaces, in hotel rooms, at the beach and at the supermarket. They highlight the authentic experience of having to understand and respond 'on the spot', as is the case in real life situations, where there is no access to transcriptions and other forms of support. To try to capture and evaluate the learner experience, data were

collected through various means including online questionnaires, recorded oral feedback and email.

Mobile learning research and evaluation methods are in fact evolving in tandem with the evolution of mobile learning (Vavoula *et al*., 2009). Evaluation is typically carried out using a mixed method approach to capture learner feedback and to try to understand what is happening as learners experience the diverse aspects of mobility. An important challenge is how to facilitate the necessary dialogue between the designers and developers of mobile software and those who provide feedback on using it. In this issue, McAndrew *et al*.'s research explores this territory. Their evaluation was based on trials involving informal professional updating among employees responsible for administering first aid in a work environment, as part of a large scale European project that developed a collaborative mobile learning environment for use in various settings. Data were collected by means of observations, a reflective report, a questionnaire, and structured group feedback session that was digitally videoed for analysis. The researchers note that in complex multi-disciplinary projects comprising a variety of professionals from different fields, it is difficult to find "an appropriate common language" to enable good communication and in particular to facilitate the evaluation. They explain that some approaches to evaluation may focus on examining the nature and quality of learning that occurs when using mobile technologies, while other methods may focus on understanding user interactions with the system. The evaluation methodology they present here attempts to address the two issues in parallel, and to communicate the results to stakeholders through the medium of a visual representation that distinguishes between technological and semiotic views of a particular learning event, whilst also showing the interplay between them. The complexity of evaluating an observed mobile learning experience is evident, but the structured method guides an evaluator through this complexity. In the second trial reported in the article, new technology was added to provide a means for activity synchronisation and sharing images among the participants, namely mobile camera phones with SMS text messaging.

The two case studies in this issue report on the use of social network tools to support communication and student learning. Makoe presents two examples of how a social network accessed on mobile phones can facilitate learning in distance education, based on a pilot study conducted with University of South Africa's (UNISA) students to determine how communities of learning are established. One of the biggest challenges facing the university, as a distance education institution, is to provide support and education for students who are geographically isolated from their teachers and peers, particularly in rural South Africa. The study involved use of MXit, a social network tool that is generally popular among teenagers and young people in the region and inexpensive to use, to encourage students to interact with one another and to offer mutual help and support in a process of collective learning. The author argues that the focus of mobile learning support should be on assisting informal study groups to become self-sustaining.

A distinctive form of language was used by the participants in their instant messages in Makoe's study, which may indicate willing engagement with fellow students and the formation of a shared identity. The second case study in this issue also shows examples of how learners use a distinctive form of language to communicate within a small group and to build a sense of community. Wright's study took place during a teaching practicum, with trainee teachers posting to Twitter (a microblogging and social network service) from their phones or computers, as a way

to share experiences of their teaching placements, to develop self-reflective practices, and to derive support from the group. The postings included spontaneous comments written immediately after a lesson or to report that something important had happened, or later on in the day, in a more reflective mode, for example as a passenger in a car on the way home. It is not clear whether the particular forms of English visible in the two case studies, which have arisen partly as a result of constraints imposed by software and the design of mobile devices, will continue into the future. Mobile learning, as it is currently understood, is an emerging repertoire of teaching, learning and communication practices, where communication forms the backbone, no matter what specific technology is used.

As the articles in this issue illustrate, mobile technologies can engage learners, provide new means of communication and collaboration, and a way to connect 'lessons' (including lectures, tutorials, distance learning activities, and so on) with what happens once the lesson is over. The journey between classes and home or work can be a good time to reinforce, or reflect on, what has been learnt. In the periods between formal sessions, set work may be done but learner motivation to do it can be lacking. Mobile devices even have a proven role in supporting learners in these periods, to make sure they persist with their studies (Jones *et al*., 2009). Whether to use time in this way may be a matter of teacher and learner preference, but the opportunity and its benefits are increasingly being recognized. These must be balanced against the dangers of overload and distraction that are ever-present in digitally connected lifestyles. It seems that some people adapt to this better than others, an issue that is worthy of further research.

Mobile learning is here to stay, even if in a few years' time it may no longer be distinguishable from "just learning". Many mobile phones now perform all the functions of a computer, whilst other lightweight devices such as personal media players, notebooks, slates and tablets make learning truly personal and portable. The use of mobile technologies should be understood in relation to other resources and tools, since a mobile device does not necessarily replace existing technologies such as desktop computers, pen, paper and printed books; often it may complement them by providing something additional.

Learning is open to all when it is inclusive, and mobile technologies are a powerful means of opening up learning to all those who might otherwise remain at the margins of education. Mobile learning can reach those who have missed out on the opportunity to learn, and those who have been disappointed in their previous experiences of learning which did not seem to be compatible with their personality or which did not fit in with other priorities or busy schedules. Mobile learning can contribute to the global commitment to provide quality education for children, youth and adults, as expressed in the goals of Education For All (UNESCO, 2010), providing equitable access to education, enhancing literacy, numeracy, essential life skills and lifelong learning. The power of a handheld device also offers specific opportunities to girls and women who, in many parts of the world, are still denied basic opportunities to improve their lives through education. Mobile learning challenges us to create new learning, in the form of new content, interactivity, means of support and knowledge sharing. This is an interesting collaborative venture for teachers, learners and all associated institutions.

Agnes Kukulska-Hulme
The Open University, UK

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