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What should we do with Jack-in-the-box? Anticipating surprises in mobile learning

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Abstract

Today's learners are the owners of multifunctional phones and many other lightweight portable devices that many of them carry around wherever they go. Equipped with connected digital devices that make learning readily accessible 'anytime, anywhere', learners appear to be moving to a position of power with regard to their ability to influence how and where learning happens and even its content and form. The technologies are precipitating a shift from teacher-centred towards learner-centred education. However, the majority of teachers and learners are unprepared. There is anticipation of exciting opportunities, but also fear of what might happen. It is also becoming obvious that established methods of researching technology-enhanced learning do not transfer readily to mobile learning research. Projects report that learners behave in unexpected ways; context of use, mode of use, and learning process have all been described as 'unpredictable'. Our aim is to examine the implications of new manifestations of mobile learning for both teaching and research. Drawing on teaching experiences and research projects at The Open University and elsewhere, the paper identifies and illustrates the 'surprise' elements of mobile learning. The image of a 'Jack-in-the-box' toy is used here to symbolise both the playful and potentially unsettling aspects of mobile learning. Anticipating surprises means expecting and welcoming them, being happy when they occur, and being able to accommodate them in our plans.

Introduction: the nature of mobile learning

Many discussions of mobile learning start with the following question: Is mobile learning really different from other kinds of technology-supported learning? In many respects, our lives would be simpler if we could regard mobile technologies as just another way to deliver traditional teaching. Happily, the challenges and opportunities created by mobile learning are so interesting that they awaken a desire to reconsider the very essence of what is being taught, to whom, where, and how.

The central claim is that mobile and wireless technologies offer unique possibilities that are unlike any afforded by other forms of e-learning (Kukulska-Hulme & Traxler, 2007). This claim is made largely on the basis that they support learning that is personalized, situated and authentic. The last two attributes are perhaps the most important:

- *Situated*: because designs for mobile and wireless learning can incorporate the context in which learners are located at the time of learning;
- *Authentic*: because real-world problems and projects are literally within reach of their mobile device.

The types of learning activity best supported by mobile devices have previously been identified, for example activities involving quick feedback, convenient reinforcement of recently learnt material, and collaboration among members of a group (Naismith et al., 2004). However the emphasis on contextual, real-world learning is becoming more prominent now.

Understanding and supporting *learning in context* is a priority for developing the next generation of personalized mobile learning technologies and applications. By forging a closer relationship between people, technologies and context, mobile devices can make learning more meaningful. Theoretical work describing learner-generated contexts (Luckin et al., 2005; Cook et al., 2007) moves us away from the idea that context is merely a matter of location, although location is often an important part of it. Context could be the connection between several places and people, achieved through a common learning goal. Some researchers focus on the capacity of mobile technologies to provide a bridge across contexts, for example between school, museum visit and home (e.g. Mulholland et al., 2005; Vavoula et al., 2007).

My own vision for the future of mobile *language learning* – which is the discipline area I have spent most time thinking about – is based on context and continuity, but it also brings out the need for openness to the unexpected

(Kukulska-Hulme, 2006). If we make efforts to look closely at what is meant by 'context', there is a chance we can improve our understanding of learner motivation and instigate new ways of learning that capture this spirit of openness. Openness to the unexpected includes creating opportunities for learners to capture aspects of the world around them, but that is not all. It could also be ongoing personal reflection on what they are learning – capturing a moment of understanding, a realisation that a knowledge gap exists, or noticing a misconception that suddenly comes to light. Admittedly, continuous reflection is not a practice that most learners are familiar with at present!

Those involved in designing and researching mobile learning have been writing for some time now about how the technologies are often used "in ways that never even occurred to their designers" (Keinonen, 2003: 2). It can be difficult to circumscribe and predict the uses of a mobile device or activity type. Even from a user's point of view, the extent or scope of use may evolve over time. Gilbert et al. have noted that after a period of initial use of a mobile service, "the scope of use expands to fulfil emergent needs" (Gilbert et al., 2005: 207).

Our aim for the rest of this paper is to examine the implications of new manifestations of mobile learning for both teaching and research. By reviewing a range of experiences and projects both at The Open University and elsewhere, we can identify the 'surprise' elements of mobile learning. To help set the scene for this exploration, we will take a brief look at 'jack-in-the-box', an old-fashioned children's toy that has also assumed some wider cultural references.

Jack-in-the-box: a symbol of mobile learning?

A Jack-in-the-box is traditionally a toy clown that jumps out of a box when the lid is opened. Sometimes the box has a crank, and when the crank is turned, we hear a tune. At the end of the tune, the lid pops open and a figure of some sort jumps out of the box. For a small child, seeing this for the first time can be both a happy and a slightly frightening experience. The toy was invented several centuries ago, and it has played a role in many horror movies as well as advertising.

The Jack-in-the-box, a music box that suddenly turns into something different, can usefully symbolize and convey both the playful and potentially unsettling or even alarming aspects of mobile learning. In common with the toy, a mobile device can produce a sudden rush of delight or fear in response to something unforeseen. The experience is one that is normally willingly repeated, unless it has proved to be unpleasant.

In more general terms, the Jack-in-the-box can symbolize the process of learning, conceived as a predictable and repeatable design that nevertheless has surprise built into it. It can symbolize the fear and anxiety that some educators experience when they think about technology that they feel they can no longer control. Perhaps the image of the Jack-in-the-box can prove to be a useful one to conjure up whenever we are starting to think about a new project or initiative involving mobile learning.

The mobile technology landscape

Tertiary education has been challenged by the phenomenon of Web 2.0, where students generate and share content amongst themselves. One report, based on a study in 2006 of over 400 'technology-savvy' students in the UK (i.e. students experienced in the use of technology), described an "underworld of communication and information-sharing invisible to tutors" (JISC, 2007:11). This 'underworld' is now fast expanding through the addition of mobile applications that open up additional channels of communication and information-sharing.

The earliest projects and experiments in mobile learning took place at a time when mobile devices were not yet commonplace and even mobile phones had limited functionality. The situation has changed considerably, and today's learners have multifunctional phones and other lightweight portable devices that many of them carry around wherever they go. Equipped with these connected digital devices that make learning readily accessible 'anytime and anywhere', learners appear to be moving to a position of power with regard to their ability to influence how and where learning happens and even its content and form. The new technology landscape is creating changes in educational practices, although not in a smooth or uniform way.

Impacts on educational practices

As with other digital technologies, the availability of mobile devices is encouraging sections of the academic community to 'rethink', or reconsider, the pedagogical practices that underpin education (Sharples, 2005; Beetham & Sharpe, 2007). Educators are starting to notice various opportunities for learners to become more engaged and active. They see the potential for students to 'own' their learning in ways that parallel their ownership of the new technologies. The technologies are seen as precipitating a shift from teacher-centred towards learner-centred education. However, the majority of teachers and learners are unprepared. There is anticipation of exciting new opportunities, but also fear of what might happen. If learners are let loose and allowed to use their mobile tools to capture context-specific data, or conduct investigations out in the field, what might they find? How are they to be supported and how is this activity to be accommodated within existing conceptions of learning objectives and outcomes?

On the one hand, context-specific resources (such as documents or audio recordings) can be delivered to learners when they are in a particular place and identify it as part of their context of learning. On the other hand, learners can be the ones who create and share these kinds of resources in context. These two ways of addressing context are

complementary, but they also represent two different pedagogical perspectives: one is more teacher-driven, the other gives more scope to learners to influence what they learn and how.

As has been pointed out by Laurillard (2007), who has written extensively on the relationship between use of new technologies and pedagogical developments, the use of new technology does not automatically bring about a transformation. "Imaginative use of digital technologies could be transformational for teaching and learning", she writes, "...The problem is that transformation is more about the human and organizational aspects of teaching and learning than it is about the use of technology" (xvi).

For educators, keeping up with developments in technology and understanding their implications for learning is not easy. New forms of staff development are needed, as well as appropriate guidance on innovative learning design. Both needs are currently being explored and addressed in The Open University. We have argued that a major barrier to the uptake and integration of the new technologies in teaching and learning is the lack of personal experience of mobile learning on the part of those involved in teaching (Kukulka-Hulme & Pettit, 2007). This also includes those who are involved in the preparation of distance learning materials and resources, and more generally, those who devise programmes, courses, and methods of supporting learners. Whilst at first this may seem no different to the situation with other new technologies, we keep spreading the message that mobile learning is different. The devices are relatively complex tools, due to their multifunctional character and because of the need for educators to shift into a contextual way of thinking, if they are to make best use of this technology. What is more, mobile technologies are used for barely perceptible transitions between formal education and everyday personal uses (Kukulka-Hulme, Traxler & Pettit, 2007; Pettit & Kukulka-Hulme, 2007). To compound the problem, most people's experience is limited to a specific device that they happen to own, which may be outdated or underused.

Staff development project

In 2006-7 we ran a project aiming to give 40 academic and non-academic staff in our university the opportunity to experience handheld learning for themselves, so that they could gain a proper understanding of the potential and how it can be realized (Kukulka-Hulme & Pettit, 2007). Those who volunteered to participate could use a loaned Qtek smartphone to support their own learning and development during a period of 5 months. This would help them to feel more confident in future to contribute ideas on how mobile devices could be used in teaching, when new courses were being planned. The starting point for participants was the identification of their own personal and professional development needs. They then used the mobile device to address those needs, in other words to define their own learning goals and activities. This was an informal process, and some found it easier than others. Peer support structures were put in place for those who wanted them, and participants were encouraged to pair up with a 'buddy' – one of the other participants.

For academic staff, the experience confronted them with having to think about the extent of support that they required. It also offered the opportunity to reflect on whether mobile devices enabled them to become more aware of the context of learning, ways of accessing information while travelling, and the possibilities for data capture on the move. An open-ended and flexible design for this project allowed for participant initiative and innovation. Based on our knowledge of colleagues participating in the project, we thought that they would tend to be self-motivated and fairly autonomous people, in other words they would not be too dependent on project leaders and would be willing to experiment. We saw all staff in our unit as capable of innovating, and of using the Qtek smartphones in unexpected yet imaginative and effective ways. We were aware that as project leaders we valued learner autonomy and self-motivation, as well as knowledge sharing, learning by doing, reflective practice and peer support. We tried to make these values explicit to all participants, recognizing however that accepting or internalizing values may be a relatively long and complex process.

In practice, it turned out that many participants would have liked to have had more structure and definite set tasks to undertake. We noted that it takes more than 5 months of informal use of a borrowed device to become personally convinced of the value of mobile learning. Yet those who quickly found a meaningful reason for using their device, such as reading downloaded electronic texts during regular train journeys, were quickly convinced of its value. Nevertheless we noted that it takes time and effort to form new habits and new ways of thinking about one's own learning needs as they arise in a variety of contexts. On a very practical note, it became clear that other work-related time pressures often stood in the way of people participating fully in such an experimental and voluntary project.

Our staff development project, which involved staff taking on the role of learners, highlighted some issues regarding the design of mobile learning activity. Beetham and Sharpe (2007) have coined the phrase 'design for learning', which they define as:

... the process by which teachers – and others involved in the support of learning – arrive at a plan or structure or design for a learning situation. The situation may be as small as a single task or as large as a degree course.

(Beetham & Sharpe, 2007:7)

They take the view that although design is intentional and systematic, it also has to be creative and responsive, as learners and learning situations are unpredictable. Dialogue between learners and teachers, with cycles of practice, evaluation and reflection, will help to develop effective designs.

Mobile learning research

Much of what we know and understand about mobile learning has its origins in research. Research projects had been running for many years before mobile learning raised its profile to become an increasingly popular way of using technology for learning. It is now even being taken up by those who want to try out some simple ideas that do not involve sophisticated technology and specialist expertise.

Little by little, it is becoming obvious that established methods and techniques of researching technology-enhanced learning do not always transfer readily to mobile learning research. In my research on usability in mobile learning, I have tried to identify the new factors that have to be taken into account when learning is mobile (Kukulska-Hulme, 2007; 2008). A key point is that, rather than testing for usability at just one or two specific points in the life of a project, it would also be beneficial to find ways of tracking a user's experience with their mobile device over a longer period of time, from initial use through to a state of relative experience. This also applies to their learning with a mobile device; in fact the two aspects – usability and learning – are intertwined. A strong argument for a longer time frame for researching mobile learning is the close relationship that exists between learning and personal use of a mobile device, now that projects are starting to move in the direction of using learners' own devices.

Sharples et al. (2008) have written about how mobile learning poses additional challenges for evaluation of both the technology and the learning. Context of use, mode of use, and learning process, have all been described as 'unpredictable'. Both physical and social context of use can vary, and learners may be difficult to observe as they move about and travel from place to place. The way people adopt the technology is often not the same as intended by designers, and additional patterns of learning may emerge. The learning process itself may change to accommodate new evidence of learning acquired informally. Sharples et al. (2008) also comment that it is necessary to look beyond the so-called 'wow' factor associated with mobile technology, to study how effective it is in engaging the learner over the longer term. (Remembering our image of the Jack-in-the-box, this is a good moment to reflect that the element of surprise should not necessarily be the end of the story!).

Several mobile learning projects report that learners behave in unexpected ways. Often, social and cultural factors come into play, that researchers may be ill equipped to understand. Trinder, Magill and Roy (2005), in a case study entitled *Expect the Unexpected*, described their experience of trying to interpret the odd behaviours of students who had been given PDAs to use. The students were expected to synchronise the handhelds with a server so that their mobile interactions could be analysed. A complex picture emerges in which it is difficult to be sure of the reasons for certain statements and behaviours, particularly as social peer pressure seems to play a role.

In a very different cultural context, Jones and Frohlich (2008) have written about their innovative StoryBank project in a rural village in India, enabling villagers to use mobile devices to take part in the user-generated content revolution. The researchers describe how they had planned their system evaluations around individuals making content unaided on mobile phones; however, what actually happened was that village helpers decided that groups in the community should collectively generate topics and stories.

In December 2007, an international workshop was held in London to discuss research methods in mobile and informal learning, and a book is being prepared on the basis of the contributions to the workshop. Unexpected user behaviours are generally regarded as interesting challenges requiring innovative thinking and even closer collaboration with learners.

Conclusion

The aim of this paper has been to examine the implications of new manifestations of mobile learning for both teaching and research. Drawing on teaching experiences and research projects at The Open University and elsewhere, we have begun to identify some of the 'surprise' elements of mobile learning and how they are regarded by educators and researchers. I hope that the image of a 'jack-in-the-box', an old-fashioned children's toy, will stay with us for a while, and that it may help to symbolise and to stimulate debate around the idea that there are both playful and unsettling aspects to mobile learning. As has been suggested, in common with a mobile device, the toy can produce a sudden rush of delight or fear in response to something unforeseen. We should bear this in mind when designing mobile learning, and when planning how to evaluate it. Anticipating surprises means expecting and welcoming them, being happy when they occur, and being able to accommodate them in our plans.

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