

GUEST EDITORIAL PREFACE

Special Issue from the 11th World Conference on Mobile and Contextual Learning

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Research in mobile learning is facing a dilemma similar to the early days of research into artificial intelligence, which is that as soon as an innovation becomes widely adopted, it loses connection with the research community. Advanced programming languages, search methods and language translation were once the cutting edge artificial intelligence research: now they are part of mainstream computing, available on every web browser. Similarly, ten years ago the hot topics of research in mobile learning included how to deliver learning materials on mobile devices, enable 1-to-1 classrooms where each learner has a mobile device, and offer learning on mobile phones in the developing world. Now all these topics are being absorbed into mainstream education and training, as mobile devices for online communication and information access become part of the everyday equipment of teachers and students. As a consequence, the links back to mobile learning research are becoming blurred or missing. Meanwhile, the research community moves on to new challenges, and

the push-though from theory-informed research to innovative projects and then to widespread transformation of practice never quite happens.

As a research community, we should celebrate the rapidly growing adoption of mobile devices as tools for learning. A child in a school in Denmark uses a smartphone to capture an image of a science experiment for a classroom report; a music-lover in the United States downloads a beautifully-designed interactive app for the iPad to explore Beethoven's 9th symphony¹; a teenager in Kenya browses Wikipedia on a mobile phone; a student at The Open University in the UK studies online using a combination of smartphone and tablet computer. These are everyday realities, not research projects. So what does research have to say to the new realities of learning with mobile devices?

This special issue of IJMBL comprises five papers from the 11th World Conference on Mobile and Contextual Learning, held in Helsinki. It is fitting that the capital of Finland should have hosted the conference during 2012,

since it is 30 years since Nokia introduced its first car phone, 20 years since the company made a decision to focus on mobile telecommunications and 10 years since it launched the world's best-selling mobile phone to date. Now that country, like many others, is struggling to understand its transformation to a mobile technology-enabled society.

The papers demonstrate clearly the difficulties of a linear transition from early research projects to widespread use. The ELVSS project, described in the paper by Cochrane, Wagner & Antonczak on Post-web 2.0 pedagogy, is concerned with the integration of mobile devices into mainstream education. This is an attempt to create an international community of practice among undergraduate students studying film and television, where they use wireless mobile devices collaboratively to create and share movies. The learning theory that underpins this project is 'heutagogy': self-determined learning by students who collectively generate content and contexts, and negotiate assessment activities. The project has succeeded in bringing together students from New Zealand, France and the UK to work together on shared projects across the boundaries of time and space. Now it faces the twin problems of scale and sustainability beyond the volunteerism of like-minded practitioners.

Another project to integrate technology into mainstream practice is covered in the paper by Hoare and colleagues. The CLAS mobile application is designed to help doctors and medical students to write well-structured letters for discharge of hospital patients. A study with 80 medical students found significantly higher scores for content and clarity for students using the CLAS device compared to those writing a standard letter. But there is a vast gap between a successful trial with a small number of students in one medical school and adoption within the hospital system. As the paper indicates, future studies will need to address the benefits of CLAS in clinical practice, and then persuade hospitals to adopt both structured electronic discharge letters and the use of mobile technology for writing them.

At the other end of the scale of adoption, augmented reality for learning is a collection of early investigations into the inter-relations between digital media and the contexts in which they are used. The paper by FitzGerald and colleagues indicates possibilities for enhancing and overlaying one's immediate surroundings with electronic media. The essential power of this approach is in the *dialogue* between media and context: how the media respond to and change physical space. Learning comes from interpreting immediate surroundings and distant landscapes in new ways, viewing inaccessible places and hidden artefacts, linking learners in physical and virtual worlds, and enhancing the experience of being at a location. Learning also comes from the process of designing electronic artefacts that reveal aspects of a location. Much remains to be investigated about augmenting the world for learning.

Two survey papers indicate the gap to be bridged between early research and widespread adoption. The paper on pervasive games for learning by Schmitz, Klemke and Specht explores the potential for the contextual attributes of location, time and activity to create a new genre of pervasive games for learning. One obvious benefit (that nonetheless needs to be emphasised) is that mobile games encourage people to go outdoors: to engage with the real world rather than a virtual reality. Strong claims are being made that pervasive and augmented reality games can produce both affective and cognitive learning outcomes, including immersion in the game, improved attitude towards the learning materials, enhanced recall of materials, transfer of knowledge, ability to engage in critical thinking, and ability to notice aspects of the physical world such as its geometric arrangement. These claims need to be thoroughly tested through large scale trials before we can have the confidence to propose widespread adoption of pervasive games for learning.

The systematic review of mobile assisted language learning by Viberg and Grönlund is a valuable effort to bring order to a diverse and emergent field of research. They surveyed

152 papers and included 86 that satisfied their selection criteria. From their analysis of these papers, the authors conclude that mobile assisted language learning is still a theoretically immature field, one that lacks deep research into the couplings between people and technology for learning. In most of the surveyed papers the theories of learning are general, rather than connected to mobile learning or language learning, and it is generally not clear how these theories informed design and evaluation of the interventions. Thus, the field of mobile assisted language learning would greatly benefit from a sustained process of theory development alongside the innovations in technology and practice.

Taken together, these papers tell a story of mobile learning research in flux. As a field of research, mobile learning has passed beyond the early pilot studies and initial forays into theory development. Yet it has not achieved the goals of theory-informed innovation, nor scalable and sustained adoption of research-led approaches to mobile and contextual learning. This is not cause for disillusion. Learning with technology is not a medicine that can be developed in the lab, tested through randomised control trials, then administered to learners. Rather, it is a long and complex process of theorising, exploring,

designing, piloting, testing, adopting, scaling and sustaining a wide variety of possible innovations in multiple contexts, including classrooms, lecture theatres, homes and museums. Some approaches are starting to transform educational practices, some are just emerging and most are in a confused state of theories looking for applications and applications in search of theory. All this indicates a vibrant pursuit of research into complex educational systems. The big issue is whether this bricolage of research into mobile learning will continue to connect with the rapid developments in adoption of mobile devices across formal and informal education.

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ENDNOTES

- ¹ <http://www.touchpress.com/titles/beethoven-s9thsymphony/>