Special Issue on Mobile Learning and Educational Mobile HCI

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Welcome to this special issue of the *International Journal of Mobile Human Computer Interaction* (IJMHCI) on mobile learning and educational mobile HCI.

Mobile technologies have been used as educational tools for some years and the research area of mobile learning has emerged as a field in its own right. With millions of people using mobile devices across the world both at fixed locations and on the move, it is critical to see how these can be used to support effective learning in formal, non-formal, and informal situations. Seamless learning experiences enable us to extend our learning across contexts, so that we can learn "on the go" in coffee shops, at the bus stop, or when waiting for a friend. Mobile devices, including smartphones, tablets, ultrabooks, e-book readers, or simple mp3 players, can all be used as learning resources, but do we have a good understanding of how people interact with these devices to learn? Do our increasingly "connected" lives mean we have ever-richer opportunities to learn, and if so, how is this changing the way in which we experience "education" throughout our lives?

Do we need new pedagogies to explain our increasingly mobile learning experiences?

The brief for this special issue was to bring together significant research findings that result from merging the two key areas of human-computer interaction and mobile learning. The resulting articles represent diverse areas of mobile learning and educational HCI including both formal learning and also the design and support of informal learning experiences – an area that is receiving increasing attention.

The first article, "The Case for Mobile Devices as Assistive Learning Technologies: A Literature Review," by Lorna McKnight reviews the state of the art in assisted technologies: a topic that truly spans HCI and technology-enhanced learning, and one that is of considerable importance as well as interest, as rapid technological development does not necessarily take account of, or make provision for, learners or users with particular needs. This paper therefore provides a very timely review, giving us a broad snapshot of the state of assistive technologies in education. The broadness comes from the fact that there is no specific

focus on particular technologies, disabilities, or academic disciplines. Rather, the focus is on assistive *learning* technologies. There has been a paucity of research-based evidence in this area, and this paper addresses that gap.

The second article on "Location-Based Intervention for Improving Human-Computer Interaction Students' Understanding of Context for Design," written by Abeer Alnuaim, Praminda Caleb-Solly, and Christine Perry is concerned with teaching and learning HCI – and how to best support students in engaging with and teaching them about the design process. Here, one of the aims is to take undergraduate students out of the classroom, to work "in the field" (in this case in the environments and contexts in which their designs will be used). Providing good technological and flexible support for learners in such contexts is not straightforward, and there have been many attempts to provide apps or other technological support for students learning outside the classrooms (e.g. Cook, 2010; Edge, et al., 2011). In the case reported in this second paper, the app developed was able to support students in understanding the context for which they were designing and to provide appropriate reminders and feedback, which were positively received by the students.

"The Practical Accomplishment of Location-Based Game-Play: Design and Analysis of Mobile Collaborative Gaming" is our third article, and it looks at the design of location-based games to support learning about historical events, where our physical and cultural surroundings become part of the game space. The authors (Frode Guribye, Jo Dugstad Wake, and Barbara Wasson) drew upon collaborative mobile-learning pedagogies to design the game and made extensive use of video to provide a detailed ethnographic analysis of students playing the game. This paper makes an important contribution to the design and analysis of such games, focusing particularly on the use of resources in the game space and how these are used to complete the game, resulting in design implications that are then offered to the academic community.

Our fourth and final article, titled "Duography in the Classroom: Creative Engagement with Two-Sided Mobile Phone Photography," examines how creativity can be a facilitator of learning activities, through taking photographs on mobile phones. The authors (Florian Güldenpfennig, Wolfgang Reitberger, Eva Ganglbauer, and Geraldine Fitzpatrick) investigate a new phenomenon that they term "duography," where mobile phones with both forward- and backward-facing cameras are used to create novel "two-sided" photographs to support technology-mediated art education. The paper describes how adolescents and their teacher engaged with the activity, borrowing from action research and ethnographic approaches. The authors analyse the participants' creative engagement and subsequent reflections, for example, how the photos illustrated different perspectives and roles and how these could be interpreted in multiple ways. The authors conclude with a set of strategies to support the design of arts education through the use of mobile technologies. The work was initiated by the teacher and shows an excellent "real world" case study of how mobile technologies can be integrated into a school curriculum and also highlights the importance of working with professional educators as co-researchers in these types of collaborations to ensure that learning objectives form a key part of the design.

These four articles exemplify key areas where mobile HCI and mobile learning can come together in a valuable synergy that provides an excellent resource for the academic community. Whilst each of these papers could be published in either HCI or educational subject disciplines, independently of each other, we feel that there is clear benefit to bringing together these as the research presented here share many common concepts, language, aims, and outcomes. It is clear that mobile learning is becoming increasingly commonplace, and if it is to reach its full potential and impact upon society as a whole, we need insights from the HCI community to understand and unpick the human perspectives and our engagement with these technologies. This special issue goes some way towards that,

and we hope it will provide inspiration for others working in educational mobile HCI.

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REFERENCES

Cook, J. (2010). Mobile phones as mediating tools within augmented contexts for development. *International Journal of Mobile and Blended Learning*, *2*(3), 1–12. doi:10.4018/jmbl.2010070101

Edge, D., Searle, E., Chiu, K., Zhao, J., & Landay, J. A. (2011). MicroMandarin: Mobile language learning in context. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (CHI '11). ACM Press.