Mobile learning is to use mobile handheld devices, such as smartphones and tablet PC, for teaching and learning and contextual learning allowing students to learn by carrying out activities or solving problems in a way that has the tasks behave like the ones in the real world. Both of them are popular research and pragmatic subjects these days and are closely related to handheld computing because they normally involve the use of handheld devices. This special issue includes four outstanding articles selected from the 9th World Conference on Mobile and Contextual Learning (mLearn 2010) held in October 19-22, 2010, Malta and one related article from independent authors. The mLearn 2010 conference brought together the world’s leading mobile learning researchers, developers, and activists in an environment that would stimulate sharing expertise and experience towards the growth of mobile learning accelerating enhanced innovation. The conference concentrated around Open Education in the future of mobile and contextual learning with increased accessibility for all users in terms of technologies, applications, and further developments. The mLearn 2010 was a huge success and received many high-quality papers. A brief introduction of each of the five articles is given next.

Article 1. “Context-Aware and Adaptive Units of Learning in mLearning”: Most of the available learning contents have been designed for desktop computers, so accessing that information is limited by the technical capabilities of mobile devices. As a result, students might lose interest and motivation to learn using their mobile devices if content adaptation and learning personalization processes are not appropriately designed. This research presents a context-aware adaptation architecture for mobile learning. Two different kinds of architecture are proposed. One is based on conditional statements from the IMS Learning Design Specification and the other one is based
on a transcoding mechanism. Moreover, the learner’s contextual information can be used to design the learning process and adapt to different activities and resources.

Article 2. “Design Guidelines for Location-Based and Contextual Learning Supported by Mobile Devices”: A common problem of mobile learning is that students spend time focusing on the mobile devices at the expense of interacting with other students or exploring the physical environment. The authors approach this problem from an interaction design perspective, where they design and analyze geometry-learning activities in two iterations. They present six guidelines for designing location-based and contextual mobile learning activities, where mobile devices support rather than distract students from contents and contexts relevant to the learning goals. Finally, the guidelines are evaluated using a model of interaction, which represents mobile device interaction as one of four different modes of human interaction with technology.

Article 3. “An mLearning Journey: Mobile Web 2.0 Critical Success Factors”: This research discusses six critical success factors for mobile Web 2.0 implementation identified throughout fifteen mobile-learning action research projects (cycles) carried out and evaluated between 2006 and 2009. The paper briefly outlines the implications of each of the five learning contexts involved in the projects in light of these critical success factors. The resultant developments of strategies for future mobile-learning projects in 2010 and beyond are also briefly discussed.

Article 4. “Advanced Mobile Lecture Viewing: Summarization and Two-Way Navigation”: This paper proposes a fully automated recorded lecture summarization tool and an innovative mobile iPad visualization tool. Summarization works for blackboard-based lectures by robustly extracting blackboard edits with great accuracy and high performance. Analysis output is then presented with overview and visual timelines along the original video to allow discovering lecture passages based on time. Proposed summarization, temporal and spatial navigation along with interactive visual annotations aim to bring to recorded lectures the benefits that other digital learning material has long enjoyed and finally entice the Generation Y of learners who demand finding and consuming information with an always greater flexibility.

Article 5. “A Study of Reusing Smartphones to Augment Elementary School Education”: The evolution of smartphones is extremely fast. A smartphone could have few generations in just one year. To mitigate the impact of disposed devices, this research proposes a design for reuse model in which obsolete devices will be reused for a class of applications that can be satisfied with older, less reliable technology. Their experiments indicate that the resource requirements of educational applications can all be well satisfied by repurposed smartphones. The key challenge is the design of software that can adapt to extreme heterogeneity of devices. The authors also propose insights to aid establishing a sustainable model of designing mobile applications for phone reuse.

The themes of the mLearn 2010 conference were designed to appeal to a wide range of audiences who are interested in enhancing learning, designing content and developing systems for mobile devices and wireless networks. The selected five articles cover the most up-to-date, practical, innovative topics of mobile and contextual learning including (i) context-aware learning, (ii) location-based and contextual learning, (iii) mobile Web 2.0 success factors, (iv) mobile lecture viewing, and (v) smartphone reusing. We want to thank the reviewers and authors for their great help and contributions. Without them, the success of mLearn 2010 and this special issue would not be possible. Hope you will enjoy reading this special issue.

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