
Editorial

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Innovation is a major trend in educational institutions across the globe. Advances in mobile technology play a key role in this development in terms of time, space, curriculum contents, organisation, pedagogical methods, infrastructure and requirements. Recent research on mobile learning has covered a wide range of topics, such as second language learning, science learning, work performance, and teachers' beliefs (Lim and Churchill, 2016). However, when Burden et al. (2019) analysed mobile learning approaches published in 2010–2017, they found that most of them showed only low to medium degrees of innovation in terms of being disruptive to traditional school structures and practices. There is very considerable room for further exploitation of the strengths of mobile technology in innovating learning beyond limitations such as time and locations.

This special issue presents various ideas, practices and research findings on advances in mobile technology which have produced educational innovations, or can do so. The papers in this issue cover diverse learning settings and topics, and demonstrate the high flexibility and wide applicability of mobile technology in education.

In this issue, Ng, Lee, Cheng and Ngan report the use of an augmented reality (AR) mobile application for exploring the natural environment in outdoor areas. They present a mobile learning tool which allows recognition of the species of flowers from pictures taken by students, and shows different species of flowers near the students' locations with the aid of the Global Positioning System (GPS). The visualisation of flowers is enhanced by AR technology which produces a simulation of their growth. This application illustrates the integration of GPS, image recognition and AR in mobile learning to provide students with an enriched learning experience.

Lee, Hodgson, Chan, Fong and Cheung report student experiences in using immersive virtual reality (IVR) and non-immersive virtual reality (nIVR) on two courses. With the increasing prevalence of mobile phones/tablets and head-mounted displays, as well as the improvement of network infrastructure in teaching environments, the adoption of IVR and nIVR in classrooms has become more feasible. This paper presents students' feedback on their VR experience in broadening their awareness and knowledge of the subject areas. It also discusses what needs to be considered when introducing IVR/nIVR into learning design and pedagogy.

The paper by Seah describes the use of a mobile game-based learning application – Kahoot! – in legal education for identifying and bridging the learning gaps of working adults with diverse backgrounds and learning abilities. In this study, the mobile application was used to create quizzes presented in a game-based manner to encourage students' participation, from which teachers could break down complex contents into smaller items, assess students' level of understanding for each of them, and help them to focus on learning the parts which they find difficult.

Jia and Chen propose a voluntary participation and natural grouping approach for generating experimental and control groups for quasi-experiments in educational research. They examine the effectiveness of this approach in a study on learning English as a foreign language through an intelligent web-based system accessed with smartphones. The students who participated were assigned to the experimental group if the number of learning tasks completed by them voluntarily in both the pretest and posttest reached a certain threshold, and the others formed the control group. The results of this study showed statistically significant differences between the two groups in learning behaviours and performance, thereby suggesting that this approach is a feasible alternative to conventional ways of grouping.

Li and Wong analyse the use of the student response system (SRS) with learning analytics over the last decade. Despite these two technologies having become increasingly prevalent, their integration in educational practices has yet to be systematically reviewed. Drawing on 26 relevant case studies, this paper presents the functions of the SRSs, the learning contexts for their use, the data collected for learning analytics, and the use of analysis results, as well as the benefits and limitations of their use. It contributes to showing how SRSs have been employed together with learning analytics for tracking and maintaining students' engagement, understanding their learning experience, and evaluating the effectiveness of teaching. The results also reveal the need for further work to promote the use of SRS in a broader range of learning analytics practices.

Overall, the papers in this issue illustrate a number of innovative applications of mobile technologies in various learning contexts for different learner groups, from primary school students to working adults. The technologies involved range from smartphones to AR, GPS, SRS, image recognition and learning analytics. These articles demonstrate the interoperability of technologies in the latest advances of mobile learning, and reveal potential areas for future developments in this regard.

References

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