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## **Editorial**

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Openness and innovation are major trends in contemporary education which have influenced educational institutions across the globe. This can be seen in the rapid uptake of initiatives such as massive open online courses (MOOCs), blended learning and game-based learning in the last decade. At the same time, open and innovative education is being transformed by technological advances and breakthroughs in the mobile era. The evolution of the capabilities of mobile devices and their increasing adoption by learners have made learning and teaching more open and innovative in terms of time, space, curriculum contents, organisation, pedagogical methods, infrastructure and requirements (Li et al., 2018). Such changes have taken place in virtually all tertiary institutions as well as schools.

The close relationship between open and innovative education and mobile learning is shown in the relevant literature. Mobile learning is viewed as a form of innovation (Hao et al., 2017) and is a growing research topic and practice in open and distance learning (Bozkurt et al., 2015; Tossell et al., 2015). Reviews of the literature on mobile learning have consistently reported a sharp increase in the number of related publications over the past decades (Crompton and Burke, 2018; Fu and Hwang, 2018; Hsu et al., 2012; Hung and Zhang, 2012; Hwang and Tsai, 2011; Hwang and Wu, 2014; Wu et al. 2012); and areas that require further study have also been identified. For example, Fu and Hwang (2018) point out that little research has been carried out on subjects such as business and management, health or nursing; and they stress the need to explore how new mobile learning approaches can benefit learners from various perspectives, such as perceptions and learning performance. Also, Ng and Nicholas (2016) present the challenges to sustaining innovations in learning with mobile devices from aspects such as scale and community engagement.

This special issue focuses on the latest developments in the technological transformation of open and innovative education through mobile and online channels which address research problems that have to be resolved. It includes four papers covering the areas of online mentoring, MOOCs, mobile learning for nursing education, and digital game-based learning.

The paper by Nuankaew and Temdee proposes a model for classifying the compatibility of mentors and mentees on a mass scale, in order to match suitable teachers and students for online mentoring. The matching model consists of 24 attributes of mentors and mentees, such as mentoring experience, mentoring effectiveness, learning styles and learning skills. Based on the data collected from four universities in Thailand, the proposed model outperformed other alternative models in terms of matching mentors and mentees with compatible attributes, who are expected to be able work together successfully in online mentoring.

Solórzano-García and Navío-Marco investigate how MOOCs can serve as an effective means for the distance learning of social entrepreneurship. Based on the experience of a MOOC on social entrepreneurship and innovation, they found that students' commitment to the learning community was related to their participation; the rewards received; correspondence with other students; and recognition from other members of the learning community. An implication of their findings is that an effective MOOC design needs to provide ample opportunities for promoting learners' participation and interaction.

Li et al. report the results of a study on the relationships between nursing students' learning motivation, perception of mobile learning, and study performance. This paper adopts the Framework for the Rational Analysis of Mobile Education (FRAME) to conceptualise mobile learning effectiveness. The results indicate that mobile learning contributes to the improvement of study performance. However, this improvement was related to only some of the motivational factors and variables in the FRAME model, and the latent factors are identified. This study contributes to revealing the key aspects of mobile learning which are more directly associated with study performance and should be emphasised.

Chang and Hwang present a systematic review of publications on mobile digital game-based learning between 2007 and 2016. The research identifies the research trends in this area, and highlights the importance of taking into account learner factors; combining quantitative and qualitative research methods; focusing on various types of learners; and investigating a broader range of subjects, such as health, mathematics and language. Based on the results, Chang and Hwang also suggest a number of research issues for further study.

A common feature of the papers is the learner characteristics in online and mobile learning. They include the learners' learning styles, student commitment, learning motivation, and learner types. Also, some of the papers in this special issue are on subject disciplines which have not been widely studied, such as nursing and social entrepreneurship. This special issue thus provides a collection of papers that address the research issues raised in the recent literature on open and innovative education (Li et al., 2018) and mobile learning (Fu and Hwang, 2018).

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