
Editorial

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Biographical notes: Kam Cheong Li is currently the Director overseeing research at The Open University of Hong Kong, as well as Visiting Professor in several institutions in the UK and Mainland China. Besides serving as the editor for *Asian Association of Open Universities Journal*, he is an editorial board member for the academic journals: *Higher Education Quarterly* and *Interactive Technology and Smart Education*. His research interests lie in e-learning and technology in education. He has contributed over 150 publications in the areas, and is a popular keynote speaker on relevant subjects.

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Reggie Kwan is a Professor of Computer Science and currently the Provost of The Open University of Hong Kong. As also the Director of the Institute for Research in Open and Innovative Education of the institution, he has been leading research of the institution on innovative learning. He served as the Chair of Computer Science at the Montana Technological University, Head of Computing and Mathematics at The Open University of Hong Kong, and President of Caritas Institute of Higher Education. Though trained as a computer scientist, he has been fascinated by e-learning and open and distance learning, and has contributed a large number of publications in these areas.

The effectiveness of technological use in education has long been one of the major issues in the educational field. Work in this area has produced a broad range of advances in educational technologies as well as innovations in their use, in both theoretical and practical aspects. The incorporation of technological innovations covers teaching and learning in the classroom and other educational settings.

This special issue – with the theme ‘Technological innovations for enhancing effectiveness in education’ – embraces relevant theories and practices for classroom teaching and learning as well as out-of-class education. It includes six articles, most of which were extended versions of the selected best papers in the 4th International Conference on Technology in Education (ICTE 2019). They cover the issues of learner attitude, learner-teacher interaction in the classroom, online discussion, family health education, research and practice in science, technology, engineering, arts and mathematics (STEAM) education, and didactic theory for technological use in education. The studies reported in the articles focus on teaching and learning from primary to higher education levels. They enable readers to update themselves on the latest developments on technological innovations which aim to enhance educational effectiveness in various areas.

The first article by Fang et al. reports the findings from a study on students’ attitudes to a mobile learning app on English for the hospitality industry. In this study, the unified theory of acceptance and use of technology (UTAUT) model was adopted to explain the students’ behavioural intention to use the app. Two new constructs – perceived entertainment and English self-efficacy – were proposed and added to the UTAUT model to cope with the research context; and they were found to be significantly related to the students’ intention to use the app. The findings highlight the important factors that should be taken into consideration for the design of mobile apps on language learning, particularly English for the hospitality industry.

The second article by Zhan et al. reports a study on the comparison between smart classrooms and traditional multimedia classrooms in terms of teacher-student interactions. The study analysed teachers’ and students’ behavioural patterns through the lag sequence analysis of classroom video clips. The results showed the greater amount and variety of teacher-student interactions in smart classrooms, which could be attributed to the more abundant teaching support services provided for this learning environment. The study revealed the impacts of new technologies adopted in smart classrooms on the teaching and learning process and its effectiveness.

In the next article, Lu et al. proposes a learning process of content creation using an online forum. The proposed learning process was examined with a sample of primary students in China to increase their learning engagement and motivation in the Chinese language. There were three stages in the learning process – the pre-class activities where students were required to complete learning activities through an e-schoolbag system, the in-class activities where teachers responded to students’ questions in the online forum, and the after-class activities where the discussion threads on the forum were revised based on the feedback from teachers and students. The findings indicated improvements on interaction, mutual recognition, cooperation and motivation. Also, the adoption of the proposed learning process was shown to be positively related to students’ examination performance.

The article by Tashiro and Hebel focuses on health education outside the classroom. They describe an online platform embedded with an evidence-based model of adaptive blended learning. Through this platform, family members with a parent or child who had

a medical problem were able to connect to a medical team. Clinical alerts will be given to the users when a family member has an exacerbation of an illness or injury, and when the users have misconceptions about a health problem or have decreased their use of the system. In addition, the platform features a theoretical foundation which combines relevant theories of learning and behavioural change; the trace of the medical history of users' family members, and the evidence-based support to the knowledge it disseminates. Empirical findings of a case study are reported in the article, which provide support for the effectiveness of the online platform.

The article by Kwan and Wong reviews the latest advances in the research and practice of STEAM education. STEAM education embraces technologies and promotes inter-disciplinary integration of relevant subject disciplines in its educational delivery. The latest developments were found to be characterised by patterns such as an increasing number of pieces of literature, the broadening of objectives, and the extensive use of technology. The review study also identified the characteristics of STEAM education practices, such as the focus on hands-on practice, problem-solving, project-based learning, and the use of real-life scenarios. The findings also reveal the elements which have been widely recognised as important in the context of STEAM education.

In the last article, Cerna discusses how the didactic theorems of Comenius – an ancient Czech humanist, philosopher and reformer – can provide guidance on the use of technology in the classroom. Cerna points out that the democratisation of education promoted by the decreasing cost and prevalent use of technologies in education (e.g., the provision of massive open online courses) has realised the vision of Comenius that education is not just for the privileged class. Comenius's ideas – such as learning as a pleasant activity, the use of games and pictures in education, and teacher-learner cooperation – can commonly be found as the underlying principles of many contemporary technological-based pedagogies such as blended learning and virtual learning. In addition to theoretical discussion, Cerna also illustrates a case study of e-courses in language learning on the effective application of the principles of purposefulness, systematicness, activeness, engaging senses, fun and clearness in Comenius's thinking.

Overall, the articles in this special issue offer ideas, findings and discussions on technological innovations, as well as innovative use of technologies to enhance the effectiveness of education in both theoretical and practical aspects. They help to update us on the latest relevant developments, the issues which require further attention and the potential research areas for future work.