Editorial

Xiaoqing Gu

East China Normal University,
3663 Zhongshan Road North, Shanghai, China
Email: xqgu@ses.ecnu.edu.cn

Lin Lin

Department of Learning Technologies,
College of Information,
University of North Texas,
UNT Discovery Park, G150 (G189),
3940 North Elm Street,
Denton, Texas 76207-7102, USA

Biographical notes: Xiaoqing Gu is a Professor of Educational Technology in East China Normal University. She is the Head of Department of Educational Information Technology, director of Shanghai Engineering Research Center of Digital Education Equipment. Her research has focused primarily on learning sciences and technology, links to learning design, computer-supported collaborative learning, and learning analytics to inform pedagogical design. She is Editor-in-Chief of *International Journal of Smart Technology and Learning*.

Lin Lin is an Associate Professor of Learning Technologies at University of North Texas. She received her Doctoral degree in Communication, Computing, and Technology in Education from Teachers College, Columbia University. Her research interest lies at the intersection of new media and technologies, cognitive psychology, and education. In the past few years, she has conducted research in online teaching and learning, game-based learning, exergaming, social networking, multimedia design, and media multitasking issues. She is an Associate Editor of *IJSmartTL*.

The *International Journal of Smart Technology and Learning* (*IJSmartTL*) focuses on the design, application and assessment of smart learning technologies, highlighting how smart learning technologies should be properly implemented in education to enhance smart learning. This perspective acknowledges not only the significance of emerging smart learning technologies but also the importance of educational outcomes those technologies bring. *IJSmartTL* encourages researchers and educators to be reflective of the use of smart educational technologies and focus on its fundamental goals.

For this first issue, we invited several renowned scholars to provide their perspectives on smart technologies and learning. In the first paper entitled 'The discourse of a 'smart' technology: implications for educational practice', Crook started with the term 'smart' used in daily artefacts, and examined its use in different contexts relating it to terms such as good, quick, and intelligent. Crook then led his readers to reflect on the specialised and focused meaning of 'smart technology' in educational settings. According to Crook, the characteristics of smart learning tools and smart contexts for learning are defined in terms

of their capability for organising regulative interactions, enveloped by a framework of human intelligence and judgement. Crook emphasised the significant responsibility of the teacher, the reconfiguration rather than a replacement of the teacher's role in managing the learner's experiences of smart technology and smart learning environments. The second paper was by Spector, entitled 'The potential of smart technologies for learning and instruction'. Spector provided an overview of smart technologies in education and their potentials for the future. Spector provided a context for smart learning technologies that included a broad definition of smart learning technologies, discussion of historical developments, and framework to guide future practice and scholarship. Spector presented six key concepts to discuss smart learning technologies, including:

1   adaptivity

2   instruction

3   intelligence

4   learning

5   personalisation

6   technology.

According to Spector, cloud-based and mobile technologies provide a basis for flexibility and adaptivity. Personalised learning environments can emerge as a significant smart learning technology when datasets and analytics of learner characteristics and their performance on various tasks are available. Spector calls for intelligent tools to support design and teaching as well as an emphasis on fidelity of implementation and impact studies of new developments for steady and sustained progress of smart technologies.

The third paper was entitled 'Teacher orchestration and student learning during mathematics activities in a smart classroom'. In the paper, Mercier examined the use of a computer-supported collaborative mathematics activity, NumberNet, in light of the teachers' roles and use of the technology. Mercier showed that NumberNet was associated with increased mathematical flexibility and fluency, and that the teachers adapted the activity to match the mathematical abilities of their students. The teachers used the orchestration tools to change the task difficulty and move between small group and whole class activity to support the students' learning. In the fourth paper, entitled 'Introducing the smart education framework: core elements for successful learning in a digital world', Zhu, Sun and Riezebos presented a framework of smart education, which is composed of three elements, namely, teacher presence, learner presence and technology presence. Teacher presence is conceptualised as including three components: instructional design, facilitation and technological support. These components are based on student-centred, personalised, and collaborative models. Learner presence refers to the fact that students actively participate and take personal responsibilities in creating their own learning paths. Technology presence implies that technology is used as a mediator to facilitate the connective, ubiquitous, and personalised learning. Smart education requires that all the elements, teaching, learning, and technology, be present. The authors suggest that this framework be tested with experimental studies.

In the fifth paper entitled 'From smart testing to smart learning: how testing technology can assist the new generation of education', Zhang and Chang provided an overview of the theories and research in testing, and how smart testing can facilitate

smart learning. The authors proposed models and projects based on the testing theories such as item response theory, computerised adaptive testing, large-scale assessments, cognitive diagnosis, and discussed future research directions. The sixth paper is entitled 'The personal learning environment and the institution of education: reflections on technological personalisation in iTEC schools'. In the paper, Johnson explored the distinction between 'education' and 'learning' with regard to the personal learning environment (PLE), drawing on evidence from the large-scale European iTEC project. Johnson argued that the PLE was mistaken in focusing on learning, and would be better focused on mechanisms of social status. Johnson highlighted the challenge for the PLE to study and explore new ways in which learners can empower themselves.

In summary, Crook's helped enlighten the meaning of 'smart' in broad and specialised contexts. Spector provided overview and potentials of smart technologies such as intelligent tutoring systems, learner analytics and dynamic feedback, mobile technologies in education. Sun, Riezebos and Zhu offered a smart education framework, while Zhang and Chang linked smart testing and smart learning. Mercier examined teachers' roles in a computer-supported collaborative mathematics activity while Johnson reminded us that there is difference between education and learning. The six papers provided a range of rich and diverse perspectives and set a good foundation for *IJSmartTL*.