Editorial

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Over the last decade, the advancement of mobile and ubiquitous technologies has greatly influenced all aspects of our life. The landscape of education has also changed significantly with the integration of various types of technologies, creating a new space for learners to share, build, and create knowledge beyond formal learning contexts. Despite the initial enthusiasm toward the potential of emerging technologies for transforming learning environments (e.g., Chan et al., 2006; Roschelle, 2003), there has been a great "disparity between the rhetoric and the reality of practices" (Selwyn, 2010, p.66). Indeed, transforming a learning environment with technology is a complex process that inherently carries a plethora of complex issues and unforeseen variables (Bielaczyc, 2006).

This special issue intends to provoke our thinking about the fundamental role of technologies toward transforming learning environments, focusing on both reflections and future research directions. We believe that it is now opportune to reflect on what researchers have achieved and found about the role of technology for transforming learning practices in various contexts. The field of technology-transformed learning has constantly experienced some tension between technology and pedagogy (Collins and Halverson, 2009). When considering how the field may progress to shape future learning environments, it is important to reflect on the current status of research findings and to articulate our lessons learned from various research trajectories. The aim of this special issue, therefore, is to provide a forum where researchers from various countries can share knowledge, experiences and concerns on technology-transformed learning, and further explore directions for future research agendas.

This special issue features five articles from China, Korea, Singapore and Taiwan that offer reflections about both the possibility and challenges associated with technology-transformed learning from classroom practices to national policies. Among the five articles published in this special issue, two of them deal with designing specific mobile applications in support of classroom practices, particularly focusing on the possibility of mobile learning that can go beyond traditional teaching and learning practices. Boticki, Baksa, Seow, and Looi present the impact of the SamEx mobile learning application designed to promote self-directed learning in the seamless learning project in Singapore. SamEx includes a virtual badge feature that encourages students'

motivation to participate in self-directed learning activities. Their research presents how the one-year implementation of the SamEx mobile application impacted both cognitive and social dimensions of learning, and highlights the importance of teacher scaffolding and designing meaningful learning activities. Chiang, Yang, Huang, and Su from Taiwan present another possibility of mobile learning applications specifically designed to support learning activities often limited in traditional classroom contexts. Opportunities for field-based learning, despite the importance of authentic learning experiences, are often limited in schools due to the lack of resources, time, and safety issues. Recognising such limitations, Chiang et al. developed an image-based mobile learning application with augmented reality features for elementary students' learning about the aquatic animal curriculum. They found that the use of this new type of mobile application, coupled with the 5E teaching strategies based on the constructivism ideas, had created positive effects on students' learning motivation and inquiry learning activities.

The remaining three articles deal with macro-level views on mobile learning, by highlighting the impact of the national policy enactment on the transformation of teaching and learning practices in schools. So, Choi, and Yoon discuss how the national policy toward the digital textbook project in Korea created different perceptions among students, parents and teachers about the possibility of mobile learning. From a large-scale survey regarding the possibility of integrating mobile applications for science education in Korean elementary schools, they found that while students and parents had positive perceptions about mobile learning, teachers were relatively conservative and reluctant due to the lack of perceived advantages of mobile learning and the conflict between the enacted national policy and the reality of schools (e.g., banning the use of mobile devices in classrooms). Moreover, So et al.'s research highlights that teachers' epistemic belief that puts mobile technology as an entity against authentic inquiry learning is the fundamental barrier that any large-scale mobile learning initiatives should consider seriously to make sustainable impacts in schools.

The dialectical relationship between bottom up and top-down forces concerning technology-transformed learning is nicely articulated in the article by Toh, Jamaludin, He, Chua, and Hung. Through a case study about an ICT prototype school in Singapore, they articulate the intricate connections concerning how the national policies to increase school autonomy resulted in the creation of pedagogical spaces where a school could tinker and sustain transformative teaching and learning practices in the use of mobile technologies. Their research unpacks the necessary conditions underpinning sustainable educational reforms within, across and beyond schools and offers a set of recommendations that typical schools can learn from this exemplary case. Similarly, the article by Jiang, Gu and Xiao discusses the intricate relationship between national policies and ground practices in China, drawn from the case illustration of Shanghai Lifelong Learning Network. In recent years, lifelong learning has become one of the important education goals for many countries that are concerned about providing a wide range of learners with continuous learning opportunities beyond traditional formal learning settings. Under such a movement, mobile technologies have been positioned as an effective medium to support lifelong learning initiatives. Drawn from the well-known motivation model (Keller's ARCS), Jiang et al. propose a framework of lifelong learning motivation strategies and analyse the case of Shanghai Lifelong Learning Network as a context of u-learning environment.

In summary, these five articles commonly imply the criticality of the alignment between macro-level national policies and transformation in schools. Based on the reflections from these five research studies conducted in different countries in the Asia-Pacific region, we can formulate the following future research agenda that the research community can pursue collaboratively to make sustainable impacts in technology-transformed learning: (a) the need for in-depth examination of the dialectical forces between macro-level national policies and their impacts on school practices, (b) tracing long-term transformation process in typical schools, (c) strategies to address teachers' epistemological dimensions about the role of technology, and (d) the need for strong cases that demonstrate the use of mobile learning applications for sustainable impacts. It is hoped that the five articles featured in this special issue can stimulate further dialogues and collaborative efforts in the field, thus overcoming tensions between the rhetoric and the reality of technology-transformed learning.

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