

## Guest Editorial Preface

# Special Issue on Mobile Learning in Teacher Education

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The growing ubiquity of mobile and portable technologies in education and schools presents both challenges and opportunities for learning and teaching. A new and emerging context for the design and deployment of mobile learning applications, infrastructures and solutions is teacher education.

As a new, frontier domain of educational technology research, mobile learning in teacher education is still at an early stage in its development. In contemporary educational settings where information and communications technologies (ICTs) are increasingly mobile and pervasive, this raises a number of interrelated, key questions for educational technologists to explore and examine.

First, how do we effectively conceptualise, design and deploy portable technologies to enhance learning, teaching and assessment within teacher education? In particular, how can these new and emerging mobile ICTs be designed and appropriated so we might optimally exploit their affordances for enhancing pre-service teachers' creativity and reflective practice?

### INSIDE THIS ISSUE

Through analysis of a sample of 117 pre-service teachers' engagement with mobile learning, the first article examined the perceptions, attitudes and beliefs of pre-service teachers using the iPad for professional learning purposes and for teaching during their school placements. The research reported in this paper highlights how first-order barriers relating to access, infrastructure and training remain as significant challenges to student teachers' adoption of mobile technologies in their practice. The article concludes with insightful implications for both the practice and theory of teacher education in the contemporary, mobile age, while identifying salient areas for further research.

The second paper outlines a research study examining 1:1 (one-to-one) iPad deployment in a one-year, initial teacher education programme through the medium of the Irish language, an innovative and unique development in the Irish educational context. The research undertaken in this teacher education programme, where all pre-service teachers use the iPad ubiquitously - throughout all aspects of their studies - provides insights into the impact of iPad deployment on student teachers' professional learning, pedagogical knowledge and approaches to learning and teaching.

The third paper also reports research into a 1:1 iPad initiative which aimed to encourage student adoption and appropriation of mobile technologies in learning and teaching. The challenges of creating meaningful professional development opportunities are illustrated in the paper, highlighting the importance of developing community of practice for the use of the iPad, particularly where peer-learning and mentoring are integrated in the design of mobile, technology-enhanced learning in teacher education.

The fourth article presents research into the theorisation and design of mobile educational technology to support teachers in deploying the School in A Box (SIAB) intervention, in order to enhance children's learning in a low resource primary school in Mozambique. Framing the design of the technology-enhanced learning innovation using Vygotsky's (1978) Zone of Proximal Development (ZPD/ZoPD), the paper conceptualises and positions research which aims to enhance teachers' professional development in the collaborative deployment of mobile learning to address local curriculum requirements and achieve Sustainable Development Goals in Sub Saharan Africa.

The fifth article presents research undertaken in the development and application of MobiGeo, an urban mobile game, for geography teaching and learning. Mobile technology-enhanced learning potentially enables the mediation of education across diverse contexts, formal and informal. The goal of the research reported in this paper was to understand whether the implementation of MobiGeo could support and augment the process of learning geography in an outdoor educational context. The data illustrate that urban games such as MobiGeo can enhance students' perceptions of geography learning, and potentially help to re-conceptualise educational contexts, including more personalized and diverse learning activities.

Bring your own device (BYOD) is an increasingly commonplace phenomenon in higher education, where students use their own personal mobile devices for learning. The sixth article reports research into teacher educators' attitudes towards the use of mobile learning by their pre-service student teachers in class. Three predominant reactions by teacher educators were uncovered in this study: proactive, preventative and indifference. Although the majority were found to exhibit an indifferent attitude to mobile learning in teacher education, a correlation was identified between teacher educators' reactions to uses of mobile learning and their understanding of the educational possibilities and potential of this innovative technology.

Using a case study approach, the final article looks at how pre-service language teachers in a specific teacher education programme used mobile phones and technologies inside and outside the university context. Framing the discussion using the notion of mobile learning as a boundary object, the research explored the issue of whether mobile digital technologies had become normalised within the education and preparation of pre-service teachers, and identified broad areas of usage by student teachers, including for communication, organization of learning and academic study.

## CONCLUSION

The integration of ICT within teacher education remains a highly significant, critically important dimension to the wider, successful deployment of educational technology in schools. The discussions here illustrate the complex socio-technical ecosystems of mobile learning deployment within teacher education, including: apps, devices, multimodal and multi-touch interfaces, and interoperability infrastructures. Furthermore, integrated with technological experimentation and innovation, critically-conceptualised implementations of mobile learning in teacher education are warranted, informed by extant, relevant conceptual frameworks for educational technology, specifically technology-mediated mobile learning. Such situated ontological innovations for the use and evaluation of mobile learning applications and devices help to afford important, critical insights into the emerging and developing professional development contexts where mobile ICTs mediate and augment creativity and reflective practice in teacher professional education.

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