

---

## Editorial

---

### Hiroaki Ogata\*

Faculty of Engineering,  
Department of Information Science and Intelligent Systems,  
Tokushima University,  
2-1, Minamijosanjima,  
Tokushima 770-8506, Japan  
E-mail: ogata@is.tokushima-u.ac.jp  
\*Corresponding author

### Gerardo Ayala

Universidad de las Américas Puebla,  
Ex Hacienda de Sta. Catarina Mártir S/N,  
San Andrés Cholula, Puebla 72820, México  
E-mail: gerardo.ayala@udlap.mx

### Susan Bull

Electronic, Electrical and Computer Engineering,  
University of Birmingham,  
Edgbaston, Birmingham, B15 2TT, UK  
E-mail: s.bull@bham.ac.uk

**Biographical notes:** Hiroaki Ogata is an Associate Professor in the Faculty of Engineering, Tokushima University, Japan. He received the BE, ME and PhD from Tokushima University in 1992, 1994 and 1998, respectively. He was a Visiting Researcher at L3D, the University of Colorado at Boulder, USA, from 2001 to 2003. His current interests are in computer-supported ubiquitous learning and he received the best paper award from JSiSE in 1998, WebNet 1999, ICALT 2006, MULE2007, CollabTech2008 and ICCE2008.

Gerardo Ayala is a Researcher at the Universidad de las Américas Puebla, Mexico. He got his Doctoral degree from the University of Tokushima, Japan, in 1996, doing research on the application of software agents and artificial intelligence to computer supported collaborative learning. His areas of interest are mobile learning, learner modelling, answer set programming applied to learner modelling, collaborative learning environments, lifelong learning and Japanese language learning environments.

Susan Bull is a Lecturer in Adaptive Learning Environments and User Modelling in the School of Electronic, Electrical and Computer Engineering, University of Birmingham, UK. She received her PhD from the University of Edinburgh (UK) in 1997, with a thesis on collaborative learner modelling for language learning. She subsequently held research positions at the University of Brighton (UK) and University of Saskatchewan (Canada). Her current research focuses on open learner modelling, supporting learner reflection and metacognition, learner modelling for language learning and mobile learning.

Language learning is becoming one of the important application domains of mobile learning. Recent developments in mobile and ubiquitous technologies provide new learning environments for language learning, which go far beyond traditional learning paradigms such as classroom teaching and training in companies, and of many of the more recent developments in e-learning.

Research and development projects on mobile computer assisted language learning (CALL) have considered innovative ways of language learning using mobile devices; for example, learning vocabulary using mobile phones, or mobile learning applications for speech/audio language training. In addition, commercial products have appeared, as well as many podcast contents for second language learning.

*Int. J. Mobile Learning and Organization (IJMLO)* is therefore publishing a Special Issue on 'Mobile and Ubiquitous Technologies for Language Learning', which is a timely issue for academics, practitioners and instructional designers who are interested in the design and development of effective language-learning environments.

The purpose of the Special Issue is to disseminate studies about how we meet the challenges of this technology, practical experiences of the design of mobile and ubiquitous language-learning environments, current development of systems in academia or industry, as well as the current economic and social context of mobile and ubiquitous learning development and empirical research into contemporary mobile learning environments.

At least two reviewers in addition to an editor were assigned to each submission, avoiding regional and personal biases. After a careful reviewing process, five papers were accepted for publication. An invited paper from one of the leading researchers in mobile CALL is also included in this Special Issue.

The invited paper is entitled, 'Charting unknown territory: models of participation in mobile language learning', by Kukulska-Hulme. The paper addresses methods of learner participation in mobile language learning. To assist in conceptualising this issue, it is argued that learning activities can be placed on a continuum, with teacher-driven language provision at one end and, at the other, provision that is completely learner-driven. The middle ground has been explored to a lesser extent, but offers many possibilities, and work in this middle ground is now being undertaken. The author argues that the opportunities offered by mobile and ubiquitous learning, from a learner participation perspective, will transform language learning in the coming years.

Read, Barcena and Rodrigo's paper, 'Modelling ubiquity for second language learning', presents a theoretical framework for second language learning that combines a cognitive learner model and collaborative group model. With increasing ubiquity in access to information and computational resources, the effectiveness of the framework for second language learning is reduced as it is less able to represent how specific devices and the real world context are able to mediate the selection and structuring of activities and learning materials. Therefore, the existing models require a complementary functional ubiquity model to characterise the manner in which the degree of ubiquity identifies the types of resources and learning activities available in the framework. The authors describe a three-part cognitive-collaborative-ubiquitous model.

The third paper, by Starostenko, Alarcon-Aquino, Lobato-Morales and Sergiyenko, describes 'Computational approaches to support image-based language learning within mobile environment'. Image-based language learning requires image processing, recognition and retrieval. The Segment and Neighbours Matching algorithm and Two Segment Turning function are proposed and evaluated for suitability for use in

applications assisted by mobile devices. Visual information compression based on wavelet transforms and thresholding techniques are supported for wireless multimedia data exchange. The paper evaluates the proposed approaches with reference to processing speed and recognition grade, for interpreting Japanese kanji or Mayan glyphs for use with mobile devices when resources are limited, and there are restricted networking capabilities.

In the fourth paper, Lumsden, Leung, D'Amours and McDonald describe 'ALEX©: a mobile adult literacy experiential learning application', an innovative assistive, mobile and experiential language-learning application designed to support 'anywhere, anytime' daily adult literacy education. The paper also proposes the guidelines for the design of mobile assistive technologies, which are aimed carefully to structure the protocol to effectively engage functionally illiterate adults in an extended study. The authors then report the overview of ALEX for the emerging areas of mobile assistive technology design or mobile experiential language-learning technologies.

Ayala, Paredes and Castillo propose 'Computational models for mobile and ubiquitous second language learning'. The authors regard a second language mobile and ubiquitous language learning (MULL) environment as a personalised, collaborative, situated and lifelong environment which is based on different approaches to learning, types of awareness and learning scenarios. Computational models are proposed for MULL environments based on mobile learning objects as the basic elements for representing content in second language learning. The models are a personalised, a collaborative and an interaction model. The models comprise a belief representation and management constituent for modelling learners, and a content object reference model that inherits a subset of metadata categories from SCORM, extended with two top-level metadata categories.

The final paper in this special issue is entitled Supporting the Acquisition of Japanese Polite Expressions in Context-Aware Ubiquitous Learning authored by Yin, Ogata, Tabata and Yano. The paper proposes a ubiquitous language-learning environment to support the learning of Japanese Polite Expressions (JPE) 'anywhere, anytime' which does not require input information about the context. In traditional Japanese classes, students only learn the JPE rules. The environment is intended as an extension of traditional educational approaches, guiding learners to use the appropriate JPE based on different real-world situations. The paper describes the one-to-many version of the environment, extended from the original one-to-one environment.

The guest editors believe that this issue offers a snapshot of current understanding of mobile and ubiquitous language-learning environments. We also thank the IJMLO editor, Prof. Chou-Hong Chen, for providing the opportunity for this issue. Finally, the Guest Editors thank the Special Issue reviewers for their valuable service.