

Preface to the Second Issue

Minjuan Wang^{1,*}, Juan Carlos Augusto², Vic Callaghan³

¹ Shanghai International Studies University, San Diego State University

² RG on Development of Intelligent Environments, Dep. of Computer Science, Middlesex University London, Middlesex University

³ Computer Science, Essex University, Digital Lifestyles Centre

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As the world moves steadily to become a knowledge-based economy, education and learning have never been more important. Technology is playing an increasingly crucial role in the delivery of education, which in turn is driving research into the search for better technological solutions. The age of intelligent environments is bringing such pedagogical advances as smart classrooms, intelligent campuses, immersive and mixed-reality learning, affective learning, mobile learning, intelligent learning clouds and personalised intelligent tutors to revolutionize current learning practices, and to challenge the traditional notions of a university or school [1].

In light of this intriguing context, we organized the second *Symposium on Future Intelligent Educational Environments and Learning* (SOFIEE), which will take place on July 2015 in Prague, Czech Republic. This Symposium focuses on creating educational environments that are friendly, smart or intelligent, open, personalized, and can seamlessly support anytime anywhere learning or training. Intelligent not only refers to technology, but also to human processes and behaviours. A total of 12 papers from scholars around the world were accepted into this symposium, covering research and development in specific areas that are related to intelligent learning methods, systems, environments, and applications. Papers that received excellent reviews were invited to submit extended versions to the second issue of this Journal.

As we stated in the Preface to the Inaugural issue, the main purpose of this new TOFIEE journal is to serve as a portal to showcase the opportunities that emerging technologies and pedagogies can collectively offer to teaching and learning in the 21st century. As such we hope this second issue will continue to provide inspiring and useful insights into research and development work in

this important and growing area of education.

Papers in this Issue

We are very proud to present in this Issue a wide range of contributions which attest to the current state-of-the-art explorations in the scientific area of intelligent educational environments.

Smart Feedback and the Challenges of Virtualisation by C. James-Reynolds and E. Currie, explores the use of avatars to provide audio feedback to students. Experiments were conducted to investigate students' responses to avatar-audio feedback in comparison with other forms of feedback. The results show significant differences in student reactions and the authors also examine strategies for deploying virtual agents to provide feedback.

Design of a Novel Intelligent Framework for Finding Experts and Learning Peers in Open Knowledge Communities by P.F. Wu, S.Q. Yu presents an innovative framework for finding the right experts and learning peers in Open Knowledge Communities (OKCs). In addition to providing the architectural details of the framework, the authors elaborate on the intelligent framework design and its work principle. They also present the learning application scenarios of this intelligent framework, constructed on the basis of social knowledge networks.

Augmented Reality (AR) has been considered a significant tool in education for many years. It adds new layers of interactivity, context, and information for learners, which can deepen and enrich their learning experience. *In Potential for Augmented Reality in Education: An Overview*, L. Xia, B. Sheng, P. Li, and R. Shen present a comprehensive survey of AR technologies and applications in education doma

*Corresponding author. Email: mwang@mail.sdsu.edu

In addition to providing useful insights into the current AR development and application, this paper also provides instructors and learners with a plan for using AR in their teaching and learning. The authors also point out future directions that educational AR technologies are taking, which will be most helpful to future researchers.

A constant topic in USA's K-12 education is the lack of student interest in STEM (Science, Technology, Engineer, and Math) subjects and the dwindling number of students pursuing STEM careers. *Using Science Fiction Prototyping to Decrease the Decline of Interest in STEM Topics at the High School Level* reports the results of a timely experimental study in this area. Supported by the Creative Science Foundation (CSF), the authors (M. de Lepe, C. Russell, and W. Olmstead) observed how using science fiction prototyping (SFP) greatly motivated high school students to learn STEM topics and especially sparked their interests in science. It is our hope that SFP as an innovative educational strategy can be more expansively used in high schools around the world.

With the increasing globalization of education, mobile learning and culture are two areas that demand constant research. One exemplary research is *Evaluating an Intelligent Q&A System for Mobile Cultural Learning* by I. Doumanis and S. Smith. Building upon a recent pedagogical framework for mobile learning, this Q&A system enables individual learners to interact with unknown cultural content under simulated mobile conditions. This study investigates the impact of this Q&A system on the participants' retention of cultural content and also provide design recommendations to aid in the development of more robust Q&A models for mobile cultural systems.

Collectively, this selection of papers highlight the new and emerging research in the area of intelligent teaching and learning. The studies were conducted in three different countries--China, U.K., and U.S.A. and therefore provide a preview of topics that are important to researchers and practitioners in different regions of the world. We hope our readers will find these studies as stimulating as we did and that the findings of these cutting-edge studies can trigger a new wave of innovations in our field.

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