

GUEST EDITORIAL PREFACE

Special Issue on Learning Technologies and Learning Environments

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INTRODUCTION

In the past decades, the learning paradigm has shifted from traditional instruction to technology-enhanced learning. In the field of Computer-based Education, personal computers were first used to support education for individual learners in the 1980s, WWW technologies were first used to support e-learners in the 1990s, and mobile devices and wireless technologies were first used to support education for mobile learners in the 2000s. It can be seen that, owing to the popularity of information, computing and communication technologies, researchers have been encouraged to investigate the development and applications of new learning technologies in different learning environments. Moreover, educators have also attempted to incorporate the existing educational theories while conducting innovative technology-enhanced learning activities.

Researchers have indicated the importance and urgency of using those innovative technologies to improve the effectiveness of learning and teaching. The purpose of this special issue is to invite researchers who engage in the study of using technologies to provide better learning supports and learning environments to share and exchange their research experiences and findings.

PAPER OVERVIEW

The *IIAI International Conference on Learning Technologies and Learning Environments* (IIAI-LTLE 2012) was jointly held with IIAI-AAI 2012 (<http://www.iaiai.org/event/aai2012/>) on September 20-22, 2012 in Kyushu University, Fukuoka, Japan. The IIAI-LTLE 2012 focuses on computer applications and technologies in education including practice, technology and

theory. Since ancient times, research in education has been constant; in particular, with the emergence of computer technologies which evolve very quickly, so have the changes in education research (e.g., theory and practice which go hand in hand with these evolving technologies).

The authors of twelve outstanding papers recommended by the IIAI-LTLE 2012 program committee were invited to submit an extended version of their papers to this special issue. After a rigorous review process of these invited papers, six were accepted for publication in this special issue.

The first contribution is written by Ming-Shiou Mitchell Kuo and Tsung-Yen Chuang (National University of Tainan, Taiwan). The title is “*Developing a 3D Game Design Authoring Package to Assist Students’ Visualization Process in Design Thinking*”. In this paper, the authors surveyed and evaluated the existing 3D digital game development tools based on the opinions collected via a questionnaire. Accordingly, they developed an authoring package that included SketchUp, 3D Warehouse and a web-based 3D multi-user platform. In addition, some examples are given to demonstrate the functionalities of the authoring package.

The second article, written by Chih-Hung Lai, Chih-Ming Chu, Hsiang-Hsuan Liu, and Shun-Bo Yang (National Dong-Hwa University, Taiwan), is entitled “*An Examination of Game-Based Learning from Theories of Flow Experience and Cognitive Load*.” From the experimental results, it was found that game-based learning could provide the same level of flow experience as that in pure games. However, the students revealed higher cognitive load when learning with educational games than with pure games. The findings provide good references for researchers who intend to apply the game-based learning approach to educational settings.

The paper written by Lorna Uden (Staffordshire University, UK) and Gwo-Jen Hwang (National Taiwan University of Science and Technology, Taiwan) is entitled “*Activity Theory Approach to Developing Context-Aware Mobile Learning Systems for Understanding Scientific*

Phenomenon and Theories.” The researchers proposed the design strategy of a context aware mobile learning application based on the framework of activity theory. A case study of conducting a mobile learning application for science learning is also presented. The framework and application provide a good reference for researchers and teachers in developing effective mobile learning activities.

The paper written by Juan Zhou (Kyoto University, Japan), Mikihiro Mori, Hiroshi Ueda, and Hajime Kita (Kyoto University, Japan) presents an interesting Multi-Mouse Quiz System which comprises the Multi Mouse Quiz (MMQ) and MMQEditor. This system enables multiple users to answer quizzes by connecting several mice to an ordinary computer. This study demonstrates a way of using a computer as a multi-user platform, which could be useful in conducting multi-user interaction activities in the classroom.

This fifth paper is written by Brendan Flanagan (Kyushu University, Fukuoka, Japan), Chengjiu Yin (Kyushu University, Fukuoka, Japan) and Sachio Hirokawa, Kiyota Hashimoto and Yoshiyuki Tabata (Osaka Prefecture University, Osaka, Japan), and is entitled “*An Automated Method to Generate e-Learning Quizzes from Online Language Learner Writing*.” In this paper, an algorithm for generating multiple choice and fill-in-the-blank quizzes is proposed. With the algorithm, quizzes can be automatically generated via extracting questions and answers from online writings with corrections suggested by a native speaker. The idea is very interesting. It provides a way of sharing writing experiences of individual students by generating quizzes based on their frequent writing errors. Many follow-up issues can be investigated.

The sixth paper, written by Jingyun Wang, Takahiko MENDORI (Kochi University of Technology, Kochi, Japan), and Juan Xiong (University of Technology, Fujian, China), is entitled “*A Customizable Language Learning Support System using ontology-driven engine*.” The authors propose a framework for developing web-based language learning support systems

that provide customizable pedagogical procedures based on the characteristics of learners and courses. A course-centered ontology and a teaching method ontology are used to analyze the characteristics and determine the customized learning procedures. This paper provides a good personalization approach. As personalization is one of the most important features of e-learning, the idea proposed in this study provides a good reference for the researchers of adaptive learning or intelligent tutoring systems.

CONCLUSION AND ACKNOWLEDGMENT

I would like to thank the many people who made this special issue possible. First, my thanks go to Prof. Fuhua (Oscar) Lin, Editor in Chief of this journal and Organizing Chair of *IIAI-LTLE 2012*, who gave us the opportunity to be the guest co-editors in this special issue. Then, I would like to thank another *IJDET* Editor in Chief, Prof. Maiga Chang, who also served on *IIAI-LTLE* program committees. Maiga helped me so much in editing and managing this special issue during the whole review process. In particular, I express my thanks to Prof. Gwo-Jen Hwang and Prof. Hiroaki Ogata, the General Chairs of *IIAI-LTLE 2012*. Prof. Gwo-Jen Hwang was another guest co-editor of this special issue, who guided

me to arrange the high quality papers. I have learned so much valuable knowledge from him. Moreover, I would like to thank Dr. Chengjiu Yin, who hosted the *IIAI-LTLE 2012* conference and proposed the special issue, for inviting me to be the co-guest editor of the special issue in *IJDET*. In addition, I am grateful to all of the program committee members and the reviewers of this special issue for recommending and reviewing those high quality papers.

I would also like to thank the authors, who gave us such a hard time selecting the best quality papers from their excellent submissions. Last but not least, my thanks go to all those participants who made their way to Kyushu University, Fukuoka, Japan, allowing *IIAI-LTLE 2012* to become a success. We hope this issue of *IIAI-LTLE 2012* best papers will be of interest to the readers of *IJDET* and will encourage future innovative and synergetic research in the field of e-learning. We look forward to the next *IJDET* issue of the best papers from the next *IIAI-LTLE* workshop.

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