Guest Editorial Preface

Special Issue on User Modeling for Web-based Learning

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INTRODUCTION

With the rapid development of online learning resources such as Massive Open Online Courses (MOOCs) and user-generated contents in Web 2.0 communities, user modeling techniques, having become increasingly important for web-based e-learning systems, are exploited to assist various e-learning applications (e.g., personalized search/recommendation of learning resources, identification of learning interests/styles, and facilitation of interactions between learners and instructors). Also, the design of a user model is believed to have influence on such function modules as the test module and the plan agent of users (Ciloglugil & Inceoglu, 2012). The users' learning experiences and effectiveness may therefore be affected to a large extent by user models (Kay 2008; Cook, Kay, & Kummerfeld, 2015). As learning experiences and effectiveness is a critical issue for e-learning systems, this special issue aims to provide an insight into recent advancements of user models for promoting personalized learning according to users' preferences, learning styles, background knowledge, etc.

ARTICLE OVERVIEW

The first four contributions present specific models for web-based learning aiming at improving the effectiveness of the existing systems by means of personalized services. In the first article *Individualization of foreign language teaching through adaptive eLearning*, Kostolanyova and Nedbalova propose a model of personalized adaptive e-learning which provides teaching aids for language learners by taking into account such factors as their expected outcomes, current knowledge and learning preferences. This model is likely to contribute to individualized education.

In the following article *Revealing learner interests through topic mining from question answering system*, Dun, Wang, Wang, and Hao investigate question answering systems and, based on topic mining, propose an approach to identifying potential interested topics for users by employing three concept-mapping strategies (named entity recognition, synonym extension, and hyponym replacement). Experimental results show that this method is more effective than conventional classifiers.

In the third article *Exploring student and supervisor interaction during the scipro thesis process – two use cases*, Hansen and Hanson explore the effects of the SciPro system on the supervision of bachelor and master theses. The results of the two use cases indicate that this SciPro system facilitates communication between students and supervisors, hence promotes more effective and efficient supervision.

In the fourth article *Learning styles in the e-learning environment: the approaches and research on longitudinal changes*, Doulik, Skoda, and Simonova conduct a meta-analysis of relevant studies on learning styles in technology enhanced learning from three perspectives: the fields in which they investigate, the levels of education on which they focus, and the diagnostic methods they employ. Although no significant longitudinal changes have been found, the effectiveness of TEL in assisting active cooperation and communication among users are noted.

The next two contributions investigate learning resources design and search by employing user modeling techniques. In the fifth article *Design of open content social learning based on the activities of learners and similar learners*, John, Nagar, Thavavel, Arumugam and Poornaselvan discuss the use of open content discovery, organization and personalization for content recommendation. The results show that personalized content recommendation, which is based on user modeling, is conducive to the increase of learner engagement and motivation.

In the last article *Integrating reviews and ratings on user modeling for enhanced personalized search*, Hu, Cai, Leung, Huang, and Yang study user modeling by integrating various user-generated data to facilitate personalized search. This model can be applied to retrieve desired learning resources according to users' preferences.

CONCLUSION AND ACKNOWLEDGMENT

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We do believe that user modeling for web-based learning is an important topic in the field of e-learning systems, and hope that this special issue can shed light on the development of this area.

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Haoran Xie is an assistant professor at The Hong Kong Institute of Education. He received his PhD and MSc from Department of Computer Science, City University of Hong Kong in 2013 and 2009 respectively, and Bachelor of Engineering from School of Software Engineering, Beijing University of Technology in 2007. His research mainly focuses on social media, big data, educational technology, human computer interaction and e-learning systems. He has published around 60 papers in many prestigious international journals and conferences including IEEE Multimedia, Intelligent Systems, Knowledge-Based Systems, Neural Networks, DASFAA, UMAP, ICCE, and APWEB. He serves as a guest editor of Neurocomputing, IJDET and Web Intelligent Journal. He is currently a Co-chair of SeCoP 2015, IWUM 2015, SETE 2016, the Web chairperson of Hong Kong Web Society, and the Media chair of IEEE U-Media 2010, WISE 2010 and ICWL 2010. He also serves as a member of many international organizations such as ACM, IEEE, EUROCALL and APSEC. Di Zou is a language instructor at the Hong Kong Polytechnic University. Her research interests include second-language acquisition, computer-assisted language learning, and e-learning systems. Zou received her PhD in English from the City University of Hong Kong. She is a member of Teachers of English to Speakers of Other Languages (TESOL) International Association and European Association for Computer-Assisted Language Learning (EUROCALL).

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