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# New Horizons in Web Based Learning

ICWL 2014 International Workshops  
SPeL, PRASAE, IWMPL, OBIE,  
and KMEL, FET  
Tallinn, Estonia, August 14–17, 2014  
Revised Selected Papers

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## **Preface to ICWL 2014 Workshops**

It is our pleasure to welcome you to ICWL 2014 workshops associated with ICWL 2014 in Tallinn, Estonia during August 14–17, 2014. ICWL is an annual international conference series on Web-based learning that has so far been held in Asia, Europe, and Australia. It has been a tradition to host workshops together with the ICWL main conferences since years. The goal of ICWL workshops was to give researchers and participants a forum to discuss cutting-edge research in Web-based learning and to discuss about work-in-progress research, in order to explore the new trends in Web-based learning. The workshops provided a networking forum for exchanging innovative ideas and research of work-in-progress.

This year, we are glad that some ICWL workshops from previous years were held again with ICWL. We are also delighted to host some new workshops. Finally, we have selected SPeL, PRASAE, IWMPPL, OBIE, KMEL, and FeT competitively. The topics of the ICWL workshops range from social learning, mobile learning, and knowledge management, to peer assessment, open badges, and ebooks.

We would like to thank the Workshop Chairs David Lamas, Dickson K.W. Chiu, Elvira Popescu, Jelena Jovanovic, Martin Homola, and Ray Yueh-Min Huang, etc. as well as their Program Committees for their organization of the workshops and for selecting the papers in this volume. We would also like to thank the main ICWL 2014 Conference Committees, particularly the Conference Co-chairs, Howard Leung and Mart Laanpere, the conference Program Co-chairs Elvira Popescu, Rynson Lau, and Kai Papa, as well as the other ICWL Organization Committees for their support in putting the program and proceedings together.

We also appreciate the support from Springer. Since 2010, we have published ICWL workshop proceedings as a post-workshop proceedings band besides ICWL conference proceedings in cooperation with Springer.

August 2014

Yiwei Cao  
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## **The Seventh International Workshop on Social and Personal Computing for Web-Supported Learning Communities (SPeL 2014) Chairs' Message**

The workshop followed the previous SPeL 2008, SPeL 2009, SPeL 2010, SPeL 2011, DULP & SPeL 2012, and SPeL 2013 workshops, held in conjunction with SAINT 2008, WI/IAT 2009, DEXA 2010, ICWL 2011, ICALT 2012, and ICSTCC 2013 conferences, respectively. The general topic of the workshop is the social and personal computing for web-supported learning communities, focusing on emergent technologies for applied computing in education.

Web-based learning is moving from centralized, institution-based systems to a decentralized and informal creation and sharing of knowledge. Social software (e.g., blogs, wikis, social bookmarking systems, media sharing services) is increasingly being used for e-learning purposes, helping to create novel learning experiences and knowledge. In the world of pervasive Internet, learners are also evolving: the so-called *digital natives* want to be in constant communication with their peers, they expect an individualized instruction and a personalized learning environment, which automatically adapt to their individual needs. The challenge in this context is to provide intelligent and adaptive support for collaborative learning, taking into consideration the individual differences between learners.

This workshop dealt with current research on collaboration and personalization issues in Web-supported learning communities. Its aim was to provide a forum for discussing new trends and initiatives in this area, including research on the planning, development, application, and evaluation of intelligent e-learning systems, where people can learn together in a personalized way through social interaction with other learners.

The event was targeted at academic researchers, developers, educationists, and practitioners alike. The proposed field is interdisciplinary and very dynamic, taking into account the recent advent of Web 2.0 and ubiquitous personalization, and it attracted a large audience. After a thorough review process (each paper being reviewed by at least three PC members), five high-quality papers were selected for presentation and included in these proceedings.

We would like to take this opportunity to thank all authors who contributed to this workshop, the Program Committee members for their valuable and timely reviews, as well as the ICWL 2014 Workshop Chairs and Organizing Committee for their support and cooperation.

August 2014

Elvira Popescu  
Sabine Graf

# **The First International Workshop on Peer-Review, Peer-Assessment, and Self-Assessment in Education (PRASAE 2014) Chairs' Message**

Learner-driven assessment methodologies, such as peer-review, peer-assessment, and self-assessment, have recently gained increased interest, especially as education is shifting toward a less formal and more learner-centered process. The International Workshop on Peer-Review, Peer-Assessment, and Self-Assessment (PRASAE) is a new workshop dedicated to these topics. Its main aim is to bring together the research community in learner-driven assessment, communicate current research trends, and exchange experience.

The first edition, PRASAE 2014, was collocated with the 13th International Conference on Web-based Learning (ICWL 2014), Tallinn, Estonia, during August 14–17, 2014. PRASAE 2014 gained significant interest in the community: it received six submissions, which were all reviewed by at least three members of the Program Committee and out of which five were accepted. The authors of the submitted papers came from Austria, Denmark, Germany, Italy, Slovakia, UK, and USA, which marks a truly international spirit of the workshop.

We would like to thank all members of the Program Committee, and to ICWL 2014 for excellent organization and for hosting the workshop. We hope that PRASAE 2014 will start a tradition, and that it will further reinforce in the coming years.

August 2014

Martin Homola  
Zuzana Kubincová

## **International Workshop on Mobile and Personalized Learning (IWMPL 2014) Chairs' Message**

It is a great honor for us to welcome all authors who have contributed their manuscripts to the 2014 International Workshop on Mobile and Personalized Learning (IWMPL 2014) in Tallinn, Estonia. The IWMPL 2014 aims at bringing together professionals and researchers who are interested in recent trends of mobile and personalized learning.

In recent years, m-learning has been widely applied to various fields and has become a popular issue in educational research. M-learning can be simply defined as the application of hand-held devices, such as smart phones, laptops, palmtop computers, and electronic readers (e-readers), in order to enable learners to proceed with electronic learning (e-learning) anywhere and anytime, rather than limiting them to the confines of a classroom. On the other hand, those hand-held devices are basically for personal use, which can combine with some sensor technologies, such as screen touching track and GPS, to record the learning context and learning behavior along with the mobility. Nowadays, cloud computing is a prevailing technology which can help the teacher timely realize learning status to enhance personalized learning. Thus, fueled by the technology, e-learning is entering the era of mobile and personalized learning, where those web-based paradigms or its extension remains applicable with this trend. Thus, we believe those concepts from web-based learning can still benefit the development of mobile and personalized learning. Finally, we appreciate those who are doing the related research to share their works or demonstrate their implementations with all ICWL2014 participants. We truly hope that all of you will enjoy the conference program and activities in Tallinn.

August 2014

Ray Yueh-Min Huang



# The First International Workshop on Open Badges in Education (OBIE 2014) Chairs' Message

The concept and technology of Open Badges (OBs) have emerged from a collaborative effort of MacArthur Foundation<sup>1</sup>, HASTAC<sup>2</sup> and Mozilla Learning team<sup>3</sup>, and have continued to progress as a community effort aimed at introducing novel means and practices for knowledge/skill assessment, recognition, and credentialing. Along the way, OBs are also promoting values such as openness and learners' agency, as well as participatory learning practices and peer-learning communities.

Although digital badges are not a new phenomenon, their use prior to the emergence of the OBs initiative was largely associated with isolated efforts of individual organizations, and there was no systematic approach to issuing and using badges. Likewise, OBs should not be equated with digital badges that are used solely as a part of gamification efforts aimed at motivating users for different kinds of tasks. OBs differ in at least two significant ways. First, they allow learners to gather badges that originate from different sources (i.e., organizations acting as badge issuers), and to select and combine the earned badges into custom profiles suitable for the given occasion (e.g., job application). Second, OBs are self-sufficient in the sense that they carry all the information one would need to understand and value the achievement/status they refer to.

These novel and distinctive features have positioned OBs as suitable candidates for addressing some of the pressing challenges in the context of lifelong and Web-based learning, including the recognition of learning in multiple and diverse locations and environments that go beyond traditional classrooms, as well as recognition of diverse kinds of skills and knowledge, including soft and general skills. Furthermore, they are perceived as suitable candidates for supporting new and alternative forms of assessment, as well as for assuring transparent and easily verifiable digital credentials. Finally, OBs open new avenues for personalizing learning paths and representing one's learning achievements in a highly personalized way.

OBs are rapidly gaining traction among educational practitioners as well as education-oriented companies and nonprofit organizations. Accordingly, public discourse on OBs and related topics, is mainly taking place on the open Web, i.e., on blogs, project websites and wikis, and other informal venues. There have been only a few research studies aimed at validating the propositions related to OBs. Therefore, the primary objective of this workshop is to raise awareness about OBs in academic

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<sup>1</sup> <http://www.macfound.org/>

<sup>2</sup> <http://www.hastac.org/>

<sup>3</sup> <https://wiki.mozilla.org/Learning>

circles, and contribute to the establishment and development of a research community dedicated to a deeper understanding of not only OBs and their potential roles, but also the larger educational ecosystem within which they operate and evolve.

August 2014

Jelena Jovanovic  
Vladan Devedzic  
Weiqin Chen  
Dragan Gasevic

# **The Fourth International Symposium on Knowledge Management & E-Learning (KMEL 2014)**

## **Chairs' Message**

Fierce competition, globalization, and dynamic economy have forced organizations to search for new ways to improve competitive advantage. In pursuance of this, knowledge is seen as the core resource and learning is viewed as the important process. It is crucial for organizations to enhance the capabilities for effective learning and knowledge management (KM), especially via using information and communication technologies in the digital economy.

The creation, operation, and evolution of such research and practice raise concerns that vary from high-level requirements and policy modeling through to the deployment of specific implementation technologies and paradigms, and involve a wide and ever-growing range of methods, tools, and technologies. They also cover a broad spectrum of vertical domains, industry segments, and even government sectors. We intentionally seeks educators, researchers, scientists, engineers, industry people, policy makers, decision makers, and others who have insight, vision, and understanding of the big challenges in knowledge management and e-learning (KM&EL). After review, we selected three quality papers in this Symposium, for presentation covering various aspects of KM&EL.

We appreciate the interest and support of all attendees. In particular, we thank the ICWL organizers, the International Journal of Systems and Service-Oriented Engineering (IJSSOE), and the Knowledge Management & E-Learning: An International Journal (KM&EL) for their generous support. The great success of the symposium is indebted to the hard work of all Program Committee members. We also thank all the authors for their contributions.

August 2014

Dickson K.W. Chiu  
Maggie M.H. Wang

# **The Future of e-Textbooks Workshop (FeT 2014)**

## **Chairs' Message**

Digitizing textbooks is becoming an increasingly important practice in formal education. While higher education has been the main focus of research on e-textbooks so far, the topic is also gaining attention in K-12 education.

In recent years, academic and educational publishers have started to follow the phenomenon of extensive digitization by converting printed textbooks into digital formats that can be read on a computer screen, a special e-book reader, a personal digital assistant (PDA), or even a mobile phone. Unfortunately, the first generation of electronic textbooks cannot be considered successful as, although digital, they are but downloadable versions of traditional textbooks or digitally generated static e-book files (epub, pdf), usually monolithic and not at all interactive. Further, most of today's students do not read textbooks regularly (most fit into the description of the YouTube Generation) and they prefer short pieces of content, preferably in different media (videos, texts, pictures) and actively follow peer recommendations, on top their teachers' suggestions.

The goal of the FeT workshop was to re-think the e-Textbook, moving away from the replication of traditional practices and models, laying the foundations for its next generation.

The Program Committee accepted eight contributions to FeT 2014 workshop, six of these came from Estonia. While all papers address the future of e-textbooks, they have taken quite different perspectives on the topic. Kristo Kõo and Margus Niitsoo introduce a prototype of automatic feedback for online multimedia textbook on guitar playing. Kai Pata and her colleagues envisage an upcoming turn in e-textbook industry from the perspective of socio-technical transitions theory. Mario Mäeots et al. summarize a case study on designing and implementing an e-textbook on programming in Scratch. António Pedro Costa and his colleagues introduce an innovative user-centered methodology for developing e-textbooks as software applications. Andrej Flogie et al report on the results of Slovenian national e-textbook project "E-schoolbag". Eradze and her colleagues have studied methods for bridging online and offline learning analytics in researching e-textbook use in classroom settings. Terje Väljataga and Sebastian Fiedler provide a roadmap toward a new conceptual model for e-textbook research and development, based on LEARNMIX project results. And finally, Arman Arakelyan and his colleagues explore the value-driven approach to e-textbook design within LEARNMIX project.

August 2014

David Lamas  
Mart Laanpere

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