

# Editorial

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George Magoulas, Guest Editor

Welcome to the Bulletin of the IEEE Technical Committee on Learning Technology, Volume 15, Number 1, January 2013 issue.

This issue is edited by Guest Editor Prof. **George Magoulas**, and includes articles on the topic: ***Eliminating boundaries: innovative learning environments to integrate formal, informal, and on-the-move learning experiences.***

The issue also includes a section with regular articles (i.e. articles that are not related to the special theme), where Canessa et al. address the verification of attendance in massive open online courses through the Pinvox system.

We sincerely hope that the issue will help in keeping you abreast of the current research and developments in Learning Technology. We also would like to take the opportunity to invite you to contribute your own work (e.g. work in progress, project reports, dissertation abstracts, case studies, event announcements) in this Bulletin, if you are involved in research and/or implementation of any aspect of advanced learning technology. For more details, please refer to the author guidelines at <http://www.ieeetclt.org/content/authors-guidelines>.

Special theme of the next issue: Learning Analytics  
Deadline for submission of articles: March 15, 2013

Articles that are not in the area of the special theme are most welcome as well and will be published in the regular article section.

## SPECIAL ISSUE ON ELIMINATING BOUNDARIES: INNOVATIVE LEARNING ENVIRONMENTS TO INTEGRATE FORMAL, INFORMAL, AND ON-THE-MOVE LEARNING EXPERIENCES

This special issue is an attempt to explore how best educational technologies can be used to eliminate learning boundaries by integrating formal, informal, and mobile learning experiences, and create innovative learning environments.

The means by which learners interact with the world and learn from it are currently more closely related to technology than to traditional sources of information. Interactive learning environments give learners and educators access to courses, content, and institutional portals through a variety of platforms and devices, and with the emergence of semantic technologies, educational applications are expected to become even more intelligent, providing higher level of learner support.

Although a large part of the learning experience nowadays takes place in informal settings, formal education does not

benefit much of it as it is not usually aware of the informal learning encounters that learners have engaged with outside formal settings. Moreover, the challenges of integrating formal and informal learning experiences and scaffolding learners in this process have not been fully explored. That would be useful, for example, when learners are on-the-move, when they drop out of formal education or they return to the educational system, or when they need to combine formal education with general day-to-day activities, such as a museum visit or work experiences.

The included papers describe attempts to change educational practices and pedagogies, enhance institutional systems with modalities, delivery mechanisms, and tools that facilitate learners' participation, collaboration and communication, and extend the context learning is happening.

In "The Pedagogy of Things: Emerging Models of Experiential Learning", Watson and Ogle explore the evolution of pedagogies as technologies that support learning become more ubiquitous. They investigate how experiential learning can benefit most from the advanced forms of learner-environment and learner-to-learner interaction that these technologies enable. The authors describe previous attempts in the literature to leverage these technologies in order to develop innovative learning models, and identify some of the challenges involved. They also provide insights about the design of learning activities that exploit the features of the technologies for experiential and contextualized learning.

The issue of designing and orchestrating learning activities is examined by Cohen in "Using the F2F Classroom as a Forum to Share Discoveries from Informal Technology Channels". The author describes a case study that uses learning activities that combine educational opportunities from informal and formal contexts. This approach allows students to pursue authentic learning tasks, employing social media for discovery learning outside the classroom and interaction with tutors and peers during class room discussions. Classroom sessions facilitate engagement with learning activities and scaffold learning that occurred out-of-school. This is a hybrid learning approach that combines elements of social constructivism, exploratory learning, and collaborative learning to bridge the gap between formal and informal learning experiences.

In "Connect, Participate and Learn: Transforming Pedagogies in Higher Education", Baran explores how social media tools can shape learning and teaching of a graduate course, and help students engage in formal and informal learning experiences. The paper presents a case study that

demonstrates the transformative nature of these tools. They promote a new paradigm of teaching and learning that places teachers and learners in the driver's seat to co-construct learning and extend learning and interaction beyond formal learning contexts. The author describes how a blended course, which included face-to-face sessions, out-of-school learning, online learning, and collaborative activities, was designed. Using a variety of social media tools (e.g. wikis, blogs, social bookmarking, and networking) helped extending classroom interaction and facilitated integrating different pedagogies in the course, which were enabled through specific learning and teaching activities afforded by these tools.

The importance of collaboration and social interaction is emphasised in "Teach Ourselves: A Peer-to-Peer Learning Community Linking In- and Out-of-class Activity" by Beal, Strohm, Schwindy and Cohen. The authors present a case study of Teach Ourselves - a web-based system collaborative learning environment for middle school students. Teach Ourselves includes peer-to-peer activities, and social and game-like components that aim to engage students with math and science. The authors present a pilot study that explores the feasibility of Teach Ourselves as a classroom activity, and assesses students and teachers initial reactions and thoughts about using the application. Their findings show that the application successfully engaged students during both school and out-of-school hours, and that incorporating social and game-like elements into a learning application has the potential to bridge formal and informal learning.

"Developing Media Competence in Vocational Education – Architecture Design for Context-sensitive and Individual Learning" by Di Valentin, Emrich, Werth and Loos presents a conceptual architecture for a new tool named Social Navigator. The Social Navigator aims to provide individualized support and recommendations to users working on specific tasks and learning content in the domain of vocational education and training. The authors adopted a design-oriented approach, which included systematic literature review and expert interviews with representatives of the vocational education sector, to derive requirements for the design of this tool. The tool offers context-sensitive recommendations, such as support for searching media types, or best practice for using multimedia content or social media, depending on the type of the assignment or task. The paper describes an application scenario to illustrate how the tool is used to consider each individual's preferences and the status of each participant within the educational qualification process.

The role of the technical infrastructure in supporting user choices and their preferred tools is investigated in "Enhancing Learning Environments by Integrating External Applications". Alario-Hoyos, Bote-Lorenzo, Gómez-Sánchez, Asensio-Pérez,

Vega-Gorgojo and Ruiz-Calleja describe the GLUE! (Group Learning Uniform Environment) architecture. The GLUE! core and adapters enable lightweight integration of external applications in different learning environments, helping opening up and extending, in a sense, institutional VLEs and LMSs. Thus, depending on the learning context, the instructors or the learners can use GLUE! to automatically create and configure different instances of each external application or tool, and integrate them in Institutional Learning Environments, Personal Learning Environments, or Open Source Environments supporting Massive Open Online Courses. The proposed approach is eminently suitable for collaborative and group work learning scenarios and has been experimentally evaluated.

"A Case Study on Multi-Modal Course Delivery and Social Learning Opportunities" by Oyarzun and Martin shows how innovative course delivery methods can be created by combining face-to-face teaching and online virtual classrooms with social media. Students who prefer formal learning can attend face-to-face sessions and synchronously communicate and collaborate with peers, who attend the same course in virtual classrooms, or alumni on social networks. The authors describe the various technologies required to support this form of multi-modal delivery and explain how these can be combined with social networks to incorporate an informal/social learning dimension and transform the learning process.

Tinapple, Olson and Sadauskas in "CritViz: Web-Based Software Supporting Peer Critique in Large Creative Classrooms" propose to move away from the traditional classroom model of giving feedback and evaluating student work by facilitating large classroom critique sessions. They identify the basic requirements for an online tool to manage the process of generating high quality real-time feedback on students work and enable peer critique in large classrooms. Moreover, they introduce CritViz, their tool for real time grading, feedback and critique of creative work in large classes, and present a scenario of its use. The findings of their pilot studies provide evidence for CritViz's effectiveness in orchestrating large-class critiques, and of its potential to alter the "motivational structure" of large classes.

**George Magoulas** received the BEng/MEng and PhD degrees in Electrical and Computer Engineering from the University of Patras, Greece, and a Post Graduate Certificate in Teaching and Learning in Higher Education from Brunel University, UK. He has been teaching and researching in the area of Intelligent Adaptive and Learning Systems since 1993. His research activities fall under the umbrella of intelligent technologies involving key information processing methods such as fuzzy systems, neural networks, and global search, in particular differential evolution and particle swarms.