Editorial

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Biographical notes: Lorna Uden is an Emeritus Professor of IT Systems in the Faculty of Computing, Engineering and Technology at Staffordshire University. Her research interests include technology learning, HCI, activity theory, knowledge management, web engineering, multimedia, e-business, service science and innovation, mobile computing, cloud computing, social media, big data and problem-based learning.

Welcome to V8N2 issue of *IJLT*. This issue consists of five papers. The first paper is, 'The presence of mobile devices among business students' by Viktorija Florjančič and Alja Isaković. This paper shows the spread of different mobile devices, the frequency of usage of different mobile services, and consideration of a potential implementation of mobile devices in the teaching process at their institution. The research was carried out on two groups of students: a group of full time students (November 2011) and a group of part time students (January 2012).

The research shows statistically significant differences between full and part time students, and among varied usage of mobile devices. Not surprisingly, students, who use smartphones and/or tablet computers, use more mobile services than students without smart mobile devices. The research also showed a more positive attitude towards study among students with access to different devices when compared to students, who only use personal computers. However, the data sample was small. A bigger sample would be required to verify the assumptions.

The second paper is, 'From traces to indicators for serious games: case study concerning a new way to introduce product lifecycle management' by Philippe Pernelle, Jean-Charles Marty and Thibault Carron. In this paper, the authors used the game environment as a support tool to make new work processes more attractive. The paper explains how this work has been applied to the industrial domain in order to deal with change management. The authors described details and results concerning the experiment that they have setup in order to understand product lifecycle management (PLM) in such a learning environment. Several real experiments in the PLM domain have been carried out at their university, with the help of a company validating the feasibility of the approach. Although the idea is a good one, to validate the tool's effectiveness, more empirical studies are needed.

The third paper is, 'Training effectiveness of eye tracking-based feedback at improving visual search skills', by Meredith Carroll, Christina Kokini, and Jason Moss. According to these authors, war fighters must be trained in adaptive perceptual skill sets, such as search strategies that enable them to detect threats across any number of

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environmental, cultural, and situational conditions. This paper explores the training effectiveness of a feedback method which utilises eye tracking technology to support both expert demonstration and trainee assessment. It measures trainee scan data via an eye tracker, diagnoses performance deficiencies, and provides tailored feedback which allows a trainee to compare their scan to an expert scan.

A training effectiveness evaluation (TEE) was performed to examine the ability of such a method to improve individual search strategies and anomaly detection performance, both during training and in the field. It was hypothesised that this eye tracking-based feedback method would result in trainees more effectively searching the environment and identifying a greater number of anomalies. The effects of the training were explored during virtual and practical application exercises within a Combat Hunter training course at the United States Marine Corps (USMC) School of Infantry East (SOI-E). Of the approximate 50 USMC participants, those who trained utilising eye tracking-based feedback showed significant improvements in search strategies compared to those who received traditional instructor-based feedback. Specifically, characteristics of trainee search strategies trended more towards expert search strategies than those who received traditional feedback with decreases in number of fixations on non-critical areas, decreases in fixation durations overall, and decreases in number of scan path direction changes. Additionally, transfer of training results showed that those who trained with the eye tracking-based feedback method observed a significantly higher percentage of events during practical application exercises, suggesting that training with this method leads to improved performance in the field. Further research should explore usability and workload issues associated with the scan feedback displays.

The fourth paper is, 'A blended learning model for a 'Multimedia Systems' course', by Natasa Hoic-Bozic, Martina Holenko Dlab and Ema Kušen. The authors presented the multimedia system course at their university using blended e-learning. In this paper, a sequential model of the blended e-learning course 'multimedia systems' was described, as well as its corresponding educational activities, use of technology and final results. Based on the evaluation survey and the positive feedback, it can be concluded that the implemented model for blended learning (BL) was successful.

The course 'multimedia systems', offered at the Department of Informatics, received the award for the best e-learning course at the University of Rijeka in the academic year 2010/2011, being given the highest mark according to the four elements of a review. The course was taught in a blended way, combining self-paced learning, f2f classroom learning, and online learning supported by the Moodle learning management system. Bearing in mind a transition from standard f2f teaching to online learning, a sequential model of BL was chosen. In this paper, the authors describe the technology for, and the methodological approach to, course design and development, as well as the results of evaluation. A survey conducted both in the academic years 2010/2011 and 2011/2012, showed that students were satisfied with the BL approach. The findings revealed that some online activities were preferred among the students, which provided guidelines for improving the BL model. Nevertheless, further development and improvement of the described BL model is required.

The last paper is, 'Digit technology, dynamic representations, and mathematical reasoning: extending problem solving frameworks', by Manuel Santos-Trigo and Francisco Ortega-Moreno. According to these authors, the systematic use of computational tools influences and shapes both the development of mathematics and the students' learning of the discipline. They argue that conceptual frameworks used to frame

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research and mathematical instruction need to take into account ways of reasoning and developing sense making activities that emerge as a result of using computational tools. The use of digital technology opens up diverse ways to represent and explore mathematical tasks and, as a consequence, it provides new routes for students to construct mathematics knowledge.

They further argue that this emerging form of reasoning associated with the use of the tools needs to be addressed explicitly in frameworks used to explain the students' development of mathematical knowledge and thinking. To this end, they work on a conic section task to identify and discuss relevant features that characterise ways in which learners or problem solvers could reason about the task. Especially, features of mathematical thinking that emerge in the construction and exploration of a dynamic model of the task. Further research is needed to support the work.