Editorial

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Biographical notes: Professor Lorna Uden has published over 140 papers in conferences, journals, chapters of books and workshops. She co-authored *Technology and Problem-Based Learning*, published by IGI publishers. She is a Programme Committee member of many international conferences and workshops. She is on the Editorial Board of several international journals. She is the Founder and Editor of the *International Journal of Web Engineering and Technology* (IJWET) and the *International Journal of Learning Technology* (IJLT), published by Inderscience, UK.

She is also a Visiting Professor at universities in Australia, China, Finland, Italy, Slovenia, Spain, South Africa and Taiwan. She has been the keynote speaker at several international conferences. She was the Conference Chair for the KMO2007 conference in Italy and also for KMO2008 in Finland. She is currently actively involved in research in service sciences, management and engineering and developing an SSME curriculum in conjunction with international colleagues.

Stefania Marrara received her Master's (with thesis) in Electronic Engineering in 2001 from the Politecnico di Milano, Italy. Immediately after her degree, she joined the Department of Information Engineering at Politecnico di Milano as a PhD student under the supervision of Prof. Letizia Tanca. She defended her thesis on 25 May 2005. Since March 2005, she has been a PhD Research Fellow at the University of Milan's Department of Information Technology as member of the Knowledge Management Group. She is interested in computer security and XML data management.

We welcome you to the first issue of IJLT for 2009. This issue is co-edited by Professor Lorna Uden and Dr. Stefania Marrara. There is a variety of papers in this issue ranging from individualised learning to institutional learning.

The first paper is by Comai *et al*. Their paper, 'A system for teaching web engineering concepts in a supervised way using rich internet applications' is about a tool that they have developed for supporting online cooperative design for web applications. The authors proposed developing the tool for teaching web-engineering concepts using Rich Internet Applications (RIAs), *i.e.*, web applications with multimedia, high levels of interactivity and collaborative work support. The tool allows different modellers to design web applications in a cooperative and supervised way. It also enables the automatic generation of code. According to these authors, the effective use of RIA technology can simplify the learning process. Firstly, it removes installation or configuration of CASE tools at the client side of the development server. Secondly, the whole teaching process is supervised by a tutor in a real-time collaborative environment. Thirdly, the tutor can block any element of any model at any time in the teaching. Fourthly, the tool supports bidirectional communication. Finally, the tool allows students to check and read the generated code. Evaluation of the tool by students showed positive results. Despite this, further empirical studies are needed to validate the effectiveness of this tool.

From web application tools we move on to 'Personalised time-dependent learning', by Benlamri *et al*. According to these authors, the value of instruction is as important as the time it takes to learn. They argued that the ability to grasp the exact knowledge required to accomplish a specific task in a limited allocated time is a key factor for organisations to remain economically competitive in the new knowledge society. Benlamri *et al*. believe that time constricted learning is a new concept that requires multi-level cognitive organisation of knowledge to suit various learning profiles. These authors have proposed an ontology-based authoring tool capable of mapping concepts to learning to different granularity levels, thereby customising learning delivery to time-constrained learners. This paper describes an ontology-based Learning Webs (LW) authoring tool to segment instructional units based on standard learning objects specialisation. The proposed model features an initial authoring process which structures learning content into two layers, namely instructional design layer (ontology layer) and authoring layer (learning objects layer). To demonstrate the model, the authors provide performance and experiential studies using an evaluation model and a validation approach through use cases. The results show performance trade-offs in analysing the cognitive perception of time-dependent learning. This research has important implications for learning on demand, especially in organisations where time is central for learning to be achieved. This may lead to time dependent instruction shaping the next generation of learning systems.

The third paper is by Juan *et al*. Their paper, 'SAMOS: a model for monitoring students' and groups' activities in collaborative e-learning' is an information system designed to help online instructors to effectively monitor students and groups' activity in e-collaborative scenarios. These authors argue that monitoring can be useful for instructors to easily track down learners' online behaviour and group's activity at specific milestones, gather feedback from the learners and scaffold groups with a low degree of activity. SAMOS facilitates the automatic generation of weekly monitoring reports derived from data contained in the server log files. According to these authors, the reports provide online instructors with visual information concerning students' and groups' activity. This enables a quick and easy classification of students and groups according to

their activity level. They further suggest that the proposed framework can be used for tracking groups and individuals' activity in any e-learning environment. It is particularly useful in collaborative e-learning courses:

- that span over more than one semester
- that involve a large number of groups of students that need to have continuous and intensive collaborative activity
- when there is a need to analyse and evaluate specific situations at different granularity levels.

Another benefit of SAMOS, suggested by these authors, is that instructors can use complementary qualitative monitoring reports, issued by students themselves, to anticipate potential problems, such as student dropouts or conflicts inside the groups. Juan *et al*. reported that the SAMOS monitoring system model has been used successfully to track undergraduate online courses. For the tool to be effective, further research in empirical studies will be required to validate its usefulness to other institutions.

From monitoring of students we move on to the use of ontology to evaluate learning in the fourth paper; Kanellopoulos's paper, 'ODELO: an ontology-driven model for the evaluation of learning ontologies'. According to Kanellopoulos, Ontology Driven model for the Evaluation of Learning Ontologies (ODELO) represents learning resources with respect to syntactic, semantic, pragmatic, social and cohesion metrics. Syntax deals with formal relations between signs (*e.g.*, words, phrases, sentences) and the production of new ones. Semantics is the study of relationships between the system of signs and their meaning. Pragmatics is the study of natural language understanding, and specifically the study of how context influences the interpretation of meaning. Social metrics reflect how software agents and ontologies co-exist and communicate in communities. Ontologies cohesion metrics refer to the degree of relatedness of ontology classes that are semantically related by the properties. According to Kanellopoulos, ontology evaluation is critical to the success of e-learning applications that reuse and share learning resources. When a learning ontology with wrong definition is used by an e-learning system, the system may annotate and represent the learning material in a poor or wrong way. The framework proposed by the author is adopted from two existing metric suites. The first metric is a semiotic metric suite and the second is the cohesion metric suite (see paper). A comprehensive ontology evaluation service is produced by the combination of these two metric suites. The semantic metric suite defines a suite for assessing the quality of the ontologies. The goal is to evaluate ontologies with respect to four basic levels: syntactic, semantic, pragmatic and social. The cohesion metric includes three metrics: number of root classes, number of leaf classes, average depth of inheritance tree of leaf nodes. The author adopts these two metrics and introduces a new pragmatic metric by taking into account the *relevance* that the information of the learning ontology presents according to:

- domain tasks
- goals and constraint tasks
- user tasks
- adaptation tasks
- presentation tasks of the LAOS model.

The key idea of the ODELO model is that the quality, 'relevance' of a learning ontology (under evaluation) depends on what degree its metadata are relevant (compatible) with metadata structured according to the layers of the LAOS model. The overall quality (Q) of a learning ontology is computed as a weighted sum of syntactic (S), semantic (E), pragmatic (P), social (O) and cohesion (C). The ODELO ontology operates with an inference component that contains rules that infer about qualities of a learning ontology.

While the ODELO model appears to be a useful one, there is very little evidence that it is an effective framework without further empirical studies. More work is needed to validate its effectiveness.

Lau, in the fifth paper presents a study investigating the factors that influence the adoption of e-learning among adult post-graduate university students in Hong Kong. In his paper, 'Institutional effects on intention to adopt e-learning for business studies' he addresses institutional factors affecting students' decision to adopt e-learning in their studies. A composite model of four constructs ('perceived usefulness', 'perceived ease of use', perceived convenience' and 'institutional effect') was proposed and tested in a quantitative survey of 125 part-time MBA students. The author argues that according to social learning, perceptions of a particular behaviour are shaped by the existing value system of the society, people's attitudes, beliefs and behaviours in response to real or imagined social influence. Based on this perception, Lau argues that the individual, as an active agent in his or her social and institutional environment, influences the perception of the usefulness, ease of use and convenience of e-learning. Lau proposes seven hypotheses in his model:

Hypothesis 1 *There is a significant positive relationship between perceived usefulness and the intention to adopt e-learning.*

Hypothesis 2 *There is a significant positive relationship between perceived ease of use and the intention to adopt e-learning.*

Hypothesis 3 *There is a significant positive relationship between perceived convenience and the intention to adopt e-learning.*

Hypothesis 4 *There is a significant positive relationship between institutional effects and the intention to adopt e-learning.*

Hypothesis 5 *Males have a significantly greater intention to adopt e-learning than do females.*

Hypothesis 6 *Increased internet experience is positively co-related with the intention to adopt e-learning.*

Hypothesis 7 *There is a significant positive relationship between intention and actual e-learning adoption.*

Lau conducted the study at City University, Hong Kong with 125 students in the first year of a Master degree programme. His study found that 'institutional effects' and 'perceived convenience' were the most important factors to adopt e-learning. 'Perceived usefulness' and 'perceived ease of use' did not have a significant relationship with the intention to adopt e-learning. Although there is no doubt that institutional factors play a crucial role in the adoption of e-learning, it is inappropriate for us to conclude that the findings are generalised. More empirical studies are needed to validate the factors that influence the adoption of e-learning. Other factors, such as cultural or social may play some role in it.

The final paper of this issue is, 'E-Studium: blended e-learning for university education support' by Falcinelli *et al*. These authors describe the E-Studium project, the main goal of which is to experiment with the adoption of IT methods and technologies in different faculties, and the adoption of ICT methods and tools, aiming at improving course accessibility and usability. E-Studium integrates existing information sources in order to avoid redundancy and minimise user overload. The target users of E-Studium are students of courses in the various degree programmes; teaching staff and support staff. Although Moodle provides an ideal platform for the system architecture, it has no mechanisms for multi-platform management. Instead, the E-Studium system architecture's kernel is Metalearn, which acts as an integration module responsible for different functions: dispatching the authentication requests to the appropriate authorisations server; filtering and updating of content in the platform instances and mapping users to the appropriate courses. Evaluations of the project showed positive results. Further empirical studies are planned by the authors to define the information structure and communication protocols of a multiple platform integrator and administration manager independently from the surrounding information systems environment. It will be interesting to see the outcomes of their future research.