Guest Editorial - Technology Supported Cognition and Exploratory Learning

Dirk Ifenthaler1, Pedro Isaias2, Kinshuk3, Demetrios G. Sampson4 and J. Michael Spector5

1 University of Mannheim, Germany / 2 Portuguese Open University, Portugal / 3 Athabasca University, Canada / 4 University of Piraeus & CERTH, Greece / 5 University of North Texas, USA / ifenthaler@uni-mannheim.de // pisaias@uab.pt // kinshuk@athabascau.ca // sampson@iti.gr // Mike.Spector@unt.edu

The International Association for the Development of the Information Society (IADIS; see http://www.iadis.org/) 2010 International Conference on Cognition and Exploratory Learning in the Digital Age (CELDA) was hosted by the "Politehnica" University of Timisoara, Romania in October 2010 (see http://www.iadis.org/celda2010/). The IADIS CELDA 2010 conference aims to address the main issues concerned with evolving learning processes and supporting pedagogies and applications in the digital age. There have been advances in both cognitive psychology and computing that have affected the educational arena. The convergence of these two disciplines is increasing at a fast pace and affecting academia and professional practice in many ways. Paradigms such as just-in-time learning, constructivism, student-centered learning and collaborative approaches have emerged and are being supported by technological advancements such as simulations, virtual reality and multi-agents systems. These developments have created both opportunities and areas of serious concerns.

Editors of this special issue selected a number of papers presented at IADIS CELDA 2010 conference that were very highly rated by reviewers, well received at the conference, and nicely complementary in terms of research, theory, and implications for learning and instruction. These papers have been edited and revised based on feedback from conference participants and subsequent review by the editors of this special issue and reviewers recruited to assist in this process. The organizing committee of IADIS CELDA 2010 proposed a special issue of Educational Technology & Society Journal based on selected papers from IADIS CELDA 2010. The result is the five papers included in this special issue.

The first paper in this special issue is “Epistemological Beliefs and Ill-Structured Problem-Solving in Solo and Paired Contexts”, authored by Charoula Angeli (University of Cyprus, Cyprus) and Nicos Valanides (University of Cyprus, Cyprus), examines the relationship between epistemological beliefs and quality of thinking when participants first thought about an ill-structured problem alone, and then with another person in a dyad.

In the second paper, “A Study on Exploiting Commercial Digital Games into School Context”, authored by Hercules Panoutsopoulos (University of Piraeus & Doukas School, Greece) and Demetrios G. Sampson (University of Piraeus & CERTH, Greece), examines the effect of a general-purpose commercial digital game (namely, the “Sims 2-Open for Business”) on the achievement of standard curriculum Mathematics educational objectives as well as general educational objectives as defined by standard taxonomies.

In the third paper, “Aberrance Detection Powers of the BW and Person-Fit Indices”, authored by Tsai-Wei Huang (National Chiayi University, Taiwan), presents a study that compared the aberrance detection powers of the BW person-fit indices with other group-based indices (SCI, MCI, NCI, and Wc&Bs) and item response theory based (IRT-based) indices (OUTFITz, INFITz, ECI2z, ECI4z, and lz).

In the fourth paper, “Determining the effectiveness of prompts for self-regulated learning in problem-solving scenarios”, authored by Dirk Ifenthaler (University of Mannheim, Germany), reports an experimental study with 98 participants where effective instructional interventions for self-regulated learning within problem-solving processes are investigated.

In the fifth paper, “Presence and Middle School Students’ Participation in a Virtual Game Environment to Assess Science Inquiry”, authored by Catherine C. Schifter (Temple University, USA), Diane Jass Ketelhut (Temple University, USA) and Brian C. Nelson (Arizona State University, USA), introduces a project to design and implement a virtual environment (SAVE Science) intended to assess (not teach) middle school students’ knowledge and use of scientific inquiry through two modules developed around curriculum taught in middle schools in Pennsylvania, USA.