GUEST EDITORIAL: Special Collection on Computers and Education

Francisco J. García-Peñalvo
Computer Science Department – Science Education Research Institute (IUCE)
GRIAL Research Group University of Salamanca, Salamanca, Spain
Email: fgarcia@usal.es

Manuel Ortega-Cantero
Departamento de Tecnologías y Sistemas de Información
Escuela Superior de Informática de Ciudad Real, Universidad de Castilla-La Mancha, Spain
Email: Manuel.Ortega@uclm.es

Pilar Rodríguez
Dpto. de Ingeniería Informática, Escuela Politécnica Superior
Universidad Autónoma de Madrid, 28049 Campus de Cantoblanco, Madrid, Spain
Email: pilar.rodriguez@uam.es

Computers or Information and Communication Technologies (ICT) in a broader scope are currently presented as key elements in every business and activity domain. Education is not an exception; presently ICT is a mandatory tool to support teaching and learning processes independently of its nature, formality or level.

Nowadays, ICT applied research involves lots of trending topics such as, among others, open knowledge (García-Peñalvo *et al*, 2010), involving both open contents and open education, with a special mention about Massive Online Open Courses – MOOCs (McAuley *et al*, 2010), communities of practice (Wenger and Snyder, 2000) and social networking (Rennie and Morrison, 2013), informal learning management (García-Peñalvo *et al*, 2012a), mobility (Casany *et al*, 2012), gamification (Molins-Ruano *et al*, 2013) or learning analytics (Ferguson, 2012).

Thus, the aim of this special collection is to deal with different perspectives and usage of ICT in Education. To do that, this monograph is linked to the XIV International Symposium on Computers in Education (SIIE 2012) held in Andorra in October 2012 (García-Peñalvo *et al*, 2012b). SIIE is an international forum for the presentation and debate of the latest research advances on the use of Information and Communication Technologies (ICTs) in Education. The Symposium aims at becoming a major point of contact between researchers, developers, institutional representatives and educators willing to share their points of view, knowledge and experiences.

The seven papers included in this collection were selected, after a rigorous peer-review process that ran as follows:

- The papers submitted to the symposium were reviewed in a double-blind process by three members of the Committee Program, this way each paper had a score used to be selected for presentation at the conference. The presented papers were also scored by the session chair. This way, all the accepted and presented papers were sorted and the twelve with higher grades that were related with this special collection were invited to be extended and submitted again for a new review iteration.
- For each submission, at least two external reviewers who are recognized experts in the submission's field were invited.

- Each paper was reviewed in different iterations till the review accepted or rejected it.

As a result of this process, it is our pleasure to present a high-quality collection of papers representative of the several tendencies regarding Computers or ICT applied in the educative contexts.

The seven accepted papers are the following:

- The paper "M-Learning Projects Sustainability: Guidelines to Address It", by Casany *et al*, provides a set of guidelines to define more sustainable and long-term viable mobile-learning projects and shows its applications to a m-learning project: the Moodbile project.
- The paper "Understanding Major Depression in a Digital Environment", by Ruisoto *et al*, illustrates an interactive visual tool to study the morphological and metabolic changes of brain structures in a patient with unipolar depression, providing a more comprehensive representation of structures and neurotransmission changes involved in the pharmacological treatment of major depressive disorders that is very useful for health-related training activities.
- The paper "Identification and Removal of Misconceptions on Optimization Concepts Underlying Greedy Algorithms", by Velázquez, addresses a didactic method for the active learning of greedy algorithms, identifying several misunderstandings on basic optimization concepts that underlie this kind of algorithms and removing them thanks to an adequate combination of: didactic method, educational software, scheduling of classes and lab sessions, and teaching materials.
- The paper "Setting up and Tutoring the Working Groups of a Virtual Learning Community", by Vernet *et al*, proposes a comprehensive Intelligent Tutoring System for Virtual Learning Communities that relies on artificial intelligence techniques which are able to manage the specificities of the collaborative working groups.
- The paper "Improving Students' Performance with Visualization of Error Recovery Strategies in Syntax Analysis" by Urquiza-Fuentes *et al*, introduces VAST, a parser visualization tool that produces educational visualizations regarding syntax error recovery strategies regarding compilers.
- The paper "Web-based Audience Response System Using the Educational Platform Called BeA", by González-Tato *et al*, describes a web-based system that enables students to answer in-class questions using their own devices.
- The paper "Evaluation of Three Accessible Interfaces for Educational Point-and-Click Computer Games", by Torrente *et al*, analyses perceived usability, entertainment and overall experience provided by three interfaces for blind people with different gaming habits: a keyboard navigation system; a sonar; and a conversational interface.

Guest editors would like to thank all the contributors to this Special Collection for their valuable work and for their remarkable efforts in preparing the final manuscripts. Also, we would like to thank all the reviewers, both Program Committee members and Expert Reviewers, for their effort during the review process. Finally, we would like to thank Rosemary Hay for her support during the preparation of this collection, as well as the Editor-in-Chief of JRPIT, Professor John Yearwood, for giving us the opportunity to carry out this initiative.

The preparation of this Special Collection has been partially supported by project grants TIN2010-21695-C02-01 and SA294A12-2.

References

CASANY, M.J., ALIER, M., MAYOL, E., PIGUILLEM. J., GALANIS, N., GARCÍA-PEÑALVO, F.J. and CONDE, M.Á. (2012): Moodbile: A Framework to Integrate m-Learning Applications with the LMS. *Journal of Research and Practice in Information Technology*, 44(2): 129–149.

FERGUSON, R. (2012): Learning analytics: Drivers, developments and challenges. *International Journal of Technology Enhanced Learning*, 4(5/6): 304–317.

GARCÍA-PEÑALVO, F.J., COLOMO-PALACIOS, R. and LYTRAS, M.D. (2012a): Informal learning in work environments: Training with the Social Web in the workplace. *Behaviour & Information Technology*, 31(8): 753–755.

GARCÍA-PEÑALVO, F.J., GARCÍA DE FIGUEROLA, C. and MERLO, J.A. (2010): Open knowledge management in higher education. *Online Information Review*, 34(4): 517–519.

GARCÍA-PEÑALVO, F.J., VICENT, L., RIBÓ, M., CLIMENT, A., SIERRA, J.L. and SARASA, A. (Eds). (2012): 2012 International Symposium on Computers in Education (SIIE). Institute of Electrical and Electronics Engineers. http://ieeexplore.ieee.org/xpl/conhome.jsp?punumber=1802080. Accessed 30-Jul-2013.

McAULEY, A., STEWART, B., SIEMENS, G. and CORMIER, D. (2010): The MOOC Model for Digital Practice. http://www.elearnspace.org/Articles/MOOC_Final.pdf. Accessed 30-Jul-2013.

MOLINS-RUANO, P., SEVILLA, C., SANTINI, S., HAYA, P.A., RODRÍGUEZ, P. and SACHA, G.M. (2013): Designing videogames to improve students' motivation. *Computers in Human Behavior*, In Press. http://dx.doi.org/10.1016/j.chb.2013.06.013.

RENNIE, F. and MORRISON, T. (2013): e-Learning and Social Networking Handbook: Resources for Higher Education. 2nd Edition, New York, NY: Routledge.

WENGER, E.C. and SNYDER, W.M. (2000): Communities of Practice: The Organizational Frontier. *Harvard Business Review*, 78(1): 139–145.

Biographical Notes

Francisco J. García-Peñalvo

Francisco J. García-Peñalvo *(1971) holds a PhD in Computer Science (2000, University of Salamanca). He works as a Professor in the Computer Science Department of the USAL. He is the GRIAL Group head. He was Technology and Innovation pro-Chancellor of the USAL in charge of the definition, planning and development of the USAL technical management strategy based on Open Source solutions. Between the activities carried out it should be mentioned that the definition of the Digital University of Salamanca is to provide technological support to all university processes by using a LMS, an institutional blog system, an institutional repository, an online learning observatory. He was the Program Committee Chair of SIIE 2012.*

Manuel Ortega Cantero

Manuel Ortega Cantero *(1960) is Full Professor at the College of Computer Science and Engineering at the University of Castilla – La Mancha (Spain). He received his BSc (1982), MSc (1983) and PhD (1990) degrees from Universidad Autónoma de Barcelona (Spain).*

He is the director of the "Computer Human Interaction and Collaboration" Research Group. He was the President of the Iberoamerican Society ADIE (Association for the Development of Computers in Education) and the Editor of the Journal of this Association, "IE Comunicaciones". His main interests are in the field of New Information Technologies applied to Collaborative Learning and Computer-Human Interaction.

Pilar Rodrîguez

Pilar Rodríguez *(1962) obtained her PhD in 1990 at the UCM. She joined IBM in 1985, working at the IBM-UAM Scientific Center until 1989, when she moved to the Knowledge Engineering Institute, IIC. Since 1996, she has worked as a Professor in*

the Computer Science and Engineering Department of the UAM. At present, she is a member of the GHIA group at the UAM. Her main research focuses on adaptive systems, especially for learning purposes both in individual and collaborative environments, as well as on different areas of Human-Computer Interaction.