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Interaction Design in Educational Environments

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The emergence of what has eventually come to be called "New Technologies" was also the cause of the "Digital Revolution" which, unlike previous ones, has occurred very rapidly in all areas of society. The changes and transformations derived from this digital revolution are now known as "Information and Communications Technologies" (ICT). Indeed, ICT and especially the Internet are being developed and incorporated into the lives of individuals at breakneck speed.

The effects that the Internet and its many applications have on the lives of citizens, businesses, institutions and governments have been demonstrated in less than a decade. Moreover, if we look around, there are many changes in the way we communicate, organize, even work or play. Such effects have set up a new kind of society, the "Information Society" (IS), also known, if we go a step further, as the "Knowledge Society", which is characterized by the ability to access huge amounts of information and connect it with other information groups outside the boundaries of space and time.

In this situation, the articles in this special issue analyse the effects that the "New Technologies" have had on education. At first glance, it appears that the impact of the New Technologies on education has been less profound than in other areas, and consequently education has not fulfilled its traditional role of acting as a gearshift. However, a deeper reflection is necessary due to the implications of changes in education. There has been a long delay in the development of the new technologies, which involves not only investment in equipment and training, but also implies a change of attitude or mentality on the part of educational staff, and this process takes time.

In addition, there are many other reasons for the slow pace of integration of ICTs in education, such as the lack of financial resources, inadequate institutional support or the difficulty of adaptation on the part of teachers. In fact, a decisive change could occurs if involved stakeholders realize that ICT in education represents a way of improving the quality of teaching, and a way to respond to the new demands posed by the Information Society. Incorporating ICT in education is not only a challenge, but is

today's main social and educative priority. Researchers need to match the expectations of this new society.

This special issue contains technical contributions that present novel solutions and tools where New Technologies have successfully been applied in educative environments.

The contribution by Miguel Ángel Conde et al. "The Implementation, Deployment and Evaluation of a Mobile Personal Learning Environment", presents an approach for creating 'mobile' learning environments for the personal user, focusing on mobile devices as a medium. This web service-based approach is interesting, and the adherence to W3C recommendations for widgets is commendable.

The second paper is entitled "On the Development and Usability of a Diagram-based Collaborative Brainstorming Component" by Diogo Azevedo et al. It details a collaborative l-s symbol-diagramming component that the authors introduce as a support tool for collaborative processes. The advantage of the system is that it supports multiple processes through the integration of various tools.

In their paper, "Collaborative e-Learning through Drag&Share in Synchronous Shared Workspaces", Félix Albertos Marco et al. present a component integrated into Moodle to allow users to synchronously share resources, pictures etc., in real-time.

The paper "PETs at CSCL Service: Underutilized Potentials for Privacy-Enhancing Distance Education", by Mohamed Bourimi et al. addresses the main categories that affect building CSCL systems for educational environments. In addition, the PET's potential is discussed for overcoming associated emerging drawbacks, focusing on the distance education CSCL setting in particular.

In the paper "Assessment on Open-Ended Questions with Multidimensional Approach for Interaction and Collaboration of Learners in E-Learning Environments", the authors Loc Phuoc Hoang et al. present a new assessment method involving open-ended questions with the aim of enhancing the collaboration, activities and interaction of learners by creating an environment for learners that allows them to be actively assessed and to interact with others when studying online.

Habib M. Fardoun et al. present "Proposed Interactive Design System for Schools in the Cloud", a paper that deals with the interactive design of learning environments. The approach suggests the combination of different new technologies such as Cloud Computing, Web Services and Distributed User Interfaces to permit such design support. A supporting system implementation called CSchool is presented.

In the paper "A Proposal of an Architecture for Educational Environments", the authors, Juan Enrique Garrido et al., describe a new architecture for educational environments. In this paper they focus on ubiquity, context-awareness and collaborative features to allow the educational system to perform its tasks without errors.

Marija Blagojević et al. in their paper entitled "Collaboration and Learning Styles in Pure Online Courses: an Action Research", present a description of a behaviour pattern analysis which deals with learners with different learning styles using collaborative modules. Action research was conducted using data from a Master's degree program that is conducted purely online.

Amandeep Dhir et al. in the paper "Examining the Educational User Interface, Technology and Pedagogy for Arabic Speaking Children in Kuwait", present the

emergence of educational technology by performing a review of existing work in this domain, and showing their ongoing work in developing appropriate educational user interfaces and technologies for Arabic-speaking students in Kuwait.

We would like to thank all reviewers for their time and effort and for providing invaluable comments and suggestions to the authors. Certainly, they have decisively contributed to an improvement in the quality of this special issue. Special thanks go also to Christian Gütl, the managing editor of the Journal of Universal Computer Science, and Dana Kaiser, the assistant editor, for providing us with an opportunity to edit the special issue.

Finally, we hope the readers will enjoy the contents of this special issue and find it useful and informative.

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Special Issue Guest Editors