

Guest Editorial Preface

Special Issue on Smart Higher Education: Bridging the Gap Between Teachers and Students Through Technologies

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The emergence of new technologies and their application in all sectors and dimensions of our everyday life, the change in the behaviour of society in general and in the younger generation, require higher education institutions to “look” for a different way of teaching. For them, the world is a place where a conversation can be anywhere and at any time. They are a group which fully uses social media for contact and being in touch. They have grown up in an immersive computing environment. They come to class equipped with smartphones, laptops and iPods. And this has significant implications for higher education, namely on teaching methodologies.

Educational systems in general and those of higher education did not evolve as expected due to the adoption of technology and virtual teaching/learning approaches, e-learning, m-learning, u-learning. These although used, they are not sufficiently exploited. Teachers do not use their great potentialities neither explore them according to the objectives they were created for. In this context, learning in the future will be determined by personalization and creativity.

The objective of this special issue of IJTHI is to accept papers that establish a basis for a proper understanding of the answers for some questions (“Are technologies being used in the classroom?”; “Are teachers using them?” and if not, why?), when the new approaches are introduced in the teaching-learning process with this new younger generation.

This special issue covers areas discussed during the 12th Iberian Conference on Information Systems and Technologies (CISTI 2017). The following research papers were selected from the conference proceedings as the best papers in the area of Information Technologies in Education. The papers were reviewed and extended specifically for this special issue of the International Journal of Technology and Human Interaction.

This special issue comprises six research papers.

The first entitled “Higher Education Students Perspective on Education Management Information Systems: An Initial Success Model Proposal” presents an initial proposal of a multi-perspective education management information systems (EMIS). This model is important because higher education evolves into a multifaceted and complex activity, the incorporation of EMIS that allow to produce relevant, organized and structured information, becomes a necessity for both institutions and students. Despite the recognition of this requirement, existing literature does not focus on how EMIS might trigger students’ success. The EMIS success model is presented and a validation on the possible existence of linear correlations between the model contexts is described. Moderate correlations have

been detected between the majority of the model contexts and a very strong correlation has been detected between students' satisfaction and the arise of net benefits associated with the use of EMIS.

The second paper – Tele-Media-Art - feasibility tests of Web-based dance education for the blind using Kinect and sound synthesis of motion - presents a tele-media-art web-based asynchronous e-learning platform, enabling blind students to have dance and theatre classes remotely, using low-cost motion tracking technology feasible for home use. Teachers and students submit dance recordings augmented with sound synthesis of their motions. Sound synthesis is generated by processing Kinect motion capture data, enabling blind students to compare the audio feedback of their motions with the audio generated by the teacher's motions. To study the feasibility of our approach, we present data on early testing of the prototype, performed with blindfolded users.

The third one entitled “The Contribution of Digital Technologies to the Involvement of Parents in School Life of Their Children: The Case of African Minorities” shows the way of using digital technologies as a means to promote parental involvement has been a practice used in projects in different countries. Parental involvement has been studied as a factor contributing to the academic achievement of learners, although some ethnic minorities face barriers to this involvement. This paper presents the current state of a research, carried out in the context of a PhD. It used the digital technologies that are present at schools, as a privileged means of training parents of African minorities in the scope of the language of schooling, to support their involvement in the school life of their children. The authors used an action-research methodology with a variety of data collection instruments: biographical interviews, naturalistic observation, research diary and field notes. The first results show that parents became more involved in their children's school activities and began to better understand what their lives inside the school are.

The forth research paper “Statistical grouping methods for identifying user profiles” aimed to group users into subgroups according to their levels of knowledge about technology. Statistical hierarchical and non-hierarchical clustering methods were studied, compared and used in the creations of the subgroups from the similarities of the skill levels with these users' technology. The research sample consisted of teachers who answered online questionnaires about their skills with the use of software and hardware with educational bias. The statistical methods of grouping were performed and showed the possibilities of groupings of the users. The analyzes of these groups allowed to identify the common characteristics among the individuals of each subgroup. Therefore, it was possible to define two subgroups of users, one with skill in technology and another with skill with technology, so that the partial results of the research showed two main algorithms for grouping with 92% similarity in the formation of groups of users with skill with technology and the other with little skill, confirming the accuracy of the techniques of discrimination against individuals.

The fifth paper “Linking mathematical praxeologies with an epidemic model” shows the power of modelling activities to analyze multidisciplinary phenomena and to bridge the gap between different educational levels in the scope of mathematics. It parts of an open and generating question relating with an epidemic. The multidisciplinary scope of this question, and the correspondent answers, will contribute for the arising of several new questions in a social, economic and health concern. The linked set of successive questions-answers will constitute a representation of a device sustained by the paradigm of questioning the world called study and research path. This methodological tool emerged from the anthropological theory of the didactic. The design of this specific teaching device uses exhaustively the ICT like a facilitator (GeoGebra/wxMaxima) and like an interactive learning environment (Moodle), because some ICT methods make students to feel more comfortable and allow giving a different dynamic to the classroom.

The six and last paper “New teaching and learning methodologies in the smart higher education era, a study case, Wikipedia” stats that Smart education systems and methodologies are based on the deep integration of information technologies in the educational process. Among all the tools belonging to the environment of teaching technologies, wikis have been reported as ideally suited for collaborative learning. Several Universities around the world are running Projects and events about

the use of wikis in higher education. Therefore, in this paper the authors explore the use of wikis in the higher educational institutions, being focused on a special case: Wikipedia. Wikipedia presents special characteristics which make it perfect to reach not only the specific learning objectives of a certain subject, but also the transversal abilities so demanded today (such as teamwork or social responsibility). Finally, the authors analyze more deeply the experiences about the use of Wikipedia conducted in the Universidad Politécnica de Madrid and the obtained results are presented.

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