

Digital Contents for Education

Ignacio Aedo

Departamento de Informatica
Universidad Carlos III de Madrid
Av. Universidad, 20, 28911 Leganes, Spain
Tel +34 91 624 9456
Fax +34 91 624 9129
aedo@ia.uc3m.es

Monica Landoni

Dept. of Computer and Information Sciences, University of Strathclyde
Livingstone Tower, 26 Richmond Street
Glasgow G1 1XH
United Kingdom
Tel: +44 141 548-4949
Fax: +44 141 553 1393
monica@dis.strath.ac.uk

Digital Contents for Education was the label the editors chose in order to cover a variety of research projects and initiatives aimed at improving the way ICT helps educators and students in a teaching and learning scenario. Recent technological developments have led to the availability of powerful environments for the production of a range of electronic material for education. A number of products and prototypes for assisting teaching and learning have been produced and educational material has been extensively published electronically but it is still unclear to what extent all of this is of use to students and lecturers/tutors when it comes to real teaching and learning. Definitions, models and theories to define what electronic learning objects are, standards and guidelines for the production of "good" digital content are still to be found and adopted successfully and usability issues are still to be explored in their complexity and importance in evaluating how these objects are having an impact on education. For this reason we hope that the papers presented in this special issue can be of great interest and utility to a number of people in education involved in design, production, delivery and use of electronic material and tools.

This special issue of the *Educational Technology and Society Journal* evolved from the track titled "Digital Contents for Education" of the SAC 2003 conference held in Melbourne, Florida, in March 2003.

One of the objectives of the track was to raise awareness of the various initiatives on-going under the wide label of applied computing targeted to educators and students. Researchers are aware of how crucial this area is but it is difficult to find relevant contributions collected under one label, good papers tend to be dispersed under various related areas, ranging from the wide Web Applications and Human Computer Interaction contexts to the smaller Electronic Publishing and Information Retrieval tracks. Our track was meant to attract the attention of a mixed and still undefined polyedric community of designers, publishers and users of electronic material for education, where very often researchers play more than one role at time (classically by being authors, designers and then delivering the same material).

Authors that presented in Melbourne were then asked for a contribution to this special issue and with few carefully selected additions we have produced a selection of high quality papers each of them covering a different aspect of the wide area covered by the label of Digital Objects for Education from an original perspective. Electronic books and in particular portable devices for consulting them are the subject of the paper by R. Wilson, "Ebook Readers in Higher Education". A case study that explores usability issues of current hardware and provides useful guidelines for the design of future devices. The need for a more user-centred approach is discussed in "XML-based Adaptation Framework for Psychological-driven E-learning Systems" by H. Rumetshofer and W. Wöß. The main focus is on cognitive and learning styles and on how an intelligent learning environment should accommodate for them. On a similar position are the authors of "InterMediActor: an Environment for Instructional Content Design Based on Competences" by F. Valverde-Albacete et al. Here a novel method for designing educational applications is discussed with particular attention to the core concept of competences. "A framework for the management of digital educational contents conjugating instructional and technical issues" by F. Buendia and P. Diaz merges brilliantly theoretical issues with usability by showing how digital content for education can be produced and managed effectively with the user still being the focus of the

process. On a similar note is “Dynamic Learning Modeller” by Y. Atif et al another topical paper on how theory and good practice could enhance the quality of Digital Content in education. From teaching to training, “Designing Training in Manufacturing Organizations Using the Genre-based Method” by A. Honkaranta and P. Tyrväinen discusses the analysis and design of training material in manufacturing organizations. The authors discuss how attention to genre issue can impact on delivery and communication during training. They also consider content reuse and its potential by applying XML transformation techniques.

With “A Personalisable Electronic Book for Video-based Sign Language Education” by J. Ohene-Djan, et al. the attention is very much on the user and in particular on special need users. Electronic books have for a while been expected to fulfil a gap in the market by delivering personalised material for education, but they have not yet done so mainly because of the complexity of the task and the lack of financial support, this paper describes a good example of how this could be achieved. And looking into the needs of educators, “Dynamic Composition of Math Lessons“ by M. Kellar et al provides a good example of a system for the production of web-based material for teaching and learning where teachers of mathematics in high school are the target users.

Finally, “A Usability Study for Promoting eContent in Higher Education” by N. Shiratuddin et al looks into how improving usability, a common themes in this issue and studying new marketing models for e-Content in education could promote its use. With this selection of papers the editors believe to have achieved their main goal: to provide the reader with a broad picture of research in this area, while proving how articulated this area is. There are still a number of open challenges such as the holy grail of setting recognised and workable standards and the definition of those ineffable criteria for measuring how successful e-learning objects are in achieving their objectives. This is what makes research in this area such a challenge.