

Research on E-Learning and ICT in Education

(Book Review)

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Edited by Athanassios Jimoyiannis of University of Peloponnese, Korinthos, Greece, *Research on e-Learning and ICT in Education* features compilation of 22 chapters written by international academics from Bulgaria, Canada, Cyprus, Greece, Italy, Spain and the United Kingdom. The papers included in the book were originally presented at the Seventh Pan-Hellenic Conference on Information and Communication Technologies in Education (HCICTE 2010). The book is divided into four parts: Part I: Twenty-First century education and e-learning (five chapters); Part II: E-learning and teachers' professional development (five chapters); Part III: ICT-enhanced learning (six chapters) and Part IV: Learning environments and technologies (six chapters).

Part I of the book covers aspects of twenty-first century education and e-learning and it begins with a chapter by Neil Selwyn in which he discusses the relationship between technology and the structure and processes of schools and schooling. He introduces three possible forms, namely technology and virtual schooling, technology and re-schooling and technology and de-schooling. In Chapter 2, Christina Preston and John Cuthell introduce the project MarindaMod to explore the emerging professional issues and collaboratively create new knowledge among like-minded educators. The MirndaMod joins education professionals across institutional and national boundaries with the use of communication technologies in the United Kingdom. Stewart Martin in Chapter 3 describes a project about teaching citizenship in secondary schools in England using virtual environment. The project uses immersive virtual worlds as a technological tool to develop conceptualization of citizenship. The InnoVaScuola project introduced in the Italian schools is the topic of discussion in Chapter 4 by Antonio Cartelli. The chapter reports the difficulties that students encounter in some of the discipline topics and importance of digital literacy in helping the students to overcome the problems. The digital divide has been a major issue in the use of ICT in schools between haves and have-not. But according to Sianou-Kyrgiou and Tsiplakides (Chapter 5), the issue is not the access to the ICT, it is the use of ICT that divide the users.

Part II of the book includes five chapters dealing with e-learning and teachers' professional development. This part opens with the chapter by Dimitriadis that describes how to support teachers in the CSCL classrooms. In Chapter 7, Makrakis presents the creation of a wiki named WikiQuESD with the aim of using as a scaffolding hypermedia tool to enhance pre-service teacher education. Karsenti and Collin in the next chapter report the use of ICT in practical teacher training and professional induction in Canada. The results from two pilot studies identify the difficulties that the novice teachers faced and how to overcome these with the use of ICT. In the next chapter Eteokleous-Grigoriou and colleagues describe a case study conducted in Cyprus regarding the pre-service elementary teachers' use of online dictionary. The study found the usefulness and difficulties of the ICT tool and explanations are provided with the use of Technology Acceptance Model (TAM). The last chapter in Part II describes the study conducted by Charalambous and Papaioannou to explore self perceived competence and use of ICT by the primacy school principals in Cyprus. The study shows that the principals do not feel competent in using ICT for personal, teaching and administrative purposes except for word-processing.

Part III in this book deals with ICT-enhanced learning. Six chapters in this part describe empirical studies related to the innovative use of ICT and e-learning in various contexts. The first to report is by Hadjileontiadou and colleagues and in the chapter they describe the study conducted with the undergraduate students in CSCL setting in Greece and introduce the illusionary adaptive support and instructional design model. The study found that the group who received an illusionary type of support produces better collaborative performance. In Chapter 12, Karasavvidis and

Theodosiou elucidate the design and development of a Wiki task in undergraduate education. Their study involves longitudinal research that uses the design experiment method and aims at the progressive refinement of a Wiki task.

Angelaina and Jimoyiannis in Chapter 13, deals with introduction of blogs with the use of Community of Inquiry framework in an attempt to developing ICT literacy skills in the form of information access, managing, integration and communication skills. The analysis shows that the blog supports the development of a community of inquiry and achieved higher cognitive levels and other communication skills. Latsi and Kynigos in Chapter 14 draw attention to the readers how mathematical meaning-making can be integrated with spatial navigation and orientation in 3D digital media and used with the sixth grade students in a public primary school. In Chapter 15 Karatrantou and Panagiotakopoulos give details on the affordances of educational robotics in teaching introductory programming. They present a case study where Lego Mindstorms educational kits are used. The findings from this study provide promising outcomes in using such kits to teach computer programming to junior high school students. In the last chapter in Part III, Taramopoulos and the team report the study to compare the learning outcomes of 15-16 years old students to teach simple electronic circuits. It was found that when the students were introduced with teaching-by-inquiry in real and virtual environments, greater conceptual improvement was detected.

Similar to the parts mentioned above Part IV of the book covers learning environments and technologies. The first chapter in this part is presented by Stanfield and his colleagues in the United Kingdom. The chapter provides examples of game-based learning in business, teaching software development and teaching language and outline the advantages of such approaches in education as a whole. In Chapter 18 Vrellis and the team report their study about collaborative science learning activity in Second Life. The study, with the use of Temple Presence Inventory (TPI) investigates the sense of presence both spatial and social when students engaged in collaborative problem-based physics activity with the use of Second Life as a platform for learning.

In Chapter 19 Chatzara and team present the emotional interaction in e-learning. Computers and other technological devices have been often criticised for not being able to represent emotion in their interaction with the users. In order to overcome this problem Chatzara and the team use an 'agent' that has animated synthetic character. Boytchev in Chapter 20 presents how the concept of conic sections can be taught by using virtual models. In this chapter the author uses software applications such as Dynamic Geometry Software (DGS) that affords virtual reality and represent mathematical concept of conic sections to make the non-mathematician easy to understand. The Chapters 21 and 22 are in technical nature. Sampson and his colleagues explain the IEEE standard Learning Objects Metadata (LOM) as a commonly accepted way for describing educational resources. Such standardization allows sharing and reusing of the digital resources. In the final chapter Kazanidis and Satratzemi present about the restrictions and abilities of Shareable Content Object Reference Model (SCORM) in creating learning resources.

A number of edited books have been published on the topic of e-Learning and ICT in education in the past decades. For example Goodyear et al. (2004), Conole & Oliver (2006), Holms & Gardner (2007), Andrews & Haythorthwaite (2007), and Iskander (2008) are among the few. The field of e-Learning and ICT are evolving and continuing work in this area provides valuable information to the practitioners and policy makers.

The crucial question for the reviewer is how this volume differs from and compares with those that have been published in the past decades. In the first place, the chapters included in the books were conference papers similar to the selected conference proceedings. However the editor stated that the papers went through a blind review process with at least two independent reviewers, similar to the publication in the referred journals. The focus of this book seems to be deliberately wide. A number of issues, both pedagogical and technological are addressed by the researchers in their own settings. Transferability and scaling of those findings to wider context need to be further scrutinized. The issues related to e-Learning and ICT applications in education are diverse and multi-faceted. To name a few – theory, policy and practice, design, assessment, experiments, subject specific teaching and learning, student participation, technological developments, innovative ideas, and standardization issues are some of the many educators are confronting. It is clear that the technology itself as well as applications develop over time.

Some researchers indicate that e-learning and ICT are over marketed and under use and critical review of effectiveness need to be investigated (Njenga & Fourie, 2010). Chen and Fang (2013) also note that there are some discrepancies between the latest development in learning technologies and actual usage in the education sector. More research and experiments are needed to narrow the gap. The process of e-learning and ICT involve many

stakeholders including developers, instructional designers, course administrators, instructors and students. It is a challenging task to bring harmony and collaborations among them in order to be successful.

For the most part this book covers wide ranging topics with a mixture of theoretical concepts, methodological issues, empirical studies and technical development. The strength of the book is being able to bring together scholars from diverse backgrounds and present the contemporary understanding of e-learning and ICT in education from the perspective of six European countries, and Canada. There are still much that we do not know about these topics. The contributors in this book are to be valued as they offer body of recent findings and how we might find better answers to the research on e-learning and ICT.

But a few weaknesses can be noted in providing the direction of the research in each theme. The editorial covers synopsis of the chapter without any comments on the issues raised in the chapters. It would have been more beneficial if the editor provides cross-analysis of the chapters to craft the book more cohesive and help the reader make sense of the information being presented in the book and describes the reasons for splitting the book into different parts. Some chapters are too technical to understand for the novice readers. Nevertheless the book provides a valuable contribution to the existing literature and it will be a key reference book to have it in the libraries.

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