Editorial for EAIT 2016, Issue 1

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There is no doubt of the still rapidly growing importance of teaching about, and the use of information technology in education at all levels from pre-school to university. Although beginning over two decades ago this area of research continues to attract a great deal of interest. Due to this, as well as the growing demand for research publications in this area, from this year on Education and Information Technologies (EAIT) will appear in six issues rather than in its previous four.

As in previous issues of EAIT, the articles presented in this issue cover a wide range of IT and Education issues from different levels of education, from authors in many different countries around the world.

To begin the new-year the first article, contributed by Ali Al Musawi, Abdullah Al Hashmi, Ali Mahdi Kazem and Fatima Al Busaidi from Sultan Qaboos University, Muscat, Sultanate of Oman and Salim Al Khaifi from the Ministry of Education, Muscat, Sultanate of Oman is: *Perceptions of Arabic language teachers toward their use of technology at the Omani basic education schools*. Their article reports on part of a 3-year strategic research project to measure the effectiveness of the design and use of new software for learning Arabic. Its particular objective was to evaluate the use of technology in Omani basic education schools as it is perceived by Arabic language teachers. The research did this by using descriptive methods with a questionnaire as the main instrument. The study found that teachers mostly use computer software and presentation devices to introduce and explain their lessons, but that significant differences were found among teachers in terms of teaching experience in favour of the 1–3 years category. There were however, no significant differences attributed to technological expertise.

The next article: *Professionalizing in- service teachers' focus on technological pedagogical and content knowledge* is by Seyum Tekeher Getenet, Kim Beswick and Rosemary Callingham from the University of Tasmania, Australia. The article notes that in Ethiopia, primary school teachers of science and mathematics are encouraged to integrate Information and Communication Technology into their teaching as a means of

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improving the quality of education, but that the same emphasis has not been placed on providing professional learning opportunities for teachers on how to use ICT in their teaching. The reported study, using a combination of qualitative and quantitative research methods within an action research approach, investigated how a group of practising primary school science and mathematics teachers developed the skills needed to integrate ICT into their teaching. The results showed that the teachers gained improved competency to integrate available ICT into their teaching through the intervention activities.

Next is an article by Tomas Kroksmark from Jönköping University, Sweden titled: *The stretchiness of learning the digital mystery of learning in one-to-one environments in schools*. The article reports a study aimed to generate knowledge of how teachers change their teaching and how pupils change their learning as a consequence of working in One-to-One environments in schools. The study showed that teachers and students change their relation to teaching and learning when a school is digitised and that the most important dimension of this change is that content-related knowledge from digitised learning in a one-to-one school is a prerequisite for improved quality and better results in schools where digital artefacts are used.

The article that follows: *Barriers of the development of web-based training in the agricultural higher education system in Iran: A case study of Hamadan Bu Ali Sina University, Iran* is by Heshmatollah Saadi, Khalil Mirzayi and Reza Movahedi from Bu Ali Sina University, Hamedan, Iran. The article reports that e-learning in the Iranian higher education system started in 2003 but that its development since then has been very slow. The study is based on survey research of faculty members, graduates and PhD students in Agriculture in Bu Ali Sina University. The results of the study show that deficiency of executives, lack of learners' motivation, infrastructural barriers, restriction of credit and software and hardware limitations are the main problems in the development of web-based training.

ICT learning experience and research orientation as predictors of ICT skills and the ICT use of university students is an article by Jef C. Verhoeven, Dirk Heerwegh and Kurt De Wit from the University of Leuven, Belgium. Since its beginnings in 2004, information and communications technology skills and ICT use at this university has changed greatly. The article reports on the construction of a new instrument to measure the self-perception of ICT skills and use by students to allow finding patterns for ICT skills and use. Two basic hypotheses are proposed. Firstly that positive ICT learning experiences at home, in school, and with peers could contribute to mastering a higher level of ICT skills along with more frequent use of ICT among students. Secondly that there is a similarity between the characteristics of information systems and scientific research, and that students who identify more with scientific research would be more likely to have greater ICT skills and a higher frequency of ICT use. The study concludes that there is a relationship between the ICT learning experience and the research-oriented identity commitment of bachelor's students on the one hand, and their command of ICT skills and the frequency of use of computers, ICT instruments, and ICT programs on the other.

Pia Niemelä and Lasse Lipponen from the University of Helsinki and Ville Isomöttönen from the University of Jyväskylä, Finland look at: *Successful design of learning solutions being situation aware*. They note that education is increasingly enhanced by technology but that the rapid pace of technological innovation and

growing demand by consumers introduces challenges for providers of technological learning solutions. The article investigates Finnish small and medium size companies who either develop or deliver technological solutions for education by reporting the results of twelve companies interviewed to capture the entrepreneurial narratives of successful design of learning solutions. The collected data was analysed based on a conceptual framework making use of the situation awareness concept in which the participant enterprises examine relevant elements in their environment with regard to their development process. The results show that all the mature companies included in the study have well balanced situation awareness, but amongst the incubating and accelerating enterprises, balanced profiles are rare.

The next article: *Usage patterns discovery from a web log in an Indian e-learning site: A case study* by Renuka Mahajan from Amity Institute of Information Technologies (Noida), J. S. Sodhi from AKC DataSystems (Delhi) and Vishal Mahajan from HCL Technologies (Noida), India relates to e-learning and this is an important research area in education and technology. The paper claims that although many tools exist to record detailed navigational activities, they usually don't explore the learners' usage patterns for an adaptive e-learning site. The paper reports on the results of a case study of web data-mining in a specific e-learning application, the main objective of which was to conduct research on usability and effectiveness of e-content by analysing the web log. The reported research details the sequence of topics that were most liked and those least liked by the learners.

The development of Hyper-MNP: Hyper-media navigational performance scale is an article by Mehmet Firat and Işıl Kabakci Yurdakul from Anadolu University, Turkey. They report on a study aimed at developing a scale to evaluate navigational performance as a whole as this is one of the factors influencing learning in hypermedia. The research project involved preparation of an item pool of fifteen factors which were decreased to five based on the views of 38 field experts. Finally, a 3-factor structure was obtained via a pilot application carried out with 32 Information Technology students and supported by confirmatory factor analysis and reliability analysis carried out with IT students. As a result of the analyses conducted, the authors claim that the Hyper-MNP scale was found to be a valid and reliable tool that can be used to measure navigational performance in hypermedia.

Udit Kr. Chakraborty of SMIT, Majhitar, India and Debanjan Konar, with Samir Roy from NITTTR, Kolkata, India and also Sankhayan Choudhury from the University of Calcutta, India then present an article titled: *Intelligent fuzzy spelling evaluator for e-Learning systems* in which they discuss the evaluation of learners' responses to an e-Learning environment. They present a twofold strategy to evaluate single-word responses of a learner in an e-Learning environment. Their proposed system considers errors committed due to lack of knowledge and inadvertent mistakes committed while typing in the answers and still marks the learner impartially, adding to the human element to the mechanised system of evaluation and assessment in an e-Learning environment.

Blended learning model on hands-on approach for in-service secondary school teachers: Combination of E-learning and face-to-face discussion is a study to examine the effectiveness of a blended learning model on hands-on approach for in-service secondary school teachers using a quasi-experimental design. It was contributed by Vinh-Thang Ho, Yoshiteru Nakamori and Tu-Bao Ho of the Japan Advanced Institute

of Science and Technology, Japan and Cher Ping Lim of the Hong Kong Institute of Education, China. The article describes a comparison of a 24-h teacher-training course using a blended learning model with face-to-face instruction. The results indicated that the experimental blended learning group showed a significantly higher level of knowledge of hands-on approach and overall satisfaction with the course.

The next article is: *Professional development for iPad integration in general education: Staying ahead of the curve*. It was written by Dmitri Psiropoulos, Sandy Barr, Claire Eriksson, Shauna Fletcher, Jace Hargis and Cathy Cavanaugh from Abu Dhabi Women's College, United Arab Emirates. In their article they report on a faculty development case study focusing on a team of sixteen General Education faculty at an urban women's college during the initial six months of the college's comprehensive implementation of an iPad teaching and learning environment. The article traces the effectiveness of an iPad professional development program through analyses of critical feedback and makes recommendations for learner-centered faculty development for iPads in Higher Education. Predominant themes found were anxiety, having individual needs considered, time considerations, and fundamental questions about expectations in the mobile learning environment.

The final article: *Academic analytics: Anatomy of an exploratory essay* comes from Sérgio André Ferreira and António Andrade of Universidade Católica Portuguesa, Porto, Portugal. The authors begin by asserting that investment in technological subsystems to support the activity of teaching and learning and the various areas of the life of Higher Education Institutions is of increasing importance to the implementation of policy and strategy. They note that each of these subsystems collects a huge amount of data that, if properly organised, can provide useful information for decision making and informed action, which results in the need to articulate a strategic vision with Information Systems. The reported study aimed to identify the technological requirements and understand the technical difficulties in accessing data sources of different technological subsystems in order to facilitate dialogue between the departments which hold the data in order to build future Academic Analytics in a Higher Education Institution.

As can be seen by looking over past issues, EAIT receives articles from all over the world on a wide variety of topics relating to education and information technologies in all levels of education. We are pleased to see the huge and increasing interest in this research area and hope that next year's six issues (rather than the previous four) will add to this.

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Editor-in-Chief