Editorial on EAIT 2014-4

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This is the last issue of EAIT for 2014. This has been an exceptional year for the journal which has continued to go from strength to strength. This year saw three regular issues and a double special issue on *Intergenerational Learning and Digital Technologies: New Perspectives from Research* guest edited by Don Passey, and *Mobile and Panoramic Video in Education* guest edited by Jari Multisilta. Overall this year the journal has published 54 articles on a wide range of topics relating to ICT and Education. The submission of articles from any aspect of the field of ICT and Education is encouraged.

The journal is a truly international one with this issue containing articles from authors in Ireland, USA, Iran, India, Brunei Darussalam, New Zealand, Finland, Israel, Malaysia, Greece, Portugal, Australia and Tanzania. Most other issues contain a similar range of articles.

In this issue of EAIT the first article is by Peter Tiernan of Dublin City University, Ireland on: *A study of the use of Twitter by students for lecture engagement and discussion*. The article points out research that indicates that student engagement with lectures and participation in discussion and debate greatly improves their learning and experience at University, but that the nature of some lectures means they can lack opportunities for interaction and active learning. The author describes a study that attempts to use Twitter as a means of increasing these opportunities for interaction and engagement for students, especially those who may lack the confidence to engage traditionally. Findings presented indicate that while adoption of Twitter was low, the platform provides engagement opportunities for timid members of the group, while having a generally positive impact on engagement and discussion for the group as a whole.

The second article is by Sandy Malapile from Virginia Tech, Blacksburg and Jared Keengwe from the University of North Dakota, Grand Forks, USA. The article, titled: *Information Communication Technology planning in developing countries* explores major issues related to ICT in education and technology planning. Making use of Rogers' theory on Diffusion of Innovations the authors examine technology planning opportunities and challenges in developing countries, technology planning trends in schools and existing technology planning models in school districts in these countries.

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The authors hope that their article will advance discussion grounded on the premise that teaching is not effective without the appropriate use of ICT resources to facilitate student learning.

Another related article also by Jared Keengwe, Department of Teaching and Learning, University of North Dakota and Sandy Malapile, Department of Teaching and Learning, Virginia Tech, Blacksburg, USA is titled: *Factors influencing technology planning in developing countries: A literature review*. This article constitutes a literature review of the factors that play a role in the development of educational technology plans in the educational systems of developing countries. These technology plans are largely influenced by factors that emanate both from within the country and those outside of their borders. Internal factors include the high prices and low effectiveness of services provided by technology-related multinational corporations, the philosophical perspectives and priorities of organizations, foundations and development agencies promoting the implementation of ICTs, pilot programs without sustainability, uncoordinated pilot projects, selling of refurbished computers for use at large scale and dominance of the English language in the software. External factors include international summits and conferences, global partnerships and establishment of international organizations and technology-related multinational corporations.

Next follows an article: *Personalized recommendation of learning material using sequential pattern mining and attribute based collaborative filtering* by Mojtaba Salehi and Isa Nakhai Kamalabadi from Tarbiat Modares University and Mohammad Bagher Ghaznavi Ghouschi from Shahed University, Tehran, Iran. In their article they note that the Material Recommender System plays a significant role in e-learning systems for personalisation and recommendation of appropriate materials to learners, but that in the existing recommendation algorithms, dynamic interests and multi-preferences of learners and multidimensional-attributes of materials are not fully considered simultaneously. To address these problems and improve the accuracy and quality of recommendation, a new material recommender system framework based on sequential pattern mining and multidimensional attribute-based collaborative filtering is proposed.

The following article: *Mobile learning and integration of mobile technologies in education* has been contributed by Jared Keengwe from the University of North Dakota, USA and Malini Bhargava from the Center for Knowledge, Culture and Innovation Studies, Department of Science, Technology and Society Studies, Hyderabad, India. Their article suggests that mobile technologies have a huge potential to transform education provided these technologies are designed and implemented in such a way that they are relevant to the social and cultural context of learning, but that the application, implementation and design of mobile technology in the global educational context pose technological and socio-cultural challenges. The authors then provide case studies focusing on the pedagogical benefits of mobile technologies when used as educational tools.

Investigating the factors influencing teachers' use of ICT in teaching in Bruneian secondary schools is by Sallimah M. Salleh from Universiti Brunei Darussalam, Gadong, Brunei Darussalam and Kumar Laxman from the University of Auckland, New Zealand. The research study described in this article was intended to assess the status quo of teachers' use of ICT in teaching in terms of the factors that influence this use. The study used a survey questionnaire of secondary school teachers in Negara Brunei Darussalam. Analysis was conducted using Structural Equation Modelling

underpinned by a theoretical model based on the Theory of Planned Behaviour. Findings indicate that Bruneian teachers' use of ICT in teaching was influenced by their personal (attitude), social (subjective norms), and control (perceived behavioural control) factors.

The following article: *Upper secondary and vocational level teachers at social software* is from Teemu Valtonen, Sini Kontkanen, Patrick Dillon, Jari Kukkonen and Pertti Väisänen from the Faculty of Philosophy, University of Eastern Finland. Their study focuses on upper secondary and vocational level teachers as users of social software and investigates what software they use during their leisure and work and for what purposes they use software in teaching. The study is theorised within a technological pedagogical content knowledge framework, the emphasis is especially on technological knowledge and technological pedagogical knowledge. Their results suggest that the number of different types of social software actively used for teaching is small and that the potential of social software as a tool for supporting collaborative learning has not yet been realised.

David Passig from Bar-Ilan University, Israel then looks at: *Usage patterns of communication interfaces for social support among at-risk adolescents*. The author notes that social and interpersonal support has mostly been carried out face-to-face, but that in the last couple of decades the internet has been able to facilitate social interactions through a range of computer-mediated communication interfaces including email applications, chat-rooms, forums, instant messages, SMS and social networks. The article describes various studies that have examined how these interfaces influence interpersonal communication among adolescents from a wide spectrum of angles, but describes a study that, in contrast, found that the conversations on social characteristics were more supportive than those on emotional characteristics. The results indicate a correlation between the type of interface and topics of conversation for at-risk adolescents, and that they prefer certain interfaces over others.

The article that follows: *Gender differences in attitudes towards learning oral skills using technology* is by Jibrel Harb from UKM and National University of Malaysia, along with Nadzrah Abu Bakar and Pramela Krish from the School of Languages and Linguistics/ National University of Malaysia, Bangi, Malaysia. This article reports on a quantitative study on gender differences in attitudes when learning oral skills via technology that sought to investigate differences in attitudes between females and males in terms of practicality, confidence and anxiety. The study's results show both genders establish the same levels of attitudes before and after undergoing this course and that there were no significant differences between female and male students when comparing the pre- and post-test mean scores. This suggests that the exposure to language learning using technology did not contribute to any significant gender inequality.

Marina Papastergiou, Elisana Pollatou, Ioannis Theofylaktou and Konstantina Karadimou from the Department of Physical Education and Sport Science, University of Thessaly, Greece next contributed an article titled: *Examining the potential of web-based multimedia to support complex fine motor skill learning: An empirical study*. They note that research on the utilization of the Web for complex fine motor skill learning that involves whole body movements is still scarce and describe a study to evaluate the impact of the introduction of a multimedia web-based learning environment, targeted at a rhythmic gymnastics routine consisting of eight fine motor skills

into an undergraduate course in a physical education department, as a complementary tool to campus-based instruction. The study found that the use of the environment as a supplement to campus-based instruction increased the effectiveness of this instruction in regard to the cognitive component of motor skill learning and was well-accepted by the students, although it did not have any significant contribution to the physical component of motor skill learning. This partially supports the future wider adoption of multimedia web-based learning environments within physical education and other academic disciplines that involve complex fine motor skill learning.

The next article: *Promoting communication skills for information systems students in Australian and Portuguese higher education: Action research study* is from Pedro Isaías from Universidade Aberta (Portuguese Open University), Lisbon, Portugal and Tomayess Issa from the School of Information Systems, Curtin University, Perth, Australia. Their article examines the value of communication skills learning process through various assessments in Information Systems postgraduate units in Australia and Portugal. Various assessment methods were used to promote and develop communication skills. These were: reflective journal, business plan and prototype, discussion forum, presentation, and final examination. A Communication Skills model was developed based on Action Research principles to promote the assessments which will assist Information Systems students to enhance their communication skills. The research outcomes indicated that integrating communication skills in the assessments will allow students to promote their communication skills and boost their self-esteem skills.

Technology and adolescents: Perspectives on the things to come is an article by Raul L. Katz, Columbia Institute for Tele-Information, Columbia University, New York along with Max Felix, St. Paul's School, Concord and Madlen Gubernick, Institute for Collaborative Education, New York, USA. The research described in this article asks: 'What are the key patterns regarding the use of technology platforms by teenagers?' 'Is technology usage among teenagers shaped by schools' disparate teaching philosophies and cultures?' and 'How is technology usage impacting the consumption of traditional print media?' A survey designed to determine how high school students use technology was administered at a private boarding school in New Hampshire and a public school in New York. The research concluded that individuals' residing environment and context shape ICT adoption and school culture and geographic context drive behavioral technology usage patterns.

An article by Jared Keengwe and Grace Onchwari from the University of North Dakota and Joachim Agamba from Idaho State University, USA follows. This is: *Promoting effective e-learning practices through the constructivist pedagogy*. The authors point out that although rapid advance in technology has allowed for the growth of collaborative e-learning experiences unconstrained by time and space, technology has not been heavily infused in the activities of teaching and learning. Their article examines the theory of constructivism as well as the design of e-learning activities using constructivist principles. The manner in which constructivist theory supports e-Learning is explored, and extrapolating from this pedagogical theory, some implications are provided to model effective practices of the characteristics and capacities of this powerful learning environment.

A strategy for detection of inconsistency in evaluation of essay type answers is by Archana Shukla and Banshi D. Chaudhary from Motilal Nehru National Institute of Technology, Allahabad, India. In their article the authors claim that the quality of

evaluation of essay type answer books involving multiple evaluators for courses with a large number of enrollments is likely to be affected due to heterogeneity in experience, expertise and maturity of evaluators. In their article they present a strategy to detect anomalies in evaluation of essay type answers by multiple evaluators based on the relationship between marks/grades awarded and symbolic markers and opinionated words recorded in answer books during evaluation. Results of both a survey and analysis of evaluated answer books identified underline and tick and cross as frequently used markers compared to circle and question mark. Further, both opinionated words and symbolic markers identified through the survey are used by evaluators to express either positive or negative sentiments. Their described strategy of inconsistency detection first identifies outliers based on the relationship between marks/grades awarded and number of symbols and/or opinionated words used in evaluation.

The final article in this issue is titled: *Teachers' perspectives on their use of ICT in teaching and learning: A case study* and was written by Ayoub Kafyulilo, College of Education, Dar es salaam University, Tanzania and Jared Keengwe from the University of North Dakota, USA. The article presents the perspectives of science and mathematics teachers on their use of ICT in teaching and learning in Tanzania. Findings show that few teachers used computers for teaching and learning purposes while the majority used computers for administrative purposes, and that teachers were found to have limited confidence in using technology to facilitate specific concepts or skills, to support creativity, and to support students to learn complex concepts. The authors then suggest that schools explore ICT integration strategies that focus more on making a shift from teaching technology or using technology for administrative purpose to appropriate pedagogical uses that could enhance student learning.

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