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Editorial for EAIT Issue 5, 2018

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In this September issue of the journal of *Education and Information Technologies* (EAIT) we have articles from researchers in USA, Oman, Cameroon, Canada, Uganda, Greece, Saudi Arabia, Germany, India, Australia, Chile, South Africa, UK, Norway, Jordan, UAE, Japan, Kuwait, Iran, Sweden, Turkey and Pakistan. It is interesting to see a number of articles using research framed in one of the models of technological innovation including the Unified Theory of Acceptance and Use of Technology (UTAUT), the Technology Acceptance Model (TAM) and Innovation Diffusion.

The first article in this issue, "**Faculty technology beliefs and practices in teacher preparation through a TPaCK lens**", comes from Barbara Martin (Southern Illinois University Edwardsville, USA), who points out that due to the importance of technology to student learning and as a vital part of teacher education programs, it is important to examine current faculty technology integration practices. Her article describes an investigation of how her university faculty infused technology into their education courses.

Next comes an article by Kimberly Lebak (Stockton University, Galloway, NJ, USA) titled: "**Analyzing on-line video club discussions focused on formative assessment**". The article describes use of an electronic video coaching platform, Edthena, for teachers to view peers' videos and provide electronic feedback specific to the formative assessment process. Findings revealed that comments within the on-line video club focused predominantly on one aspect of formative assessment, questioning.

The following article, "**Neural network approach to predict mobile learning acceptance**" by Hafedh Al-Shihi, Sujeet Kumar Sharma and Mohamed Sarrab (Sultan Qaboos University, Muscat, Oman), notes the proliferation of mobile computing technologies and the growth of mobile learning (M-learning). Their article develops a research model, making use of the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Technology Acceptance Model (TAM), to incorporate constructs of flexibility learning, social learning, efficiency learning, enjoyment learning, suitability learning, and economic learning, with the purpose of predicting M-learning adoption in a developing country.

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"**Staff perception towards cloud computing adoption at universities in a developing country**" is from Humphrey M. Sabi (ICT University, Yaounde, Cameroon), Faith-Michael E. Uzoka (Mount Royal University, Calgary, Canada) and Samali V. Mlay (Makerere University Business School, Kampala, Uganda). They note that many university staff and students in western developed countries have leveraged cloud computing to enhance and improve teaching, research and collaboration without the need for on-campus presence, but that universities in developing countries tend to lack basic ICT infrastructures to allow this. Making use of Innovation Diffusion theory their study investigated the perceptions of university staff in a developing country to adoption of cloud computing as a tool to enhance access to ICT resources for their educational needs.

The article that comes next is from Stamatios Papadakis, Michail Kalogiannakis and Nicholas Zaranis (Department of Preschool Education, University of Crete, Greece): "**The effectiveness of computer and tablet assisted intervention in early childhood students' understanding of numbers. An empirical study conducted in Greece**". Their study aimed to assess the effect of two different types of digital technologies (computers and tablets) in early childhood students' understanding of numbers. Their findings support that computers and especially tablets, when combined with the use of developmentally appropriate software, may provide a substantial contribution to early childhood students' comprehension of numbers.

"**Acceptance and usage of a mobile information system services in University of Jordan**" by Mohammed Amin Almaiah (King Faisal University, Al Ahsa, Saudi Arabia) investigates the use and acceptance of the 'Mobile Student Information System' developed and implemented by the University of Jordan. The study found that user acceptance of mobile information system services is largely affected by trust, perceived security, perceived ease of use and perceived usefulness and that context of applications is a strong motivational factor of perceived ease of use and perceived usefulness, which then significantly affects user intention to use mobile information system.

Following is an article by Byron Havard, Giang-Nguyen Nguyen (University of West Florida, USA) and Barbara Otto (University of Koblenz-Landau, Germany) to determine the impact of technology use and teacher professional development on students' mathematics academic achievement. "**The impact of technology use and teacher professional development on U.S. national assessment of educational progress (NAEP) mathematics achievement**" uses the Technological Pedagogical and Content Knowledge (TPACK) as a framework to guide this research. Data analyses revealed significant differences across multiple variables and multiple years.

"**Students motivation for adopting programming contests: Innovation-diffusion perspective**" is from Raghu Raman (Amrita School of Business, Amrita Vishwa Vidyapeetham, Coimbatore, India), Hardik Vachharajani (Australian Institute of Higher Education, Sydney, Australia) and Krishnashree Achuthan (Center of Cybersecurity Systems and Networks, Amrita Vishwa Vidyapeetham, Amritapuri, India), who propose a framework that can predict students' motivation to adopt programming contests like those of the ACM (Association of Computing Machinery) and the International Collegiate Programming Contest (ICPC). They do so within the context of Rogers' theory of perceived attributes. Their results showed that student motivations are strongly associated with attributes like relative advantage, compatibility, ease of use, peer influence, perceived enjoyment and perceived usefulness.

J. Enrique Hinostroza, Christian Labbé and María Teresa Soto (Institute of ICT in Education, Universidad de La Frontera, Montevideo 0830, Temuco, Chile) and Andrea Ibieta (Universidad de La Frontera and Universidad de La Frontera, Avenida Francisco Salazar, Temuco, Chile) then offer: "**Browsing the internet to solve information problems: A study of students' search actions and behaviours using a 'think aloud' protocol**". They assert that many studies show that a large percentage of students lack the digital competencies to solve information problems using the internet and so it is necessary to understand how students actually search for information online when solving an information problem, and compare their behaviours with the available literature.

"**Virtual team development of a web-based recruitment system for an iD-lab**" has been contributed by Maria Mutudi and Tiko Iyamu (Department of Information Technology, Cape Peninsula University of Technology, Cape Town, South Africa). Recruitment is the process of finding, assessing and selecting new personnel. Many organisations do this manually or using standalone systems, but as requirements or functionalities such as classification of skill-sets and mapping of profile with job specification increases, it becomes difficult through current systems. The objectives of the reported study were to examine and understand the factors that influence recruitment systems, and to develop a web-based recruitment system using virtual teams.

What follows is an article investigating how parents make decisions about their children's use of portable technology to support reading development in the home. "**Predictors of portable technology adoption intentions to support elementary children reading**" by Lauren Eutsler and Pavlo Antonenko (University of North Texas and University of Florida, USA) applies the Unified Theory of Acceptance and Use of Technology (UTAUT) to identify predictors of parents' portable technology adoption intentions to support their children's reading development at home. Their study highlights the need for teachers and school administrators to be cognisant of educational requests on home learning, influences of the broader parent community on parent intentions to adopt educational technology, and children's enjoyment reading with portable technology.

L. major, P. Warwick and V. Cook (University of Cambridge, UK) and I. Rasmussen and S. Ludvigsen (University of Oslo, Norway) next present: "**Classroom dialogue and digital technologies: A scoping review**". They analysed 72 studies (published 2000–2016) to establish the characteristics of existing evidence and to identify related themes with the intention of enabling researchers and others to access an extensive base of studies, thematically analysed, when developing insights and interpretations in a rapidly changing field of study.

"**A pilot study on the effectiveness and acceptance of an educational game for teaching programming concepts to primary school students**" by Andreas Giannakoulas and Stelios Xinogalos (School of Information Sciences, University of Macedonia, Greece) begins by noting that while educational games are increasingly used for promoting active learning and gaining students' interest in cognitively demanding subjects such as programming, empirical studies investigating this are limited. In their research, student performance was studied through specially designed worksheets, while their acceptance of the intervention was evaluated through a questionnaire based on the Technology Acceptance Model (TAM).

Palmtop electronic devices such as Smartphones create innovative and omnipresent language contexts say Morteza Mellati (University of Tehran, Tehran, Iran), Marzieh Khademi (Baqer al-Olum University, Qom, Iran) and Majid Abolhassani (University of Tehran, Tehran, Iran) in their article: "**Creative interaction in social networks: Multi-synchronous language learning environments**". Their study investigated the impact of creative interaction in social networks on learners' vocabulary knowledge in an Online Mobile Language Learning (OMLL) course. They discuss ways in which new technologies establish authentic and effective interaction between human and computers in learning contexts as well as challenges that developing countries are faced with in conducting OMLL courses.

"**Social media networks and pedagogy at the University of Jordan**" examines impact of a social media networks' course on student use of SNS (social network service) performance. Huda Karajeh, Mahmoud Maqableh, Lama Rajab, Hiba Mohammad and Tahani Khatib (The University of Jordan, Amman, Jordan), Nabil Al-Qirim (United Arab Emirates University, Al-Ain, UAE) and Ali Tarhini (Sultan Qaboos University, Muscat, Oman) examined the associations among course design, course materials, learning experiences and a social media networks course. Their results revealed that course materials and learning experiences directly, positively and significantly impacted the social media networks course, which in turn had a significant impact on students' use of social networks sites.

The following article: "**Using machine learning to classify reviewer comments in research article drafts to enable students to focus on global revision**" suggests that reviewer comments in research articles such as journal papers or dissertations guide students during the revision process to improve the quality of their articles. It tells of research by Harriet Nyanchama Ocharo and Shinobu Hasegawa (Japan Advanced Institute of Science and Technology, Nomi City, Japan). In the paper they note that reviewer comments in academic article drafts are usually short, and describe a Support Vector Machine (SVM) machine learning algorithm that was applied to classify the comments in academic drafts in their laboratory as either content-related or not.

"**Effects of intensive use of computers in secondary school on gender differences in attitudes towards ICT: A systematic review**" is by Roser Cussó-Calabuig, Xavier Carrera Farran (University of Lleida, Spain) and Xavier Bosch-Capblanch (Swiss Tropical and Public Health Institute and Universität Basel, Switzerland). They note that although there is a wealth of interventions focusing on the intensive use of computers in secondary schools, largely aiming at improving students' performance, global evidence on the effects of the use of computers on attitudinal outcomes has not been synthesised so far. Taking into account that the differences in the attitudes of boys and girls regarding the use of computers are one of the factors described as causes of the low number of girls following ICT studies, the aim of this research was to review evidence on the effects of intensive use of computers in schools on gender differences in attitudes outcomes: anxiety, enjoyment, self-confidence and self-efficacy.

The next article: "**Learning online, offline, and in-between: comparing student academic outcomes and course satisfaction in face-to-face, online, and blended teaching modalities**" comes from Shu-Chen Yen, Yafen Lo and JudelMay Enriquez (California State University, USA) and Angela Lee (Stanford University, USA) in

which they describe a study to conduct a three-way comparison of face-to-face, online, and blended teaching modalities in an undergraduate Child Development course, to determine if there were differences in student academic outcomes and course satisfaction across modalities. Their results indicated that students performed equally well on all three examinations, research paper, and the overall course total grade across three teaching modalities, allaying traditional reservations about online and blended teaching efficacy.

"**From a student perspective, what constitutes a good (or less good) use of ICT in teaching?**" investigates what upper secondary school students regard as good or less good teaching using ICT. Göran Fransson (University of Gävle, Sweden), Ola J. Lindberg and Anders D. Olofsson (Umeå University, Sweden) write on how a sample of Swedish upper secondary students were asked to describe one of their teachers who used 'ICT in a way that made them learn very well, and one who used ICT in a way that made them learn less well' and to describe what these teachers did and why their teaching was understood as good or less good. Their data was combined into themes, 'Clarity' being the most prominent theme, followed by 'teachers' 'ICT skills', 'uses ICT in a good way', 'fun factor', 'puts information on the LMS', 'varies the teaching methods', 'demonstrates how to use ICT' and 'general pedagogical skills'.

Esra Harmandaoğlu Baz (İstanbul Medeniyet University, Istanbul, Turkey), Cem Balçıkanlı and Paşa Tevfik Cephe (Gazi University, Ankara, Turkey) point out that ICT has been considered an important component to integrate into teacher education programs in the twenty-first century, but that neither faculty members nor pre-service teachers seem to benefit from ICT efficiently throughout the 4-year teacher education program in Turkey. "**Introducing an innovative technology integration model: Echoes from EFL pre-service teachers**" describes a study designed to find out the experiences of Turkish EFL (English as a Foreign Language) pre-service teachers about their practice-based training on ICT integration into language learning and teaching.

Next, Kawthar Habeeb (Faculty of education, Kuwait University, Kaifan, Kuwait) writes on: "**Effects of interactive whiteboard training programs on teacher efficacy and student outcomes in kindergartens**". This study examined the use of interactive whiteboards (IWB) and sought to determine whether their effective use in Kuwaiti kindergartens generates better student outcomes. The literature indicates that this effectiveness is not a natural result but is instead derived from effective training in how to utilise new resources. The reported study found that the ability to implement IWBs in the classroom is greatly improved through training and that students who are instructed with these resources achieve a better grasp of scientific concepts.

Following: "**A secure cloud framework to share EHRs using modified CP-ABE and the attribute bloom filter**" by Andikota Ramu (Institute of Aeronautical Engineering, Telangana, India) argues that the Internet of Things (IoT), cloud computing and wireless body-area networks have recently converged and that this convergence has greatly promoted the industrialisation of e-healthcare. Full electronic health records (EHRs) are expected to promote preventative health services as well as global health, but outsourcing of EHRs to third-party servers involves many challenges in securing health information and preserving privacy. Ciphertext-policy attribute-based encryption (CP-ABE) is a promising

scheme for storing and sharing information in third-party servers that enables patients and doctors to encrypt or decrypt their information using access policies defined by attributes, but here the access policy is tied with the ciphertext in the form of plaintext which may risk leaking personal patient information. To address these security issues, the article proposes a secure cloud framework using modified CP-ABE and an attribute Bloom filter (ABF).

"**Effects of sociodemographic variables and Facebook group membership on students' political participation**" by Qaisar Khalid Mahmood (International Islamic University Islamabad, Islamabad, Pakistan), Mazhar Hussain Bhutta (PMAS Arid Agricultural University, Rawalpindi, Pakistan) and Muhammad Ahsan ul Haq (National College of Arts, Lahore, Pakistan and University of the Punjab, Lahore, Pakistan) describes a research study designed to examine manifestation of online and offline political participation of educated Pakistani youth and to locate variation in political participation of the students on the basis of sociodemographic variables and the membership of Facebook pages of the users. The findings confirmed that university students practiced both kinds of political participation, but were more inclined towards online political participation than offline political participation.

Tiko Iyamu (Cape Peninsula University of Technology, Cape Town, South Africa) next writes on: "**Collecting qualitative data for information systems studies: The reality in practice**", pointing out that although much literature including professional guides, describes how to collect qualitative data in information systems (IS) studies, the reality is different from the theoretical academic materials. The described study was undertaken to highlight some of the fundamental challenges and their implications of practice and employed qualitative methods from the perspective of the interpretivist approach. It can also be used for education purposes through teaching and learning.

The last paper in this issue" "**Development of a model for explaining the learning outcomes when using 3D virtual environments in informal learning settings**" comes from Emmanuel Fokides and Penelope Atsikpasi (Department of Primary Education, University of the Aegean, Rhodes, Greece). The study presents the development and testing of a model for explaining the learning outcomes when individuals use 3D virtual environments (VEs) in informal learning settings. The virtual environment developed was based on the work of a sculptress Nausica Pastra. The following subjective factors were considered so as to build a research model: perceived usefulness, perceived ease of use, motivation, presence, perceived application's realism, as well as the enjoyment when using VEs. Structural Equation Modelling was employed for model testing and parameter estimation. Implications of the findings for experts involved in development of virtual museums are also discussed.

As Editor-in-Chief of this journal I am keen to see articles on ***all aspects*** of the use of computers in education from the micro to the macro and from theory to practice. I hope to see articles from Education Faculty academics, School Teachers, Educational Administrators, academics from Computer Science and Information Systems and from others interested in any aspect of the use of computers in education. It would also be good to see articles covering an even greater diversity of topics relevant to Education and Information Technologies and from an even wider range of contributors.

Finally, I will again make mention of the *Encyclopedia of Education and Information Technologies* that is currently being created. This will be published by Springer. The encyclopaedia website is: https://meteor.springer.com/project/dashboard. If you are interesting in making a contribution please let me know (Arthur.Tatnall@vu.edu.au) and I will introduce you to the relevant Section Editor for consideration of your topic.

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Editor-in-Chief