Editorial for EAIT Issue 1, 2018

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This first issue for 2018 of the international Education and Information Technologies (EAIT) journal has a total of 32 articles coming from authors in: Nigeria, United Arab Emirates, Kuwait, Oman, Singapore, South Korea, United Kingdom, Tanzania, Canada, India, Finland, USA, China, Austria, Morocco, Portugal, Serbia, Pakistan, Greece, Czech Republic, Sweden, Israel, Malaysia and Vietnam. As usual, this goes to show how EAIT describes research on ICT in education from around the world.

The first article comes from Nigeria, with Adeyinka Tella, Faith Orim, Dauda Morenikeji Ibrahim and Suleiman Ajala Memudu who write on “*The use of electronic resources by academic staff at The University of Ilorin, Nigeria*” (<https://doi.org/10.1007/s10639-017-9577-2>). They begin by noting that the use of e-resources is now commonplace among academics in tertiary educational institutions the world over. Their study assesses the use of electronic resources by academic staff at the University of Ilorin and their results demonstrate that the majority of the academic staff use e-resource for research, curriculum development and self-education development.

Next, “*Towards a personality understanding of information technology students and their IT learning in UAE university*” by Nabeel Al-Qirim, Mohamed Adel Serhani, Aishah Rashid Yammahi and Maraim Ahmed Yammahi (from the UAE), Kamel Rouibah (from Kuwait) and Ali Tarhini (from Oman) investigates the personality characteristics of Information Technology students in UAE University (UAEU) and how such features impact their IT learning (<https://doi.org/10.1007/s10639-017-9578-1>). Their results suggest that agreeableness, extraversion, openness and conscientiousness respectively were the most important strategies adopted by these students.

“*Competency analytics tool: Analyzing curriculum using course competencies*” comes from Swapna Gottipati and Venky Shankararaman from Singapore (<https://doi.org/10.1007/s10639-017-9584-3>). They point out that applications of learning outcomes and competency frameworks have brought better clarity to engineering programs in many universities. In their paper they propose an automated method to

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analyse the competencies and discover their impact on the overall curriculum design using Bloom's Taxonomy, Dreyfus' model and the learning outcomes framework.

The article that follows: *"Effects of motivation, academic stress and age in predicting self-directed learning readiness (SDLR): Focused on online college students"* is from JeongChul Heo and Sumi Han from South Korea (<https://doi.org/10.1007/s10639-017-9585-2>). Their research was to determine whether self-directed learning readiness among online students might be significantly predicted by motivation, academic stress, and age. Their results showed that motivation and academic stress have an influence on the level of self-directed learning readiness.

The next article: *"Mobile phone use in two secondary schools in Tanzania"* was contributed by Andrew Joyce-Gibbons and David Galloway from the UK, and Andrew Mollel, Sylvester Mgoma, Madeleke Pima and Enos Deogratias from Tanzania (<https://doi.org/10.1007/s10639-017-9586-1>). The article points out how mobile phone technology in Tanzania has grown rapidly but that there is insufficient data on its application in schools. Their research aimed to show how students in the first and third year in two rural secondary schools, and their teachers, perceived its use.

Paul Bazelais, Tenzin Doleck and David John Lemay from Canada then describe an investigation into pre-university science Collège d'enseignement général et professionnel (CEGEP) students' behavioural intentions towards using online learning technologies. Their paper: *"Investigating the predictive power of TAM: A case study of CEGEP students' intentions to use online learning technologies"* questioned what factors affected CEGEP students' intentions to use online learning technologies (<https://doi.org/10.1007/s10639-017-9587-0>).

The following article: *"Improving educational outcomes and reducing absenteeism at remote villages with mobile technology and WhatsApp: Findings from rural India"* by Prema Nedungadi, Karunya Mulki and Raghu Raman, from India, investigates reduction of teacher and student absenteeism, together with consistent teacher support and training in rural India (<https://doi.org/10.1007/s10639-017-9588-z>). Their study investigated how implementation of accessible technologies could not only reduce absenteeism but also increase teachers' effectiveness and improve student performance. They found that the number of text messages related to attendance was strongly positively correlated with frequency of interactions between coordinators and teachers.

Following this is an article by Nabeel Al-Qirim, Serhani Mohamd, Aishah Rashid Yammahi and Maraim Ahmed Yammahi (from the United Arab Emirates), Ali Tarhini (from Oman) and Kamel Rouibah (from Kuwait). *"Learning orientations of IT higher education students in UAE University"* examines the learning preferences of students in UAE University (UAU) (<https://doi.org/10.1007/s10639-017-9589-y>). Their research provided interesting insights and contrasts pertaining to the learning strategies of UAEU students. In their paper, implications highlighting different theoretical as well as professional contributions and contentions are discussed and portrayed a path where pending issues could be addressed by future research.

"Framework for designing context-aware learning systems" comes from Richard A. W. Tortorella (from Finland), Kinshuk (from the USA) and Nian-Shing Chen (from China) (<https://doi.org/10.1007/s10639-017-9591-4>). Today people learn in many diverse locations and contexts, beyond the confines of classical classrooms, and context-aware learning systems can adapt to the learner's context, providing tailored

learning for a particular learning environment. Their paper proposes a framework for the development of context-aware learning systems.

The next article comes from Austria and was written by Silke Luttenberger, Daniel Macher, Verena Maidl, Christian Rominger, Nilüfer Aydin and Manuela Paechter. “*Different patterns of university students’ integration of lecture podcasts, learning materials, and lecture attendance in a psychology course*” investigates how students organize learning when they have the choice of different representations of content: face-to-face lectures, lecture recordings as video podcasts, and additional text material (<https://doi.org/10.1007/s10639-017-9592-3>). They identified three groups with different patterns of integration of content: students who focused on podcasts, students who made little use of the different representations of content, and students who occasionally made use of the different learning opportunities.

From the USA, Cheryl A. Murphy, Jonathan B. Allred and William F. Brescia note that Educational Technology professionals in the United States fill multiple roles in public school systems, but that expectations and priorities for the completion of these roles and the tasks associated within each role category remains unclear. “*The role of educational technology professionals as perceived by building administrators*” describes research that show a significant gap between the ideal and actual performance expectations of Educational Technology professionals in role categories, but most demonstrably within the Instructional Support and Teaching/Training categories (<https://doi.org/10.1007/s10639-017-9593-2>).

“*Simply the best’: Professors nominated by students for their exemplary technology practices in teaching*” comes from Mary Jorgensen, Alice Havel, Catherine Fichten, Laura King, Evelynne Marcil, Alex Lussier, Jillian Budd and Crisitna Vitouchanskaia from Canada (<https://doi.org/10.1007/s10639-017-9594-1>). It explores technology-related pedagogical practices of college professors deemed by their students to be excellent in using technology in their teaching. Results show no gender or years of teaching differences in self-rated proficiency or comfort with technologies, and that most professors taught themselves how to use technologies with the help of online resources, through trial and error, and with help from colleagues and support staff.

What follows is an article by Jonathan D. Coleman from the USA that looks at digital badging. “*Engaging undergraduate students in a co-curricular digital badging platform*” points out that while concerns have been raised about using badges as extrinsic motivators in coursework, there are alternate areas of application for digital badging and that badges may actually serve to motivate and empower student learning and engagement outside of the formal curriculum (<https://doi.org/10.1007/s10639-017-9595-0>).

The next article: “*Towards a competency model: A review of the literature and the competency standards*” was contributed by Maryam El Asame and Mohamed Wakrim from Morocco (<https://doi.org/10.1007/s10639-017-9596-z>). They note that the concept of competency can have several different definitions which may make it difficult to model, and their article presents a view of some important competency definitions and the main competency specifications.

“*WGL, a web laboratory for geometry*” describes research by Pedro Quaresma and Vanda Santos from Portugal, and Milena Maric’ from Serbia (<https://doi.org/10.1007/s10639-017-9597-y>). They describe how the Web Geometry Laboratory is an e-learning, collaborative and adaptive Web environment for geometry. In a collaborative session, teachers and students, engaged in solving collaboratively a

given set of problems, can exchange geometrical and textual information. In a normal stand-alone work session all the geometric steps done by the students are recorded so that their teachers can later play back the student sessions. The paper describes the WGL system from the perspective of teachers and students.

“Development of an instrument to measure Faculty’s information and communication technology access (FICTA)” by Kamal Ahmed Soomro (from USA and Pakistan) and Ugur Kale, Reagan Curtis, Mete Akcaoglu and Malayna Bernstein from the USA discusses the phenomenon of the ‘digital divide’ (<https://doi.org/10.1007/s10639-017-9599-9>). They suggest that this is complex and multidimensional and extends beyond issues of physical access. Their article describes a study to develop a scale to measure a range of factors related to digital divide among higher education faculty and to evaluate its reliability and validity.

From Greece, Eleni Morfidi, Anastasios Mikropoulos and Aspasia Rogdaki present: *“Using concept mapping to improve poor readers’ understanding of expository text”* (<https://doi.org/10.1007/s10639-017-9600-7>). The study they describe examined whether the use of concept mapping is more effective in teaching expository material in comparison to a traditional, lecture only, approach. Their results indicated that concept mapping can be an effective means for teaching expository content, but that there were no differential learning outcomes when adding multimedia elements to concept maps.

“Students’ perspective on the first programming language: C-like or Pascal-like languages?” comes from Stelios Xinogalos (Greece), Tomáš Pitner (Czech Republic) and Mirjana Ivanović and Miloš Savić (Serbia) (<https://doi.org/10.1007/s10639-017-9601-6>). They note that the important choice of the first programming language has been a controversial issue for several decades. Their study investigated the suitability of various C-like and Pascal-like programming languages for this. They concluded that the overall quality of the course and the instructors have a great impact on a smooth introduction to programming no matter what the first programming language is.

The next paper compares outcomes of use by student teachers of oral classroom and written online forum discussions of course literature with the aim of examining how each mode facilitates reflective practice. *“Reflective discussions in teacher training: A comparison between online and offline discussions of course literature in a class of pre-service teachers”* by Ann-Britt Enochsson, from Sweden, found that both modes have advantages and drawbacks, but that on a group level the performance according to the levels of reflective thinking was the same in each case (<https://doi.org/10.1007/s10639-017-9602-5>).

From the USA, Jamie B. Boster and John W. McCarthy present an article titled: *“Lost in translation: Understanding Students’ use of social networking and online resources to support early clinical practices. A National Survey of graduate speech-language pathology students”* (<https://doi.org/10.1007/s10639-017-9603-4>). They begin by indicating that the Internet is a source of many resources for graduate speech-language pathology students and go on to say that it is important to understand the resources students are aware of, which they use, and why they are being chosen as sources of information for therapy activities.

“Youth texting: Help or hindrance to literacy?” by Dmitri Zebroff from Canada describes how a comprehensive, semi-systematic review of the literature into texting and literacy was conducted with a particular focus on quantitative empirical studies

taking into consideration media reports, teacher surveys and qualitative studies as part of a wide-ranging examination of previous research into this phenomenon (<https://doi.org/10.1007/s10639-017-9606-1>).

Python is gaining popularity in academia as the preferred language to teach novices serial programming and Ami Marowka from Israel writes: “*On parallel software engineering education using python*” (<https://doi.org/10.1007/s10639-017-9607-0>). The article notes that the syntax of Python is clean, easy, and simple to understand and that it is a high-level programming language that supports multi programming paradigms such as imperative, functional and object-oriented. This paper presents an in-depth study that examines to what extent the Python language is suitable for teaching parallel programming to inexperienced students.

“*Orchestrating tangible music interfaces for in-classroom music learning through a fairy tale: The case of ImproviSchool*” from George Palaigeorgiou and Christos Pouloulis from Greece points out that ubiquitous music is a relatively new research area which seeks ways to involve novices in music learning, playing and improvisation, but that despite ambitious goals, ubiquitous music is still an unknown territory in schools (<https://doi.org/10.1007/s10639-017-9608-z>). Their study tried to identify whether ubiquitous music environments can enable novice music students to participate in meaningful learning activities in a short period of time inside the school classroom.

The next article: “*A survey of educational games as interaction design tools for affective learning: Thematic analysis taxonomy*” is truly international, being contributed by Zarwina Yusoff and Amirrudin Kamsin (from Malaysia), Shahaboddin Shamshirband (from Vietnam) and Anthony T. Chronopoulos (from USA and Greece) (<https://doi.org/10.1007/s10639-017-9610-5>). They begin by remarking that there are many educational games that have been used as an interaction design tool in a learning environment to enhance students learning outcomes but that research also claims that playing video games can have a negative impact on student behaviour, cognition and emotion. Their results showed that educational games are affective interaction design tools for learning outcomes.

The following article: “*Coding skills as a success factor for a society*”, by Pauliina Tuomi, Jari Multisilta, Petri Saarikoski and Jaakko Suominen from Finland, points out that implementation of digital services requires problem solving, design skills, logical thinking, an understanding of how computers and networks operate and programming competence, and that these abilities can be considered as coding skills (<https://doi.org/10.1007/s10639-017-9611-4>). The aim of the study was to find and classify the different approaches and methods of promoting and learning coding skills.

“*Social networking and academic performance: A review*” by Tenzin Doleck and Susanne Lajoie from Canada addresses the question: how does the use of social networking sites influence academic performance (<https://doi.org/10.1007/s10639-017-9612-3>)? Their review synthesizes the empirical findings of the extant literature via a systematic review that examines the efforts that have been made to explicate the association between the use of social networking sites and academic performance.

The next article describes a study focused on the application of the design science research approach in the course of developing a mobile learning application, MobileEdu, for computing education in the Nigerian higher education context. “*Design, development, and evaluation of a mobile learning application for computing*

education” comes from Solomon Sunday Oyelere and Jarkko Suhonen (from Finland), Greg M. Wajiga (from Nigeria) and Erkki Sutinen (from Finland) (<https://doi.org/10.1007/s10639-017-9613-2>). Their paper describes analysis, design and implementation activities related to the development of MobileEdu and also the characteristics and scope of the adherence of MobileEdu to the traits and ideas of design science research.

Thanos Touloupis and Christina Athanasiades (from Greece) present a paper titled: “*Principals’ attitudes towards risky internet use of primary school students: The role of occupational factors*” that aimed to investigate this, and how occupational factors, such as work self-efficacy, job satisfaction, and burnout by primary school principals may affect these attitudes especially in a context of economic crisis, which has adversely affected working conditions and duties of school personnel (<https://doi.org/10.1007/s10639-017-9614-1>). They found that the principals perceived incidents of students’ risky Internet use as serious and felt confident enough to intervene, although in a relatively low to moderate level.

“*It must not disturb, it’s as simple as that’: Students’ voices on mobile phones in the infrastructure for learning in Swedish upper secondary school*” from Torbjörn Ott, Anita Grigic Magnusson, Alexandra Weilenmann and Ylva Hård af Segerstad from Sweden explores how Swedish upper secondary students reason about the usage of their personal mobile phones in school (<https://doi.org/10.1007/s10639-017-9615-0>). The students’ narratives present an intricate account of student awareness and concern of the implications of mobile phone presence in school. They describe the mobile phone as both a tool that facilitates their school work and a distraction that the teachers pursue.

The next article: “*Educational data mining applications and tasks: A survey of the last 10 years*” by Behdad Bakhshinateg, Osmar R. Zaiane, Samira ElAtia and Donald Ipperciel from Canada looks at the tasks and applications existing in this field (<https://doi.org/10.1007/s10639-017-9616-z>). They consider both applied research objectives like improving and enhancing learning quality, and pure research objectives that tend to improve our understanding of the learning process.

From China, Yulong Li and Lixun Wang write on: “*Using iPad-based mobile learning to teach creative engineering within a problem-based learning pedagogy*” (<https://doi.org/10.1007/s10639-017-9617-y>). Their study investigated integration of iPad-based mobile learning into a creative engineering module in a secondary school in England that has adopted a problem-based learning pedagogy. Their findings indicate that iPad-based mobile learning is compatible with the problem-based learning pedagogy underpinning the particular creative engineering module, both philosophically and practically, inside and outside the classroom.

In the last paper in this issue, Sujith Kanagarajan and Sivakumar Ramakrishnan from India present: “*Ubiquitous and Ambient Intelligence Assisted Learning Environment Infrastructures Development – a review*” (<https://doi.org/10.1007/s10639-017-9618-x>). They argue that Ubiquitous Learning Environments have become a mobile and sensor-based technology equipped environment that suits the modern world education discipline requirements for the past few years, and that Ambient Intelligence makes much smarter this by the support of optimization and intelligent techniques. Their research recommends an Internet-of-Things (IoT) enabled Ubiquitous Learning Environment for offering still smarter levels like energy efficiency, connectivity, special

needs, Multi-modal Human Computer Interaction, Self-Optimization and Self-Discovery in an effective manner.

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.jsf?id=509>. 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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