Editorial: EAIT 4-2019

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Education and Information Technologies (EAIT) is the official journal of the IFIP Technical Committee on Education (TC3) and covers the complex relationships between information and communication technologies and education, from the micro of specific applications or instances of use in classrooms to macro concerns of national policies and major projects; from classes of five year olds to adults in tertiary institutions; from teachers and administrators, to researchers and designers; from institutions to open, distance and lifelong learning. The journal's breadth of coverage allows EAIT to examine fundamental issues at all levels, discuss specific instances and cases, draw inference and probe theory. This journal is embedded in the research and practice of professionals.

Papers in this issue come from: Turkey, Iran, Greece, USA, Israel, UK, Australia, India, Egypt, Colombia, Finland, Canada and Spain.

The first article in this issue comes from Hatice Yildiz Durak (Bartın University, Turkey) and Mustafa Saritepeci (Necmettin Erbakan University, Turkey). **“Modelling the effect of new media literacy levels and social media usage status on problematic internet usage behaviours among high school students”** notes that it is important to investigate the variables considered as effective in problematic internet use among high school students. The relative order of importance of the variables examined in the study was found to be: social media usage status, social media usage purposes and new media literacy.

“An experimental study on an adaptive e-learning environment based on learner's personality and emotion” by Somayeh Fatahi (Iranian Research Institute for Information Science and Technology, Iran) points out that E-learning enables learning everywhere and at any time, but that this kind of learning lacks the necessary attractiveness, and so adaptation is becoming increasingly important. Since emotions and personality are important parts of human characteristics, and they play a significant role in parts of adaptive e-learning systems, it is essential to consider them in designing these systems and the paper presents an empirical study on the impact of using an adaptive e-learning environment based on learner's personality and emotion.

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Eleni Seralidou and Christos Douligeris (University of Piraeus, Greece) then present: **“Learning with the AppInventor programming software through the use of structured educational scenarios in secondary education in Greece”**. They argue that effective learning environments, such as the AppInventor software, could spark students’ interest and allow them to develop programming skills and strengthen their algorithmic capabilities. Their paper presents a study on the use of eight educational scenarios into a secondary education lesson’s context for the use of the AppInventor software.

The next article: **“A study on the technological pedagogical contextual knowledge of science teacher candidates across different years of study”** presents a case study survey investigating the Technological Pedagogical Contextual Knowledge (TPCK) of Science Teacher Candidates across different years of study in the Topic of Renewable Energy. It was contributed by Didem Karakaya Cirit (Munzur University, Turkey) and Erdal Canpolat (Firat University, Turkey). Their findings showed that the TRE-TPCK of teacher candidates across different years of study was at a similar and less-than-ideal level. Science Teacher Candidates in different years of study mostly disregarded the macro and meso contexts when teaching the topic of renewable energy and were partially competent in the sub-meso, micro and sub-micro contexts. They particularly lacked technology-integrated evaluation knowledge when teaching about Renewable Energy.

The following article: **“Predicting educators’ use of Twitter for professional learning and development”** proposes and tests a conceptual model of educators’ Twitter adoption for professional learning and development based on technology adoption model and related literature. Fei Gao and Lan Li (Bowling Green State University, USA) examined the relationships among the factors that affect this adoption process. Their results suggested that the research framework integrating multiple perspectives provides a comprehensive understanding of educators’ intention and actual use of Twitter for professional learning and development. Their study suggested that to encourage educators to adopt Twitter for professional learning and development, we need to help them understand its usefulness and whether its usage fits with their learning tasks, as well as for what purposes they are going to use it.

“Learning in the smartphone era: Viewpoints and perceptions on both sides of the lectern” by Yaron Ariel and Vered Elishar-Malka (Max Stern Yezreel Valley College, Israel) relates a study that examined the viewpoints of lecturers and students regarding the roles of smartphones in the classroom: how legitimate is it to use them in class, and in what ways? Their study sought to uncover the possible existence and nature of attitudinal gaps between students and lecturers by comparing viewpoints and perceptions from both sides of the lectern.

Anastasia Revythi and Nikolaos Tselios (University of Patras, Greece) next offer: **“Extension of technology acceptance model by using system usability scale to assess behavioral intention to use e-learning”**. The reported study examines the acceptance of technology and behavioural intention to use learning management systems (LMS). It aimed to examine whether students ultimately accept LMSs such as eClass and the impact of behavioural intention on their decision to use them. An extended version of technology acceptance model was proposed and used by employing one of the most reliable measures of perceived ease of use: the System Usability Scale. They found that social norm, system access and self-efficacy

significantly affected behavioural intention to use LMS. They suggest that e-learning developers should focus on these factors to increase their acceptance and effectiveness.

Students' progression and attainment gap are considered as key performance indicators of many universities worldwide and Sahar Al-Sudani and Ramaswamy Palaniappan (University of Kent, UK) write about this in: **"Predicting students' final degree classification using an extended profile"**. They suggest that universities should invest in resources to reduce the attainment gap between good and poor performing students. In their work they used a combination of institutional, academic, demographic, psychological and economic factors to predict students' performances using a multi-layered neural network (NN) to classify students' degrees into either a good or basic degree class. Their results indicated that the NN outperforms all other classifiers in terms of overall classification accuracy and shows promise for the method to be used in Student Success ventures in the universities in an automatic manner.

Omiros Iatrellis (University of Thessaly and Hellenic Open University Patras, Greece), Achilles Kameas (Hellenic Open University Patras, Greece) and Panos Fitsilis (University of Thessaly, Greece) then point out that one of the main challenges to be confronted in Higher Education, so as to increase quality, is the personalization of education services, since each student constitutes a unique case. **"EDUC8 ontology: semantic modelling of multi-facet learning pathways"** presents a conceptualization of the domain of Learning Pathways in Higher Education and the EDUC8 (EDUCATE) ontology, which models the needed domain knowledge streams for the learning pathways and consists of four main modules: 1) the learner model 2) the learning pathway model 3) the business model and 4) the quality assurance model.

"Student views on the use of flipped learning in higher education: A pilot study" comes from Abdullah Yasin Gündüz (Hacettepe University, Turkey) and Buket Akkoyunlu (Çankaya University, Turkey) who note that flipped learning has become increasingly popular in higher education with the widespread use of the Internet. Flipped learning allowed learners to take a more active role in the class than traditional methods, but it also has many challenges for students. The purpose of the described study was to determine the benefits and challenges of flipped learning in higher education, and it found that implementing flipped learning gave students a chance to experience greater instructional flexibility during both online and in-class sessions.

Atul Sajjanhar (Deakin University, Australia) and Julie Faulkner (Monash University, Australia) next write on: **"Second life as a learning environment for computer programming"**. In the study described (which they acknowledge was of a small-scale) they gauge the perceptions of novice computer programmers about Second Life (SL) as a digital learning environment for concept understanding in computer programming. Their findings strongly support the use of Second Life for novice programmers to learn programming. They also support the usability of Second Life and suggest the positive support it offers.

Next comes: **"Machine learning model to predict an adult learner's decision to continue ESOL course"** by Mohammed R. Dahman and Hasan Dağ (Kadir Has University, Turkey). This study investigated the ability of the demographic and the affective variables to predict adult learners' decision to continue ESOL courses. It had two primary goals: firstly to examine the relationship between two of the multiple learner variables reported (i.e. the affective and the demographic variables) and the adult learners' decision to continue or drop out ESOL course, and secondly to propose

a machine learning model to predict the adult learner's decision to continue an ESOL course (before they start the class).

Jewan Singh (AMET University and School Education Department, Jammu and Kashmir Government, Jammu, India) and Vibhakar Mansotra (University of Jammu, India) next note that cloud computing is becoming a leading trend worldwide, due to its enhanced reliability, scalability, flexibility, availability and processing throughput, but that little had been written about its use in education. **“Factors affecting cloud computing adoption in the Indian school education system”** offers an experimental study to provide a holistic evaluation of the determinants of cloud computing in the context of the Indian school education system. They propose a theoretical model based on the TOE framework to explain the role of technological, organisational and environmental factors on the adoption of cloud computing in the Indian school education system.

“Reading from print, computer, and tablet: Equivalent learning in the digital age” by Kara Sage, Heather Augustine, Hannah Shand, Kaelah Bakner and Sidney Rayne (The College of Idaho, Caldwell, USA) next compares college students' learning from, and perceptions of, print and digital readings, with the goal of providing an informed recommendation for students and educators regarding best approaches for reading assignments. They focused on a common experience in college: reading an educational article as well as investigating numerous dependent measures. Results indicated that students spent equivalent time with, and learned equally well from, all versions. Students generally described a preference for print over digital resources, but the number of students utilizing digital resources outside of the study was notable.

The next article describes research aimed to establish several theoretical frameworks and educational implications for a new web-based learning model SOSE. **“Learning in a sheltered online scaffolding environment (SOSE)”** by Ashraf Atta M. S. Salem (Sadat Academy for Management Sciences, Egypt) aimed to compare and contrast the new model to a well-known web-based learning model WebQuest. Learning in a sheltered online scaffolding environment consists of three main stages: a preparation stage including task exploration and information collection, a data refinement stage including refining data and extracting evidence and findings, and a cooperation stage including decision-making, final agreement and publishing.

Robin Castro (Universidad Icesi, Colombia) next writes on: **“Blended learning in higher education: Trends and capabilities”**. This paper is a literature review aimed to identify some of the most promising trends in blended learning implementations in higher education, the capabilities provided by the technology (e.g., datafication), and the contexts of use of these capabilities. The findings highlight that digital tools or platforms with human-to-machine interaction capabilities may enhance automated processes for blended learning delivery modes.

“ERP based business learning environment as a boundary infrastructure in business learning” by Karoliina Nisula and Samuli Pekkola (Tampere University, Finland) notes that business education has been criticized for being theoretical and distant from the dynamisms of the business life. To answer this, different types of experiential learning environments such as manual role-plays, computer simulations, and enterprise resource planning systems, have been used. This paper examines how a holistic learning environment, combining a practice enterprise model, an enterprise resource planning system and a simulation, improves learning results, and why.

“A comparison of students’ twitter use in a postsecondary course delivered on campus and online” by Adrienne M. F. Peters, Daph Crane and Jane Costello (Memorial University of Newfoundland and Labrador, Canada) present a study that sets out to examine whether differences exist between students’ perceptions and use of this social media platform as a device for learning and ‘classroom’ connectedness. Their findings suggest there are interesting differences in the social networking platform’s use between different course formats.

Begoña Urien and Amaya Erro-Garcés (Universidad Pública de Navarra, Spain) and Amparo Osca (Universidad de Educación a Distancia (UNED), Spain) then present: **“WhatsApp usefulness as a communication tool in an educational context”**. Their paper analyses whether college’ students perception of WhatsApp usefulness influences cognitive processes important for teamwork (i.e. specialization and coordination), specifically for complex decision-making assignments. Findings confirm the relationships between perceived WhatsApp usefulness and specialization and coordination, as well as perceived WhatsApp usefulness and perceived team efficacy.

The last paper in this issue: **“The effect of web based blended learning on students’ academic achievement and attitudes towards an English course”** comes from Turkey and is by Murat Inal and Özgen Korkmaz (Amasya University, Turkey). This study aimed to determine the effect of blended learning environment using DynED on student achievement and attitudes towards an English course. In the experimental group, the English lesson was taught in a blended learning environment using the DynEd platform. The control group students only participated in English courses given in the school environment. They found that the blended learning using DynEd in English Course contributed significantly to the academic achievement of students compared to the traditional method.

The May issue of EAIT published a list showing our appreciation to all the reviewers who performed at least one review in 2018. Unfortunately two reviewers were inadvertently omitted:

Sandeep Mathur (Amity University DELHI, India) and
Larysa Lysenko (Concordia University, Canada).

We now formally thank them for their work in keeping the journal quality high.

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