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## Editorial

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Welcome to V11N4 of *IJLT*. There are five papers in this issue. The first paper is ‘The roles of technology acceptance and computer learner aptitude on accounting student learning achievement with IDEA software’ by D’Arcy Becker, Aimee Pernsteiner and Dawna Drum. According to these authors, technology is pervasive in the accounting profession. Successful auditors must be able to use current computer auditing techniques (CAATs). These authors argue that learning to use these technologies as part of a college accounting curriculum can help ensure new accounting graduates are equipped to participate in all phases of audits from the start of their careers. However, some students learn course-specific technology more easily than others.

This paper investigates the roles that student technology acceptance and aptitude for learning technology play in student comprehension of the auditing software IDEA. These authors found that students’ perceptions about the ease of use of IDEA, its usefulness, and their intent to use IDEA in their future careers all have significant impacts on their computer learning aptitude. They also found that computer learning aptitude impacted student learning. When students believed their aptitude for learning technology was higher, they showed higher achievement in using IDEA. However, more empirical studies are needed to validate the results.

The second paper is ‘Interaction interfaces in interactive geometry software: are we exploring new devices and possibilities?’ by Helena M. Reis, Anarosa A.F. Brandão, Leônidas O. Brandão and Seiji Isotani. The authors of this paper argue that interactive geometry (IG) software is an effective tool to support geometry learning. During the learning process, students interact with the software to visualise and manipulate geometric constructions presented dynamically in the graphical user interface (GUI). In this paper, the authors conducted a systematic mapping in order to determine:

- 1 what forms of interaction are most investigated in the development of IG software
- 2 what forms of input and output are most explored
- 3 which devices are most commonly used to run the IG software.

During the execution of the procedures of this mapping, 998 articles were found, of which 45 articles were selected in the first step and 21 articles in the final step.

After a careful analysis of the papers, they identified 45 papers were related to the development of IG interfaces and only 20 of them satisfied the inclusion and exclusion

criteria defined in the work. The authors also categorised the selected papers according to their goal and research approach. Their research finding shows that:

- 1 most of the studies focused on the development of desktop interfaces based on keyboard and mouse, with 2D output
- 2 few efforts have been carried out on the design and development of IG software for devices with multi-touch interfaces such as tablets and smartphones.

However, this is by no means comprehensive. More research is needed to verify the results.

The third paper 'Medium as frame: comparing mobile audio and video interactions in informal learning contexts' by Brett Oppegaard and Michael Rabby. Brett Oppegaard and Michael Rabby argue that concept-driven interaction design opens new pathways for research of information and communication technologies (ICTs) in educational contexts, between the particulars of a case study and the abstractions of theory. The authors of this paper used explorative research to test foundational theoretical ideas, such as medium specificity, through concrete designs in an authentic setting. During these separate but similar procedures, conducted a year apart, ordinary users were given representative tasks on mobile devices in order to examine the levels of involvement, social facilitation, and satisfaction generated by differing media forms within the mobile delivery system.

According to these authors, from this perspective, direct comparisons could be made, for example, between audio and video forms. The authors also argue that enabling such comparisons has grown in importance with the advent of mobile and other convergent technologies that blend mediums to bring together media organisms to co-mingle. In the case of a smartphone, for example, mobile media designers now can choose which medium (text, audio, video, animation, etc.) they want to use within their master medium, which adds to the complexity of the design endeavour, but also to the potential for new integrated and interactive forms to emerge as well as for more mindful context-tailored solutions. More empirical studies are essential to validate the results.

The fourth paper is 'Constructivist research framework for integrating indigenous knowledge into computing education' by Ebenezer Anohah and Jarkko Suhonen. In this paper, the authors suggest that constructivist philosophical assumptions of multiple meanings to reality and subjectivity in knowledge construction are compatible with main objective of ethnocomputing studies that contextualise computing principles in cultural heritages. Anohah and Suhonen further argue that some computing educators, especially in an African context, have been interested in pedagogical strategies that cultural heritage can provide viable mental models to enhance teaching and learning in curricula. Particularly, students from Africa have a rich cultural heritage that provides new ways of conceptualising computing principles.

This paper analyses scientific publications related to computing education by systematically reviewing the article from constructivist perspectives on students learning from cultural heritage. The study reveals that constructivist philosophical assumptions of multiple meanings to reality and subjectivity in knowledge construction are compatible with the main objective in ethnocomputing studies that seeks to contextualise computing principles in cultural heritages.

This study provides guidelines for conducting ethnocomputing studies in non-western countries. The constructivist research framework deepens educators' conceptual understanding about ethnocomputing studies and would conduct more research studies in

computing education. Besides, constructivist educators have a good explanatory model to account for students' conceptual learning processes in ethnocomputing studies. Most importantly an increase in ethnocomputing studies would increase cultural learning activities and preserve cultural heritage for non-western students in computing education. However, the constructivist guidelines do not specify its applicability for any specific group of students in higher computing education. Further work is needed.

The last paper is 'Strengthening collaboration and communication skills in an online TPD program for 21st-century educators' by Sofia Gkemisi, Fotini Paraskeva, Aikaterini Alexiou and Hara Bouta. The authors of this paper argue that, 21st-century teachers should reflect the philosophy of lifelong and adaptive learners who never stop enriching their knowledge, upgrading their skills and re-calibrating their career paths. Teacher professional development (TPD) programs are used to support the professional development of the educational community. The goal of their research was to design an online TPD program which allocates roles and activities to learners and manages their progression through both in order to maximise the learning benefits. To this end, a PBLJii script orchestrated in line with the principles of a PBL model and the Jigsaw II collaborative strategy in a CSCL environment (Moodle) was designed and implemented to bolster collaboration and communication skills among teachers.

The research study was conducted in a number of primary schools in Greece. There were both quantitative and a qualitative analysis of the chat and forum messages exchanged by the in-service teachers and the results revealed significant development of their collaboration and communication skills as a result of their participation in collaborative tasks. Analysis of the results indicated that the participants developed collaborative and communication skills to a high degree as a result of their participation in collaborative tasks during the PBLJii script. Specifically, the in-service teachers developed team spirit skills while collaborating and demonstrated a tendency to become active participants in the discussions held within their teams. It is evidenced that the in service teachers also developed collaborative culture skills as they became involved in collaborative activities. To validate the results, more empirical studies are required.