Editorial

Lorna Uden

School of Computing,
Faculty of Computing Engineering and Sciences,
Staffordshire University,
College Road, Stoke-on-Trent,
Staffordshire ST4 2DE, UK
Email: L.uden@staffs.ac.uk

Biographical notes: Lorna Uden is an Emeritus Professor of IT Systems in the Faculty of Computing, Engineering and Technology at the Staffordshire University. Her research interests include technology learning, HCI, activity theory, big data, knowledge management, web engineering, multimedia, e-business, service science and innovation, mobile computing, cloud computing, social media, internet of things and problem-based learning.

Welcome to V12N3 of *IJLT*. This issue consists of four papers. The first paper is 'Learning with skills oriented collaborations' by Hans and Chakraverty. According to these authors, collaborative learning enhances academic performance by pooling the diverse strengths of co-learners. They argue that mere acquisition of knowledge is not sufficient; a student needs to hone certain fundamental learning skills that facilitate the assimilation and application of knowledge. Hans and Chakraverty believe that students need to hone certain fundamental learning skills that facilitate the assimilation and application of knowledge such as analytical thinking, linguistic skills and clear presentation. It thus makes greater sense to focus on the mutual exchange of specific learning skills that members in a collaborative group possess in order to fulfil the skills gap.

In this paper the authors present a new way of analysing a subject systematically in terms of the set of learning skills that are required to solve different problems of varying complexity by applying formal concepts analysis (FCA) on a skill-tagged question bank. These authors have developed a set of concepts that serve as performance parameters (PP) for evaluating students in a skill-centric manner. The formal concepts learnt from FCA serve as effective PP to evaluate students in a skills-centric manner. These authors illustrate the formation of skills driven, competitive and complementary pairs among students using the stable marriages problem (SMP) algorithm. According to these authors, practical experiments in a school environment and quantitative evidence show the validity and practicability of the proposed skills oriented collaborative learning approach. More empirical studies are needed to verify the leaning approach.

The second paper is 'Instructional quality of massive open online courses: a review of attitudinal change MOOCs' by Watson et al. According to these authors, MOOCs have gained significant attention for making higher education available to massive numbers of learners around the globe, often for little or no cost. Although MOOCs are offered for a variety of reasons, including as a way to democratise higher education some instructors have leveraged the platform as a means for attitude change outreach.

This study builds off of a prior theoretical paper by the authors that identified principles for attitudinal instruction by reviewing nine different MOOCs that targeted attitudinal learning to see how well they reflect established instructional design principles as well as attitudinal learning instructional design principles. Nine MOOCs designed for attitudinal instruction were reviewed to rate the degree they incorporated first principles of instruction and first principles of attitudinal instruction. The study found that while none of the MOOCs incorporated all of the first principles, overall they incorporated the first principles of instruction more consistently than in the prior study. The review also showed that all of the courses did incorporate the attitudinal instruction first principles to some degree.

Watson et al. argue that their study provides researchers an approach to evaluating the instructional design quality of attitudinal instruction in general and MOOCs designed for attitudinal learning specifically, while also guiding practitioners in understanding how others have approached the design of attitudinal learning MOOCs. To reify its soundness, more empirical studies are needed.

The third paper is 'An empirical study on attribute selection of student performance prediction model,' by Chaudhury and Tripaty. The authors of this paper argue that despite improvement in the standard of education globally, students' failure rates have risen. They suggested that data analytics/data mining can be used to identify patterns of student performance from such data. These patterns could be extremely useful and interesting to educationists to devise methods for enhancing student performance.

Data mining can be employed for analysis of voluminous raw data to overcome shortcomings involved in human analysis. Machine learning has been successfully implemented in the domain of education and is often referred to as educational data mining (EDM).

This paper presents a model for predicting student performance and thereby identifying the students who might under perform in examinations. Student data used for the study consisted of demographic and academic information of students. Systematic analysis of different attributes of the student data was done using feature subset selection algorithms. The model was tested using classification algorithms. Based on these results a small attribute set, namely student data feature set (SDFS) was proposed.

The empirical results show that SDFS is a sufficient attribute set for building an efficient prediction model. The experiments prove that the prediction of the student results in examination with SDFS gives very accurate results. Theses authors argue that the model provides early warnings by identifying the academically weaker students. These students can take remedial steps and avoid failures. Further validations are required to verify the model.

The final paper is 'The relationship between student conceptions of constructivist learning and their engagement in constructivist based blended learning environments' by Machumu and Zhu.

In this paper, Machumu and Zhu argue that student conceptions of constructivist learning play a significant role in the design of constructivist based blended learning environments (CBLE) in which their engagement in authentic learning activities is attributed by active participations, shareable collaborative learning experiences and self-directed inquiry. According to these authors a well-designed and motivating CBLE supports student engagement in authentic and challenging learning activities. Student engagement in CBLE involves several challenging learning activities and strategies

including group work and team experiences, innovative digital assessments, interactions and learning community.

This study investigated the relationship between students' conceptions of constructivist learning and their engagement in CBLE. A mixed research methods design was used to collect data from 722 students at the Mzumbe University, Tanzania. These authors argue that the results of their studies indicated a significant positive correlation between students' conceptions of constructivist learning and their engagement in CBLE. The results showed that students had positive conceptions of constructivist learning.

According to these authors, the results offer significant contributions to constructivist educators and education stakeholders about what should be considered while encouraging student engagement in CBLE. They further argue that students' conceptions are essential to the success of their learning in CBLE since their active constructivist engagement in diverse learning activities depends on their constructivist conceptions. The studies only involved a small number of participants, more data are needed to verify the effectiveness of the approach.