
Editorial

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Biographical notes: Lorna Uden is a Professor of IT Systems in the Faculty of Computing, Engineering and Technology at Staffordshire University. Her research interests include technology learning, HCI, activity theory, knowledge management, web engineering, multimedia, e-business, service science and innovation, semantic web, and problem-based learning.

Welcome to this issue consisting of papers ranging from contextualising e-learning services and content for computing course in higher education to unpacking inquiry skills from content knowledge in Geoscience. I would like to express my sincere thanks to Professor Cathleen Kennedy for her help in soliciting, reviewing and editing this issue.

The first paper is by Lau and Lee, 'Contextualising e-learning services and content for computing course in higher education based on learning style and competency level'.

According to these authors, the work presented in this paper is part of an on-going effort towards personalisation of e-learning services and content based on learner attributes such as learning styles and competency levels. In their paper, they describe a context model that serves as the foundation for delineating the learner's profile for service and content adaptation. The learning styles and competency levels of a cohort of engineering students undertaking a computing course were identified. The students were asked to rate a list of e-learning services and content personalisation approaches. The result shows there is significant variation of preferences and rating of e-learning services among learners of different profiles. This work can serve as a reference for research on learner context profiling in context-adaptive e-learning, particularly in computing courses.

The second paper, 'The promise of simulation-based science assessment: the Calipers project' by Quellmalz, Timms and Buckley reports on the technical quality, feasibility and utility of a simulation-based assessment system in science. The authors used an evidence-centred design framework to help align the knowledge and skills to be developed to features of tasks in which students could demonstrate the knowledge and skills, and to evaluations of student responses to the tasks. Students provide responses in several formats including selections, text entries and interactions with controls and widgets, with most responses scored automatically. In addition to illustrating the advantages of simulation-based assessment, the paper is particularly useful as a model for designing and validating interactive assessments in general.

Although numerous studies have reported on test administration mode effects and allude to the equivalence of paper-and-pencil and computer-based testing, the third paper by Jiao and Wang, 'A multifaceted approach to investigating the equivalence of computer-based and paper-and-pencil assessments: an example of reading diagnostics',

makes important additional contributions to the issue of validating computerised delivery of assessments designed for paper-and-pencil administration. The authors report on a multifaceted approach they used to study the comparability of a large-scale diagnostic test of reading and describe the methods they used to evaluate the effects of the administration mode on item characteristics, test characteristics and the underlying constructs. Their initial score distribution analyses indicated a statistically significant difference in mean scores for paper-and-pencil and computer-based administrations of the test, but their multifaceted approach demonstrated that the underlying construct was equivalent in the two modes.

The fourth paper, 'Innovative ICT to improve student learning support: the case of an Austral-Asian University' by Hoehle, Pauleen, and Scornavacca, This paper investigates the influences of information and communication technologies (ICT) on student learning advisers in their jobs and communication with students at an Austral-Asian University. The findings indicate that emergent technologies such as email, instant messaging applications, mobile technology and VoIP have had a significant impact on student learning advisers' jobs, positively influencing the communication between students and learning advisers. It was also found that each communication channel has inherent capabilities that fit with certain types of learning tasks – and clash with others. This study concludes with a discussion of the findings, considers implications for practice, and suggests directions for future research.

The final paper is by Gobert, Pallant, Krach and Daniels. In their paper, 'Unpacking inquiry skills from content knowledge in Geoscience: a research and development study with implications for assessment design', they describe in some detail how item scoring methods were determined and validated, and how the multidimensional nature of content and inquiry was explored through factor analysis. The authors also report on important lessons learned in designing computer-delivered assessment activities that do not rely on reading skills, often the case with traditional assessment methods, to assess student knowledge.