
Editorial

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Biographical notes: Lorna Uden is an Emeritus Professor of IT Systems in the Faculty of Computing, Engineering and Technology at 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, and problem-based learning.

Welcome to V10N1 issue of *IJLT*. This issue consists of five papers. The first paper is 'Investigating preschoolers' problem solving strategies in computer-mediated collaborative environments' by Georgia Virla, Nikolaos Tselios, and Vassilis Komis. This study aims at investigating gender's influence on the collaborative behaviours among preschoolers in the context of a collaborative problem solving task with computers. The collaborative task was mediated using the puzzle-solving game 'Incredible Machine'. Their approaches towards the problem-solving task were examined while they worked in one of three gender groups (girls, boys, and mixed). In order to classify the verbal interactions during their collaboration, Mercer and Yelland's model was adopted as a means to understand the cognitive dimension of children's talk around computers. In addition, Inkpen's taxonomy of mouse usage across the group members' was adopted in order to deeply understand their expressed low level interaction styles. Analysis of results demonstrated significant deviations for all gender pairs, which are presented and discussed in detail.

The results emphasise the importance of understanding how each gender interacts with computers, the need to be aware of gender differences when researching design issues related to children's use of computers. Besides, these implications stress the importance of designing flexible hardware and software and it is imperative that the products developed do not promote the negative stereotypes of either gender. These authors believe that by designing gender-aware technologies, we will be able to bring children together to understand their differences. Their findings also provide evidence that computers can have a distinctive role for supporting group activity and the development of children's talk. More empirical studies are needed to verify the results.

The second paper is by Michael Vallance, Stewart Martin and Catherine Naamani, titled, 'A situation that we had never imagined: post-Fukushima virtual collaborations for determining robot task metrics'. According to these authors, there is no consensus regarding a common set of metrics for robot task complexity in associated human-robot interactions. This paper is an attempt to address this issue by proposing a new metric so that the educational potential when using robots can be further developed. Tasks in which

students in Japan and the UK interact in a 3D virtual space to collaboratively program robots to navigate mazes have resulted in quantitative data of immersion, circuit task complexity and robot task complexity. The data has subsequently been collated to create a proposed new metric for tasks involving robots, which the authors have termed task fidelity.

The paper proposes that task fidelity is a quantitative measure of a set robot task in relation to a learner's solution. By quantifying task fidelity educators utilising robots in schools and in higher education will be able to provide tasks commensurate with the expected successful outcomes achieved by the learners.

The third paper is 'Using ConceptGrid as an easy authoring technique to check natural language responses' by Stephen B. Blessing, Shrenik Devasani, Stephen B. Gilbert, and Jivko Sinapov. According to these authors, there is broad interest in allowing students to respond to certain questions using natural language in a computer-based intelligent tutoring system.

ConceptGrid provides a template-style approach to check natural language responses by students using a model-tracing style intelligent tutoring system. The tutor-author creates, using a web-based authoring system, a lattice-style structure that contains the set of required concepts that need to be in a student response. The author can also create just-in-time feedback based on the concepts present or absent in the student's response. ConceptGrid is integrated within the xPST authoring tool and was tested in two experiments, both of which show the efficacy of the technique to check student answers. The first study tested the tutor's effectiveness overall in the domain of statistics. The second study investigated ConceptGrid's use by non-programmers and non-cognitive scientists. ConceptGrid extends existing capabilities for authoring of intelligent tutors by using this template-based approach for checking sentence-length natural language input. It will be worth evaluating how well ConceptGrid generalises to additional situations and also to a wider range of users. The two experiments demonstrate how effective ConceptGrid is as an authoring tool to check sentence-length natural language answers.

The fourth paper is, 'Massive open online courses: a review of usage and evaluation' by Jane Sinclair, Russell Boyatt, Claire Rocks and Mike Joy. The authors of this paper conduct a literature review to examine what is known about MOOCs (both those following the original connectivist model and the more traditionally didactic variety) and what indications there are that they can live up to such expectations. They discuss concerns arising from the review and identify issues including lack of evidence, absence of pedagogy, lack of support and unrealistic expectations particularly on beginner learners.

The massive open online course (MOOC) has seen a dramatic rise in prominence over the last five years and is heralded by some as disrupting existing pedagogy and practices within the education sector, while others are far more sceptical about the impact of MOOCs. Numerous courses are now being offered on a number of different platforms, with participant numbers for some individual courses reaching hundreds of thousands. Expectations are high for what these courses can achieve in terms of opening access, widening participation and cost saving.

The MOOC, or massive open online course, offers a prospect of education beyond the confines of individual universities and organisations, allowing (possibly) free participation to large numbers of learners from any geographical location and without the need to satisfy formal entry requirements.

The final paper is 'Evaluation of high-altitude balloons as a learning technology' by Jeremy Straub. Straub argues that the use of high-altitude balloons for educational purposes has been demonstrated for students ranging from elementary school through to collegiate graduate students. The value proposition for each group is, of course, different. Across all of the education level-appropriate experiments, however, there is a constant: high-altitude balloons are a cost effective way to provide students with an emotive learning experience.

This paper has provided an overview of high-altitude ballooning. It has also provided a framework for assessing the utility of high-altitude balloons in an educational context. Several examples of how high-altitude balloons could be used have been discussed. These have been assessed using the proposed evaluation framework. The foregoing has demonstrated the role that high-altitude ballooning can play in a wide range of levels of education. It has also shown that they are not a panacea that can be dropped, effectively, into every environment. Like many tools, they can be effective if used correctly and wasteful if not. The presented framework can assist prospective users in assessing whether ballooning would be beneficial in a possible application, or not.