



UniServe Science

Reading Supplements for

Symposium: Visualisation and Concept Development
Science Teaching and Learning

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The University of Sydney



UniServe Science has compiled this bibliography on assessment in science teaching and learning from the Web and the following journals:

- AJET: Australian Journal of Educational Technology
- British Journal of Educational Technology
- Teaching Learning Forum: Proceedings
- Science Education
- Interactive Multimedia Electronic Journal of Computer-Enhanced Learning
- Bioscene: Journal of College Biology Teaching

References that relate to research in university science education and assessment published between 2007 and 2008

Bibliographies prepared for previous UniServe Science Conferences are available online from
<http://science.uniserve.edu.au/workshop/>

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Apedoe, X.S. (2007) Engaging Students in Inquiry: Tales From an Undergraduate Geology Laboratory-Based Course. *Science Education*, **92**, 631 – 663.

This paper reports the synthesis of three case studies of students' engagement in inquiry-based learning activities in an upper-level undergraduate geology course. Details of how students engaged in scientific questions, gave priority to evidence, formulated explanations, evaluated explanations, and communicated and justified their findings are presented. Data for this study included classroom observations and fieldnotes of classroom practices, questionnaires, archival data (e.g., student work samples), and audiotapes and transcripts of interviews conducted with the student participants throughout the course. The findings suggest that although these students were able to successfully appropriate inquiry practices (e.g., giving priority to evidence), it was not without its challenges (e.g., perceived lack of guidance). A detailed discussion of the ways in which students were successful, and where they had challenges engaging in inquiry is presented, with the goal of helping direct practitioners and researchers to strategies whereby students' inquiry experiences can be improved.

Breslin, C., Nicol, D., Grierseon, H., Wodehouse, A., Juster, N. and Ion, W. (2007) Embedding an integrated learning environment and digital repository in design engineering education: lessons learned for sustainability. *British Journal of Educational Technology*, **38**(5), 805–816.

This paper describes how a system comprising a learning environment and digital repository is being embedded into the teaching and learning of Design Engineering at the University of Strathclyde. It then maps out the issues that have been encountered, how these have been overcome and how other departments or institutions would be affected if they were to roll out and scale up the use of such tools. These issues are categorised as technological, pedagogical and cultural, and include the adequate provision of support, creating a critical mass of resources, ensuring quality and integration with other technologies. Successful embedding and sustainability requires that senior managers reflect on these key issues at a departmental and/or institutional level before implementation.

Buchan, J.F. and Swann, M. (2007) A bridge too far or a bridge to the future? A case study in online assessment at Charles Sturt University. *Australasian Journal of Educational Technology*, **23**(1).

The in house development of an online assessment tool, OASIS, has provided a unique opportunity to research the use of online assessment in teaching and learning across the university. The developing relationship between IT staff, educational designers and academics serves as a model for integrated and evolving management systems which demonstrate how academic research is informing improvements in applying educational technology. A framework, the Bridge Support Framework for Online Learning, is proposed for the support and implementation of online learning systems. A case study in online assessment in a microeconomics subject describes the development of this framework in response to a 'systems' failure when using the online assessment software tool during a major assessment event for a large external student cohort. As the university moves towards an open source learning management system for 2008, the range of online assessment methods will increase. It is here that the case study and the proposed Bridge Support Framework have potential value in learning from history to improve processes and procedures for the future.

Chen, W. and Looi, C-K. (2007) Incorporating online discussion in face to face classroom learning : a new blended learning approach. *Australasian Journal of Educational Technology*, **23**(1).

This paper discusses an innovative blended learning strategy which incorporates online discussion in both in-class face to face, and off- classroom settings. Online discussion in a face to face class is compared with its two counterparts, off-class online discussion as well as in-class, face to face oral discussion, to examine the advantages and disadvantages of the proposed strategy. By integrating online discussion into the flow of the classroom, learners are given dedicated time to foster a habit of critical thinking, reflection and articulating these online, which can subsequently seed further in-class oral discussions, and off-class online discussions. It is found that in- class, online discussion can provide a wider spectrum of discussion perspectives, equalise participation in discussion, and promote cognitive thinking skills and in depth information processing. However, the lack of face to face interactions and the need for sufficient time to do online postings pose challenges in implementing online discussion for face to face classroom learning.

Choi, H.J. and Johnson, S. (2007) The effect of problem-based video instruction on learner satisfaction, comprehension and retention in college courses. *British Journal of Educational Technology*, **38**(5), 885–895.

The main purpose of this study was to identify the effects of two major components (ie, video and group discussion) of problem-based video instruction (PBVI) on college students' learning. To achieve this purpose, this study examined whether or not PBVI can improve learner satisfaction, comprehension and retention by comparing the



results from three dependent variables in PBVI with two other kinds of instruction: (1) problem-based text instruction (PBTI) and (2) PBVI without group discussion. According to the findings, there were significant differences in learner satisfaction, comprehension, and delayed retention between PBVI and PBTI groups, whereas there were no significant differences in learners' satisfaction, comprehension, and delayed retention between PBVI and PBVI without group discussion. This study implies that PBVI in college courses have the potential to enhance student satisfaction, comprehension and delayed retention

Cluett, L. and Skene, J. (2007). A new(er) dimension to online learning communities: Using web tools to engage students. In *Student Engagement*. Proceedings of the 16th Annual Teaching Learning Forum, 30-31 January 2007. Perth: The University of Western Australia. <http://lsn.curtin.edu.au/tlf/tlf2007/refereed/cluett.html>

Gen Y students (born 1982-2000) are an increasing proportion of student populations. Their familiarity with information and communication tools (ICT) is claimed by generational researchers to influence their approaches to learning and their expectations of university IT capabilities (Oblinger & Oblinger, 2005; Jeffries, 2003; Prensky, 2001). Universities are challenged to attract and retain these students who increasingly face competing demands on their time and expect institutions to respond with flexible services.

This paper details the response in one university to the challenge of using the web tools that Gen Y students themselves adopt to enhance communication. It is from the perspective of a central unit charged with communicating with, and providing services to, the entire student body in a multitude of contexts. The applicability, usefulness, obstacles and associated pedagogical principles of ICT are explored and reported in this pilot project.

Jensen, N., von Voigt, G., Nejd, W. and Olbrich, S. (2004) Development of a Virtual Laboratory System for Science Education. *Interactive Multimedia Electronic Journal of Computer-Enhanced Learning*, 2(3).

The goal of this work is to develop synthetic laboratories to teach natural and engineering sciences by means of interactive 3D visualization. The development framework was designed over six years and scales from small to large computer simulations that are distributed on the Net. Pilot studies demonstrate technical feasibility, indicate educational value, and have helped us to understand better how learners use 3D media and where specific care in designing content is necessary to master learning challenges in a successful way.

Kim, C-M. and Keller, J.M. (2007) Effects of motivational and volitional email messages (MVEM) with personal messages on undergraduate students' motivation, study habits and achievement. *British Journal of Educational Technology*, 39(1), 36-51.

This study investigated what kind of supportive information can be effective in improving the situation where there were severe motivational challenges. Motivational and volitional email messages (MVEM) were constructed based on an integrated model of four theories and methods, which are Keller's ARCS model, Kuhl's action control theory, Gollwitzer's Rubicon model of motivation and volition, and Visser & Keller's strategy of motivational messages, and distributed with personal messages created based on audience analysis to a large undergraduate class. In order to examine the effects of the messages on motivation for the course, study habits (study time), and achievement (test grade), MVEM were sent to 30 students (Personal Message Group: PMG) with personal messages and to 71 students (Non-Personal Message Group: NonPMG) without personal messages. Results indicated that PMG showed a higher level of motivation, especially in regard to confidence, than NonPMG. Also, the mean test grade of PMG increased so that the initial difference of the test grade between the two groups significantly decreased. Although there was no difference between the two groups in study habits, the findings suggest that personal messages addressing specific individual problems raise the positive effects of MVEM constructed based on the integrated model. Future research directions are discussed.

Kreiser, B., and Hairston, R. (2007) Dance of the Chromosomes: A Kinetic Learning Approach to Mitosis and Meiosis. *Bioscene: Journal of College Biology Teaching*, 33(1).

Understanding mitosis and meiosis is fundamental to understanding the basics of Mendelian inheritance, yet many students find these concepts challenging or confusing. Here we present a visually and physically stimulating activity using minimal supplies to supplement traditional instruction in order to engage the students and facilitate understanding and retention of these concepts. This kinesthetic activity has students modeling the events of mitosis and meiosis by acting as human chromosomes. This exercise has been used in a sophomore level genetics class at a state university, but it should also be suitable for high school and introductory college classes. An on-line survey was used as an assessment of transfer of knowledge, and this also allowed students the opportunity to comment on this exercise as a learning experience. While it was difficult to be quantitative in our evaluation of learning, student responses to the survey overwhelmingly characterized the exercise as advancing their ability to understand or visualize the processes of mitosis and meiosis.



Lee, M.J.W., McLoughlin, C. and Chan, A. (2008) Talk the talk: Learner-generated podcasts as catalysts for knowledge creation. *British Journal of Educational Technology*, **39**(3), 501–521.

Podcasting allows audio content from one or more user-selected feeds or channels to be automatically downloaded to one's computer as it becomes available, then later transferred to a portable player for consumption at a convenient time and place. It is enjoying phenomenal growth in mainstream society, alongside other Web 2.0 technologies that enable Internet users to author and distribute rich media content quickly and easily. Instead of using the technology for the mere recording and dissemination of lectures and other instructor-centred information, the project reported on in this article focused on enabling students to create their own podcasts for distribution to their peers. The article describes how engaging in the podcasting exercise promoted collaborative knowledge building among the student-producers, as evidenced through focus-group interviewing and an analysis of the products of their shared dialogue and reflection. The findings suggest that the collaborative development of audio learning objects enabling student conceptualisations of disciplinary content to be shared with peers is a powerful way of stimulating both individual and collective learning, as well as supporting social processes of perspective-taking and negotiation of meaning that underpin knowledge creation.

Liu, G-Z. (2008) Innovating research topics in learning technology: Where are the new blue oceans. *British Journal of Educational Technology*, **39**(4), 738–747.

Learning technology (LT) is a transdisciplinary field that has been influencing human development in various academic subjects and industries for almost a century. A number of studies and theories have investigated the attributes, design, development, applications, impact, effectiveness and efficiency of various technologies in human learning in diverse disciplines and contexts. However, so far there has been no design research published concerning the creation of novel LT research topics. Since Surry (2005) calls for more researchers and practitioners to fully realise the importance of the study of change—which is critical to the future of LT research—we may need to think about viable ways to make this field more successful.

Luckenbill, L., Hintze, K., Ramakrishna, B.L. and Pizziconi, V. (2004) Interactive Nano-Visualization in Science and Engineering Education: Conforming Technology to Transform Education The IN-VSEE Project. *Interactive Multimedia Electronic Journal of Computer-Enhanced Learning*, **2**(3).

The Interactive Nano-Visualization in Science and Engineering Education (IN-VSEE) project combines advances in telecommunications, instructional technologies, and science and engineering research to provide the first real-time interface for remote operation of Scanning Probe Microscopy (SPM) over the World Wide Web for educational and training purposes. The “live remote control” of this Nobel prize-winning microscopy technique enables the user to carry out “real-time” remote scientific experiments and is the basis for discovery-based learning about our material nanoworld. This novel visualization-centered, distance learning project utilizes a WWW technology-based ‘visualization pipeline’ to enhance students' understanding of our material world at all levels of scale, from the macroscopic and the microscopic levels to even the smallest levels of matter, the nano- and atomic scales, where, intuition and textbook examples alone do not suffice. The project has produced interactive educational learning modules to bring the excitement of research using cutting-edge technology to upper-level high school and first-year college students and teachers in ways not previously possible. We hope that this unique combination of cutting-edge research, leading-edge telecommunications, and advanced learning technologies will serve as a model for the development of a new educational paradigm to meet the educational needs of the 21st century.

Martin, D. and Treves, R. (2007) Embedding e-learning in geographical practice. *British Journal of Educational Technology*, **38**(5), 773–783.

This paper describes how two related e-learning initiatives have led to school level virtual learning environment (VLE) adoption and commencement of several new teaching developments at the University of Southampton. These have engaged additional academic staff with online learning and increased the role of blended learning within the curriculum, in turn contributing to new strategies at the university level. The first e-learning project was the Joint Information Systems Committee/National Science Foundation-funded DialogPLUS project, and the second, a collaborative online masters programme. Barriers to embedding have been both technical and human, but among critical success factors, we especially identify the impetus provided by external funding, the size and composition of the project teams and, to a lesser degree, the creation of demonstrator materials. The specific details of VLE choice and learning object design have proved less significant. This work has been undertaken in collaboration with other schools in Southampton and other institutions within the Worldwide Universities Network.



Mearns, K., Meyer, J. and Bharadwaj, A. (2007). Student engagement in human biology practical sessions. In Student Engagement. Proceedings of the 16th Annual Teaching Learning Forum, 30-31 January 2007. Perth: The University of Western Australia. <http://lsn.curtin.edu.au/tlf/tlf2007/refereed/cluett.html>

Student engagement in their studies is a crucial influence on their academic achievement. When a unit is restructured, opportunities for this engagement may be lost. Human Structure and Development 2212 was created in 2004, an amalgamation of two smaller units. It is heavily practically based and it was determined that formal feedback was needed, in the form of questionnaires, to determine whether practical components of this unit were reaching their targets. It was discovered in this study that the students' perception of their tutors approachability and sensitivity, along with their perception of class organisation, was vital to their participation in the sessions. It was also found that the time of day or week that the survey was implemented had significant effects on student attitudes. Findings from this study have important implications both on the future direction of this unit and on the future implementation of Student Perception of Teaching (SPOT) surveys conducted in universities.

Melrose, S. and Bergeron, K. (2007) Instructor immediacy strategies to facilitate group work in online graduate study. *Australasian Journal of Educational Technology*, **23**(1), 132-148 .

An increasing number of online graduate study programs require students to participate in collaborative work projects. And yet, educational research examining instructional strategies that facilitate learning in small groups online is limited. This article describes findings from a qualitative research project that investigated instructor immediacy at different stages of group development. The research was framed from a constructivist theoretical perspective and a descriptive research design. Participants were health care practitioners from two *WebCT* online graduate study programs. Data sources included four focus groups and twenty individual audio recorded transcribed interviews. The data was collected in person over a three year period, analysed for themes by two researchers, and confirmed with participants through ongoing member checking. Instructional immediacy strategies that students believed facilitated meaningful learning in small groups are presented in the three overarching stages of first, beginning/ engagement; second, middle/ encouragement; and third, ending/ closure. Findings suggested that, in the beginning/ engagement stage, learners valued knowing their instructors were available 'if you need me and that it was 'safe' to contact them. In the middle/ encouragement stage, they appreciated personal help with networking and managing conflict, particularly in relation to participation and marking and they valued private feedback. And, in the ending/ closing stage, they needed opportunities to debrief and reflect.

Muller, D., Sharma, M. and Riemann, P. (2007) Raising Cognitive Load with Linear Multimedia to Promote Conceptual Change. *Science Education*, **2**, 278 – 296.

Two disparate research programs have addressed the challenge of instructional multimedia design. One, based on cognitive load theory, has focused on ways of reducing unnecessary cognitive load during instruction to free up resources for learning. The other, based on constructivism, has centered on interactive multimedia, allowing students to build their own knowledge. Attempting to build on both bodies of literature, in this study, we investigated techniques that can raise the useful cognitive load engendered with linear multimedia. Participating online from home, students were pre- and posttested around a short multimedia intervention that explained Newton's first and second laws. In Experiment 1, students who watched a video dialogue involving alternative conceptions reported investing greater mental effort and achieved higher posttest scores than students who received a standard lecture-style presentation. In Experiment 2, two additional multimedia treatments were evaluated to assess the role of instructional time and the method of addressing alternative conceptions. In all, 272 students participated in the experiments. Interviews suggest that students adopted a more active approach to understanding the material if alternative conceptions were raised. In addition, students who watched the dialogue judged themselves to be similar to the student in the multimedia.

Murphy, E. and Rodriguez-Manzanares. (2008) Using activity theory and its principle of contradictions to guide research in educational technology. *Australasian Journal of Educational Technology*, **24**(4), 442–457.

This paper describes how activity theory (AT) and its principle of contradictions may be relied on to guide research in educational technology. The paper begins with a theoretical overview of AT and of its principle of contradictions. It follows with a synthesis of studies that have used AT as a lens to study information and communication technologies (ICTs) in educational contexts. We analyse educational technology studies that have focused on contradictions in terms of their underlying assumptions, research questions, approaches to analysis, findings, and implications. The lens of AT and contradictions provides a versatile tool to inquire into various aspects of educational technology use, taking into account individual and institutional perspectives as well as evolution over time. AT and its principle of contradictions provide insights into how transformation may occur with use of ICTs in educational contexts.



Neo, M., Neo, T-K. and Xian-Lian, G.T. (2007) A constructivist approach to learning an interactive multimedia course: Malaysian students' perspectives. *Australasian Journal of Educational Technology*, **23**(4), 470-489.

We present an alternative method in the constructive perspective to enhance student learning through a multimedia project, in which computing and multimedia technologies are used to enable students to participate more actively in their own learning. Students in a second year course in the Multimedia University, Malaysia, used the multimedia development process (MDP) to build a project in a collaborative, problem solving learning environment. They worked in groups and sought to solve their design problems as a team, with the teacher acting as a facilitator supporting them in their learning. Results showed that this method enhanced learning and improved understanding of the subject.

Ng, C.S.L. and Cheung, W.S. (2007) Comparing face to face, tutor led discussion and online discussion in the classroom. *Australasian Journal of Educational Technology*, **23**(4), 455-469.

This study explores the relative effectiveness of in class online discussion and face to face, tutor led discussion in preservice teachers' recall of concepts. Two groups of preservice teachers, who engaged in different discussion modes, were tested two weeks later on how many concepts they could recall. No significant difference in the recall score was found between the two groups, but the group involved with the in-class discussions using a threaded discussion tool achieved a slightly higher mean score in the recall of multimedia design concepts. The online group completed a survey questionnaire on their perception of their use of online discussion. The majority perceived that they learned more online. The preservice teachers also indicated the mode of discussions that they preferred and the reasons for their choice. Half preferred to participate in in-class online discussions, rather than face to face, tutor led discussion, during class time. The findings suggested that educators and learners may choose either in-class online discussion or face to face, tutor led discussion without fear of significant disadvantages to learning.

Palmer, S., Holt, D. and Bray, S. (2008) Does the discussion help? The impact of a formally assessed online discussion on final student results. *British Journal of Educational Technology*, **39**(5), 847-858.

While there is agreement that participation in online asynchronous discussions can enhance student learning, it has also been identified that there is a need to investigate the impact of participation in online discussions on student course performance. This paper presents a case study based on an undergraduate engineering management unit employing a formally assessed online discussion area. It was observed that while many students read a significant number of discussion postings, generally, the posting of new and reply messages occurred at the minimum level required to qualify for the assignment marks. Based on correlation and multiple regression analysis, it was observed that two variables were significantly related to a student's final unit mark—prior academic ability and the number of new postings made to the online discussion. Each new posting contributed three times as much to the final unit mark as its nominal assessment value, suggesting that the work in preparing their new discussion postings assisted students in the completion of a range of assessable tasks for the unit. The number of postings read was not significantly correlated with the final unit mark, suggesting that passive lurking in this online discussion did not significantly contribute to student learning outcomes.

Pettit, J. and Kukulka-Hulme, A. (2007) Going with the grain: mobile devices in practice. *Australasian Journal of Educational Technology*, **23**(1), 17-33.

Fifty-seven alumni of a global Masters program participated in research into their use of mobile devices. Drawing on questionnaire and interview data, the paper examines how far the devices were embedded in the personal and professional lives of these alumni, most of whom were aged 35-54. All had experience of online and distance education, and most worked in education or training. The study revealed some innovative uses of mobile devices, a selection of which is reported in this paper. The paper links the findings to wider debates about the changing relationship between learners and educational institutions, and the role of mobile devices in enabling individuals to engage in learning conversations. Data are provided on which devices were used by the alumni and for what purposes, and the paper explores the implications of these findings for educators.

Saw, K.G., Majid, O., Ghani, N.A., Atan, H., Idrus, R.M., Rahman, Z.A. and Tan, K.E. (2007) The videoconferencing learning environment: Technology, interaction and learning intersect. *British Journal of Educational Technology*, **39**(3), 475-485.

This paper is a study on the interaction patterns of distance learners enrolled in the Mathematics and Physics programmes of Universiti Sains Malaysia in the videoconferencing learning environment (VCLE). Interaction patterns are analysed in six randomly chosen videoconferencing sessions within one academic year. The findings show there are more interactions in the graphics display mode than the video display mode. The graphics display



mode, which involves the simultaneous interaction of the teacher, students and course materials, shows greater student engagement in the VCLE. The focus on a three-component interaction in distance learning differs from previous studies which looked at distinct types of two-component interactions. The types of communicative interaction, in particular the explanatory and cognitive types which are dominant in the graphics display mode, are discussed within the construct of learning. The higher number of teacher-initiated interactions may also imply that the teacher plays a crucial role in creating and maintaining a community of inquiry focused on exploring and developing content as well as giving feedback on concepts, ideas or solutions.

Tekinarslan, E. (2008) Blogs: A qualitative investigation into an instructor and undergraduate students' experiences. *Australasian Journal of Educational Technology*, **24**(4), 402–412.

This study reports on the experiences of an instructor and an undergraduate class who used blogs in their teaching and learning environment at Abant Izzet Baysal University, Turkey. Qualitative data were collected from observation of students' activities when working on blogs in the classroom, analyses of students' blog documents on the web, and interviews with 42 students. Most students reflected that blogs are user friendly and convenient tools for publishing and sharing studies. Moreover, blog implementations contributed positively to students' information searching and writing skills, despite the limited opportunities that many students had for Internet access outside the university. However, students' ignorance regarding copyright issues and their tendency to copy information from online sources and paste it into their blogs was a common problem.

Wang, Q. (2008) Student-facilitators' roles in moderating online discussions. *British Journal of Educational Technology*, **39**(5), 859–874.

Intellectual, social, managerial and technical are four commonly reported categories of facilitation in online discussions. The purpose of this study was to investigate whether these four broad categories of facilitation were equally applied in online discussions and which specific skills were perceived to be more important. In this study, students were facilitators of online discussions. Each student-facilitator led a group discussion and participated in two additional discussions moderated by other student-facilitators. Three groups of students were selected for data collection. Results indicated that the intellectual, social and managerial categories of facilitation were highly applied, while technical facilitation was less used in the online discussions. Also, summarising discussions was perceived to be the top facilitation skill. This paper presents findings of the study and discusses issues involved in the study.

See the 2008 Teaching and Learning Forum web site for the following papers:

Bertram, C. (2008) Defining global skills is an important step towards the preparation of future science graduates. *Preparing for the graduate of 2015*. Proceedings of the 17th Annual Teaching Learning Forum, 30-31 January 2008. Perth: Curtin University of Technology. [<http://lsn.curtin.edu.au/tlf/tlf2008/abstracts.html>].

Boase-Jelinek, D. (2008) Student engagement in learning and teaching. *Preparing for the graduate of 2015*. Proceedings of the 17th Annual Teaching Learning Forum, 30-31 January 2008. Perth: Curtin University of Technology. [<http://lsn.curtin.edu.au/tlf/tlf2008/abstracts.html>].

Cooper, L., Burns, S., Dimitrijevic, S. and Mairata, M. (2008) Enthuse 'em or lose 'em: Change your students from passive listeners to active learners. *Preparing for the graduate of 2015*. Proceedings of the 17th Annual Teaching Learning Forum, 30-31 January 2008. Perth: Curtin University of Technology. [<http://lsn.curtin.edu.au/tlf/tlf2008/abstracts.html>].

Dender, A. (2008) Innovative technology engaging first year students in independent and collaborative learning in foundation units. *Preparing for the graduate of 2015*. Proceedings of the 17th Annual Teaching Learning Forum, 30-31 January 2008. Perth: Curtin University of Technology. [<http://lsn.curtin.edu.au/tlf/tlf2008/abstracts.html>].

Fernandes, L., Cruickshank, C. and Maley, M. (2008) The impact of Lectopia on learning outcomes in second year Pharmacology. *Preparing for the graduate of 2015*. Proceedings of the 17th Annual Teaching Learning Forum, 30-31 January 2008. Perth: Curtin University of Technology. [<http://lsn.curtin.edu.au/tlf/tlf2008/abstracts.html>].

Fyfe, G., Meyer, J., Hill, J., Fyfe, S., Sanders, K., Ziman, M. and Koehler, N. (2008) Diversity in reflective practice by human biology students using online test feedback. *Preparing for the graduate of 2015*. Proceedings of the 17th Annual Teaching Learning Forum, 30-31 January 2008. Perth: Curtin University of Technology. [<http://lsn.curtin.edu.au/tlf/tlf2008/abstracts.html>].



- Gardner, P. and Ladyshevsky, R.K. (2008) Building physiotherapy communities of practice in clinical education through blogging. *Preparing for the graduate of 2015*. Proceedings of the 17th Annual Teaching Learning Forum, 30-31 January 2008. Perth: Curtin University of Technology. [<http://lsn.curtin.edu.au/tlf/tlf2008/abstracts.html>].
- Goerke, V. and Oliver, B. (2008) Will the Net Generation use personal devices and social software for supplementary learning experiences?. *Preparing for the graduate of 2015*. Proceedings of the 17th Annual Teaching Learning Forum, 30-31 January 2008. Perth: Curtin University of Technology. [<http://lsn.curtin.edu.au/tlf/tlf2008/abstracts.html>].
- Hill, J., Meyer, J., Sanders, K., Fyfe, G., Fyfe, S., Ziman, M. and Koehler, N. (2008) Taking baby steps: The impact of test length on first year student engagement with online formative assessments in human biology. *Preparing for the graduate of 2015*. Proceedings of the 17th Annual Teaching Learning Forum, 30-31 January 2008. Perth: Curtin University of Technology. [<http://lsn.curtin.edu.au/tlf/tlf2008/abstracts.html>].
- Leaver, T. (2008) Putting windows in the ivory tower: Challenges and changes to university practice in the face of Web 2.0 tool use by students. *Preparing for the graduate of 2015*. Proceedings of the 17th Annual Teaching Learning Forum, 30-31 January 2008. Perth: Curtin University of Technology. [<http://lsn.curtin.edu.au/tlf/tlf2008/abstracts.html>].
- Murcia, K. (2008) Interactive whiteboard technology: Weaving together teaching and learning. *Preparing for the graduate of 2015*. Proceedings of the 17th Annual Teaching Learning Forum, 30-31 January 2008. Perth: Curtin University of Technology. [<http://lsn.curtin.edu.au/tlf/tlf2008/abstracts.html>].
- Pepper, C. and Barker, S. (2008) Introducing problem based learning to second year genetics students. *Preparing for the graduate of 2015*. Proceedings of the 17th Annual Teaching Learning Forum, 30-31 January 2008. Perth: Curtin University of Technology. [<http://lsn.curtin.edu.au/tlf/tlf2008/abstracts.html>].
- Pepper, C. and Pluske, J. (2008) Implementing problem based learning into Natural Resource Economics. *Preparing for the graduate of 2015*. Proceedings of the 17th Annual Teaching Learning Forum, 30-31 January 2008. Perth: Curtin University of Technology. [<http://lsn.curtin.edu.au/tlf/tlf2008/abstracts.html>].
- Phillips, R., Gosper, M., Mcneill, M., Woo, K., Preston, G. and Green, D. (2008) Student and staff perceptions of *Lectopia*. *Preparing for the graduate of 2015*. Proceedings of the 17th Annual Teaching Learning Forum, 30-31 January 2008. Perth: Curtin University of Technology. [<http://lsn.curtin.edu.au/tlf/tlf2008/abstracts.html>].
- Voss, S. (2008) Resurrecting the dead: Use of online learning in forensic science. *Preparing for the graduate of 2015*. Proceedings of the 17th Annual Teaching Learning Forum, 30-31 January 2008. Perth: Curtin University of Technology. [<http://lsn.curtin.edu.au/tlf/tlf2008/abstracts.html>].
- Yeo, S. and Williams, M. (2008) Turnitin: A tool for teachers. *Preparing for the graduate of 2015*. Proceedings of the 17th Annual Teaching Learning Forum, 30-31 January 2008. Perth: Curtin University of Technology. [<http://lsn.curtin.edu.au/tlf/tlf2008/abstracts.html>].