

Cite as: Myatt, P., Their, R. Bulmer, M. and Byers, H. (2007) "Promoting deep learning through design - discussion, student activity and assessment". In Proceedings of the Enhancing Higher Education, Theory and Scholarship Conference. *Higher Education Research and Development Society of Australasia (HERDSA) Conference*, Adelaide, July 9-11.

Promoting deep learning through design - discussion, student activity and assessment

Dr Paula Myatt

The University of Queensland, Brisbane, Australia
p.myatt@uq.edu.au

Dr Ricarda Thier

The University of Queensland, Brisbane, Australia
r.thier@uq.edu.au

Dr Michael Bulmer

The University of Queensland, Brisbane, Australia
m.bulmer@uq.edu.au

Dr Helen Byers

The University of Queensland, Brisbane, Australia
h.byers@epsa.uq.edu.au

There is widespread evidence that Australia is currently facing falling student participation rates in science and mathematics subjects at secondary school and university undergraduate levels. The future implications of this science-deficit are widely acknowledged. Unfortunately, science teaching itself is also widely seen as being dull, too content-heavy, delivered to mass-audiences and assessed in ways promoting surface approaches to learning.

To address these issues, and issues relating to the apparent lack of challenge for very able students in their first year at university, The University of Queensland developed the Advanced Study Program in Science (ASPinS). This initiative offers an enhanced learning experience to a select group of high-achieving students in addition to their existing undergraduate study in a Science-related degree program. ASPinS offers these students the opportunity to interact with leading research scientists, broaden their understanding of important scientific issues, experience new interactive learning opportunities, undertake research projects and obtain an authentic insight into science as a career.

This presentation, however, will only focus on the unique first year course offered within the 3 year ASPinS experience – BIOL1017 "Perspectives in Science". In this course students are encouraged to think about important current scientific issues from different perspectives – both scientific and non-scientific. Panels of expert scientists use their knowledge and experience to present real scientific issues for students to examine and discuss. These panel discussions cover a spectrum of medical, environmental and social issues, covering different viewpoints and possible solutions.

Combining this effective panel model with an array of student-led activities provides an ideal environment for learning. Students are made to apply their new knowledge, discuss issues and construct thoughts, opinions and products – depending on the specifically designed activities. Relevant assessment tasks include group-writing activities and oral presentations which enable students to demonstrate their learning through authentic contexts that are carefully designed to influence the way students learn. Authentic assessment tasks enable

Cite as: Myatt, P., Their, R. Bulmer, M. and Byers, H. (2007) “Promoting deep learning through design - discussion, student activity and assessment”. In Proceedings of the Enhancing Higher Education, Theory and Scholarship Conference. *Higher Education Research and Development Society of Australasia (HERDSA) Conference*, Adelaide, July 9-11.

students to see a purpose for the product (assessment) they are producing while at the same time enabling them to synthesise the various scientific ‘facts’ and issues they have been discussing. This level of assessment activity, by its nature, encourages higher-order learning.

Student evaluations have consistently confirmed that the key to the success of each Module within the course lies in the breadth of speakers selected to represent the different angles associated with the topic under discussion and the related activities and assessment tasks. The findings indicate that students value the opportunity to explore the multi-disciplinary nature of science-related issues and to actually discuss the issues.

The “Perspectives in Science” course is a model for the success of combining teaching and learning theory and scholarship, to a particular set of objectives, to create a highly effective learning environment and a meaningful student experience.

During this session specific examples of Discussion Topics, scenarios, and authentic assessment tasks will be provided, and participants will be given the opportunity to undertake a brief student activity.