

Utilising the learning management system to enhance feedback for students



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Internet-based learning management systems (LMS) allow academics to automate the provision of timely feedback to students. However, to fully exploit this LMS capability and to further encourage student involvement, teaching staff can add an element of summative assessment to the feedback process.

For those teaching microbiology at the tertiary level, information and communication technologies (ICT) have changed the way in which academic responsibilities are undertaken: the overhead projector has been replaced by PowerPoint slide presentations and web-based LMS are rapidly becoming the central subject administration tools. LMS are university-wide, internet-based systems that provide a platform for the provision of subject content, communication with and between students and both formative and summative assessment. A range of commercially developed and public-access educational software systems are available; however, Blackboard and Blackboard Vista (incorporating WebCT) are the dominant brands of LMS, having been adopted by the majority of Australian universities¹.

Inherent in the introduction of a university-wide LMS is the risk that its utilisation by academics may involve:

fairly unsophisticated use of the tools available and in some cases ... (be) used primarily to provide access to information rather than to engage students directly².

In an overview of the use of LMS, Coates³ suggests that an “LMS may enrich learning by providing automated and adaptive formative assessment which can be individually initiated and administered”. The provision of timely feedback underpins principle seven of the *Nine Principles Guiding Teaching and Learning at the University of Melbourne*⁴. It is recognised that, for optimal learning, students need to be provided with opportunities to test their understanding by undertaking learning cycles of experimentation, feedback and assessment. This is

particularly important in the teaching of microbiology, where students are initially required to become fluent in a new language (microbial nomenclature) while simultaneously acquiring a broad knowledge base to support their understanding of research-based material presented later in their courses.

Case studies on the use of feedback

For the past 6 years, academics in the Department of Microbiology & Immunology at the University of Melbourne have been using the LMS quiz function to provide feedback for their individual classes. These online quizzes serve as formative assessment, giving the students instant, automated feedback on their understanding of core material from their lectures or practical classes. Despite the use of relatively simple true or false questions, staff have found that with careful crafting of questions they can highlight and clarify common student misconceptions. Feedback quizzes have also been used for a combination of formative and summative assessment in several second year microbiology subjects at the University of Melbourne.

Case study 1

Mrs Cheryl Power coordinates a second-year, lecture-based microbiology subject in which the final mark for around 10% of the class would inevitably fall between 45% and 49%. In 2009, in an effort to encourage students to improve their marks by regularly revising their work throughout the semester, a weekly bank of 10-15 true or false questions was provided for students on the subject site on the LMS. Students had 5 days to complete the questions, with the answers and associated feedback automatically becoming available in the week following each quiz. If students correctly answered at least half of the questions, they received a (small) mark as part of their summative assessment for the subject.

In an in-house survey of these students conducted by Mrs Power [unpublished, 2009] a common response was that the quizzes were very helpful and allowed students to gauge their progress and understanding. Students commented that:

Without them I would have studied much less.

It's about reminding people to study.

Enforced weekly revision of topics kept me on track and up-to-date.

However, some students criticised the delayed feedback. They were not prepared to note their responses and review their answers a week later.

There should be more immediate feedback so we know what we got wrong.

By the time the feedback is released you forget what you have answered so you can't see where you went wrong.

Staff recognised that immediate feedback would be optimal but that this would compromise the quizzes, given that the tasks were part of the summative assessment. Students were informed about the aims of the process and also told that it had been hoped that the delayed feedback would provide a useful revision strategy. (A possible resolution for 2010 would be to make a second version of each feedback quiz – with inbuilt immediate feedback – available to students after the summative assessment time frame.)

At the end of semester, there was a 50% reduction in the number of students with a final mark between 45 and 49%, without significant grade inflation, suggesting that the goal of encouraging revision was achieved for at least some of the cohort.

Case study 2

In another second-year microbiology subject, compulsory short answer questions to be submitted before each week's practical class were introduced on the LMS in 2009. To encourage completion of the weekly tasks, students who made a reasonable attempt at the question/s were rewarded with a small mark towards their final result. The aim was to ensure that students completed the pre-reading and had a clear idea of the main concepts prior to each practical class. An added advantage of this system was that misconceptions apparent in the students' answers could be readily addressed during the practical classes. Anecdotally, demonstrators reported that students generally seemed well-prepared for the practical classes [personal communication, 2009]; however, one drawback inherent in the 7-day time span allotted for the completion of the questions was that some of those who submitted their responses early had forgotten the material by the time they undertook the practical class. (In 2010, the time allowed for submission of quiz answers will be reduced to the 4 days immediately before each practical class.)

Conclusions

Overall, the LMS provides a convenient portal for communication and teaching, with the possibilities limited, to some extent, by time constraints and the technical abilities of academic staff. Training from LMS support staff and the sharing of pedagogical developments across campus can enhance the usefulness of the LMS as an adjunct to formal microbiology teaching programs. The ability to provide pertinent, timely feedback to students using the LMS appears to enhance teaching and learning, as evidenced by the experiences of academics teaching microbiology at the University of Melbourne.

References

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Biographies

Helen Cain is a lecturer in the Department of Microbiology & Immunology at the University of Melbourne. As a medical laboratory scientist, she worked in diagnostic microbiology laboratories at the Fairfield Infectious Diseases Hospital and St Vincent's Hospital before becoming involved in microbiology education through the teaching of tertiary practical microbiology classes. Her educational research interests include the optimisation of student learning through the use of ICT to enhance the provision of feedback.

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