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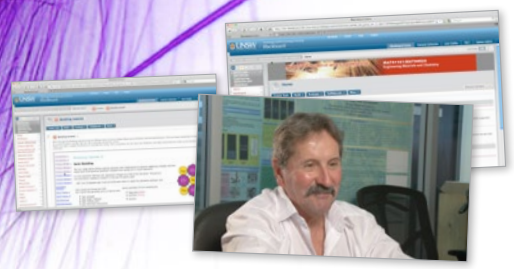
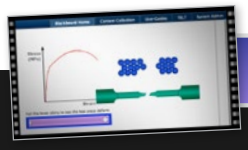


LEARNING TO TEACH ONLINE



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CASE STUDY

Using online environments for teaching large classes

Featuring: Professor Alan Crosky, The University of New South Wales

Context	*- Approximately 700 first year engineering students per year in an Engineering Materials and Chemistry Foundation class* *- Consists of two strands: Materials and Chemistry, however this case study focuses on the Materials strand which contains most of the online components*
Description	*- Blended class* *- Face-to-face component includes 1.5 hour lecture each week, with a 1 hour laboratory session every second week* *- Online component consists of online tutorials with quiz, laboratory reports and exercises, self-testing, online group work, online resources and help discussion*
Technology	*- Blackboard Learning Management System (LMS) including Flash animations* *- Peer assessment using iPeer*

Written by Karin Watson

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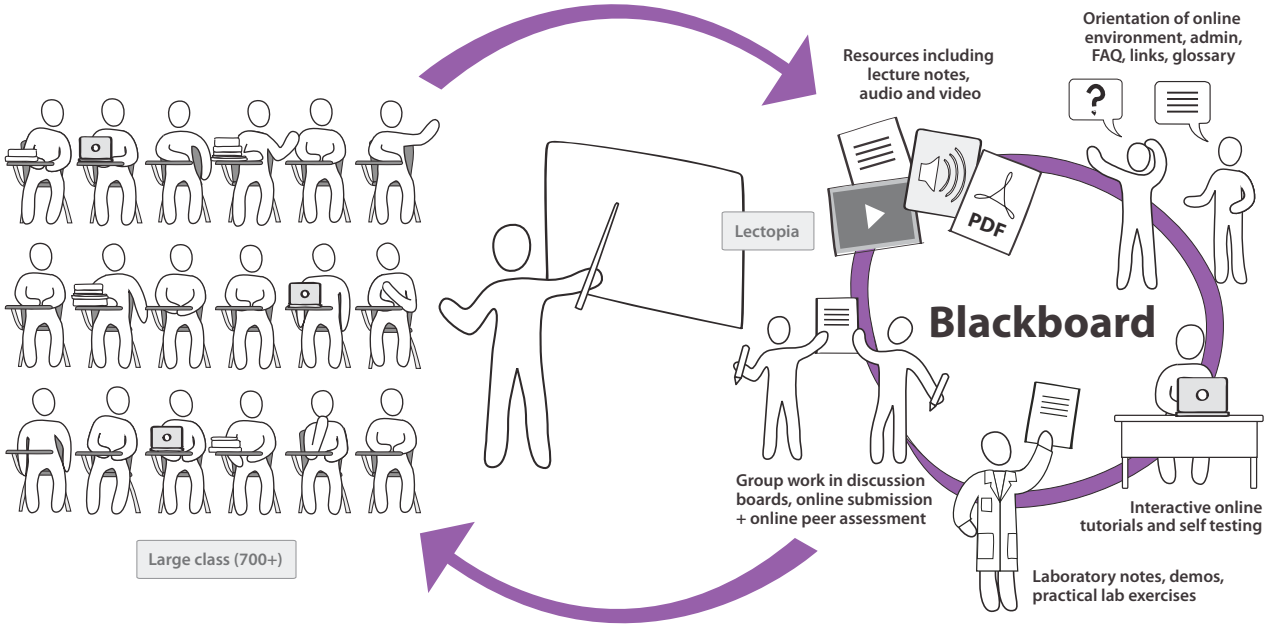
Aims and overview

When teaching larger classes, an online environment can provide many opportunities for increased student engagement, group work and self-testing. In this case study Professor Alan Crosky, from The University of New South Wales, explains how he uses a blended learning approach in his Engineering Materials and Chemistry class with 700 first year students. He highlights the importance of providing student orientation and support when first introducing an online component, and discusses the benefits of integrating online tutorials, resources, group work, peer assessment and self-testing into the class.

Introduction

This class applies an integrated approach by incorporating many different components into the online environment. While students attend face-to-face lectures and laboratory (lab) sessions, the online component allows them to prepare for these sessions, and access or revise material afterwards. The online component of the class also includes assessable and non-assessable online tutorials, self-testing quizzes, additional resources and a group project. Students submit tutorials and group work online, as well as participating in peer assessment and feedback.



The blended approach in this case study allowed the online component to support and expand on the face-to-face learning experience, increasing student engagement with one each other as well as the course material, and allowed flexibility and streamlining of course management.

Case study outcomes quick summary

Key benefits

- *Students feel more engaged with their lecturer, tutors and one another*
- *The failure rate for tutorials has been reduced by 50% since the introduction of the online class components*
- *Online components allow students flexibility to access information and revise material 24 hours a day, 7 days a week, and can do each tutorial or quiz as many times as they wish*
- *Interactive, animated tutorials can assist with engaging students in course material*
- *The online components reduce the amount of face-to-face lab time required, enabling more efficient and effective timetable planning*
- *Discussion boards and online environments help to build a sense of community amongst the students, since they are less likely to talk to one another in the large lecture rooms*
- *Students become less dependant upon the teacher in online discussion boards, since they are encouraged to answer one another's questions in the discussion board*
- *Individual students' contributions in group projects can be easily monitored in an online environment*
- *The online FAQ area has reduced the number of student queries during face-to-face class time*
- *Submission of assignments online ensures documents aren't lost, and confirms the time and date of submission*
- *Online peer assessment can be useful in determining the overall grade of individuals for group projects, and ensures anonymity of students' feedback*
- *Management of assessment, grades and feedback is integrated into the University's LMS, making administration easier for teachers*

Key issues to consider

- *A carefully considered, integrated approach to designing both the face-to-face and online components of the class is required*
- *A lot of time is needed when first setting up and preparing the online course, however this is subsequently reduced as the content is re-used each semester*
- *Creating or converting resources and tutorials to the online environment can require a certain level of technical skill and time. The help of an educational developer or learning and teaching unit may be needed*
- *If the University changes its LMS, some of the online resources and material may not be compatible with a new system and may need to be prepared again*
- *In a large class, having a dedicated administrator who manages the online environment (releasing briefs, uploading material, organising students into groups, etc) can be beneficial in taking the administrative load from the teacher*

Motivation for adopting an online teaching strategy

Initially, Professor Alan Crosky decided to try using an online strategy to improve the students' preparation for a face-to-face lab tutorial. Previously, a demonstrator would give a mini lecture in class time beforehand, followed by the lab session itself. Transferring the demonstration and tutorials online provided three key benefits:

- *Students were better prepared for the face-to-face lab sessions and could make better use of their time in the lab*
- *Students were more engaged with the content during the face-to-face lab sessions*
- *Lab sessions could now be booked in one hour blocks as opposed to two hour blocks. This freed up the labs and made managing the timetable much easier.*

Following this initial experiment using online supported learning, it was then decided to move more components online, and to adopt an integrated blended learning approach. Given the large scale of this initiative, Alan decided to enlist the assistance of the university's Learning and Teaching Unit for planning and implementation.

Key components of the online environment used to support large class teaching

Student orientation and support

Not all students are familiar with learning in an online environment, and not all online classes are the same. Therefore, Alan advises that it is useful to:

- *Provide support and orientation sessions both at the start and throughout the semester. This allows students to familiarise themselves with the online environment and prevents confusion. For example, Alan provides a 'walk through' orientation activity in week 1*
- *Provide clear, detailed instructions. The more detailed the instructions, the fewer questions you need to answer during the course of the semester. This saves both students and teachers time*
- *Spend the first face-to-face class explaining the online environment to the class. This can be supported with a similar video that students can watch subsequently online*
- *Make students submit a 'dummy' project online in the first week – this checks that their browsers are compatible with the LMS, and prevents any last minute upload issues later on in the semester when students submit their tutorials and projects online*
- *Provide a dedicated area such as a 'Help Board' where students can ask questions. Ensure that you respond to these promptly, and that students are aware how often you will check this area. Encourage students to answer one another's questions where possible. This helps build up a sense of trust and a community between the students, makes them less reliant on the teacher, and can save time*
- *Collect all questions from previous semesters and set up an FAQ area providing hyperlinked answers*
- *Don't communicate with students via email, unless it is a private matter. Corresponding via the Help Board prevents you having to answer the same question several times, and also allows students to see that they aren't the only ones requiring assistance or clarification. This builds their confidence and promotes a sense of trust and community.*

Online tutorials and self-testing quizzes

While the content of each tutorial and test is important, it is also advisable to provide a variety and combination of formats, graphics or media to maintain student interest and engagement. For example, Alan provides the following:

- *Self-testing tutorials and quizzes. Some of these are assessable and submitted online, others are for practice and revision only*
- *Vary the format. Some are 'drag and drop', others provide numerical examples which are then hyperlinked to the solutions*
- *Include interactive, rich animations of online tutorials and key principles. These form effective learning objects.*

The inclusion of online tutorials and self-testing allowed Alan's students:

- *Flexibility to work in their own time*
- *To return to the tutorial or test as often as they needed to. This is useful for students that are struggling with a particular topic, or who do not have English as their first language*
- *To better prepare for lab sessions*
- *Highlight which areas need further study or clarification*
- *Revise for exams and tests.*

Online resources

Alan believes teachers should be as flexible as possible, and provides lecture notes, recordings (audio and video), lab sheets and exercises, printable PDF versions of online tutorials, etc. Providing resources online has many benefits, including:

- *Attending face-to-face lectures can be difficult when students are ill, have a disability or access issue, or where students have to commute long distances. Providing material online ensures that they are not disadvantaged*
- *Students can easily revise information provided in the lecture*
- *Teachers can use online resources to cater for different learning styles by providing material in different formats.*

Group work

Group work within an online environment provides many benefits for large student cohorts, such as an opportunity to form a learning community amongst their peers, and the ability to dedicate a place and time to 'meet' online when it is difficult to coordinate meeting face-to-face. However, working in groups online can be unfamiliar territory for many students, so it is important to:

- *Provide very clear instructions on what is expected from students in an online environment*

- *Develop an agreement on student contribution. Alan provides a template for a 'group contract' which students must complete before they start their group project. This helps prevent conflict and helps organise the group members (for example they nominate who will be the editor, leader, outline mini deadlines, etc)*
- *Provide each group with a separate space online to work in, which includes a range of interactive tools including discussion boards.*

In Alan's class, peer and teacher assessment of group projects forms an important part of the learning process. The online environment provides several advantages in facilitating this:

- *The group's progress is recorded online in the discussion board, so teachers can track the group dynamics, as well as the individual contribution of each student to their group's project*
- *Marks for individual assessment within groups are moderated through an online peer assessment system called iPeer. This provides a fairer system that reflects each student's contribution, allows anonymity for peer assessment, and provides an additional form of feedback for the students*
- *Anecdotal evidence from Alan and his tutors indicates that students can more objectively review their own work once they have participated in the review of other's work*
- *Peer review can better prepare students for the professional world beyond their studies when they will be required to review the work of their colleagues.*

Conclusion

While such an integrated approach on such a large scale can require a great deal of time and effort to establish initially, introducing an online component when teaching large class sizes can provide benefits such as increased student engagement, streamlining of class timetables and management, and building a sense of trust and community amongst students and teachers that might not otherwise have the opportunity to occur. It is recommended that you consult with your university educational developers and IT department when initiating online initiatives for large classes, to ensure that you fully understand your institutions capabilities to support yourself and your students.

Additional information

iPeer: Open source peer and self-evaluation tool
www.sourceforge.net/projects/ipeer

Additional reading*

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***Note:** Some readings are held in subscription only databases. In most cases accessing the link from your institution's network will enable access*

Acknowledgements

Interview and Production: *Simon McIntyre and Karin Watson*

Camera and Post: *Creative Development – L&T@UNSW*

Edit: *Doug Aplin*

COFA Online would like to extend a special thank you to the following institution and academic who graciously donated their time and expertise to this case study.

UNSW THE UNIVERSITY OF NEW SOUTH WALES SYDNEY • AUSTRALIA

Professor Alan Crosky
School of Materials Science and Engineering

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To find out more about the Learning to Teach Online project, or to view the video component of this episode, please visit the COFA Online Gateway.

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About the project

The Learning to Teach Online project is a free professional development resource designed to help teachers from any discipline, whether experienced in online teaching or not, to gain a working understanding of successful online teaching pedagogies that they can apply in their own unique teaching situations. It hopes to encourage dialogue, discussion and the sharing of ideas about online learning and teaching across disciplines and between institutions around the world.

About COFA Online

COFA Online is an academic unit at the College of Fine Arts (COFA), The University of New South Wales (UNSW), Sydney, Australia. It has been innovating online pedagogy, academic professional development and effective online learning strategies since 2003.

About The University of New South Wales

UNSW has an enrolment of approximately 40,000 students, and is the leading international university in Australia with over 10,000 international enrolments from over 130 nations. UNSW was also ranked as the top university in 2009 in the Australian Government Learning and Teaching Performance Fund for the quality of its teaching.

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Support for this activity has been provided by the Australian Learning and Teaching Council Ltd, an initiative of the Australian Government Department of Education, Employment and Workplace Relations. The views expressed in this activity do not necessarily reflect the views of the Australian Learning and Teaching Council.