

## 2008 Reports

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### E-LEARNING ENHANCEMENT

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#### **Dr Phil Bishop**

##### *Exploring cell ultrastructure and diversity*

Many students struggle to make the link between the 3-D structure of organs, tissues and cellular components that they see in practical laboratory classes and the 2-D images that they obtain from light and electron microscopes. Whilst displaying the same tissues but at a higher resolution and in different shades of grey, electron micrographs are difficult for most students to interpret.

This project produced a package that allowed students to view and explore high resolution electron micrograph images of various cell and tissue types. It has both an administrative and student interface, each with their own selection of tools (the tool set includes a key, zoom and panning tools, labelling and annotation tools, and a grid overlay to allow calculation of cell volume fractions). The student interface includes the above tools and also allows annotation of images for personal revision. This program has been utilised by approximately 3450 students in two first year papers (CELS191 and CELS199). We have seen a remarkable increase in the students' performance in the internal assessments based on their interpretation of electron micrograph images (average marks = 45% in 2007, 90% in 2009, 88% in 2010).

In addition, we also developed an interactive cell morphing game in conjunction with Educational Media. This game requires students to 'build' four basic cell types. Each cell comprises a different level in the game and the students are provided with three attempts at each level before having to restart the game. After each attempt students are provided with hints to help them build the cell. This game has been trialled in CELS199 and on the basis of student surveys we are making some final adjustments.

#### **Mr Russell Butson**

##### *Blackboard springclean*

This project is the result of a partnership between the Higher Education Development Centre (HEDC), Information Technology Services (ITS), the Library, and the University Students Association (OUSA). The aim of the project was to investigate the use of Blackboard from a student perspective. Four students were employed to conduct the initial research. These students underwent a two day induction period facilitated by OUSA and HEDC staff who continued to support the student researchers throughout the project.

The report represents the original work of these student researchers. The main sections of their report include:

- Background Research,
- The Otago Experience
- Website Appraisals,
- Conclusions.
- Recommendations

This report is intended for staff involved in the use and development of Blackboard at the University of Otago. It offers a comprehensive insight into the role and use of Blackboard as perceived by student users.

### **Professor Stephen Duffull**

#### *Development and implementation of an electronic long case for clinical teaching*

In 2008-9, a CALT grant supported the development of SimPharm, a platform utilizing interactive patient-centred clinical pharmacy cases.[1] Our aim was to use SimPharm to develop postgraduate students' knowledge and understanding of therapeutic problems, and improve their problem-solving skills.

A clinical pharmacist was employed as a case developer to write a number of long and short cases which could be loaded into the SimPharm interactive environment. Each SimPharm case commences with an extract from a patients' admission notes. To run each case, students need to identify further details by asking questions of the patient or a hospital staff member from a list of potential pre-programmed questions. Students were also expected to order various investigations including laboratory tests and recommend/prescribe drugs. The patient's health status was programmed to change over time and in response to the student's interventions (or lack of interventions). SimPharm contains stochastic elements so a single case run repeatedly will often yield different and unpredictable outcomes.

SimPharm was initially developed for assessment of clinical pharmacy skills in postgraduate students, and has been successfully used in that setting. SimPharm has recently been pilot-tested with undergraduate students and is currently being considered for inclusion in the undergraduate curriculum.

1. Loke SK, Duffull S, McDonald J, et al. SimPharm: authentic immersion and "reading the world" as a pharmacist, 2009. Available at <http://www.ascilite.org.au/conferences/auckland09/procs/loke.pdf> p592-601.

### **Ms Andrea Robertson**

#### *Enhancing student engagement through effective pedagogical use of ICT tools: developing a 'just in time' professional development model*

This project aimed at enhancing the use and effectiveness of ICT tools by teaching staff through a

'just in time' professional development (PD) model. Staff that took part in the project were all using little or no ICT in their teaching. Each staff member developed a plan for his or her professional development. Results show that levels of confidence, the use of ICT in their teaching and ICT skills have increased. The personalised approach has helped to support them in developing skills and gain confidence in using PowerPoint, Interactive boards, Skype and online tools.

This model worked for all of the staff taking part. They valued the quick response to their needs, and the flexibility of being able to arrange sessions at times that suited. The ability for the PD to cater specifically to their level, needs and learning was effective rather than having to go to courses that offered more general PD. One difficulty was that staff found it hard to sustain ongoing PD due to workload and clashing schedules. The next step will be to encourage those that have been involved with the PD to offer support to other staff in the skills they have developed.

### **Mr David Tordoff**

#### *Developing a clinical skills workbook*

This project attempted to introduce a workbook to guide, assess and record student progress in the area of clinical skills development in the early part of the medical curriculum. Whilst the initial objectives of the project have not been met some progress has been made. A rudimentary workbook has been developed and continues to evolve. The need for clinical skills to be introduced and assessed in a more valid and reliable way has been established, as has the need for accurate recording of progress. This project has laid the foundations for future development.

### **Dr Lisa Whitehead/Dr Shelagh Dawson**

#### *Postgraduate nursing students' satisfaction with technology-enhanced learning*

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## **INNOVATION IN TEACHING**

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### **Dr Keryn Pratt**

#### *Playing to learn: interactive multiplayer games as a teaching tool in a quantitative research methods course*

Synopsis not available, as the project was unable to be completed.

### **Dr Simon Stebbings**

#### *Enhancing engagement in MICN501*

Major changes in the Medical school curriculum mean that in future students entering the 5th year will be much more skilled in self-directed. At present the 5th Year Medical course MICN501 is a traditional combination of didactic teaching and clinical apprenticeship.

We aimed to develop a template to enhance self-directed learning through a Blackboard interface. By enhancing self-directed multimedia pre-learning through Blackboard we aimed to free time in tutorials to abandon didactic content and concentrate on problem-based learning.

The new Blackboard course is user-friendly and looks modern and enticing, with headings such as 'Ten minute topics' and 'Fun in MSK'. Course genie software with its in-built self-assessment tools was used to generate self-directed learning modules. Videos and audio-slide presentations suitable for podcasting were developed. Staff in Wellington and Christchurch Medical Schools contributed to the content, leading to a homogenous list of objectives and course materials available for MICN501 in all three clinical schools.

Student feedback from a pilot included standard course evaluation, activity monitoring on the website and focus group interviews. The feedback was positive and the uptake in usage of the online course pleasing – some students accessing the site 60 times.

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## RESEARCH INTO UNIVERSITY TEACHING

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### **Associate Professor Tony Harland**

#### *A critique of neoliberal impact on university teaching*

This research provides an in-depth account of the impact of neoliberal change on a diverse group of university teachers at the University of Otago. Neoliberalism seeks to bring about a global free market through the principles of competition in the private sector but it has also been applied to the public services and as such it has impacted on all aspects of university practice over the past 25 years. These economic and political changes to universities have been worldwide and are generally driven through new funding models, public audit and internal compliance systems. Universities are now seen to be characterised by competition at all levels, layers of accountability, diminishing public trust, a move to micro-management of employees and the marginalisation of the idea of an academic community.

Neoliberalism views students and knowledge as economic commodities. Such issues are important to the individual teacher when framed against a particular view of the University and its purposes. If these views happen to be more traditionally aligned to classic liberal educational ideals, such as critical thinking or teaching for democracy or the university as a public good, then neoliberal change becomes an issue when values are denied. This point is important because the idea of liberal education is still strong within academics. However, change has been largely accepted by the sector and individual reactions have been limited and have made no major difference to ongoing neoliberal reform.

## **Ms Carolyn Jenkins**

### *Experiences of clinical exercise prescription students in a cooperative learning environment*

The cooperative learning approach was a worthwhile framework to implement within the exercise prescription case meeting context. The most notable components of the cooperative learning framework were; outlining the cooperative learning concept and explaining my own social constructivist teaching philosophy, discussing and together agreeing on the group expectations ('code of cooperation'), and providing each student with a group role which gave them a reason to contribute. The cooperative learning approach created more student dialogue than previous years case meetings and hence provided more opportunities for meaningful learning to take place. I would definitely incorporate the cooperative learning approach into my future case meetings but adapt the approach depending on the group's dynamics and functioning. This was a valuable project to be involved in, as it was a positive experience for both myself and the students. The students benefitted from gaining positive relationships with others in the group, they increased their confidence, improved their social skills for their future, and learned in an environment that will be applicable to their future. I benefitted as it gave me; an opportunity to apply a theoretical framework into my own teaching, I became a more effective facilitator and gained valuable feedback from the students in terms of my own teaching practices.

## **Professor Tom Kardos**

### *ICT enhancement of learning in dentistry: virtual or real?*

- Students acknowledged the importance of ICT in their education and training in dentistry, but were limited by lack of training in the use of readily available software.
- Students were competent in general ICT skills, but not in research and professional ICT skills.
- The ease of access to popular information using ICT for IBL favoured superficial learning.
- The design of curricula, including IBL, requires acknowledgement of the literacy of students, and the need to ensure appropriate use of ICT.

## **Professor Kwok-Wing Lai**

### *The nature of internet plagiarism and its implications on assessment strategies*

With the advent of information and communication technologies, it appears that plagiarism has been on the rise in the last couple of decades. While we have seen a growth of research exploring the impact of digital technologies in plagiarism, very little empirical research is available in New Zealand to document tertiary students<sup>1</sup> understanding of the nature and forms of e-plagiarism, why it is practised, the extent to which it is being practised, its implications on assessment practice, as well as the pedagogical and technical strategies that should be used to cope with it.

This research project aimed at investigating the nature and extent of Internet plagiarism at the University of Otago and to evaluate the implications of plagiarism on assessment procedures, as well as to evaluate the effectiveness of using the Turnitin® software as a technical solution to plagiarism. Two questionnaire surveys were administered to students in 2008. The first one was conducted in February (with 950 participants) and the second one in June (with 270 participants). A sample of the student participants (21 in total) and all the six Education lecturers participated in the project were also interviewed. A content analysis of New Zealand high school websites on Internet and plagiarism policies has also been undertaken. Preliminary findings show that the nature of plagiarism has not been clearly understood by students, and about half of the survey respondents reported that they had e-plagiarised previously.

### **Dr Jim Ross**

#### *Outcome-oriented simulated consultations – opening up the Black Box in SECO clinics*

This project collected data from four 'SECO clinics', which were run for research purposes but followed usual protocols for teaching SECO clinics. These four clinics involved 8 students in 22 student-actor simulated consultations, which were professionally recorded on videotape. Written materials from the clinics, recordings of student-staff phone conversations, and feedback questionnaires relating to the clinics were also collected. This has produced rich data which we continue to analyse and reflect upon, focusing on the interactional processes which are involved in whether students achieve desired outcomes for each case. Our team already has another related project under way, examining phone interactions in our routine teaching SECO clinics.

### **Dr Sarah Stein**

#### *Enhancing learning in physics laboratories: expressing conceptual clarity through questions*

The purpose of this study was to develop tools to improve lab demonstrator training in the laboratory component of the first year physics courses offered by the Department of Physics. The proposal was to incorporate a set of questions into this training programme. The intention of this addition was twofold. Firstly, it was hoped that any gaps in demonstrator knowledge would be found and addressed. Secondly, it was hoped that by judicious choice of questions we would be able to improve the demonstrators' teaching practice. This second goal was the most significant, and also the most difficult to achieve and evaluate. The central issue with this goal was the choice of questions used in demonstrator training. We planned to use a graded collection of past multichoice exam questions – with the intention that we would be able to give our demonstrators data concerning the difficulty of the questions and the most common student responses.

This required a careful analysis of past exam papers. The plan of this analysis was as follows. A large collection of past exam papers were read and categorised by a group of expert physics teachers (staff of the Department of Physics with many years experience teaching first year physics). The student responses to these questions were then subjected to a factor analysis to confirm the assumption of a single underlying trait which produced success in physics exams. This confirmation allows the use of

Item Response methods to determine question difficulties (and student abilities). We were then able to use the repetition of certain questions across several years' worth of exams to calibrate question difficulty (and hence student ability) across time.

It is hoped that in the future we will be able to select a graded sequence of questions from past exams for use in demonstrator training. As a useful spinoff of this research we are also hopeful that we will be able to track student performance across time in a meaningful way.