

## 2006 Reports

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### E-LEARNING ENHANCEMENT

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#### **Associate Professor Kevin Gould**

##### *Use of 'clicker' technology to enhance the teaching/learning experience*

Audience input (clicker) technology, which facilitates the acquisition of immediate feedback from students, was trialled in a large 100-level class in Botany. The aim was to provide a platform for interactive teaching and learning, enabling lecturers both to assess the appropriateness of the pitch of their material, and to gauge the level of comprehension among students. We conducted a survey of the literature on clicker use overseas, and produced a document highlighting the various methods of using this technology, the types of clicker questions that have proved useful, the possible pedagogical benefits, and potential pitfalls. Clickers were employed in one of the four BIOL113 lectures per week for ten weeks, then student perceptions were surveyed through a questionnaire as well as focus groups. Students generally found the clickers easy to use, they enjoyed using them, and many felt that the use of clickers stimulated them to think about lecture material at a deeper level. Slow response times of the infra-red receivers were the only major negative comment. Botany academics found clickers to be a useful supplement to, but not a substitute for traditional lectures. They would like to continue using them in this course.

#### **Professor Raechel Laing**

##### *Clothing & Textile Sciences Teaching Collection: Access through classification and description*

Material culture, the study of artefacts, is an important theoretical approach in the study of dress history. The project aimed to provide students in Clothing and Textile Sciences practical access to this mode of study. The Teaching Collection of Clothing and Textile Sciences comprises a large range of artefacts (c. 1840 to present day, including shoes, accessories, men's and women's clothing, hats, gloves and related material) collected since the 1920s. However, it was difficult for both students and researchers to access artefacts because of a lack of classification, description and cataloguing of the contents of the collection. The development of a database which provides online access to information about, and images of dress artefacts, as well as physical access via location notes, has given student researchers the scope to engage with 'the real thing' and at the same time actively learn a crucial method for the study of dress history.

#### **Mr Andrew Long**

##### *Mission Critical: Improving learning outcomes using digital game-based learning for a first year course in Information Science*

Through the support of the CALT application the Department of Information Science and School of Business launched a project to revolutionise first year teaching through the introduction of Digital

Game-Based Learning (DGBL) in conjunction with small group teaching. The project has focused on following areas:

1. Development of prototype designs for a proposed game to be integrated into BSNS 106/COMP 102. Evaluations of these designs indicated that students were keen for the introduction of DGBL and believed the designs presented would improve their learning experience.
2. Redesign the current teaching facilities (i.e. computer labs) to be suitable for the proposed teaching approach.
3. Effort to secure further funding and establish partnerships to see the project fully realised.

The attempt to introduce a dynamic shift in teaching approach has been difficult, in particular obtaining the substantial financial commitment to develop a fully realised software prototype. However, there still remains a significant problem of engaging students in interactive and collaborative learning rather than passive content delivery of lectures. We believe that DGBL can provide a significant and feasible solution to this problem. This project is ongoing and is continuing to exploring funding options.

### **Dr Terry Scott**

#### *Conditional Assessment Schemes using Blackboard*

The purpose of the e-learning enhancement grant was to design a conditional assessment scheme using some of the existing functionality of the Blackboard course management system. The assessment scheme was to incorporate aspects of a conditional assessment model in which students were required to pass tests closely based upon text book material in order to gain access to the summative assessment components of the course.

The assessment scheme implemented using Blackboard consisted of a series of formative assessments (Reading Tests) followed by a summative test (Homework Test) for each module. Each Reading Test was made available to the student ONLY upon successful completion of the preceding test. The Homework Test was made available to the student only on the successful completion of the last Reading Test.

The Reading Tests were designed to be simple and very closely linked to the relevant content of the course textbook. This encourages the student to read the textbook closely and to develop a study mode in which the textbook is seen as a primary learning tool, lessening students' expectations that the lectures should be the focus of the course and the source of all important knowledge. Making the summative component of the assessment, the homework, available conditional upon successful completion of the Reading Tests forces the student to undergo this process.

### **Mr David Tordoff**

#### *Developing a personal formulary and practical prescribing: A web based approach*

Prescribing medication is a fundamental part of the practice of medicine and prescribing errors are

both dangerous and costly. Medical students receive surprisingly little formal prescribing experience during their undergraduate years. To ensure a more structured approach to developing students' prescribing skills a series of web based clinical cases were developed to illustrate the use of a core range of drugs. Initial cases are relatively straightforward but increase in complexity.

Fifth year students at Dunedin School of Medicine are based throughout the South Island at various times in the year. A web based programme allows access to the cases and support materials at convenient and educationally appropriate times (eg when they have seen a patient with a similar condition to one of the cases).

Students identify the drug of choice to treat the patient, enter the drug details in their personal formulary and then write out a prescription for the patient. The prescription is sent to a pharmacist for marking, detailed feedback being emailed back to the student. A discussion board is available for the student to explore appropriate treatment regimes and share resources.

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## **INNOVATION IN TEACHING**

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### **Dr Leigh Hale**

*Preventing falls in people with intellectual disability: an innovative clinical placement combining theory, practice and research*

People with intellectual disability (ID) frequently fall however little is known as to the reason for this and even less is known as to the effect physiotherapy would have on improving the balance capabilities to reduce the risk for falls in this population group. People with ID historically have not received much physiotherapy input and therefore little is published on physiotherapy intervention for this group. In this project we developed a supervised student-based physiotherapy clinic for people with ID who had experienced a fall event to provide: (1) a physiotherapy service for people who traditionally have not received much input; (2) an educational placement for physiotherapy students, widening their scope of physiotherapy practice and an opportunity to truly integrate theory and practice by providing physiotherapy to a challenging client group; (3) the opportunity for four fourth year student projects and one Masters dissertation.

The project was effective as it provided an innovative and interactive approach to student learning, working across three levels of students, and achieved the following goals: (1) to broaden the scope of physiotherapy practice by introducing undergraduate physiotherapy students to an area of practice not traditionally embraced by the physiotherapy profession; (2) to develop students' ability to problem solve, clinically reason and critically reflect by applying previously acquired knowledge to this new and challenging area of practice; (3) to enhance all aspects of the students' communication skills; (4) to introduce students to clinical research by integrating theory, practice and research.

### **Dr Haixin Jiang**

*Multidimensional teaching material for Advanced Chinese*

The project of Multidimensional Teaching Material for Advanced Chinese was completed in 2006 and has been in use for nearly two years. So far a total of 74 targeted students have used the material. The material shall continue as part of the teaching material for 300 level Chinese language papers.

The annotated transcripts have been proved very useful for enhancing students' comprehension of the films (86% of the students responded very positively in the project evaluation in 2007); the designed questions as part of the assessment stimulated students to watch the films by themselves after class and helped them in comprehension. However, 50% of the students complained about the heavy workload caused by the addition of film watching and subsequent assessment in assignments. Nevertheless, most consider the workload is necessary for them to learn the language well. About 1/3 of the students finished watching the remaining untranscribed 14 episodes of the TV series voluntarily as the first 10 episodes with transcripts stimulated their interests in the TV series – this is what I had expected.

### **Dr Hamish Wilson**

*Further development of courses in “Professional Development” (PD) at the three Medical Schools of Otago University*

This CALT granted enabled travel to the UK for 2 months in early 2006 to compare and evaluate the educational initiatives and programmes in Professional Development (PD) at four new medical schools in the UK; report to the PD groups in the four Schools of Medicine at Otago University; and work within the Interschool Task Group to prepare a formal submission to the Faculty Curriculum Committee (FCC) on further development, integration and cohesion of PD courses across all schools.

The main educational finding from the UK visit was that professional attributes can be fostered and assessed by attention to detail within curriculum design, if the following elements are addressed in detail:

1. a structured developmental course in examination/clinical skills
2. a coherent communication/consultation skills course
3. interactions with real patients
4. exposure to primary care settings
5. in-built reflective activities
6. structured group work
7. independent study modules, including inter-professional training
8. an introduction to the legal framework underpinning medical practice.

These elements combine to help students become aware of, and accountable for, their requirements for professional demeanour and behaviour from an early stage in training.

An unintended additional outcome was an insight into how the new UK schools start clinical training in students' first year (in contrast to Otago University where clinical skills training is delayed until year 4). Educational material on this trend in medical education has been passed on to relevant groups at Otago who are planning earlier clinical skills training from 2008.

However it should be noted that presentation of UK findings to key educational groups and dissemination of UK material to key individuals should be considered as an intermediate outcome; a more definitive evaluation of the effectiveness of this CALT project will be the incorporation or otherwise of overseas educational trends within local curriculum design. This will only become apparent by the end of this year as planning proceeds for 2008.

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## **INTERNATIONALISATION OF THE CURRICULUM**

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### **Dr Malcolm Cone**

#### *Taoist and Confucian influences in 21st century China*

The project has been a great success on two fronts. The first, it has allowed us to build international collaboration between Peking University, Sichuan University, Wuhan University, Huazhong University and the University of Hawaii. Scholars from all of these Universities participated in the production of the film as interviewees or as hosts and guides. We anticipate the same level of support in planned future projects of a similar nature.

The second, as with our earlier film on China we see this as having a wide and lasting impact, not least because of the quality of Professor Ames in front of the camera. He is already talking about a sequel.

We see it being used in many if not all, of the China related courses taught at the University.

### **Ms Alison East**

#### *Dance and Community International Summer School Research Project*

This highly successful educational experiment has initiated a dance ethnography research direction within the dance studies programme. This will be further supported once a new appointee arrives in January 2008. She has done regular dance ethnography field research throughout Africa and is already in contact with the Anthropology Department at Otago regarding shared teaching and research projects.

The visit to the Loyola College of Social Sciences in Trivandrum signalled another new connection that might not have been considered before making the trip. It is through the social work programmes that the study community dance takes place in India rather than in Performing Arts Faculties. This post-graduate college is extremely interested in future contacts with Otago.

This project has also provided a new profile for Dance studies at Otago within New Zealand with several students from other universities showing interest in participating in future ventures.

### **Professor Tānia Ka'ai**

*Preserving, transmitting and advancing Māori knowledge*

**Dr Patricia Priest**

*Teaching International Health: a departmental approach*

Professor John Hamilton, an expert in teaching international health and in medical undergraduate education, visited the Department of Preventive and Social Medicine in October 2006 to evaluate our current international health teaching and write a report to the department. He met staff from the department and from the School of Medicine and University administration.

Almost all teaching staff attended at least one of the meetings with Professor Hamilton, and his visit stimulated a good level of discussion about international health teaching and research among the staff and students in the department. His report includes general recommendations for progressing international health teaching in the department and also specific recommendations for undergraduate (particularly medical undergraduate), and postgraduate teaching.

Professor Hamilton was also able to give useful insights and advice about the departments development of a Centre for International Health, and gave a Special Lecture about undergraduate medical education in England, Australia and South Africa.

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## **RESEARCH INTO UNIVERSITY TEACHING**

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**Associate Professor Henry Johnson**

*Exploring students' experiences and perceptions of using Blackboard's asynchronous discussion board*

The first part of the research included extensive library research, particularly in the area of e-learning, asynchronous discussion, and educational theory. The next part of the research involved interviewing students who were taking a paper that included asynchronous discussion on Blackboard. Students were surveyed and ten agreed to be interviewed. In-depth interviews were undertaken with eight. The analysis part of the research has since been modified to include more in-depth content analysis of dialogue that took place.

Specific objectives achieved and notable successes include:

- An exploration of students' perceptions of learning while using Blackboard's discussion board.
- An understanding through in-depth qualitative analysis of how students perceive their construction of knowledge while using dialogue in an e-learning context.
- A comprehension of the links between how a student perceives the use of dialogue and what they actually do in the learning task.

- An exploration of individual constructions of knowledge in this environment, while outlining commonalities between different learners.

A refereed journal article on this research and a related study was published in the *European Journal of Open and Distance Learning* (2007).

### **Dr Alistair Knott**

#### *Student modelling in computer-aided language learning*

The goal of our project was to extend a computer-aided language learning system we have developed in conjunction with the School of Maori, Pacific and Indigenous Studies (Te Tumu). The system operates over the web, and allows a student to participate in a dialogue in the Maori language using the constructions contained in the first two chapters of "Te Kakano", the textbook used in the introductory Maori course offered by Te Tumu (MAOR110). The aim of the project was to extend the system with a new component which allows the creation of a student model to track the progress of a student in acquiring new linguistic constructions.

There were three phases of work involved: design of the user modelling component, implementation of the component and evaluation. All three phases have been successfully completed, though they took longer than we anticipated. We originally planned to evaluate our system in Semester 2 of 2006. We carried out some evaluations then, but made further changes to the component over the Summer, and ended up conducting a large-scale user trial in Semester 1 2007, which has recently been completed.

Our evaluation took a slightly different form from that envisaged in the proposal. Rather than evaluating a version of the system with user modelling against a version with no user modelling, we attempted a more ambitious task, of evaluating the full language learning system (configured to teach one particular topic in Maori) against a human tutorial on the same topic. These user trials ran in a targeted tutorial in the MAOR110 introductory Maori language course offered by Te Tumu in Semester 1. We divided these tutorials into three groups: a control group, a regular tutorial group and a system tutorial group. Each group received two tests on the chosen topic (Maori personal pronouns): a pre-test and a post-test. The control group received the post-test directly after the pre-test. The other two groups received the pre-test at the start of their lesson, and the post-test at the end. The results were encouraging: both types of intervention improved the post-test score significantly more than the control group, and there was no significant difference between the system group and the regular tutorial group as regards how much the post-test score was raised. Thus our system evaluated as a whole (including user modelling) appears to be an effective form of language teaching.

### **Ms Joy Rudland**

#### *The relationship between active participation, active learning, ethnicity, gender and previous academic performance*

This research aimed to examine the nature of active learning through and observational study. Data

has been collected and analysed.

The specific aim was to determine whether active participation, through verbalized interaction in a small group, results in enhanced learning. An additional subsidiary benefit was the resultant feedback to tutors regarding their role as a facilitator and their impact on group behaviour.

Data was collected for medical, pharmacy, physiotherapy and dental students. Data included pre and post assessments for all students, observational data from observers for approximately half the classes, student evaluation of the sessions, and peer assessment of group members.

A notable success has been the magnitude of the data collection; 440 health Sciences students contributed to the study. Production of a paper based on the research is underway, and it is intended to present the research at a conference in 2008.

### **Dr Terry Scott**

*The development of an instrument to assess first year physics students' understandings of key scientific concepts*

The aim of this study was ultimately to develop an instrument to assess to map students' conceptions of scientific knowledge, scientific method, and of the relationship between experimental data and theory. The intended purpose of this instrument was to inform changes in teaching style and to the curriculum in the Department of Physics teaching programme. A particular emphasis was placed on the possible development of new teaching laboratory techniques and programmes. The initial stage of this project was an interview study in which a number of first year students were questioned about their attitude to laboratory work, and to science and scientific method. Staff at the Department of Physics were also interviewed. The purpose of these interviews was to compare expert and novice perceptions both of the important conceptual foundations of scientific method, but also to compare the expectations of staff and students with regards to what laboratory teaching should achieve and how well the current programme achieves these goals. These interviews revealed a number of unforeseen issues and suggested that it would be profitable to interview more senior students in the Department of Physics.

### **Dr Rachel Spronken-Smith**

*Continuance of the Otago Millennium Graduate Research*

In 2006 a CALT grant funded continuation of the Otago Millennium Graduate Project. The overall objective of this research was to explore graduates' perceptions of their education experiences at the University of Otago. The specific aim was to determine how a major institution such as the University of Otago has been contributing towards equipping tertiary students with the knowledge, skills and values desirable for education and life. To explore the perceptions of graduates about their educational experience here at Otago, the research used both surveys and in-depth interviews. People who completed their degrees in 1999 and graduated from the Humanities and Science Divisions in the year 2000 (i.e. millennium graduates) were sought for this research. Key findings from surveys were that the Millennium Graduates were almost unanimous in their positive view of the



Otago experience in terms of skills gained (particularly transferable and research skills) and personal growth. They felt their time at Otago was worthwhile in terms of the quality of education, friendships made, life experiences, qualification gained, resulting career and student lifestyle and campus environment. A few negative features were experienced such as student fees, cost of living, some low quality teaching and cold and poor quality flats. Key findings from the interview data included the discovery of a continuum of orientations on the purpose of higher education from a job orientation (which focuses on gaining a credential for a job) through to a liberal orientation (which is a more traditional view of education as being for its own sake). While many graduates realise the desired graduate profile, others do not perceive the importance of higher order skills such as critical thinking. The most memorable teaching events were learning through discussion, involvement in authentic tasks and other opportunities to develop critical thinking. Virtually all graduates have an overwhelming sense of graduating with an Otago Package, a strong identity and a conception of education that incorporates education, life skills, personal growth and the development of social and business networks.

More details can be found in the report at <http://hedc.otago.ac.nz/hedc/research/Profile-Projects/Past-profile-projects/Millennium-Graduate-Project.html>

### **Dr Sarah Stein**

*An investigation into the knowledge development of academic staff during a formal course in tertiary teaching*

This was an investigation into the knowledge development of a group of tertiary teachers who participated in a postgraduate course on teaching and learning. Data sources included interviews of participants and researcher observations of their teaching, as well as an examination of the course and its implementation.

Our study confirmed findings about the effectiveness of similar courses carried out elsewhere but, unlike many previous studies, made use of data beyond participant self-reported satisfaction. An important outcome of this postgraduate course for tertiary teachers was its ability to support the development of teachers' capacity for reflection on practice and their ability to articulate their philosophy for learning and teaching, basing their ideas and views on and within current research. On the other hand, our study also highlighted the limitations of such courses to facilitate participants' ability to translate theoretical ideas about teaching and learning into practice.

Implications are for curriculum developers to articulate more clearly the aims of courses such as the PGCertTertT, and in what contexts, and then either to create new ways of meeting those aims or to re-examine and realign those purposes with outcomes that are achievable within current structures/programmes.

The study has thus highlighted the necessity to acknowledge the practice of teaching as core to the nature of learning about teaching.