

Research Showcase



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Derek Lardelli is a practising Tā Moko artist, painter, carver, kapahaka performer, composer, graphic designer, researcher of whakapapa and oral histories and kaikōrero.			



Introduction

In my position as EIT's Research Director I am pleased to introduce our 2012 Research Showcase profiling some of the research activity in which staff have been involved over the past year.

I am also happy to report that in 2011 EIT implemented an Associate Professor academic designation, acknowledging the development of research activities and strengths in the institution. This issue of Showcase highlights the research of four of the six staff who were promoted to this level: insights into the work of Associate Professors Rachel Forrest, Derek Lardelli, Carl Paton and Michael Verhaart are included here. Associate Professors Peter Bray and Steve Gibbs were profiled in the 2011 Research Showcase.

EIT staff continue to value our collaborations with local and national bodies, providing evaluation and applied research services, as can be seen from the projects on the B4 School Checks programme, small and medium sized businesses, cold tolerance in lambs and the Bikes in Schools initiative. Research into understanding and improving educational quality are also presented, ranging from programme design and staff mentoring to classroom technology use. We have again included an outstanding Master of Nursing graduate's research and congratulate Janine Palmer on winning the 2011

Graham Burnley Memorial Scholarship for her research in supporting patients to manage kidney disease.

“The research skills available at EIT continue to develop and I hope the people and projects highlighted here demonstrate some of that range.”

The research skills available at EIT continue to develop and I hope the people and projects highlighted here demonstrate some of that range. The list of research outputs also makes interesting reading. If you are considering a research or evaluation project we'd be happy to talk with you.

Bob Marshall PhD, EIT Research Director

Breeding lambs to survive the cold

At EIT since 2008, Associate Professor Rachel Forrest maintains her collaborative research ties with former colleagues in Lincoln University's Animal Breeding and Genetics programme.

So it was a tense few days for her in Hawke's Bay after the 2011 Canterbury earthquake, when the building at Lincoln, housing genetic material she had collected over a decade from more than 13,000 lambs, was declared unsafe and evacuated.

Rachel is a genetics scientist whose work over many years has involved identifying and tracing genetic markers in sheep. It began with her PhD research which investigated lamb tolerance to cold by profiling the DNA of 1600 animals. Blood samples were taken from live lambs and from the ears of dead ones. From this, Rachel was able to identify variations, or alleles, of the B3AR gene and to determine that lambs with the 'good' alleles of this gene were four times more likely to survive than lambs carrying the 'bad' alleles. Given that 15-20 percent of lambs born in New Zealand die within their first three weeks, costing the farming industry an estimated \$40 million per year, this finding offered the potential for reducing those figures by selectively breeding for lambs with enhanced tolerance to cold. About a third of lamb deaths are associated with exposure to cold and starvation. Thus, gains in lamb survival rates are possible by including cold tolerance as a selection criterion in breeding programmes.

Rachel's research continued with the assistance of a Foundation for Research, Science and Technology postdoctoral fellowship and led to the development and commercialisation of a gene-marker test for cold tolerance in sheep. The income from this test supports

ongoing research into other genes important for animal health, welfare and/or production and these offer potential as gene markers for use in animal breeding programmes.

The Cold Tolerance Gene-Marker Test is one of six offered by the Lincoln University Gene-Marker business (the others are for Footrot, Scrapie, Microphthalmia, T+muscling and Dermotospaeraxis, <http://www.lincoln.ac.nz/gene-marker-lab>). The Lincoln University enterprise pioneered this technology for sheep breeders, and as a result New Zealand ram growers are world leaders in the use of gene markers for animal breeding.

“Given that 15-20 percent of lambs born in New Zealand die within their first three weeks, costing the farming industry an estimated \$40 million per year, this finding offered the potential for reducing those figures by selectively breeding for lambs with enhanced tolerance to cold.”



Rachel Forrest

Automated measures of critical thinking

Dr Stephen Corich's research was built around designing a computerised tool to measure evidence of critical thinking among participants in online discussion forums.



Stephen Corich

Critical thinking is seen as an important skill in the 21st century and those involved in education agree that encouraging students to think critically is an essential requirement of the educational system. While there is agreement about the importance of critical thinking, there is considerable

debate among educationalists concerning the most effective way to encourage the development of critical thinking skills, and little agreement on how best to measure evidence of them.

Recognising the importance of critical thinking, Stephen built a computerised tool designed to automate its measurement. He then used an action research methodology to test the tool's effectiveness and to evaluate its ability to identify evidence of critical thinking among online discussion forum participants.

The tool uses Bayesian probability theory to analyse an electronic discussion forum transcript and compare the postings made by individuals participating in the forum against a data dictionary containing examples of different levels of critical thinking.

The tool was tested and refined through a number of action research cycles, and the automatically generated results were compared to the results obtained by human coders using the same forum transcripts. Having achieved acceptable levels of agreement between the computer generated results and the human coded results, Stephen compared the automated tool results with those obtained using the Cambridge University Critical Thinking Assessment tests.

“Stephen's research is one of the first times that an automated tool has been able to duplicate the results obtained by human coders.”

Stephen's research is one of the first times that an automated tool has been able to duplicate the results obtained by human coders. It is unique in that it is the first time results have been validated by comparing them to results obtained using a commercial critical thinking test. His work involving the automated measurement of critical thinking formed the basis of his PhD research completed at Massey University in 2011. It has been published as a chapter in a book titled *Multiple Perspectives on Problem-Solving and Learning in the Digital Age* and in *Learning Communities in Online Education*. His research has also appeared in the *Journal of e-Learning and Knowledge Society* and has been presented at several international conferences.

'Fitting in' as a new employee in a small business environment

Robbie Field has a particular interest in employment practices in small and medium-sized enterprises (SMEs) and his research focuses on human resource management practices in these firms.



Robbie Field

Most countries regard this business sector as a significant source of employment and economic growth. In Hawke's Bay, almost 99 percent of business enterprises employ 49 or fewer full-time equivalent employees.

The capacity of SMEs to contribute to economic growth is contingent on their

ability to attract, maintain and retain high-performing employees, and this may require resource management approaches that are different from large firms. Robbie's research focuses on organisational socialisation – that is, how new employees learn about and adjust to their new work environment. This is important for outcomes such as work performance, job satisfaction and employee intentions to stay or quit. This work is part of Robbie's PhD research, for which he is enrolled at Massey University's Small Enterprise Research Unit in Wellington.

Robbie has used a mixed method approach to his research, sequentially collecting quantitative and qualitative data from a number of SMEs in the Hawke's Bay region. The first phase involved semi-structured interviews with 20 'newcomers' employed by an SME for less than a year, and 17 organisational 'insiders'.

Those in this latter group are defined as socialising agents and are typically supervisors or colleagues of the newcomers, facilitating their learning and adjustment to their new work environment. The perspectives of both these groups have been analysed, focusing on pre-employment encounters, socialisation that occurs once the newcomers commence employment and resultant outcomes. Findings indicate, for example, that expectations are created for newcomers and socialisation agents during recruitment and selection processes. A newcomer may also develop expectations based on information gained about the organisation and work group from other sources. The extent to which experiences on commencing employment match these expectations during the organisational socialisation process affects aspects such as newcomer adjustment, person-organisation fit, task performance and staff turnover.

The second phase of this research involved 540 questionnaires sent to businesses identified through the UBD business directory as fitting the criteria for an SME. The aim of the survey was to use information gained from the interviews in the first phase of the study to further examine the effects of pre-encounter and encounter socialisation on outcomes for individuals and organisations in SMEs.

Robbie's research has been published and also presented at various conferences. In 2010, he won the Best Paper award in the Entrepreneurship, Small Business and Family Enterprise stream at the Australia and New Zealand Academy of Management Conference.



Left to right: Mandy Pentecost, Shona Thompson, Kay Morris Matthews, Ariana Stockdale Frost and Judy Wivell

Addressing behaviour issues before children get to school

The EIT evaluation of the Hawke's Bay Before (B4) School Checks for behaviour was a team effort.

Five School of Education and Social Services staff shared the tasks in what was a relatively complex project involving telephone and face-to-face interviews with clinicians, staff of social service agencies, young Hawke's Bay children, their parents/caregivers and primary school teachers.

This second phase of an evaluation of the B4 Schools Check programme focused specifically on children who had been assessed at their check with behaviour issues that could impact on their ability to gain the most benefit from school. The evaluation aimed to identify the assistance made available to those children by way of referred interventions, and what differences these interventions made.

The B4 School Check is a Ministry of Health nationwide screening initiative by which specially qualified nurses check all four-year-olds on a number of health, physical development and behaviour measures to identify and help address any problematic issues prior to the child starting school. The checks began in Hawke's Bay in 2009, and an evaluation was wrapped around the initiative from the start with funding from the Hawke's Bay Children's Holdings Trust. The results of Phase 1 of the evaluation, led by Professor Kay Morris Matthews, have been reported in the *New Zealand Medical Journal* and show successes of the Hawke's Bay B4 School Checks that are now viewed as exemplary for District Health Boards nationwide.

The second phase of the evaluation focused on the part of the B4 School Check that assessed child behaviour using a measure called the Strengths and Difficulties Questionnaire (SDQ). The evaluation tracked children who had scored highly on this measure, indicating behaviour that could be problematic at school. These

children were subsequently referred by a clinical triage team to an appropriate service for intervention. The findings showed that the majority of these referrals directed the child's parents/caregivers to non-governmental organisations and social services for assistance with family relationships and parenting. They identified circumstances and procedures that led to successful outcomes from the check and intervention for child behaviour and, conversely, those that did not.

“The findings showed that the majority of these referrals directed the child's parents/caregivers to non-governmental organisations and social services for assistance with family relationships and parenting.”

Interviews with the primary school teachers of children who had scored highly on the SDQ and been referred for intervention revealed that the majority of these children were subsequently behaving 'normally' in their classrooms. While the teachers could all identify pupils who exhibited challenging behaviour, they were not the children on whom the interviews were focused.

Several reports and journal articles have resulted from the research team's evaluation of the B4 School Check and other aspects of the checks have also been the focus of two EIT Master of Nursing theses.

From lunacy to mental health

Chris Ball's research is about legislation dealing with mental health and how the relevant laws have impacted on the care of those who are mentally unwell.



Chris Ball

Taking a historical and discourse analysis approach, Chris traces the development of acts and ordinances that have been passed over time and how they have attempted to define who are 'the insane' and what is to be done with them.

While mental illness has been recognised since ancient times, legislation

regarding the incarceration of people diagnosed with mental illness and their treatment is a relatively recent phenomenon. In analysing New Zealand mental health laws from the earliest legislation, the Lunatics Ordinance passed in 1846, to the current Mental Health Act, Chris developed the argument that legislative concerns have consistently focused more on public safety than on the care and treatment of those diagnosed as mentally unwell. Discourses of danger, incarceration and enforced treatment are prevalent and only slowly did legislation evolve to focus on medial issues and a duty of treatment.

Chris's historical analysis covers accounts of mental illness from the earliest of times, but he focuses in more detail on the British legislative system because this structure was adopted in New Zealand as a result of colonisation. These British laws include the earliest codified reference to mental disorder, *De Prerogativa Regis* dated 1324, and a series of mental health laws beginning with those passed as a result

of an assassination attempt on King George III in 1800 which heralded a legal emphasis on definitions for those suffering mental illness. The analysis highlights how the nomenclature used in these laws reflects various definitions of 'madness' that have changed over time but have never been entirely successful in accurately defining the phenomenon of mental illness, nor those who become subject to the laws and may be sectioned under them. In a recent paper, Chris illustrates how nurses in New Zealand have become the proximate agents of the law, taking on the role of duly authorised officers that inevitably draws them away from their core business of therapeutic intervention and agents of care.

Chris recently presented this work in Prague, at the 2nd Global Conference: The Patient – an annual conference in the 'Probing the Boundaries' domain of Interdisciplinary.Net, a global network of dynamic research and publishing.

“The analysis highlights how the nomenclature used in these laws reflects various definitions of 'madness' that have changed over time but have never been entirely successful in accurately defining the phenomenon of mental illness.”

The complexity of educational programme design

It was Dr Elly Govers' struggle to understand cultural differences that triggered her research into the specifics of design for educational programmes or curricula.



Elly Govers

Coming from a previous role as academic advisor leading a curriculum design team at the University of Twente in the Netherlands, she was unfamiliar with the strength of market and production thinking that appeared to be driving tertiary education in New Zealand.

Her research for a Doctorate of Education at the University of Waikato sought to provide a deeper understanding of what it was that drove the design and development of educational programmes to help identify directions for innovation.

The research method involved a case study of a polytechnic, and included 32 interviews questioning tertiary level teachers, managers, academic board members and representatives from standard-setting bodies on what they considered was important and why when making decisions about programme design. Elly also analysed institutional documentation around programme design. Based on a discourse analysis of the data, she identified seven lenses, each providing a different picture of programme design and how it can be

understood. One example is the teaching and learning lens, which shows how the language we use shapes our understanding of a programme and of teaching and learning. Others include the ethical lens, which shows how ethical considerations influence programme design, and the business lens, outlining business decisions that underpin design.

Elly also demonstrated the interdependence of the pictures created by the lenses. Using complexity theory to develop a holistic understanding of programme design, she was able to account for the seven lenses and show how market and production discourses have pervaded decision-making on programmes. She found that complexity provides an explanation as to why it is so difficult to bring about substantive change, and that this change can only happen if decision-makers consciously and deliberately engage with alternative discourses.

Elly believes her research can help people designing or redesigning educational programmes to gain a deeper understanding of the perspectives of others. This understanding assists her in helping educators and educational organisations explore avenues for innovation and change. For example, the five metaphors she identified through the teaching and learning lens have proved valuable in helping people think about the nature of the programmes they wish to develop in tandem with the appropriate approaches to teaching and learning. Such thinking has been powerful in planting the seeds for the completely redesigned, innovative, project-based Bachelor of Visual Arts and Design, which will be offered at EIT from 2013.

Influencing the taste of wines

Dr Mark Krasnow's research is about wine and food. As he points out, both are agricultural products, so he can take a similar approach in studying 'what goes in' in terms of techniques and how that affects the properties of 'what comes out' as the product.

Food research has a relatively short turnaround time and a study can often be completed in a matter of days. Mark and EIT Hospitality staff member Mark Caves recently worked on a pilot study that looked at meat sealed in vacuum packs using a method called 'sous vide cooking'. They examined different vacuum sealing and the effects on taste and juiciness of the meat.

By contrast, research concerning wine may require years of data collection. Mark and colleague Dr Petra King are currently engaged in a project investigating the effects of defoliation on rot incidence, yield and grape/wine composition. Bunch rot poses a challenge to grape growing as it can significantly reduce yield and quality, with tight-bunched cultivars such as Chardonnay, Pinot Gris and Merlot more susceptible to the disease. To combat this, leaf removal is done to increase airflow and light exposure to the fruit and allow for better spray coverage. The aim of the research is to determine optimal timing for defoliation to reduce bunch rot and improve flavour.

The research trial was set up on six commercial vineyards in Hawke's Bay and one vineyard near Mildura in Australia. Treatment consisted of hand plucking basal leaves in the bunch zone at different times – before flowering, after fruit set and prior to bunch closure. Berries were sampled throughout the growing period and measured for weight, sugar, pH, acids, aroma/flavour compound concentration and skin anthocyanins. Bunch weight, berry number and rot incidence and severity were recorded at harvest.

Small batches of wine were made from each trial treatment and grape variety and these will be sent to the University of Otago's sensory laboratory to test flavours. The ultimate goal is to provide winegrowers with tools to enable them to influence the taste of the wines as the grapes develop rather than relying solely on techniques employed in the winery after harvest. Trials of this sort require years of work to mitigate the impact of seasonal variations. For example, 2013 will be the third year for these defoliation trials, following two consecutive Hawke's Bay summers that have been uncommonly wet and produced high levels of fruit rot.

“Mark and colleague Dr Petra King are currently engaged in a project investigating the effects of defoliation on rot incidence, yield and grape/wine composition.”

Mark's research has been funded through grants from the Ministry of Agriculture and Fisheries' Sustainable Farming Fund, New Zealand Winegrowers, Hawke's Bay Winegrowers, The Bragato Trust and the EIT Research Fund.



Left to right: Petra King and Mark Krasnow

Arts educator and mentor at Toihoukura

Associate Professor Derek Lardelli is a practising Tā Moko artist, painter, carver, kapa haka performer, composer, graphic designer, researcher of whakapapa and oral histories and kaikōrero.



Derek Lardelli

He is an arts educator and mentor at Toihoukura – the School of Māori Visual Art and Design at EIT Tairāwhiti.

As chairperson for Te Uhi a Mataora Tā Moko Arts collective, Derek has been heavily involved in the retention and development of the rituals, karakia and oral histories associated

with Tā Moko. 'Moko' is specific to the land – it came out of the land and developed from it. As an art form, it survived long periods underground. Its source is the 'Atua' – specifically, the god of earthquake and underwater turbulence. When the earth shook and lava flowed, it scarred the earth. This scarification was taken off the land and placed onto the body. The importance of moko is highlighted in its use on our country's founding document, the Treaty of Waitangi. Derek's research has involved the introduction of new technologies to contemporary Tā Moko, and the development of a visual database of his own works and those of other Tā Moko artists.

In January 2012, Derek led Te Papa Museum's Karanga Aotearoa Repatriation Programme to return 20 toi moko from Paris. Lectures and workshops held as part of the E Tū Ake – Māori Treasures Exhibition at Musée du Quai Branly provided insight into scientific aspects and findings relating to the mummified tattooed heads.

At the exhibition and repatriation closing ceremony, Derek led those attending through the rituals, and at the handover ceremony he spoke to the French delegation

of the importance of the repatriation to all Māoridom, the people of New Zealand, our Government and the museum sector.

Derek has composed many waiata, haka and mōteatea that capture the oral histories of Te Tairāwhiti. Since 1995, he has been a performer and leader of Whāngārā mai Tawhiti Kapa Haka. Cultural advisor to the All Blacks, he composed their haka, Kapa O Pango, performed at the Rugby World Cup in 2011. This was an opportunity for using haka as whakakotahi – of coming together as strands to form one rope; one nation on the international stage. The haka identified the land as belonging to the tangata whenua, and it called on nature and oral histories such as the story of Rūaumoko, the god of earthquakes and volcanoes, to express and channel the wairua. Derek was the inaugural Gallipoli Artist-in-Residence at the University of Canakkale in Turkey in 2006, and Gallipoli was a further link in his research for the World Cup haka as the battles defined us as a nation during a time of war when haka was performed on landing at Gallipoli.

In 2004, Derek received a New Zealand Arts Foundation Laureate award. He was made an Officer of the New Zealand Order of Merit in 2008.

“Derek's research has involved the introduction of new technologies to contemporary Tā Moko, and the development of a visual database of his own works and those of other Tā Moko artists.”

Research for optimum endurance sport performance

Associate Professor Carl Paton realised in his late teens that, no matter how hard he trained, he didn't have the physiology required to become a professional racing cyclist. Instead, he decided to do the next best thing and coach cycling.



Carl Paton

Along the way, however, he became an exercise physiologist doing the kind of scientific research needed to find out exactly what it takes to succeed as a top-level racing cyclist, or a high-performance endurance athlete more generally.

Carl's research focuses on sport performance and how it can be enhanced through training strategies, nutritional supplements and legal ergogenic aids. Several of his studies have investigated adaptations in human metabolism and the augmentation of hormonal concentrations to optimise athletes' training responses and performance potential. Results of these studies have been applied by other sport scientists, coaches and athletes and have had a positive impact on how athletes within New Zealand and internationally have prepared for and competed in major competitions.

Carl's most recently published research concerns competitive triathletes and the performance relationship between the cycling and running phases of a triathlon event. Specifically, he tested the effect of changes in cycling position resulting from varying foot/shoe set-ups and the subsequent impact on athlete performance in the following running phase. He found that changes to a triathlete's shoe set-up on the bicycle, to a more posterior foot position, can enhance the triathlete's running performance by an increased average speed of two percent. This work was published in the inaugural issue of the *Journal of Science and Cycling*, subtitled 'Breakthroughs in Cycling and Triathlon Sciences'.

“Carl's most recently published research concerns competitive triathletes and the performance relationship between the cycling and running phases of a triathlon event.”

For six months of 2012, PhD candidate Vitor Costa is visiting EIT from Santa Catarina University in Florianópolis, Brazil, to work with Carl to investigate the effects of induced short term overload training on fitness and performance with competitive cyclists.



Bob Marshall, Ralph Maddison (University of Auckland),
Rachel Forrest & Olivia Maclaren

Bikes in schools

Bikes in Schools is an initiative started by Paul McArdle and Meg Frater to encourage biking among primary school-aged children in Hawke's Bay by providing the equipment and supporting environment free to schools.



Bob Marshall

Its aim is to encourage primary school children to become more active and healthy, help them develop bike skills and build their self esteem and confidence in a safe and familiar environment.

As part of this initiative,

in 2010, three of the region's schools – St Mary's, Peterhead and Maraenui Bilingual – were each provided with 60 children's bicycles, three bicycles for staff, bicycle helmets for all the children in the school, a cycling track around the school grounds, a skills track and exercise track, and a storage shed for the bicycles.

With funding from the New Zealand Health Foundation, Professor Bob Marshall and his colleague Ralph Maddison from the University of Auckland, along with EIT researchers Rachel Forrest and Olivia Maclaren, evaluated this project. School-based interventions have proved effective in increasing physical activity and limiting excessive weight gain in children. It was expected that this project, combining policy and environment intervention such as regular bicycling activity and on-site bicycle tracks, could lead to sustainable increases in the children's physical activity and energy expenditure.

The evaluation, done at regular intervals over the 2011 school year, focused on fitness, activity levels, body composition and attitudes to cycling. It used a pre-post design to assess the children's physical fitness, body composition and physical activity. In total, 773 children were recruited from the three participating primary schools. With consent from the schools and parents,

assessments were undertaken of physical fitness (20-metre shuttle run), physical activity (Actigraph accelerometry) and anthropometry (height, weight, waist and hip circumference) at 12 and 24 weeks. At the end of 24 weeks, parents and school teachers were surveyed separately to determine their perceptions of the interventions. Parents were questioned about attitudes to their children riding to school, while teachers responded to questions regarding classroom effects of the cycling programme.

"It was expected that this project, combining policy and environment intervention such as regular bicycling activity and on-site bicycle tracks, could lead to sustainable increases in the children's physical activity and energy expenditure."

The children were overwhelmingly positive about their experience of cycling at school. The teachers noted many physical benefits (increased strength, endurance and balance) for the children who took part in the programme. This was supported by the data, which showed an increase in physical activity correlated with increased fitness and a decrease in body mass index. Teachers observed improved confidence, perseverance, enhanced social interactions and self management and believed all these aspects translated positively in to the classroom.

Biased reporting of child abuse

Raema Merchant's Master of Social Work thesis about media representations of child abuse in New Zealand is titled *Who are abusing our children?*



Raema Merchant

Since completing this thesis at Massey University and reporting the findings in various forums, Raema has discovered new depths of sensitivity around the issue.

Blogs have been written abusing both her and EIT as her employer by people who don't like

her findings and because, as she explains, her research dares to suggest that all ethnicities, including Pākehā, are capable of harming their children.

Raema's research highlights the disparity between reported child abuse in the media and the statistical data from sources such as Child Youth and Family, hospital admissions and police. It shows there are significant aspects of child abuse in New Zealand that are rarely acknowledged by the media. For example, child abuse affects hundreds of children every year yet the media reports on only a small percentage of these cases. The public is exposed to only the 'tip of the iceberg' in terms of accurate and balanced reporting.

Raema analysed printed news reports, feature articles, opinion columns and editorials written on the issue of physical child abuse in New Zealand from 2000 to 2007. The aim was to look at how physical child abuse is represented in newspapers and to determine whether there are accuracies or deficiencies in this reporting that may impact on public perceptions of child abuse. She found that, rather than being objective, there was a disproportionate reporting of child abuse

based on a) the ethnicity of the child or perpetrator, b) the seriousness of the abuse and c) the sensationalist nature of the incident of child abuse.

In addition, Raema interviewed 11 media commentators and journalists who had written news reports, opinion pieces or feature articles about physical child abuse, asking them to comment on the primary influences

"Raema's research highlights the disparity between reported child abuse in the media and the statistical data from sources such as Child Youth and Family, hospital admissions and police."

on their writing, why they had written as they had and what they thought the reader would understand from their perceptions of child abusers. This allowed journalists to tell their own stories and from these Raema proposed a model depicting the symbiotic relationship between the media and the public. This raised the discussion about whether newspapers affect or reflect the world view of physical child abuse

This year, Raema will present her research in the UK – at the *International Childhood and Youth Research Network Conference* in Lancashire and the *Interdisciplinary.Net Probing the Boundaries – Reframing Punishment Conference* in Oxford.

Supporting patients to manage kidney disease

Janine Palmer's Master of Nursing thesis research arose from her clinical work as a senior nurse in the Hawke's Bay District Health Board's Renal Unit.



Janine Palmer

Caring there for patients with chronic kidney disease, she believed their long-term prognosis would be much improved if they could be better supported in managing aspects of their own health. As a result, Janine set out to investigate the implications of a change in approach to nursing practice designed to more effectively support these patients to self-manage their condition.

The aim of the study was to understand how nurses could help renal patients identify the enablers and barriers to better self-management of their chronic health condition. Working with five voluntary patients in stage 3-4 of chronic kidney disease (pre-dialysis), and one advanced practice nurse, Janine assessed a three-month trial of an adapted model of care designed to enhance patients' self-management. The model involved patient and nurse-related inventories on a number of measures relating to patient knowledge, and action regarding their health. It also required a different approach to nurse/patient consultation, particularly around the format and time allocated for the consultation. It involved refocusing on a patient's needs and goals as identified by the patient, rather than the

nurse. Together, the patient and nurse developed a plan of care and agreed on review intervals. The patients' before and after inventory scores and blood measures were compared at the end of the three-month trial, and the nurse's impressions of the changed practices were recorded by way of a reflective journal and interviews.

“The Renal Society of Australasia recognised the significance of Janine's research in making her a co-recipient of the 2011 Graham Burnley Memorial Scholarship.”

Results showed patients' knowledge of self-management had improved and was reasonably good, although most found it difficult to act on this knowledge to achieve better self-care. Patients also saw an improvement in their biochemical markers for renal function. The longer nurse/patient consultations and patients' more frequent contact with health care professionals contributed to building trust and a better environment for sharing information important for their care. The patients' enhanced ability to manage their condition in their everyday lives had a significant impact on their emotional, social, physical and spiritual well-being.

The Renal Society of Australasia recognised the significance of Janine's research in making her a co-recipient of the 2011 Graham Burnley Memorial Scholarship.



Left to right: Pareputiputi Nuku and Parekura Rohe-Belmont

He Pito Mata: Tablet technology in Te Manga Māori

In 2011, EIT launched the Blended Learning Project – a commitment to finding ways to make education accessible to a more widespread target population that resulted from the merger of the Hawke's Bay and Tairāwhiti institutes. While this raised a significant challenge for Te Manga Māori, the faculty nominated two Bachelor of Arts (Māori) papers to develop for blended delivery.

These were the Level 5 Māori language paper, Te Whanaketanga, and the Level 5 Māori Music and Musical Instruments, Te Puoro me ngā Taonga Whakatangitangi.

Te Puoro was delivered in 2012 at Te Ūranga Waka (the school based at the Hawke's Bay campus) and Te Whatukura (at the Tairāwhiti campus), and its development incorporated a trial use of computer tablets as a pilot project. All students enrolled in this paper were loaned an Asus Android tablet for use in class in conjunction with resources prepared for EIT Online. These tablets were chosen because they are small and portable with wireless connectivity, and also because they have high quality recording facilities, both audio and video, along with excellent video editing software. They allowed students to record lectures as well as various waiata, haka and Māori instruments being fashioned and played. Students could learn about the history of a particular waiata and also watch it being performed in the 1950s to reflect on how the actions, lyrics and the stance of the performers had changed since then and likely/almost certainly over the centuries.

Pareputiputi Nuku and Parekura Rohe-Belmont led the research team evaluating the trial. The aim was to appraise outcomes of the Blended Learning Tablet pilot for Bachelor of Arts (Māori) students at EIT, to quantify the extent to which their learning experience was enhanced and to determine the place

of these mobile devices within a faculty where all teaching was traditionally delivered face-to-face using very little technology.

“Students could learn about the history of a particular waiata and also watch it being performed in the 1950s to reflect on how the actions, lyrics and the stance of the performers had changed since then and likely/almost certainly over the centuries.”

The evaluation was based on quantitative data derived from two questionnaires, administered to students at the beginning and end of the semester, and qualitative data collected from two separate focus group interviews with students from both campuses. It identified a number of challenges to student use of tablet technology, including the need for training resources for staff and students and issues regarding insurance for the tablets. Overall, however, the evaluation found high levels of student satisfaction with the technology and of student engagement in the course material.

Teaching with digital technology

Associate Professor Michael Verhaart's research centres on the application of digital technology to teaching and learning. His teaching areas are in Internet and Web, Multimedia and Digital Learning Technologies.

One of the research areas he is currently exploring is the use of technology to deliver lectures, where on-campus students are taught face-to-face in a classroom while other students may be geographically separated, such as at home or at work. Another interest is Open Education Resources, where teaching content is made available using a Creative Commons licence as opposed to having copyright restrictions. This is primarily based on wiki technology – the same technology used by Wikipedia – where content can be updated by any user and these changes/additions are tracked. This year, Michael presented his paper 'Curating digital content in teaching and learning using wiki technology' at the International Conference on Advanced Learning Technologies in Rome, Italy.

Michael's PhD thesis, completed at Massey University in 2009, was titled *The virtualMe: A knowledge acquisition framework*. As a lecturer in Information Technology, he was interested in how technology could be used to manage the content of a lecture and to add to this the knowledge of students to allow their input to be better shared by the class. The realisation that students could contribute to enhancing personal knowledge is an important cornerstone in developing a mentor (teacher, tutor and facilitator) focused knowledge system.

In his thesis, Michael discussed an integrated framework he developed that manages an individual's information and knowledge and enables these inputs to be enhanced by others in the context of a blended teaching and learning environment. The thesis proposed two integrated frameworks – the overall virtualMe, which organises an individual's knowledge, and an embedded

annotation framework to capture students' and users' knowledge. The virtualMe framework provides the ability to retain context while transferring the content from one person to another and from one place to another. The framework retains the content's original context and then allows the receiver to customise the content and metadata so that the content becomes that person's knowledge. In addition, two models were developed – one that allowed teaching content to be managed and the second to manage the huge variety of electronic multimedia elements. Michael is currently applying parts of his PhD research and his interest in Open Education Resources in a website at <http://www.virtualmv.com/wiki>

Michael is executive editor of the *New Zealand Journal of Applied Computing and Information Technology* and he reviews research for many national and international journals and conferences.

"In his thesis, Michael discussed an integrated framework he developed that manages an individual's information and knowledge and enables these inputs to be enhanced by others in the context of a blended teaching and learning environment."



Michael Verhaart

Mentoring as a mechanism for supporting academic teachers

In her role as teacher development advisor at EIT, Dr Lesley Peterson has worked predominantly as a mentor of academic teachers.



Lesley Petersen

Her passion for mentoring and the ways in which it can support professional development within an organisation led to the focus of her recently completed PhD research, which investigated the influence of mentoring on teaching practice in the context of higher education. Lesley did this research through

Curtin University in Perth, Western Australia, and won that institution's 2012 Walter D. Neal Award for Excellence in Educational Research, presented for an outstanding thesis in the preceding year.

Lesley used an action research approach to guide her study, which encompassed four action research cycles of data collection and analysis. Three participant groups were involved – five former EIT mentors who had assumed a mentor role 12 years prior to the study, four mentoring programme coordinators based at higher education institutions in New Zealand and Australia (two universities and two polytechnics) and 18 practising academic teachers at EIT. These teachers were paired in mentoring partnerships over a one-year period, contributing to focus group discussions during this time and completing a semi-structured interview at the end of the programme. They represented a cross-section of new and experienced teachers from a range of disciplines.

The research identified a significant link between mentoring and a teacher's academic development, influenced by interconnecting variables at an individual and organisational level. For example, individual variables included the degree of goal orientation of those being mentored and their desire to develop their teaching practice. Also important was the willingness of the mentor to support another teacher in this development. At an organisational level, the findings identified how important it is that mentoring is acknowledged as a legitimate mechanism for contributing to the organisation's strategic goals and that it is sufficiently resourced.

“The research identified a significant link between mentoring and a teacher's academic development, influenced by interconnecting variables at an individual and organisational level.”

As an outcome of the investigation, Lesley developed a model that proposes a definitive approach for mentoring as a professional development mechanism to support teaching practice in higher education organisations. The concepts, practices and evaluation of mentoring within this model are vehicles for teachers to explore, challenge and change existing paradigms of teaching and learning in higher education.

Refereed Research Outputs

SCHOOL OF APPLIED SCIENCE

Hickford, J. G. H., Forrest, R. H. J., Zhou, H., Fang, Q., & Frampton, C. M. (2011). Association between variation in faecal egg count for a mixed field-challenge of nematode parasites and ovine MHC-DQA2 polymorphism. *Veterinary Immunology and Immunopathology*, 144(3-4), 312-320. doi: 10.1016/j.vetimm.2011.08.014

Krasnow, M., Mathews, M., Adams, D., & Shackel, K. (2011). The effects of cluster girdling on fruit growth, firmness, and composition. In V. Novello, M. Bovio, & S. Cavalletto (Eds.), *Proceedings 17th International Symposium GiESCO, Asti – Alba (CN), Italy, 29 Aug-2 Sept 2011* (pp. 415-418). Montpellier, France: Le Progres Agricole et Viticole.

Krasnow, M., Bunch, T., Shoemaker, C., & Loss, C. R. (2011, November 1) Effects of cooking temperatures on the physicochemical properties and consumer acceptance of chicken stock. *Journal of Food Science*. Advance online publication. doi:10.1111/j.1750-3841.2011.02435.x

Krasnow, M. N., Hirson, G. D., & Shoemaker, C. F. (2011). Effects of cooking temperatures and starch source on the gelatinization and thickening power of roux. *Journal of Culinary Science & Technology*, 9(4), 247-260. doi: 10.1080/15428052.2011.627251.

Yang, G., Hickford, J. G. H., Zhou, H., Fang, Q., & Forrest, R. H. (2011). Extended haplotype analysis of ovine ADRB3 using polymerase chain reaction single strand conformational polymorphism on two regions of the gene. *DNA and Cell Biology*, 30(7), 445-448. doi: 10.1089/dna.2010.1175

SCHOOL OF ARTS & DESIGN

Bahho, M. (2011). Negotiating Place [Electronic media]. *East West* [Group exhibition]. Puke Ariki Museum, New Plymouth, October 14-December 11.

Baker, P. (2011). Banner for Rimbaud - 1980 [Wax relic of previous sculptural practice presented in purpose built reliquary box]. *From the Beginning Part 1 - 1st Works* [Group exhibition], Vent Gallery, EIT Hawke's Bay, Napier, New Zealand, February 21-March 4.

Baker, P. (2011). So It Is [Wall installation of 3 light boxes with translucent vinyl presented on purpose built/designed steel shelving system]. *Creative Hawke's Bay Invitational 2011* [Group exhibition], Hastings City Art Gallery, Hastings, New Zealand, April 10-June 26.

Baker, P. (2011). Sure to Rise [Wood, ceramic and light box sculpture]. *East West* [Group exhibition], Puke Ariki Museum, New Plymouth, New Zealand, October 14-December 11.

Baker, P. (2011). Waiohiki, Inaianei (Piiata Lights) [Light boxes]. *Waihoki Charity Art Auction*, Waiohiki Community Arts Centre, Waiohiki, Hawke's Bay, New Zealand, September 29.

Binding, W. (2011). Paintings. *First Impressions* [Selected group exhibition of national artists in Wallace Arts Trust collection]. TSB Bank Wallace Arts Centre, Auckland, New Zealand, July 18-Sept 2.

Binding, W. (2011). Relay [Painting]. *Game On* [Selected exhibition of national artists]. Hastings City Art Gallery, Hastings, New Zealand, July- August, 2011.

Binding, W. (2011). Study for Four flying Objects [Painting, and two other new painted works]. *Kiriti. Invited artists*. Hastings City Art Gallery, Hastings, New Zealand, December 1- January 8, 2012.

Binding, W. (2011). Study for Waterviews [Painting]. *Hawkes Bay Invitational 2011* [Group exhibition]. Hastings City Art Gallery, Hastings, New Zealand, April 10-June 26.

Binding, W. (2011). Three painted works. *Dreams to Reality* [Invited group exhibition], Rona Gallery, Eastbourne, Wellington, New Zealand, May 28-June 12.

Binding, W. (2011). Twenty two new painted works. *Suburbanomics* [Two person exhibition], Northart Gallery, Northcote, Auckland, July 4-20.

Binding, W. (2011). Vivian Girls in Havelock North [Painting, plus four repainted works, and four previously exhibited]. *Sink or Swim*. [Invited solo exhibition]. Statements Gallery, Napier, New Zealand, April 16- May 15.

Bruce, L. (2011). Lime fizz I, Lime fizz II, Blossom Queens III, Heart mud wings grid [Ceramic and mixed media sculpture]. *Giving Back* [Group exhibition], Form Gallery, Christchurch, New Zealand, November-December.

Bruce, L. (2011). Prime terra mammaeleae II [Sculpture installation]. *E-Scape 2011* [Group exhibition], The Sculpture Park @ Waitakaruru Arboretum, Waikato, New Zealand, March 20-June 6.

Bruce, L. (2011). Sub strata [Ceramic and found media sculpture]. *Creative Hawke's Bay Invitational 2011* [Group exhibition], Hastings City Art Gallery, Hastings, New Zealand, April 10-June 26.

Bruce, L. (2011). Toil II [Ceramic sculpture]. *The Big Smoke* [Group exhibition], Mt Eden Village Centre, Mt Eden, Auckland, New Zealand, April 1-23.

Bruce, L. (2011). Toil, Blow, Turbo, Duct [Ceramic sculptures]. *Vessels for Life* [Group exhibition], Statements Gallery, Napier, New Zealand, March 18-April 10.

Bruce, L., Roberts, N., & Taaffe, P. (2011). How else would we discover stars? [Collaborative mixed media sculpture]. *East West* [Group exhibition], Puke Ariki Museum, New Plymouth, New Zealand, October 14-December 11.

Chiappin, A. (2011). Episode 7 The likely demeanor of a suburban nightmare [Painting]. *Creative Hawke's Bay Invitational 2011* [Group exhibition], Hastings City Art Gallery, Hastings, New Zealand April 10-June 26.

Gull, J. & Chiappin, A. (2011). Gerontogeous/of the old world [Collaborative typographic installation]. *East West* [Group exhibition], Puke Ariki Museum, New Plymouth, New Zealand, October 14-December 11.

Roberts, N. (2011). Telomeflick Limit [Wall mounted sculpture]. *Creative Hawke's Bay Invitational 2011* [Group exhibition], Hastings City Art Gallery, Hastings, New Zealand, April 10-June 26.

Taaffe, P. (2011). Linological [Acrylic and enamel painting on canvas]. *Creative Hawke's Bay Invitational 2011* [Group exhibition], Hastings City Art Gallery, Hastings, New Zealand, April 10-June 26.

Webster, J. (2011). Postcards From Cern [21 mixed media prints on paper]. *Creative Hawke's Bay Invitational 2011* [Group exhibition], Hastings City Art Gallery, Hastings, New Zealand, April 10-June 26.

Webster, J. (2011). Winebox 11 [Laser etched winebox]. *Winebox Exhibition* [Group Exhibition]. Mosaic Gallery, Napier, New Zealand, September.

Webster, J. & Catlow, V. (2011). Post Box [Drawing on die-cut cardboard boxes]. *East West* [Group exhibition]. Puke Ariki Museum, New Plymouth, October 14-December 11.

TOIHOUKURA – SCHOOL OF MAORI VISUAL ART & DESIGN

Gibbs, S. (2011). *Ko te Kuranui, Ko te Kuraroa* [Group exhibition], Kura Gallery, Wellington, New Zealand, December 11-January 2012.

Gibbs, S. (2011). *Maori Art Market* [Group exhibition], Te Rauparaha Arena and Pataka Museum, Porirua, New Zealand, October 6-9.

Lardelli, D. (2011). *Ko te Kuranui, Ko te Kuraroa* [Group exhibition], Kura Gallery, Wellington, New Zealand, December 11-January 2012.

Lardelli, D. (2011). *Maori Art Market* [Group exhibition], Te Rauparaha Arena and Pataka Museum, Porirua, New Zealand, October 6-9.

Wirihaana, C. (2011). *Ko te Kuranui, Ko te Kuraroa* [Group exhibition], Kura Gallery, Wellington, New Zealand, December 11-January 2012.

Wirihaana, C. (2011). *Maori Art Market* [Group exhibition], Te Rauparaha Arena and Pataka Museum, Porirua, New Zealand, October 6-9.

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Burns, E., & Yahanpath, N. (2011). Researching New Zealand polytechnic degree students' semester-time paid work and study. *New Zealand Journal of Applied Business Research*, 9(2), 43-56.

Erturk, E. (2011). Ecological surplus and its economic implications. *The International Journal of Environmental, Cultural, Economic and Social Sustainability*, 7(3), 397-408.

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Kadirov, D., & Varey, R. J. (2011). Symbolism in marketing systems. *Journal of Macromarketing*, 31(2), 160-171. doi: 10.1177/0276146710393519.

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Tilly, N., & Yahanpath, N. (2011, November). *An exploratory study into performance of corporate trustees in relation to failed finance companies in New Zealand*. Paper presented at the Auckland Region Accounting Conference 2011, Auckland, New Zealand. Available from http://www.aut.ac.nz/__data/assets/pdf_file/0010/247294/7.0-Noel-Nick-ARA-2011.pdf

Wisker, L. (2011). *The effect of personality, emotional intelligence and social network characteristics on sales performance: The mediating roles of market intelligence use, adaptive selling behaviour and improvisation.*, (PhD thesis, University of Waikato, Hamilton, New Zealand). Available from <http://researchcommons.waikato.ac.nz/bitstream/handle/10289/5081/thesis.pdf?sequence=3>

Wisker, L. (2011). The impact of personality traits on sales performance: A comparative study between Muslim and non-Muslim managers. In T. Hoque (Ed.), *International Islamic Banking, Finance and Investment Conference, 19-20 December 2011, Hotel Istana, Kuala Lumpur, Malaysia*. Available from <http://www.wbiconpro.com/413-Lily.pdf>

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Yahanpath, N., & Cavanagh, J. (2011, November). *New Zealand finance company collapses and subsequent blame game*. Paper presented at the Auckland Region Accounting Conference 2011, Auckland, New Zealand. Available from http://www.aut.ac.nz/__data/assets/pdf_file/0011/247187/5.0-Noel-John-ARA-2011-Submission.pdf

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Bray, P., & Bray, O. (2011). Fathers and sons: An autoethnographic case study of bereavement and trauma. In C. Barrette, B. Haylock & D. Mortimer (Eds.), *Trauma imprints: Performance, art, literature and theoretical practice* (pp. 13-23). Available from <https://www.interdisciplinarypress.net/online-store/ebooks/hostility-and-violence/trauma-imprints>

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Costa, V. P., Pertence, L. C., Paton, C. D., De Matos, D. G., Martins, J. A. N., & De Lima, J. R. P. (2011). Physiological correlates of 10-Km up-hill cycling performance in competitive cyclists. *Journal of Exercise Physiology-online*, 14(3), 26-33. Available from <http://faculty.css.edu/tboone2/asep/COSTAJEPonlineJune2011.pdf>

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Palmer, J. *What are the implications for practice change in the nurse's approach that are effective in supporting self management in patients with chronic kidney disease?* (Unpublished master's thesis). Eastern Institute of Technology, Napier, New Zealand.

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Roberts, J., Floyd, S., & Thompson, S. (2011). The clinical nurse specialist in New Zealand: How is the role defined? *Nursing Praxis in New Zealand*, 27(2), 24-35.

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Cover image title: Te Whatu Manea
Artist: Derek Lardelli, Ngati Porou, Rongowhakaata
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