



OTAGO
POLYTECHNIC
Te Kura Matatini ki Otago

Whakapuaki kā Rakahau nō Te Kura Matatini ki Otago

Research highlights of Otago Polytechnic 2012



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Introduction



ALISTAIR REGAN : DIRECTOR: RESEARCH AND ENTERPRISE

2012 signalled a significant change in direction for research and enterprise at Otago Polytechnic. As our researchers grew in capability, we sought to adapt our focus outwardly into our communities. A new research and enterprise strategy was developed and new structures were configured to support our researchers to focus on real-world problems.

Of particular note were the establishment of four Centres of Research Expertise in Sustainability, Innovation, Business Improvement, and Health and Well-being, reflecting our strength in these areas.

Meanwhile, we continued to consolidate our position as a leading contributor to academic-based research in the ITP sector. Our performance in the Performance-Based Research Fund (PBRF) Quality Evaluation process has shown that we are developing a formidable base of research expertise that is recognised within the academic community as well as for its real-world focus.

The PBRF results show that, since the previous round in 2006, Otago Polytechnic has substantially grown its research capability across the institution, almost doubling the income from PBRF and ranking third among the ITP sector in research quality.

Particular achievements were the Schools of Design and Art who were both ranked among the top five schools of their type in the country.

In total, 62 Otago Polytechnic staff achieved a PBRF rating, compared with 45 in 2006. Today, 11 researchers gained a B rating, 32 were rated C, while 19 were given a C rating as a new researcher.

In this publication we wish to describe in more detail the stories behind these achievements. This year we have chosen a range of stories that describe our rich and growing research culture.

Topical issues are tackled in research on new techniques for earthquake strengthening and retrofitting, developing a workable solution for the electric car and sustainable buildings for Christchurch's pop-up precinct from the Sustainable Business Challenge.

Our artists and designers are without a doubt world-class and we are delighted to feature their innovative work on show in locations all around the world from Berlin to Gwangju.

Exploring the health and well-being of parents and children, along with evaluating professional practice, is just some of the valuable work undertaken by researchers from our health group.

Our business is in providing world-class education. We are maintaining excellence in teaching and learning whilst developing contemporary learning practice and providing greater support to our communities.

It is with great pleasure that I present this, our research and enterprise highlights for 2012.

Retrofitting Dunedin's heritage

RESEARCHER : DR NAJIF ISMAIL

Ever since the Christchurch earthquakes, more than one Dunedinite has viewed the city's beautiful historic buildings with a nervous appraising eye.

Doing more than wondering how safe they are is Principal Lecturer in Civil Engineering Dr Najif Ismail, an expert in retrofitting unreinforced masonry (URM) – the kind that graces more than 700 buildings in Dunedin.

New Zealand is home to more than 4000 URM buildings built prior to the 1930s, which are widely acknowledged as a significant part of this country's architectural heritage but which are also the most earthquake-prone class of building.

Seismic retrofitting is not a new concept and many techniques have been used worldwide but there is limited reference material, especially for New Zealand. This gap prompted Najif to work towards creating awareness about strengthening and preserving the country's heritage.

"As part of my doctoral research, I developed experimentally-validated design guidelines for three relatively new structural solutions to this problem: polymer textile-reinforced matrix systems, near-surface-mounted twisted steel bars and post-tensioning," he says.

After finishing his PhD at the University of Auckland, Najif joined the School of Architecture, Building and Engineering at the Polytechnic where he has been working closely with the Dunedin City Council and local engineers to assess and review the local building stock.

A study led by him and his team identified and recorded the characteristics of unreinforced buildings in the central business district (CBD) area and assessed their seismic vulnerability. The Council's earthquake-prone building policy is based in part on this study.

"We have estimated that, out of the 750 URM buildings in Dunedin, 680 are likely to be earthquake-prone. Additionally, numerous unrestrained parapets present the largest risk to life. The risk is increased by the concentration of these buildings in the CBD area, which has the highest foot traffic."

But seismic strengthening of URM buildings and parapets is not a well understood practice area, nor are its design parameters, explains Najif. That's why he is keen to actively engage with the local community and district councils to increase knowledge sharing and applied research around these issues.

"These buildings, which were built without any consideration for earthquake loading prior to the 1930s, are a major tourist attraction. If the city faces an earthquake on the same scale as that which Christchurch experienced, there will be drastic changes in Dunedin that will affect the economy of our community."

Ismail, N. (2012) *Strengthening Techniques for the Seismic Retrofit of URM Buildings: Posttensioning, steel insertion and polymeric composites*, p. 304. LAP Lambert Academic Publishing, Berlin (Germany), ISSN: 978-3-659-15561-1.



“Historic masonry buildings constitute a major part of New Zealand’s architectural heritage but at the same time these buildings are vulnerable and merit strengthening.”

Like me

RESEARCHERS : LESLEY SMITH AND PROFESSOR SAMUEL MANN

Build it and they will come. And so it seems, with a new school-specific academic Facebook page proving a big hit for Information Technology staff and students alike.

“Our goal was to tap into the enthusiasm students have for Facebook, as a means to create a sense of belonging and community,” says Lesley Smith, Head of the College of Enterprise and Development.

Information Technology students’ focus is predominantly online in an immersive environment, she explains. This contrasts with students from other disciplines, such as health, who tend to share more about themselves in a class setting. The Facebook page helps to build a sense of community in the online setting.

The page therefore aimed to mitigate the sense of isolation that many new students experience, while also serving as an accessible conduit between students and staff.

Once the idea of a student-specific Facebook page was mooted it became easy to track their responses and attitudes. Students responded quickly to the idea: by the third week, 52 students were actively engaged in the page. There are now over 200 regularly using the site, with topics as diverse as technical support requests to posts of links to professional interest.

Staff use the page to post information on orientation, health and safety guidelines and assignment updates, while moderating discussions to keep the page topical and ethical. The page also helps them support and engage with their students on a different level.

“The page continues to be an intriguing social experiment which builds in value and interest for both the students and staff,” says Lesley.

The results of the Facebook experiment were presented at the Computing and Information Technology Research and Education New Zealand Conference in Christchurch last October in the paper *Can we be Friends? Building student communities with social media*, co-authored by Lesley, Patricia Hayden and Professor Samuel Mann.

Smith, L., Haden, P. and Mann, S. (2012) *Can we be Friends?: Building Student Communities with Social Media. Computing and Information Technology Research and Education New Zealand Conference*, Christchurch, 7–10 October.



From left: Professor Samuel Mann and Lesley Smith



Clothing detective

RESEARCHER : DR JANE MALTHUS

Did you know that Hallenstein's had a waterproofing plant in Dunedin in the 19th century?

Don't worry, hardly anyone does. But it's the kind of throw-away comment that can send a thrill down the spine of Dr Jane Malthus. That's because she has a not-so-secret passion: 19th century clothing and design.

"I am interested in anything to do with dress, really, including more recently menswear. Anything can spark my interest to do research... That's how my paper, 'Permeable-Impermeable: The business of staying dry in nineteenth-century New Zealand' came about," explains the part-time Senior Lecturer in Design of her recent research on the Hallenstein factory. "But there's a bit more detective work yet to be done on that topic before it can be published."

Detective work it is, or, to use a more apt clothing metaphor, like finding a needle in a haystack. That's because Victorian-era dressmakers did not document their work. However, with her trained eye, Jane

discovers a tell-tale consistency when she looks closely at the techniques being used.

"For example, the piping seen in particular dresses or the way the sleeves were put in was almost always the same. Dressmakers learned those techniques and in my earlier research I was interested in how they learned it. I used letters, diaries, anything that was written by women about clothes or other women, and account books. But not all the answers are found yet," she said.

Jane also researches 20th century dress in her role as an honorary curator of dress at Otago Museum, and is a guest curator for dress exhibits at Toitū Otago Settlers Museum.

Malthus, J. and White, M. (2012) *Permeable-Impermeable: The Business of Staying Dry in Nineteenth-century New Zealand. Costume and Textiles Association of New Zealand Symposium*, Nelson, 20–21 July.

Sharing kai

RESEARCHERS : SIMON KAAH AND RON BULL – Kai Tahu, Kati Mamoe, Waitaha

It takes brave men to declare at LAX airport that they have 20 tītī and four kilograms of tuna in their luggage. Ron Bull and Simon Kaan did just that, en route to presenting their installation *Kaihaukai: An Art Project* at the 2012 International Symposium of Electronic Arts in Albuquerque, New Mexico.

ISEA is touted as one of the most important academic gatherings on electronic art worldwide and features the work of 100 artists and 400 presenters from 30 countries.

The original concept for the project was hatched by Simon during one of his art installations when he was included in a waiata via Skype.

This posed the question: “How much information and experience is it possible to transfer through cyberspace?”

He collaborated with chef and muttonbird Ron Bull Jnr to create the concept of a cultural food exchange to be both experienced and Skyped between the people of Kai Tahu in New Zealand and the Pueblo people of New Mexico.

In the six months leading up to the symposium, a Kaihaukai website provided a platform for Kai Tahu whānui to archive their thoughts and conversations around mahika kai.

It included videos documenting the changing of the seasons, sharing of meals, spearing of patiki, plucking of tītī, reciting poems and storytelling.

At the beginning of the project’s presentation in New Mexico, Lois Frank, a native food historian and chef, initiated a talking circle with local indigenous students.

“Each person expressed a pragmatic spirituality that embraced a deep understanding of the cycles of nature,” says Ron.

Food was also shared to gain an understanding of each other’s mahika kai practices.

This included piki bread made from corn and culinary ash by Hopi people, wild grass seed rice from the Ojibwa people, and muqtuk (whale blubber) and dried seal meat from Alaska.

In the final stage of the wānaka, participants exchanged and mixed their foods, culminating in a hākari. Kai Tahu whānui joined in to hākari by Skype.

“This interaction worked really well and it took the sharing of food to an entirely new level.

“The aim of this project was to embrace the concept of hau – that food given has an expectation of reciprocity – through the sharing of stories, philosophies and intergenerational knowledge.

“Hau also depicts the wind and the breeze and that this knowledge and sharing can be carried by the wind – even the wind of technology.”

Ron and Simon also gave presentations to staff and students of IAIA (Institute of American Indian Arts) and presented a paper at the ISEA conference. They have two articles awaiting publication following the symposium and have been interviewed on Radio New Zealand.

Kaan, S & Bull, R. (2012) An Alternative Economy: Tradition Today, A multimedia installation on indigenous knowledge about food by Māori artists. *18th International Symposium on Electronic Art*, Albuquerque, New Mexico.



From left: Simon Kaan and Ron Bull

“The aim of this project was to embrace the concept of hau – that food given has an expectation of reciprocity – through the sharing of stories, philosophies and intergenerational knowledge.”



“We are taught not to touch in a gallery, but a lot of art provokes a tactile response, or can be so annoying that people want to hit or kick it.”



Disappointment, fun and a nuisance

RESEARCHER : SCOTT EADY

After an enthusiastic reception in New Zealand, Scott Eady took his *100 Bikes* project to the Gwangju Biennale in South Korea.

A Lecturer in Sculpture at the Dunedin School of Art, Eady first came up with the idea for the project six years ago. He was sourcing bikes from the tip to do up for his children for Christmas. "Kids' bikes aren't expensive. Unlike adult bikes, kids' bikes are throwaway objects – so finding ones to do up wasn't a problem."

Eady is keen to elaborate on the project's central themes: disappointment, fun and a bit of a nuisance. "Art that disappoints is sometimes very interesting and this was a key element to the exhibition," he says. "It goes back to my own childhood when my father did up a bike for me. He was always very good at DIY jobs, but the finished bike was painted a 'poo' brown colour. It was not my idea of cool and I was disappointed. Despite that, I had a lot of fun on that bike."

With this in mind, each bike for the project was unique and done up differently. After the bikes were retrieved from the tip, they were stripped down completely. Eady wanted clean lines without any "extra bits" so the frames were sandblasted and re-chromed. Wheels and chains were replaced, and the seats were upholstered before the bikes were powder-coated.

The result was a stunning collection that elicited a different kind of disappointment. "Instead of kids being disappointed by the bikes, they were instead upset that they couldn't take one home!"

Eady also wanted the exhibition to be fun. Unlike a lot of art, this exhibition was designed to be touched. The bikes were set up in rows according to size, like a school bike shed racks, with an adjoining space for kids to ride in. Many children learnt to ride at the exhibition.

And what about the nuisance element?

"For someone who doesn't even like doing up one bike, this venture was a bit masochistic!" Scott explains. "I didn't really enjoy the process. I chose this particular idea because I wanted to create an artwork that invited participation from the audience but that was also a bit of a nuisance for the gallery hosting it."

"The challenge was to get a project of this nature into a public gallery! I presented the project as something that was community-minded and likeable, yet behind its interactive fun façade was an exhibition that invited chaos and mess into the Museum. This was an exhibition that brought joy but also provided an opportunity for kids to get in there and disrupt the gallery space."

Eady, S. (2012) *100 Bikes Project*, part 2. Exhibition Hall Gwangju, 9th Gwangju Biennale, South Korea, 7 September – 11 November.

Safe sleep

RESEARCHER : ASSOCIATE PROFESSOR SALLY BADDOCK

Sally Baddock is part of a team looking at the risks and benefits of Wahakura – a new infant sleep device that may facilitate safe bed-sharing.

“Even though the rate of Sudden Infant Death Syndrome in New Zealand has reduced significantly since the 1990s – from 200 to 50 deaths per year – our rate is still higher than other developed countries,” explains Sally, Co-Head of the School of Midwifery at Otago Polytechnic. “Our SIDS rate is one death per 1000 live births, whereas the USA, UK and Australia are half that.”

The factors that appear to influence SIDS are sleep position, a smoke-free environment, breastfeeding and a safe sleep environment. “There are a number of risk factors for SIDS that have been identified, but sleeping babies on their back has had the biggest impact on reducing the rate.”

The idea for the Wahakura came from Dr David Tipene-Leach and the Māori SIDS group. Sally has joined a team from the University of Otago to investigate the risks and benefits of this sleep device compared to using a bassinet in a study funded by the Health Research Council of New Zealand. The Wahakura, a woven flax basket, can be placed on or near the parents’ bed. The infant stays close to the mother; with the advantages of bed-sharing while having a separate sleep space. The protocol for investigating its safety grew from Baddock’s PhD study investigating bed-sharing versus cot-sleeping – using the same overnight videoing and physiological monitoring of the infant.

“Around 60 per cent of SIDS deaths in New Zealand are in Māori families. There’s an ethnic disparity and this is quite a concern. We are now looking at the Wahakura as a possible solution for safe bed-sharing in Māori families.”

The research targets 200 babies in the Hawke’s Bay area, recruiting from midwives who work with mainly Māori families. Babies are randomised to receive a bassinet or a Wahakura, and then they are videoed overnight at one month. “We video what is ‘normal behaviour’ for the family,” Sally explains, “even if babies are not sleeping in the device allocated to them for the study. It is up to the parents.”

The team has now received a further grant from the Health Research Council to investigate another sleep device, the Pēpi-Pod, a plastic container of similar size to the Wahakura but cheaper and easier to produce. “This is a possible solution for wider dissemination, but we need to evaluate these devices and make sure there aren’t any unexpected risks.”

Baddock S., Tipene-Leach D., Tangiora A., Jones R., Williams S., Taylor B. (2012) The Technical Practicalities and Cultural Considerations of Home Monitoring to Evaluate a Māori Infant Sleep Device. *Sleep and Biological Rhythms*, 2012:10 (S1), 52.

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Lesley Gill, second from right

A question of ethics

RESEARCHER : LESLEY GILL

When Lesley Gill introduced a business ethics project to her third-year Business and Society paper, she received an enthusiastic and thought-provoking response from her students.

"I wanted to create a synthesis between what we teach and what we practise," explains Lesley, a Principal Lecturer in business ethics in the School of Applied Business, "and to include an assignment that added a layer of research to the paper – so I picked a business ethics journal, gave the students the submission criteria, and asked them to research and write a 4500 word article on a global business issue."

The results were impressive. From Egotism and Accountability, to Corporate Betrayal, the Law of Justice, Ethical Practice and Capitalism – the students tackled complex business ethics issues. Lesley presented her class with the journal's Call for Papers, which highlighted the predicament of learning from the global financial crisis, and addressing the role of business ethics, or the lack of it. To prepare for their assignment, students studied the Enron case-study and the philosophies of Plato, Marx and Weber, among others, in order to build up a portfolio on the different perspectives relating to ethics, and how these theories have influenced contemporary business principles and practice.

The project's goal was to get the students to take part in experiential and constructionist learning. "It was a great learning curve, and it helps students who would like to take academic learning further," Lesley says. "It gave them the tools to become emerging authors themselves."

The business ethics paper looks at public, private, and core beliefs and puts a "practical spin" on a subject that can have far-reaching consequences. Lesley believes that we should challenge students so that they understand their core values and realise that they are only responsible for their own behaviour. That way they can make "informed" decisions about what action to take, if faced with a business ethics dilemma, and so are much better prepared for the workplace. "Many of those in management have a degree – so, what did we do to help them become more ethical? We owe our students this kind of preparation."

Gill, L. J. (2012) Systemic Action Research for Ethics Students: Curbing unethical business behaviour by addressing core values in next generation corporates. *Systemic Practice and Action Research*, Vol 25 (5), 371–391.

Exploring Berlin's sub-culture

RESEARCHER : MICHAEL GREAVES

Last year, Michael Greaves spent three months in Berlin – a residency that resulted in over 20 works and a new exhibition at the Ashburton Art Gallery: *I am brave yet I fear my own breath.*

Michael, a Lecturer in Painting at the Dunedin School of Art, first visited Berlin in 2010. This city's culture left a real impression on him. "Painting is incredibly strong in Europe and, unlike New Zealand where history is often at the forefront of your work, it's assumed in Europe. There's already a sense of history – so painting doesn't necessarily have to be about that. It's liberating."

The residency was about interacting with the city and looking at it through historical elements or events. "I essentially went over thinking I was making small works on paper and ended up making large works on canvas," says Michael. "My painting often develops ideas of community. In Berlin I looked at culture and sub-culture and how they are on a continuum or see-saw."

He stayed in the former East Berlin suburb of Friedrichshain; an area synonymous with Berlin's punk movement following the fall of the wall. "Berlin is a unique city – one that is still kind of split in two. When the wall came down, the people in this area moved on, mainly west, and there were all these empty buildings. Squatters and artists moved in and redefined the community."

Michael found his time in the studio hugely beneficial. There were also a number of other residents to talk to, including lecturers and teachers from Japan, the USA,

Korea and Argentina. "When you stop being a student there becomes less and less time for reflective discussion with your peers," says Michael. "It was important to have this time and to be able to engage in this way."

So, what came out of his time in Berlin? "The residency deepened the way I work," he says. "Upon my return from Berlin, I made several large paintings from ideas established in Germany for my most recent show at the Ashburton Art Gallery. The three months spent solely with my work while in Berlin reset my studio habits, which was refreshing." Michael's time in Berlin has also influenced the way he teaches. "I now stress the importance of the 'long-game' in painting. It's more about teaching students to engage with the slowness of painting, understanding its amalgamation of historic and theoretical concerns and current stories, and understanding the value of exploring these things in painting."

Greaves, M. (2012) *Building Utopia*, Group exhibition, Kunstraum Tapir, Weserstrasse 11, 10247 Berlin Friedrichshain, Germany, 15–23 September 2012. <http://www.taktberlin.org/residency/news/1100/news.htm#buildingUtopia>

“My painting often develops ideas of community. In Berlin I looked at culture and sub-culture and how they are on a continuum or see-saw.”



Happy homes

RESEARCHER : TIM BISHOP

Tim Bishop believes that sustainable building should not just be about using sustainable or recycled resources – it should also make us happier.

“It’s about creating the home we want without accumulating a lot of debt,” says Tim, the National Coordinator for SHAC (Sustainable Habitat Challenge). “A sustainable house will be high-quality, keep you warm and preferably be solar-powered. It will be modular, and grow with your needs.”

So what are the benefits of living this way? In the past, New Zealanders lived in smaller homes; ones that had a gentle impact on the environment and didn’t drain resources. These houses were also relatively cheap to build. “There’s nothing wrong with a big house,” Tim explains. “It’s just that building a 250m² house costs a lot of money. Sustainable building is about helping people spend time doing what they enjoy rather than paying off a huge mortgage. A high-quality, more affordable house might fit the bill.”

According to Tim, although a lot of discussion about sustainability tends to be about technology or materials, it’s really about providing people with a good life. A sustainable home should last. “New Zealand legislation states that homes need to last 50 years, but buildings should last much longer than that – especially

considering how much money we put into them.” The best buildings are flexible; they could be an office in one generation and a family home in another. “Sustainable building should be comfortable to live in now, and can also be adaptable for the future.”

Part of SHAC’s research is looking into different ways of building – particularly the working bee concept. This process involves a large group coming together to build their own home. “Instead of just having a couple of people working on a house-build for months, the whānau can come together for a short amount of time,” Tim explains. “It wasn’t that long ago in New Zealand when many families and communities would come together to help build what they needed. Let’s do more of that.”

Tim believes the working bee concept feeds into the idea that living sustainably is about living well and with purpose, while acknowledging those in your community, friends and extended family. “It’s about providing people with options. Sustainable housing supports living well, with less reliance on resources, while giving you time to discover your purpose and do what you enjoy.”





Clinical reasoning, thinking critically

RESEARCHER : DR LINDA ROBERTSON

Clinical reasoning is an area of increasing interest for researchers, educators and clinicians in the field of occupational therapy. Understanding this decision-making process gives therapists greater insight into clinical reasoning and allows them to make positive changes in their own practice.

That's the view of Dr Linda Robertson, Principal Lecturer in the Occupational Therapy Department, whose recent book *Clinical Reasoning in Occupational Therapy: Controversies in Practice* questions many of the assumptions about how we reason.

"Over time, I became quite familiar with the academic literature and I was struck by how non-questioning much of the writing was. Textbooks on reasoning contain separate chapters that contradict one another and yet nobody comments on it. I was concerned about this, and that is how this book came about, pulling together what's been written so far," she says.

An area of particular interest was the information processing approach to problem-solving in occupational therapy. During her research, she found that this area of reasoning was being ignored. "I was kind of getting pushed aside and

being told that we don't reason like that anymore," she says. "That's wrong. So it was one of the things that I had in mind when writing some chapters in this book."

The book also contains excerpts of practice in the form of narratives from other expert clinicians. "One of the chapters, 'Kai Whakaora Ngangahau – Māori Occupational Therapists' Collective Reasoning', gives us an insight into Māori perspectives. We don't have much in New Zealand in the way of written documentation about reasoning from a Māori perspective," she says, yet she sees this as critical. "I would like to further explore this area of reasoning in a bicultural society. Some cultures might be more individually-orientated than others. It's being able to understand the genuine differences that's important."

Robertson, L. (2012) *Clinical Reasoning in Occupational Therapy: Controversies in Practice*. Oxford: Blackwell.

A model metaphor

RESEARCHER : TIM LINZEY

If a picture is worth a thousand words – what about a 3D model? Tim Linzey believes that his model is invaluable in helping Social Services students and practitioners understand how their values, beliefs and ethics relate to their professional practice.

A Senior Lecturer in Social Services at Otago Polytechnic, Tim Linzey has a particular interest in the role of imagery and metaphor in bringing about understanding. He has spent more than two decades developing his own structural metaphor: the model of practice. It is deceptively simple – a pyramid made out of four layers of wooden blocks – yet Tim insists that students and practitioners can use this metaphor to uncover their own professional philosophy. They can also describe their approach to practice, such as Person-Centred Counselling, Cognitive Behavioural Therapy or Transactional Analysis.

So, what does each layer represent? “The top level of the pyramid represents how a professional describes their practice; including their methods, strategies and outcomes,” Linzey explains. “The next level represents their discourse about ethics, values and objectives. These might differ, according to their approach, but in each case they should line up with their practice. The third level of the pyramid is the beliefs, which logically underpin their objectives. This layer addresses our fundamental assumptions and beliefs about human nature and about ‘what makes people tick’. The base layer of the pyramid represents the social, political and professional culture we operate in. Are we in line with our workplace’s philosophy, approach and core values?”

The metaphor can also be seen as an iceberg. “The tip is the practice but what really matters is beneath it. We might not be able to see someone’s ethics, beliefs about humanity or the politics of their setting – but it all influences their practice.” Tim believes this is a metaphor for professional integrity on two levels. The first is in the integrity of the actual pyramid shape – if the layers don’t line up then professional integrity can be undermined. The second is the integrity of actually working from your beliefs so that your environment and practice matches them – resulting in real and enduring job satisfaction.

“The strength of the metaphor is that it allows us to take in the totality and overall sense of our model of practice,” says Tim. “It gets you to consider what degree of consistency or coherence there is between what we believe and what we do. Ideally, there should be a lining up of our beliefs and attitudes – and these would be reflected in our practice.”

Linzey, T. (2012) Building Students’ Models of Practice: A structural metaphor. 2012 NZAC (New Zealand Association of Counsellors) Research Conference, Eastern Institute of Technology, Hawkes Bay, New Zealand, 3–4 December.



“The strength of the metaphor is that it allows us to take in the totality and overall sense of our model of practice.”





“I realise the kind of care, responsibility and understanding needed while handling the material as it tells stories of people.”

Double Dragon (2012), public installation featured as part of *Imaginary Geographies* Courtenay Place Light Box exhibition (in Courtenay Place, Wellington) curated by Claudia Arozqueta (<http://imaginarygeographies.tumblr.com/>). >



Through an archway

RESEARCHER : KERRY ANN LEE

For Kerry Ann Lee, Courtenay Place is the heart of the historic Wellington Chinese community and for her site-specific art piece.

In *Double Dragon* (2012), Kerry Ann, a Senior Lecturer in Communication at the School of Design, has created a super structure using imagery of Chinese *paifang* or archways in her portrayal of past and present Chinese settlers in the city's centre.

The archways are from Chinatowns around the world, tracing the story of cultural influences and hybridisation.

"In New Zealand we don't have a formal Chinatown, so Courtenay Place for me is my sense of community and the closest thing to having a Chinatown. We recognise a Chinese place or space through signs, food, smells and the memories," she says.

Kerry Ann's work focuses on the Cantonese Chinese settlement in New Zealand, which includes her own family history across the last century. While the first wave of Chinese settlement occurred in the 1860s, her own ancestors arrived later, in the 1920s. Her immediate family arrived in Wellington in the 1950s when her grandparents worked at one of the first Chinese restaurants, the Canton, in Courtenay Place.

Double Dragon was curated by Claudia Arozqueta of Enjoy Public Art Gallery as part of an exhibition called *Imaginary Geographies* at the light boxes at Courtenay Place Park. The public light box project is an initiative by the Wellington City Council to bring art back to the CBD.

"I was really excited to submit my work for Courtenay Place, because it had so much to do with our family's relationship with the area."

With its vivid colours and bold style, *Double Dragon* is a striking attempt to recapture the essence of something that has disappeared.

"The sense of a settled cultural home place is harder to capture now because we have a lot of waves of settlers adding to the existing stories and creating new ones," Kerry Ann explains. "In my practice of piecing together images I'm often a storyteller. What I do here has a lot to do with raising history to the surface and rearranging it, so that we can look at our attachment to it and local community history and see it in a different light."

And she is part of that history too, history that was difficult to remain critically detached from. "I realise the kind of care, responsibility and understanding needed while handling material like this as it tells stories of people."

Lee, K.A. (2012) *Double Dragon Imaginary Geographies*, in Courtenay Place, Wellington. Exhibition was curated by Claudia Arozqueta and sponsored by the Wellington City Council, February–April.

At work, for work, through work

RESEARCHERS : KEITH TYLER-SMITH, ROBIN DAY, KRIS BENNETT, PAUL MORRISS & GLENYS KER

“Work-based learning is about taking charge of your own learning,” says Keith Tyler-Smith, Project Co-Leader for Capable New Zealand. “It’s doing the job that education should be: fostering and helping people learn.”

Co-Leader Kris Bennett goes further. “Work-based learning absolutely speaks to the challenges that we all face in our workplaces. It helps us understand the complexity of our work environment and discover ways to approach future challenges at work. I believe this way of learning will become the choice of experienced adults in the future.”

Keith and Kris’s project saw the development of the Master and Graduate Diploma of Professional Practice delivered through Capable NZ at Otago Polytechnic. And not only was Kris involved in the conceptualisation and development of work-based learning at Otago Polytechnic, she also became one of its first students, undertaking the Master’s programme as part of her professional development.

Supported by a grant from Ako Aotearoa, the project team developed what they describe as “a new paradigm” for degree teaching. This “liberating approach to adult education” involves the learner undertaking a project that is directly related to their employer’s core business. Paul Morriss, a Capable NZ Facilitator, sums up the relationship as “a three-way learning experience that involves an employer and employee identifying an area of work that needs development, before formulating a learning agreement around it with defined outcomes”.

So how does work-based learning benefit everyone? Keith believes that on a personal level, this approach increases confidence, and improves self and professional identity; while on a professional level it benefits a business’s bottom line. “Work-based learning is intimately involved in the ‘business of the business’.”

Richard Kerr-Bell, an Otago Polytechnic Lecturer and Capable NZ Facilitator, believes work-based learning “allows the learner to set the curriculum, as such, while giving the employer the opportunity to shape the learning project to meet the workplace’s needs”. He also believes it is a way of valuing learning from experience. “It gives adults the opportunity to stay at work and achieve a higher qualification, while contributing to their own workplace and knowledge.” Glenys Ker is also a Lecturer at Otago Polytechnic and a Capable NZ Facilitator and took on the first learners. “It’s all about people learning in their workplace, and their workplace enhancing their practice,” Glenys says. “The facilitator’s role is about listening, learning and discussing with the learner so they get the most out of the process, while managing any tensions between the employer and employee.”

Otago Polytechnic’s use of this approach is based on the research and experience of Middlesex University in the United Kingdom, which has resulted in a formal relationship between the two institutions.

Tyler-Smith, K., Day, R., Bennett, K., Morriss, P. & Ker, G. (2012)
Workplace-Based Learning: Introducing a New Applied Degree Paradigm.
Research Report for Ako Aotearoa, Southern Regional Hub Project Fund,
New Zealand.

“Work-based learning helps us understand the complexity of our work environment and discover ways to approach future challenges at work.”



Kris Bennett

Searching questions

RESEARCHER : STUART TERRY

Do teachers care about what their students think of them? Do they value student feedback? If so, what do they do with it? And how does that feedback affect them personally?

These are questions that Organisational Researcher Stuart Terry and his team answer in their research paper, *Using Student Evaluation to Enhance Teaching Practice: Closing the loop*.

"We started this research because we had anecdotal evidence that some teachers wouldn't open their email to see the student evaluations. They were too scared to see what's inside. Some people share the feedback with their colleagues whereas other people won't," he says.

Teaching staff from Otago Polytechnic and the Universities of Otago and Waikato were asked to complete a questionnaire asking their initial perceptions. Over a thousand sent their responses back and 20 respondents from each institution were selected for an in-depth interview.

"We found that, overall, teachers did value the students' feedback," Stuart says.

However, much depended on the institution, and how it used the information. And some staff were more open to suggestions than others.

"Say a report confirms the students like what I do. That's a good situation. But say I'm told I need to improve my teaching style. Now, some people take that as a personal affront. They feel devalued as a teacher. For some, it can have quite a devastating impact," he says.

A key recommendation is to ensure that student evaluations are presented, interpreted and, where appropriate, implemented positively, and seen as an opportunity for individual professional development and quality enhancement of teaching and learning across departments.

The next step, says Stuart, is to find out if gender is an issue: "Are male professors less likely to take on board student feedback than females? Will a senior male professor and a lecturer value the feedback differently?"

Stein, S. J., Spiller, D., **Terry, S.**, Harris, T., Deaker, L., & Kennedy, J. (2012) *Using Student Evaluations to Enhance Teaching Practice: Closing the loop*. Ako Aotearoa Wellington.





Dianne Begg on left

A good fit: theory and practice

RESEARCHER : DIANNE BEGG

When the Polytechnic advertised a position for a lecturer who could help establish a counselling training programme in 2001, Dianne Begg jumped at the chance. “I just applied and thought, dream territory, I will never get the opportunity for a position like this again,” she said.

Dianne, now a Senior Lecturer in the School of Social Services, is in charge of finding work placements for students in the Bachelor of Social Services (BSS) endorsed in counselling programme. As part of the programme, students also need to produce a work portfolio to present to an expert panel.

Dianne’s become intrigued by how students integrate their theory into practice, and whether the match between students and placement providers was a good fit.

“That’s how my own research came into being. I wanted to know whether we were meeting the developmental needs and standards of counselling, and whether what was presented to the panel was of a good and sufficient standard,” she says.

She was also interested in knowing a student’s journey through the process and wanted to understand their frustrations and drive to succeed as a counsellor.

“All the students want to become the best counsellor they can. That’s not always a simple process; for some, the academic learning comes more easily than the actual practice. For others, working with the clients is great but the academic learning is difficult. So each student has a unique set of challenges. For them, success is being able to say that I have my BSS endorsed in counselling.”

Critical to the students’ success is the relationship with the agencies who provide placements. Here, Dianne reports an important positive: all the placement providers were willing to take a student again.

Begg, D. (2012) From Theory to Integrated Practice: Frustration and the drive to become a “good enough” counselling practitioner. 2012 NZAC (New Zealand Association of Counsellors) Research Conference, Eastern Institute of Technology, Hawkes Bay, New Zealand, 3–4 December.

A dream fulfilled: designing future cars

RESEARCHER : DR ZIMING (TOM) QI

A uniquely designed all-wheel, four-engine electric car gliding silently along the streets of New Zealand.

This is the brainchild of Dr Ziming (Tom) Qi, Engineering Research and Postgraduate Leader for the School of Architecture, Building and Engineering, and it's nearing realisation now.

An ongoing collaboration with Taiwan National University of Science and Technology and China's Shenzhen Polytechnic with Chinese Government funding, the project is developing what has been an elusive goal – a commercially viable electric car.

"We have been doing this project for five years now. The traditional car was designed using a centralised engine and steering," Tom explains. "This model uses four in-wheel motors as well as all-wheel steering. The wheels can be controlled to move sideways making parallel parking possible. You can also make a U-turn without taking any extra space."

The team designed and made the whole car in China, with the aim of bringing the final improved product back to the Dunedin campus in one piece. However, a series of technical glitches made this impossible so they had to disassemble it and send it to New Zealand.

With all of the parts arriving recently, they were followed by an official visit by staff members from the universities in China. The revolutionary car was reassembled with help from the Chinese technical staff; a process which Tom believes highly benefitted his colleagues.

"It was a great opportunity for other staff members to learn about the actual process that goes into it and I think it has helped further enhance the local research environment," he says. "This car is currently at the top level in the world for research as it is the only project which has a unique research outcome."

The car has distinctive advantages: it's simpler in design, and even if up to three of its engines shut down the last one will keep the car running. The design will also pave the way for cheaper cars in the future, Tom predicts.

"Right now, the car is not that different to look at, but the School of Design will help us create a unique model here in our campus workshop.

"I would like to see this newly designed car running on the campus first, and then on public roads. I want this project to be more visible to the world. That is my dream," he says.

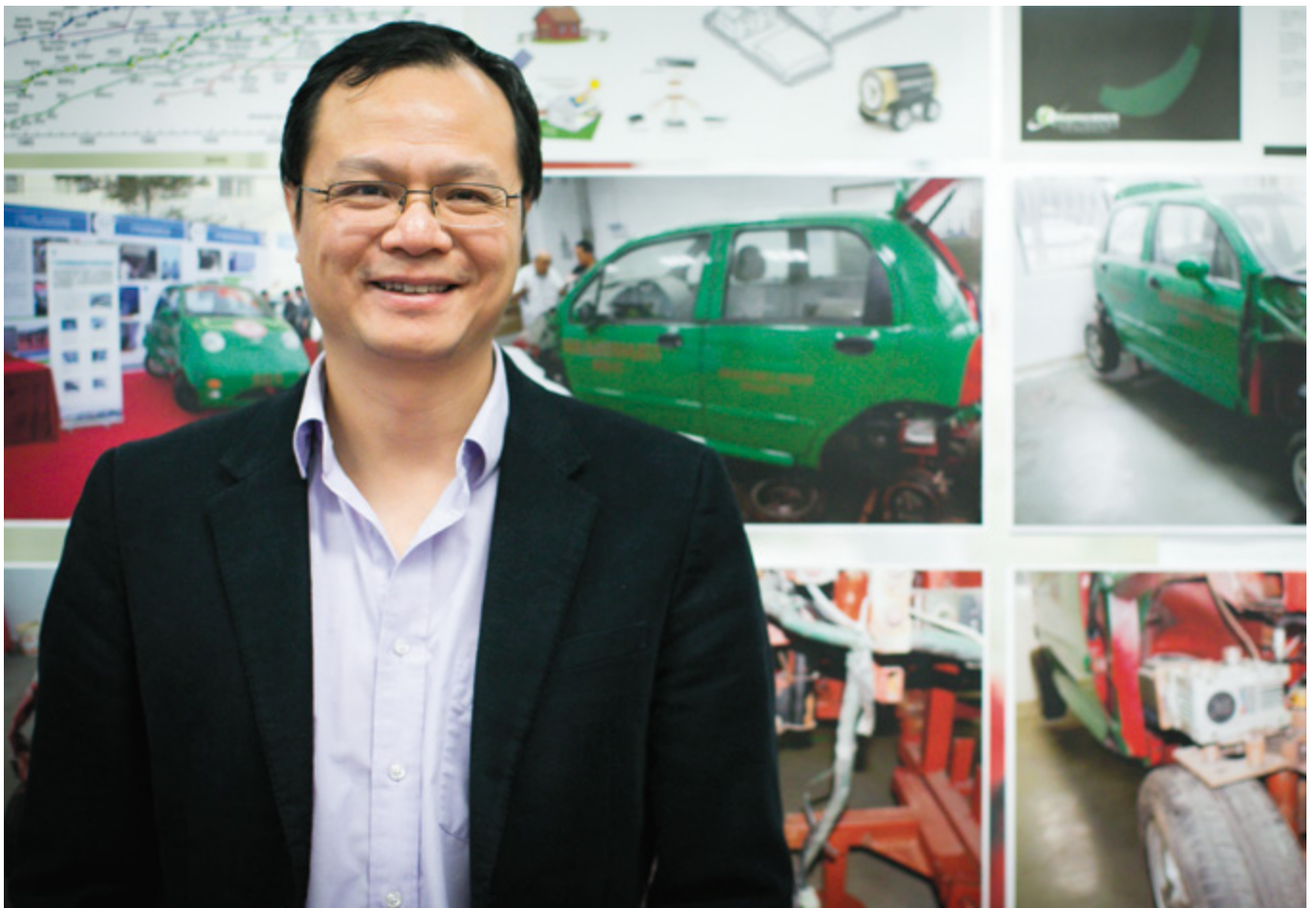
Qiu, H., Lei, Z. and **Qi, T. Z.** (2012) A Novel Design of SOC Prediction for an Electrical Vehicle Based on the Intelligent Algorithm, *Advanced Materials Research*, 468-471 (2012) 601-606. Online available since 2012/Feb/27 at www.scientific.net © (2012) Trans Tech Publications, Switzerland. doi:10.4028/www.scientific.net/AMR.468-471.601.

Dong, Z., Deng, Z., Ren, S., Qiu, H. and **Qi, T. Z.** (2012) Suspension Design and Research for Electric Vehicles with Independent Steering and Driving, *Advanced Materials Research*, 479-481 (2012) 1481-1489. Online available since 2012/Feb/27 at www.scientific.net © (2012) Trans Tech Publications, Switzerland. doi:10.4028/www.scientific.net/AMR.479-481.1481.

“It’s quite an exciting vision.

The main research question was how can we automate the control of all the wheels at one time?

It was quite a difficult task, but we did it.”





Breaking down the boundaries

RESEARCHER : VICTOR FESTER

Victor Fester believes the iPad is more than a handy device; it is also a valuable teaching and learning tool.

A member of Otago Polytechnic's Organisational Development team, one of Victor's areas of expertise is developing ways for staff to introduce more technology into their teaching practices. Since presenting a paper at the EDULEARN12 International Conference on Education and New Learning Technologies in Barcelona, in 2012, he has been looking for ways to promote and encourage the use of the iPad (or any type of tablet) within a learning environment.

"My research was about catching, and extending, the mobile technology wave. I wanted to give a framework for using the iPad in teaching and learning – and to provide guidance to teachers, while justifying the use of the iPad."

Many academic institutions worldwide already use iPads, but often not to their full potential. "There are so many ways in which students and teachers can use it," he says, "for collaborating, administration and for creating content as well. Students can also upload project work into the Cloud. With apps like Dropbox and Google Drive, gone are the days of saving your information on an institutional server or external device."

There have been a number of studies into classifying apps for educational purposes but Victor highlights an adaptation of Bloom's Taxonomy for iPads as a strong example. Bloom's Taxonomy has been used to categorise apps according to the following higher-order thinking skills: creating, evaluating and analysing, as well as the lower-order thinking skills: applying, understanding and remembering.

"Students can download iMovie to create and edit short video clips in class, Lino for sharing and collaborating, or Goodreads to evaluate and recommend literature – there are a multitude of educational uses. This may require a steep learning curve, but if teachers are willing to be 'taught' by their students, using iPads could revolutionise teaching and learning."

Fester, V. (2012) Catching the Mobile Technology Wave: Can the iPad enhance learning and teaching in chemistry? Proceedings of the *EDULEARN12 International Conference on Education and New Learning Technologies*, Barcelona, Spain, 2–4 July.

Supporting stability

RESEARCHERS : LAURIE MAHONEY AND JEAN ROSS

Primary care nurses are becoming more aware of the impact that parental mental health can have on children.

Research shows that children who live with a parent with unstable mental health are at an increased risk of abuse and neglect.

“The effects of parental mental illness should be seen as a public health issue that requires appropriate support to be given to children,” says School of Nursing Senior Lecturer, Laurie Mahoney.

Her article, Parental Mental Illness: The effects on children and nursing responsibilities in primary health care was published in the June issue of *LOGIC*, the Journal of the College of Primary Health Care Nurses.

“Children who live in chaotic unpredictable environments respond in many different ways. Some externalise their behaviour and become aggressive and violent while others internalise their suffering and develop conditions such as eating disorders,” she says.

Often the problem is a generational cycle of parental mental ill health. The primary goal is to find methods that will help to build children’s resilience.

Research shows that resilient children can have good outcomes in spite of the major environmental risks they

face. Their resilience can be linked to their temperament, ability to sustain separation from a parent and, above all, their social and intellectual capabilities.

Children’s resilience can be supported by reducing their feelings of guilt and shame through education about their parent’s illness.

“In the past, children’s perspectives were mostly ignored.”

Today, primary care nurses learn how to assess children’s behaviour and, when required, intervene to provide carefully co-ordinated care to support these children, while parents are guided towards programmes that teach the benefits of consistent parenting.

Such steps can make all the difference, Laurie believes. “Children with a good relationship with at least one parent or who have a supportive external adult role model, quality peer relationships and an extended social support system outside the home, are more likely to thrive.”

Mahoney, L. & Ross, J. (2012) Parental Mental Illness: The effects on children and nursing responsibilities in primary health care. *LOGIC – the Journal of the College of Primary Health Care Nurses*, June 2012, 16–19.



From left: Jean Ross and Laurie Mahoney

Food by design

RESEARCHERS : ASSOCIATE PROFESSOR RICHARD MITCHELL, ADRIAN WOODHOUSE, TONY HEPTINSTALL & JUSTINE CAMP

When 20 first year students pass with straight A's, the word soon gets out.

Since Otago Polytechnic launched its world-leading Bachelor of Culinary Arts (BCA), the first degree to teach culinary skills through design principles, "the level of achievement and motivation of our students has been really extraordinary," says Associate Professor Richard Mitchell.

Students thrive in the intensely creative and expansive environment that provides a skill set that transcends the traditional cooking schools of old.

The programme includes all the fundamentals of food preparation and technology interwoven with cutting-edge design techniques to allow students to transform traditional dishes into modern culinary masterpieces.

Richard recently presented a jointly-authored paper on this revolutionary approach, *Why Use Design Thinking in Culinary Arts Education?* at the International Conference on Designing Food and Designing for Food at the London Metropolitan University in London, in June last year.

He co-authored the paper with Adrian Woodhouse, Tony Heptinstall and Justine Camp.

Its premise was how to cater to a growing demand for culinary education that will inspire increasingly food savvy, ambitious students who need to have a skill set that enables them to think on their feet and adjust to consumer-driven trends.

The paper acknowledges the rapidly evolving art of culinary design, spearheaded by celebrity chefs such as Ferran Adria, Heston Blumenthal and David Chang.

"These culinary pioneers use design principles to develop innovative cooking techniques and new ways of experiencing food that involve all of our senses and emotions," says Richard.

They effectively design new dishes that in the past relied on old techniques and "flip them on their head".

"Leading culinary thinkers acknowledge that sharing information demystifies the culinary design process and opens doors for newcomers to pioneer their own creative ideas.

"Many chefs are truly designers without even knowing it."

Otago Polytechnic BCA students range in age from 17 to 57. One third enter the programme straight from school, another third are mature learners, with the remainder hailing from a diverse range of prior learning experiences.

"We teach students how to research and fuse knowledge with practical skills. We encourage them to develop an academic rigour and search in academic journals, alongside the more widely-accessible sources such as the internet, popular magazines and food television.

"This discipline allows a high practical element to be maintained in their work.

"Once they repeat this process several times, theoretical and research knowledge become a natural part of their cooking."

This approach provides students with the tools they need to evaluate their context and apply this theory in a real-world setting. The final reflective part of the process encourages students to refine and contemplate their design process.

In recognition of the growing international appeal of the Bachelor of Culinary Arts programme, the International Food Design Conference and Studio will be hosted by Otago Polytechnic from 2-4 July, 2014.

Mitchell, R., Woodhouse, A., Heptinstall, T., Camp, J. (2012) *Why Use Design Thinking in Culinary Arts Education?*, *International Conference on Designing Food and Designing for Food* (iFood Design Conference), London Metropolitan University, London, 28-29 June.

From left: Adrian Woodhouse, Tony Heptinstall, Justine Camp, Dr Richard Mitchell



“These culinary pioneers use design principles to develop innovative cooking techniques and new ways of experiencing food that involve all of our senses and emotions.”



Food images:

Bachelor of Culinary Arts student work (Year 1)

Orchard Pond

Foraging project by Rowena Jeffery

Smoked Salmon and Blood Orange Granita

Designed and cooked by Rosie Soper

Photo: Steve Ellwood



From left: Dr Linda Wilson and Penelope Kinney

“There needs to be a conscious effort to help these people make the connections they will require to thrive in the future.”

Exploring connectedness

RESEARCHERS : PENELOPE KINNEY AND DR LINDA WILSON

The ability to withstand change and thrive in a new environment is a challenge for most people. People transitioning from forensic psychiatric secure units to open rehabilitation wards face a unique set of challenges.

Penelope Kinney, Senior Lecturer in Occupational Therapy at Otago Polytechnic has recently completed a thesis that focuses on these individuals' experience, *Exploring Connectedness: The meaning of transition experiences for patients within a forensic psychiatric service*.

She completed her qualitative research project in a series of interviews applying Heideggerian phenomenological methodology.

Her work provides an interpretation of the narratives she gathered from five males aged between 23 and 37. The interviews track each individual's progress from anticipating their transition through to their initial experiences of "freedom". They then explore the individual's experiences of the stepping stones they faced in "doing what they had to do to prove themselves" and the acceptance of the fact that "assistance comes in many forms".

Penelope's findings identified the critical importance of identifying a genuine connection to occupations, people who support them and a place in the world that provided real meaning for these participants.

"There needs to be a conscious effort to help these people make the connections they will require to thrive in the future," she says.

Her aim was to provide insight into the service user's direct experiences to help health professionals develop realistic and meaningful transition plans.

"Clinicians often ask me the question: How did you get them to tell you that?"

"I have the privileged position of being able to gain participants' trust knowing that their individual disclosures will be kept in strict confidence."

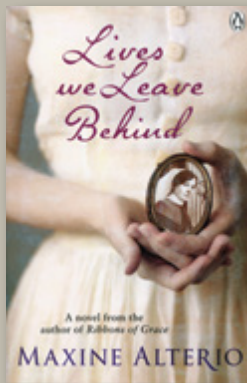
In 2010 she was one of seven occupational therapists whose abstract was accepted for presentation at the International Association of Forensic Mental Health Services conference in Vancouver, Canada. She presented her emerging data to an international audience.

"My overarching goal for future research is to collect more research data to continue to give insight into the ways in which occupational therapy can be applied within forensic psychiatric services to help these service users reintegrate into their communities."

Kinney, P., Wilson, L. H., & Galvin, S. (2012) Exploring Connectedness: The meaning of transition experiences for those within a forensic psychiatric service. *New Zealand Association of Occupational Therapists conference 2012*, Hamilton, 19–22 September.

In print

The latest books from Otago Polytechnic researchers



Alterio, M. (2012)

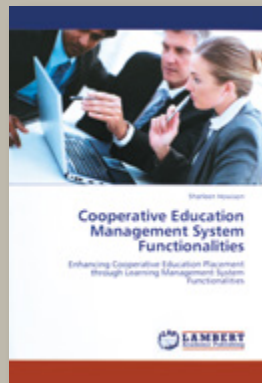
Lives we Leave Behind

Penguin Books, Auckland, New Zealand.
ISBN 2012 Edition:
978-0-143-5671-0

Eager to escape their pre-war circumstances, two nursing sisters, Meg Dutton and Addie Harrington, board the hospital ship *Maheno* bound for Egypt.

Here, they work alongside personnel caring for wounded soldiers stationed in the East and later in France. When Meg meets British surgeon, Wallace Madison, she falls for him immediately and they embark on an intense love affair. Addie suspects Wallace has much to hide and fears the relationship will destroy her sister.

Their lives are further complicated when large numbers of soldiers who survived the trenches are decimated by the Spanish influenza pandemic. During this crisis, the sisters make decisions that reflect their emotional and physical states: decisions they think will heal as well as fulfil them.



Howison, S. (2012)

Cooperative Education Management System Functionalities

Lambert Academic Publishing, Germany, 2012.
ISBN 978-3-8465-8953-3
being marketed through
morebooks.com

This thesis is an exploratory case study researching the benefits of integrating information and communication technologies (ICT) in the process of co-operative education placement (CEP) learning.

Howison sets out to answer a number of key questions: how effective are the current ICT and teaching approaches being utilised in co-ordinating co-operative education learners and facilitating their learning; what are the issues for co-operative education learners and co-ordinators using Blackboard7; what are the pedagogical principles that enhance co-operative education through the use of ICT; what are the forms of ICT that could support these pedagogical principles.



Ismail, N. (2012)

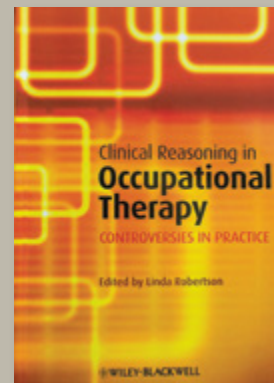
Strengthening Techniques for the Seismic Retrofit of URM Buildings: Posttensioning, steel insertion and polymeric composites

Lambert Academic Publishing, Berlin (Germany).
ISSN: 978-3-659-15561-1

Limited technical literature is available on the seismic performance of retrofitted buildings.

This book is one of the few reporting the experimental results of strengthened URM walls that were constructed using real or close replication of prevalent historic materials. Provided also is a comprehensive review of existing strengthening techniques, with a brief account on associated design concepts, implementation procedures and heritage conservation considerations.

Additionally, a set of seismic retrofit design guidelines for three relatively new strengthening techniques are also provided along with worked examples to facilitate a well-conceived design.



Robertson, L. (2012)

Clinical Reasoning in Occupational Therapy, Controversies in Practice

Wiley-Blackwell, Oxford, 2012.
ISBN: 978-1-405-19944-5

Written by an internationally-renowned group of clinicians, educators and academics and with a central case study running throughout, this book covers the theory and practice of the following key topics: Working and Thinking in Different Contexts; Teaching as Reasoning; Ethical Reasoning; Diversity in Reasoning; Working and Thinking within 'Evidence Frameworks'; Experience as a Framework; and The Client.

Key Features

- Problem-solving framework
- Questions at the end of each chapter
- Commentaries on key topics
- Relates theory to practice.

Otago Polytechnic research degrees: Theses and dissertations submitted in 2012

Master of Fine Arts

Laura Khadijih Blake

World Creek

Pamela Ann Brown (distinction)

Dress Ups

Jacqueline Denise Gilbert

Room Tone: Landscape and identity issues

Elisabeth Vullings (distinction)

Site 144/404

Tenille Jade Claire Lategan

The Chair: Site of analysis

Craig McNab

Things Go Wrong

John Gerard Cosgrove

A Small Voice: Journeys through rivers of colour

Master of Visual Arts

Sarah Joan Lawrie

Karen Maree Taiaroa (distinction)

Master of Design Enterprise

Jiahui Yao

Mix & Match: A service design blueprint co-ordinating the needs and expectations of both design graduates and the fashion industry in Shanghai

Master of Midwifery

Keiko Doering (distinction)

Maintaining 'wa' Harmony: Japanese women negotiating their birth experiences in New Zealand

Nicola Frances Youngson

Is there an Association between Spontaneous Initiation of Labour and any Phase of the Lunar Cycle?

Master of Occupational Therapy

Gilberto Flores Azuela

An Investigation into the Effect of a Sensory Modulation Workshop on the Knowledge, Skills, and Attitudes of Mental Health Staff: A pre-post survey design

Janie-Lyn de Malmarche (distinction)

The Experience of Employment of People who have Participated in the Kiwifruit Action Initiative: A phenomenological study

Karline Doidge

Co-occupation Categories Tested in the Mothering Context

Donna Joanne Reason (distinction)

A Clinical Reasoning Framework for Community Occupational Therapists: A formative evaluation study

Maria Frances Patricia Whitcombe-Shingler

Adult Perspectives and Experiences of using Multifunction Power Wheelchairs in Aotearoa, New Zealand.



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