

update

New Applied Research

ISSUE 1: March 2008

 **OTAGO
POLYTECHNIC**
Te Kura Matatini ki Otago
Dunedin • New Zealand

One of a kind

Page 1

The Department of Design at Otago Polytechnic has recently received \$2 million to bridge the gap between education, research and industry ...

Of art and eagles ...

The weight of money

Page 3

Brain power

Page 4

The School of Applied Business's Dr Stephen Atkins dreams up a system where professionals can donate their best thinking to help save the world.

Bedsharing

Page 6

Despite being identified as a risk factor for Sudden Infant Death Syndrome (SIDS), bed-sharing is an accepted practice amongst nearly all cultures

Sugar-coated pills

Page 8

Are New Zealand nurses equipped to handle the pressure of pharmaceutical marketing?

Fresh text gets down to business

Page 9

It was a chance conversation at an Otago Polytechnic book-sale that led to Lesley Gill taking on co-editorship of *Organisations and Management ...*



CELEBRATING APPLIED RESEARCH AT OTAGO POLYTECHNIC

Welcome to this the first edition of the Otago Polytechnic Research Update. This edition gives you but a sample of the high quality applied research and development that is carried out by staff and students at the Otago Polytechnic. The articles in this edition cover a range of areas and show the diversity of research in action ranging from Design, through Art, Business and Health.

The quality of teaching and learning at Otago Polytechnic is underpinned by an evidenced based and applied research approach. This provides a high quality learning environment for students where they can see that their mentors and teachers are actively engaged in research activity that informs their practice and contributes to their thinking.

Otago Polytechnic is well regarded as a quality teaching institution but often overlooked is the quality research and development work that support the learners. Researching is one way that we can keep you the reader informed about the work that goes in your Polytechnic. I hope you enjoy reading this the first edition and that you look forward to the next which will be published in late 2008.

Dr Robin Day

Deputy Chief Executive (Director Research)

Acknowledgements

Update was edited by Jenny Aimers. Portrait photographs are by Brian Treanor, photograph on page 7 used with permission from the Centre for Attachment (www.centreforattachment.com), additional photographs were provided by the Marketing Department of Otago Polytechnic. Design by Matthew Truhovic, Third Eye Design. Printed by Otago Daily Times Print.



One of a kind by Nicola Mutch

The Department of Design at Otago Polytechnic has recently received \$2 million to bridge the gap between education, research and industry. The jewel in the crown of the initiative is the Otago Prototyping Facility, set to become the only centre of its kind in New Zealand. According to Postgraduate Manager for Design Pat Maguire, this means much more than the chance to stock up on great machines.

In the world of design, prototyping is the critical link between a good idea and a marketable product. It brings to fruition research and planning, provides a reality check, and plays a pivotal role in communicating ideas to potential investors.

It's a specialised business, involving trials and testing. If you don't have the right tools, it can be time-consuming, and it can be costly.

The Tertiary Education Commission, through its Innovation and Development Fund, has awarded Otago Polytechnic \$2 million over the past two years to create the Otago Prototyping Facility. Otago Polytechnic is providing the space and expertise necessary, while TEC will fund the equipment needed to create a state-of-the-art prototyping facility.

The Facility, due to formally open in mid-2008, is part of the Polytechnic's overall vision of creating an applied design research centre. This would enable industry-based designers, researchers and entrepreneurs to draw upon the Polytechnic's knowledge and facilities to develop well-designed, market-ready products.

Maguire says the initiative helps bridge a gap in the efforts to maximise value of New Zealand-produced goods by designing them well.

He explains that, for design students, it often feels like the sky is the limit. Good ideas are nurtured, challenged and extended. Tools, materials and expertise are on hand. It's possible to rethink the bounds of furniture,

or even design a whole new sport. But, he says, once the students graduate and leave the programme, it can be hard making it on their own.

"What we want to be able to do is provide the resources and support necessary for creative and entrepreneurial graduates to be able to realise their aspirations beyond their study and research. The new prototyping capability will be a major factor in enabling further opportunities for design-led business in the future"

Meanwhile, the Polytechnic has built relationships with design and manufacturing companies, who take students for work experience and provide opportunities to understand the business environment and operations. Among their number were business people who identified design needs and potential within their companies, but were not set up to explore them fully.

"It became clear that the Polytechnic could play a role in helping industries pursue their own research and development goals. We needed to find a way to make this possible."

By operating at the nexus between graduates and industry, Maguire says, "Our process carves a niche in both the government's Better by Design business development strategy and the new Economic Transformation Policy. It's about integrating good design into every stage of a product's development, for the purpose of providing better and more sustainable products for people with real value."



Design Prototyping Centre

Maguire points out there is no one-size-fits-all approach to helping build design-led industries.

“One way of supporting industry is to work with established companies helping them refine and advance their products, which we are proud to be part of. Another approach is to help with the establishment of new companies, and even new industries. We’re talking about truly fostering and enabling design enabled entrepreneurship.”

Already this has seen the Polytechnic run a kind of “Dragon’s Den”, where promising designers from the Polytechnic or University of Otago could pitch their idea to a panel, the winner receiving up to \$25,000 investment in developing their product. The initiative recently enabled graduate Simon Wharerau to further invest in his “hydra-blade”, which lets watersport enthusiasts, towed by a boat, perform tricks such as underwater dives and turns.

The Polytechnic has also launched a Master of Product Design Enterprise, enabling postgraduate students the chance to research new products’ commercial potential and design and develop them towards becoming viable enterprises. Development work in the programme has already seen the successful launch of Sarah Kendrick and Michele Gray’s range of Och-o furniture. Plus it has led to graduates developing Dunedin entrepreneur Miles Rapley’s new headgear product recently licensed to Canterbury New Zealand.

As well as benefiting graduates and those in the

manufacturing industry, the prototyping facility also offers undergraduate students access to and training on the latest industry technology. It has the potential to open up academic research into product technology. And for Dunedin, it means the prospect of keeping some of the city’s finest design talent in town.

For now, equipment for the facility is arriving steadily, each piece inspiring new and exciting possibilities for the design students and staff across the department.. A new water-jet cutter will cut through sheets of steel or in fact virtually any material with exquisite precision. A polymer vacuum casting machine allows short runs of identical items to be produced. A large-format 5-axis router being sourced from Italy means moulds could be made to produce products such kayaks or other products requiring large moulds. A new 3-D printer or “rapid prototyper” means that after a computer generated solid model is created, you are able to simply hit the “print” button to see your final part being built in 3D before your eyes.

And as the specially-designated space within the campus’s A Block begin to fill up with equipment, Maguire is thinking to the future.

“This space will become a real focal point for design and innovation. Whether it’s the design students, industry projects or pure research, having such a unique capability to be able to prototype and test ideas and concepts will really increase the ability to transfer design and creativity into real products and businesses.



Photo Johanna Zellmer

The weight of money by Nicola Mutch

There is no shortage of artists examining issues of personal and cultural identity. That's one of the reasons Johanna Zellmer has avoided it.

However, when her parents presented her with a series of German commemorative coins and told their metalwork artist daughter to “do what you want with them”, the temptation proved too great for Zellmer, a lecturer in jewellery and metalwork at Otago Polytechnic.

Her efforts have now resulted in a collection, *Altius - Fortius - Citius*. Selected works have been exhibited in the show “On Control” at the Fishbowl Gallery in Nelson, and the collection will appear at the Goldschmiedehaus in Hanau, Germany, in early 2009.

The coins provided a rich starting point to examine issues of commerce, regulation and national identity – all wrapped up in beautifully malleable sterling silver. It was an experience that encouraged Zellmer to reflect not so much on her cultural heritage, but her ambivalence towards it.

Despite growing up feeling like an “outsider” in Germany, falling in love with an Australian and settling in New Zealand, Zellmer insists the issue of who she was and which culture she could stake a claim to, “just wasn’t a question that held much interest for me.”

The coins each bear the portrait of a figure or symbol from German history on one side, and an eagle – the

emblem of Germany since the reign of Karl VI – on the reverse. By cutting out the eagles, Zellmer crops and contorts the faces and figures on the other side.

Meanwhile, she uses the metal from the perimeter to create wild and windswept landscapes.

However, these natural forms are immediately constrained. The works are exhibited in austere black boxes inspired by those used by numismatists.

And despite “setting the eagle free”, it still looks rigid and stylised – wholly divorced from its natural origins. There are no eagles left in Germany.

“While I was working on these pieces, I was also trying to renew my German passport. I came to discover Germany is one of the few countries that won’t allow you to have more than one passport. What’s more, most of the Germans I spoke to about this thought this was a perfectly reasonable position for Germany to take. This alone seemed to say so much about Germany to me – why is it so possessive, or rejecting, of its people? Why must it be all or nothing?”

“The eagle is all about strength and glory,” comments Zellmer. “It’s not about flight.”

Brain power

by Nicola Mutch

The School of Applied Business's Dr Stephen Atkins dreams up a system where professionals can donate their best thinking to help save the world.

Every year, billions of dollars worldwide are donated to charitable organisations. Individuals pay memberships and subscriptions, respond to appeals and have regular donations deducted from their pay packets. Their efforts support the “third sector” of non-governmental organisations, with goals encompassing the relief of poverty and promoting social and environmental goals.

The NGOs' challenges are enormous. And for those in aid roles, undertaking projects such as rebuilding infrastructure following war and disaster, a lack of money is not always the only, or the greatest, problem. More pressing can be the absence of appropriately designed systems to ensure resources can be used effectively.

Which got Research Manager of Otago Polytechnic's business school Dr Stephen Atkins to thinking. What if individuals were able to donate resources, other than cash or goods, without leaving home or work? What if people could donate their professional skills to help solve the logistical problems faced by aid workers on the ground?

“There are communities that maybe are not the focus of UN or international attention, where aid organisations are working with little support, with workers under considerable pressure. This leads to stress and, ultimately, creates the conditions for poor quality decision-making.”

Atkins discovered that there are substantial internet-support capabilities connecting “digital volunteers” to aid work. What is lacking, he argues, is “adequate pro bono support for task requirements or skill-requirements analysis”.

Furthermore, that's probably just the beginning. Atkins believes there's likely to be “inadequate support for volunteer e-team staffing and training, inadequate provision for cross-cultural communications management, and almost certainly inadequate provision for risk management or harm minimisation”.

Further, he argues “new project officers or project engineers working on-site are in stressful, and often even risky, environs. If they believe their own stress might be reduced, even a little, if armed with a purpose-built advisory e-team, they should have that option.”

Now, Atkins is leading a project team with a vision of establishing SmartAid: Consultants without Costs.

The idea is to create an online database of professionals, whom aid organisations could enlist to help with specific projects. Ideally, it would be placed alongside the United Nations Online Volunteer Network and other such internet sites.



Dr Stephen Atkins

Atkins – who has spent much of his professional life as an engineer – describes scenarios such as an aid organisation identifying the need for a sewerage system to help ensure health and hygiene during the process of rebuilding communities following a large-scale disaster. In the initial week after a disaster, Atkins notes that much help will come into play. Upwards of a year or more later, local agencies and home-grown consultants may be in good enough shape to handle the situation. But in the three to nine months in between, relief agencies may benefit from considerable external expertise via internet.

“There are likely to be engineers, with some expertise, on the ground. But the best results will come if they are properly supported, as much or little as they desire, by their peers including specialist engineers, quantity surveyors, business advisers and so on. For some of this work, it is not necessary to be at the location, but simply be available to provide advice, draw plans or access contacts and networks.”

Other situations could include developing logistics processes for the distribution of food, building new facilities such as schools and shelters, or helping develop the local economies necessary for communities to be sustainable in the long term. Elsewhere, expatriate professionals may be able to provide, not only vocational, but cultural expertise, to benefit their homeland.

Atkins comments that the situations that would be most likely to gain from SmartAid would be those involved in long-term projects, that continue on long after the media and international attention has departed.



In the first instance, the particular professional group Atkins most wishes to target is his own – industrial-organisational (I-O) psychologists.

“Most businesses and professions have embraced corporate social responsibility, and offer their services to charitable causes in one way or another. However, somewhat embarrassingly, I-O psychologists are about the least represented profession in these activities, with less than 5 per cent of our time expended in pro bono work. This project is partly aimed at improving that somewhat embarrassing statistic.”

The role of I-O psychologists would be critical to the success of such a network, believes Atkins.

A key function of the profession is to develop and facilitate a healthy organisational culture. This involves assembling good teams, ensuring they function effectively, and maintaining the well-being of all members – vital if the volunteers are able to really contribute value to the aid agencies, and not end up as a management headache.

Within I-O psychology practice and study is the emerging field of online collaborative networks, or e-teams. However, Atkins points out there is still work to do. “While there are many academics and practitioners with extensive experience in volunteerism, and many others with expertise in facilitating online teams, the area of volunteer online teams is quite new amongst management researchers.”

Atkins has succeeded in recruiting the interest and support of over a dozen scholars globally, and acknowledges the crucial contributions of Massey Professor Stu Carr, University of South Florida Professor Mike Coovert and University of Georgia Professor Rick Watson (who had independently

developed a similar framework before 2004, and remains engaged with Dr Atkins’ effort.)

Carr and Atkins’ thinking in the area of business psychology support for the aid world has resulted in a book chapter, a journal article (both published internationally), and several papers presented at international conferences for I-O psychologists in Stockholm, Honolulu, Melbourne, Toronto and New York.

The researchers have also won support from multiple trustees of the Society for Industrial and Organizational Psychology (SIOP) Foundation, the World President of Rotary International and the President of the International Association of Applied Psychology’s Division of Work and Organizational Psychology.

The team is now working to develop a research programme that could turn the vision into a reality. This envisages studies that would better understand how virtual teams should best be formed and deployed to support aid workers and field engineers working in poverty reduction and post-disaster situations. Fortunately, the world’s most widely-published expert on collaborative e-teams (Assoc. Professor Lori Foster Thompson of North Carolina State University, USA) has just joined the team, and her dean has approved a full-year sabbatical (partially hosted by Otago Polytechnic, Massey University, and University of Valencia, Spain). She intends to dedicate the entire year to project planning and research for SmartAid: Consultants Without Costs.

Because of Rotary’s interest (and Rotary’s historical role in the creation of the United Nations and UNESCO and its continuing role with UNICEF), Atkins’ hopes that Rotary will take a lead role in building a user-friendly pathway for a subset of elder Rotarians,

Lions, Masons, Optimists, Kiwanis, et cetera. The subset of interest to Atkins would be those service club members whose bodies are failing them years or decades in advance of their minds. If they lack mobility to stay engaged with their service life, the UN's online system may provide a way to tap into otherwise under-utilized skill-sets. Tapping into under-employed demographics is a recurring theme in Atkins' vision.

Ultimately, Atkins is hopeful of handing the project management aspect of the role to another member of the team. Meanwhile, he would continue to focus on his own "piece of the puzzle" within the project, in line with his specific field of expertise – developing optimal personality profiling and personality-focused team mission analysis to help ensure the success of virtual teams.

Atkins stresses that a one-size-fits-all approach to

any virtual professional team is unlikely. At times the aid organisation would manage the project entirely, and simply treat the professional volunteers as an advisory panel. Elsewhere they may wish to delegate greater project management roles, and in rare cases even governance roles, to the volunteers.

"Developing a system that is flexible enough to cope with this variation is a critical contribution an I-O psychologist may make." For this reason, he believes one I-O psychologist would need to be deployed per project. Their role would be to help develop a good team and ensure the momentum needed for the aid agency to achieve its goal.

"There's probably upwards of 20,000 I-O psychologists out there. Just imagine – even if we could have a small fraction of this number of professionally-managed volunteer teams, what a difference we might make to aid efforts worldwide."

Bedsharing by Katie Ellwood

When the New Zealand Cot Death Study of 1987-90 identified bed-sharing between infants and one or more family members as a risk factor for Sudden Infant Death Syndrome (SIDS), families across the country had reason to be concerned; bed-sharing is an accepted practice amongst nearly all cultures, in fact it is only relatively recently that independent sleep for babies has become common.

In the 1990s, a group of researchers, including Dr Sally Baddock, now Associate Head of Otago Polytechnic's School of Midwifery, decided to take a closer look at bed-sharing in New Zealand. Their goal was to identify why families did it, how they did it. The interview-based study included a range of cultural and socio-economic groups including Maori and Pacific Island families, young single mothers and a group from Parent's Centre.

"In some cultures, bed sharing is just not the thing you do, but in others it's just the way you bring up your children," Dr Baddock explains. "Some families in our study, particularly young single mothers, practiced bed-sharing but felt guilty about doing it."

"We were able to identify a number of differences in perspectives on bed-sharing and the ways it is practiced. However, this research didn't help us to understand the potential 'dangers' of bed-sharing."

Dr Baddock took up the issue for her PhD thesis. She launched a quantitative research project to compare bed-sharing and cot-sleeping infants in the natural setting of their own home. Overnight video and physiological data of infants aged 5-27 weeks was recorded in order to identify differences in the thermal



Dr Sally Baddock



Photo ©Ryl Jensen

characteristics of the two sleep situations, their potential hazards and possible advantages.

“This time we didn’t ask people, to describe what they did, but we recorded their actual behaviour. We did this in their own homes - not in a sleep laboratory as had previously been done, in order to capture the range of circumstances that actually occurs,” she explains.

A grant from the Health Research Council of New Zealand funded the project and enabled a Research Assistant to join the team to assist with recruiting the 80 families, set up the equipment for each home study and code the 640 hours of video footage generated. Dr Barbara Galland from the University’s Department of Women’s and Children’s Health provided initial training on using the equipment and interpreting the outcomes and along with Professor Barry Taylor and Dr David Bolton (University of Otago) provided academic supervision for the project.

Analysis of the video has enabled a detailed description of the sleep arrangements and behaviours of families during bedsharing to be developed. Dr Baddock will continue to interpret the video data along with the physiological recordings to study aspects of bed-sharing more closely.

Bedsharing infants have been observed to engage in

more breastfeeding and more maternal interactions but they have also been found in more potentially dangerous situations such as sleeping with their head covered by bedding. She has not found any infants with adverse outcomes, however notes that the infants studied were already ‘low-risk’.

“The bedshare infants in this study would be described as at low risk of SIDS because there were very few maternal smokers, all of the infants in the bedsharing group were breastfed, most mothers had some form of tertiary education and families actively chose to bed-share because of perceived advantages to themselves and their infant. The findings may be quite different in bed-sharing families where SIDS risk factors are prevalent and breastfeeding is not common.”

“You also have to put quantitative information like this back in to context. As parents you accept a certain amount of risk when raising children. We must weigh up the importance of bed-sharing to families in an informed way.”

Since completing the study Dr Baddock has co-written a number of papers on the findings of her study. Her thesis was accepted in 2005, and she has since presented aspects of the work at conferences in Italy and Japan and Australia as well as New Zealand.

Sugar-coated pills

by Nicola Mutch

Are New Zealand nurses equipped to handle the pressure of pharmaceutical marketing?

Whether it's providing free meals and pens, or funding conferences, the pharmaceutical industry goes to great lengths to promote medicines. And in New Zealand, the scope for pharmaceutical marketers is especially great; New Zealand is the only country other than the United States to allow drug companies to market directly to consumers.

But while a lively debate exists within the medical fraternity regarding how to manage those promoting pharmaceuticals and their newly "informed" patients, little attention has been paid by the nursing profession to pharmaceutical marketing and its influence on clinical decisions.

Now Otago Polytechnic's top nursing academic has focussed on this problem in her analysis of literature that explores the nursing's perception of the pharmaceutical industry and its activities. Associate Professor Annemarie Jutel is the first author of "Soft Targets: Nurses and the Pharmaceutical Industry", which has been accepted for publication by Public Library of Science Medicine, the world's fifth-ranked general medical journal.

The paper she co-authored with Auckland University Associate Professor of Psychiatry David Menkes, lays the groundwork to have the issue properly acknowledged by the nursing profession.

"We needed to find out how the nursing profession viewed this situation and what it saw as priorities."

The pair found that most of the published literature in the nursing profession suggested nurses were ill-equipped to deal with pharmaceutical promotion. They recommend solutions that encompass research, nursing training and health policy.

What's important, argues Jutel, is that the issue is addressed, and soon.

She points out that recent years have seen nurse practitioners take increasing responsibility for prescribing drugs, but even in non-prescribing roles, nurses influence prescription decisions as both Jutel and Menkes can attest from their own work on the wards.

"Nurses have always played a role in prescription. Senior nurses will often give advice to young doctors, renew prescriptions, and administer medicines from standing orders. They have many opportunities to influence prescription choices."

Now, as stricter regulations are being placed on how

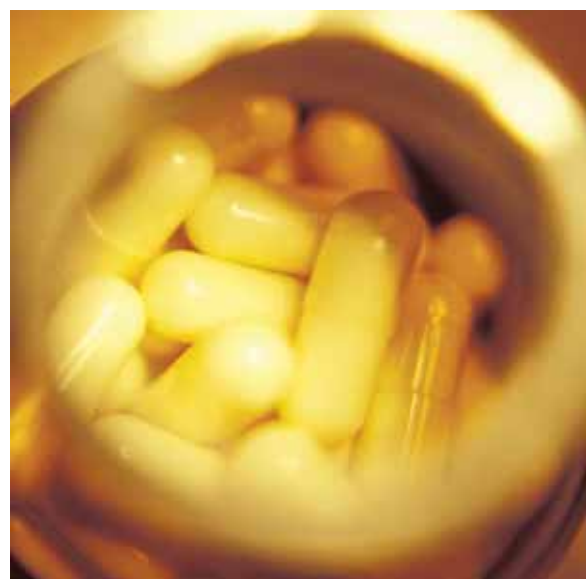
pharmaceutical representatives engage with doctors – with some US hospitals going as far as to ban them from talking to doctors altogether – "there is evidence that nurses are becoming specifically targeted by the pharmaceutical industry".



Associate Professor Annemarie Jutel

Jutel adds that nurses, who are less accustomed to receiving gifts and have fewer funding sources available to them to enable them to attend conferences, may be especially vulnerable to the treats on offer.

Jutel and Menkes' next project is a survey of New Zealand nurses "to understand what nurses know and believe about the pharmaceutical industry and its representatives." They also wish to find out more about the extent to which nurses influence medical prescribing.



Fresh text gets down to business by Katie Ellwood

It was a chance conversation at an Otago Polytechnic book-sale that led to Lesley Gill, Principal Lecturer in the School of Applied Business taking on co-editorship of Organisations and Management – Theory and Applications (Pearson Education New Zealand 2007).

However, a strong concept of the way management theory could be illustrated in the classroom, and a clear understanding of the challenges management graduates face in the unique New Zealand workplace made her an excellent candidate for the job.

“I had happened to ask a Pearsons Education book rep about the possibility of getting case studies published. A few days later there was a publisher on the phone saying ‘we’re looking for a new text book – would you be interested?’”

Organisations and Management is an introductory level management text focusing on management, business, marketing, leadership, and strategy. The book enables students to learn about management theory and apply their knowledge in a work context.

The text was co-authored by Edwina Pio, a member of the senior faculty at the Business School of AUT University, Auckland and Visiting Professor at Boston College, Massachusetts. Contributions were sourced from nine other professionals working in education and business, representing a wide range of interests and cultures.

“The unifying theme that runs through our book is the desire to produce a resource that is contemporary, accessible, enjoyable, readable and relevant in the current management environment”, explains Lesley. The 15 chapters range in content from the process of management to organisational culture, managing diversity, management in a global environment and not-for-profit management.

“We took the opportunity with Organisations and Management to look at areas that may have been understated or under-developed in past texts, for example, management of not-for-profit organisations, working with the Treaty of Waitangi and the practicalities of diversity management.”

“Additionally we wanted to present case-studies that were relevant to New Zealand. This is a first-year text – a stepping stone into academia – and we wanted to make it something students could easily relate to.”

Organisations and Management also includes a lecturer’s guide offering opportunities for the use of PowerPoint slides, structured experiences, quizzes and questions that push the boundaries of knowledge application.

Lesley herself contributed three chapters to the text: The Process of Management, Management Practice: Motivating for Results and Organisational Culture.

Lesley draws from cases studies she researched and wrote from Stirling

Sports, Total Food Equipment and the Pacific Island Resource Centre reflecting several of her own research interests in the fields of organisational theory, workplace bullying, mentoring and learning strategies. As co-editor she was also required to manage the contributions of the other authors, a task that posed several challenges.

“This is the first text book I’ve edited, but also the first I’ve contributed to,” she says. “The book was constructed in a very tight time-frame; between October 2005 and September 2006.

“There were hours and hours of research to be done – of course; you can’t reference another text book, you have to go back to the original sources. Nine authors sent their work in and we had to edit each, including each other’s. The really challenging part of the process was when we were sent 15 chapters to edit within a time frame of only 30 hours!”

“Despite the challenges, it’s been an awesome experience to be involved with. I’ve enjoyed it, learnt a lot, and learned a great deal about publishing in the process. I’ve talked to and written to people from so many different places, within businesses, polytechnics and universities across the country. I think in the end we’ve managed to provide a really good resource for business practice across New Zealand. This is borne out in sales of nearly 700 textbooks in its first year. “



Lesley Gill



Dunedin • New Zealand

Private Bag 1910, Dunedin, New Zealand
Telephone: +64 3 477 3014 Freephone: 0800 762 786
Facsimile: +64 3 471 6870 Email: info@tekotago.ac.nz
www.otagopolytechnic.ac.nz