WelTec, Whitireia, Open Polytechnic
Research Symposium
Innovating for Industry and Community

Thursday 23 November, Whitireia Porirua campus

Whitireia NEW ZEALAND

WelTec Te Whare Wānanga o te Awakairangi

Open Polytechnic KURATINI TUWHERA

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Welcome

Tēnā koutou katoa

I am delighted to welcome you to the 2017 WelTec Whitireia Open Polytechnic Research Symposium. This is our fifth symposium with Open Polytechnic joining this event as a full partner.

The symposium showcases the research and innovation in our discipline areas, which in turn informs our teaching and learning. This is our opportunity to highlight the hard work and commitment of our research active staff, support our emerging researchers and inspire those who have just begun their own adventures in research.

Registrations to attend the symposium have come from many different organisations, including our stakeholders, end users and collaborators. This shows the interest that other organisations have in our research and innovations indicating its value and potential impact.

I am pleased to welcome Kylie Reiri from the Government's Social Investment Agency who will give the keynote address and provide an insight into the agency's work, using 'big data' to support investment in the social system to enable New Zealanders achieve better outcomes.

This symposium continues to be a strong indicator of the strength of research in the regional ITP community and showcases the beneficial ways our research contributes to our teaching and learning, well-being, business, industry, and communities. In addition, it demonstrates the strength of the strategic partnership between WelTec and Whitireia and collaboration with Open Polytechnic, while also encompassing the wider ITP research community.

Ngā mihi nui

Chris Gosling
CEO Whitireia New Zealand and Wellington Institute of Technology

Acknowledgements

Thank you to everyone who has contributed to and supported this symposium; in particular the presenters who have submitted abstracts and have come to share their work, reviewers who have given their time to peer review abstracts, and the session chairs who help keep the day on track.

Thanks to Abby Richardson for poster design; Scottie Baxter, W^2 Shared Services for IT and technical support; Bernee Koschak, W^2 Campus Services with venue support; and Ana Pickering from Open Polytechnic.

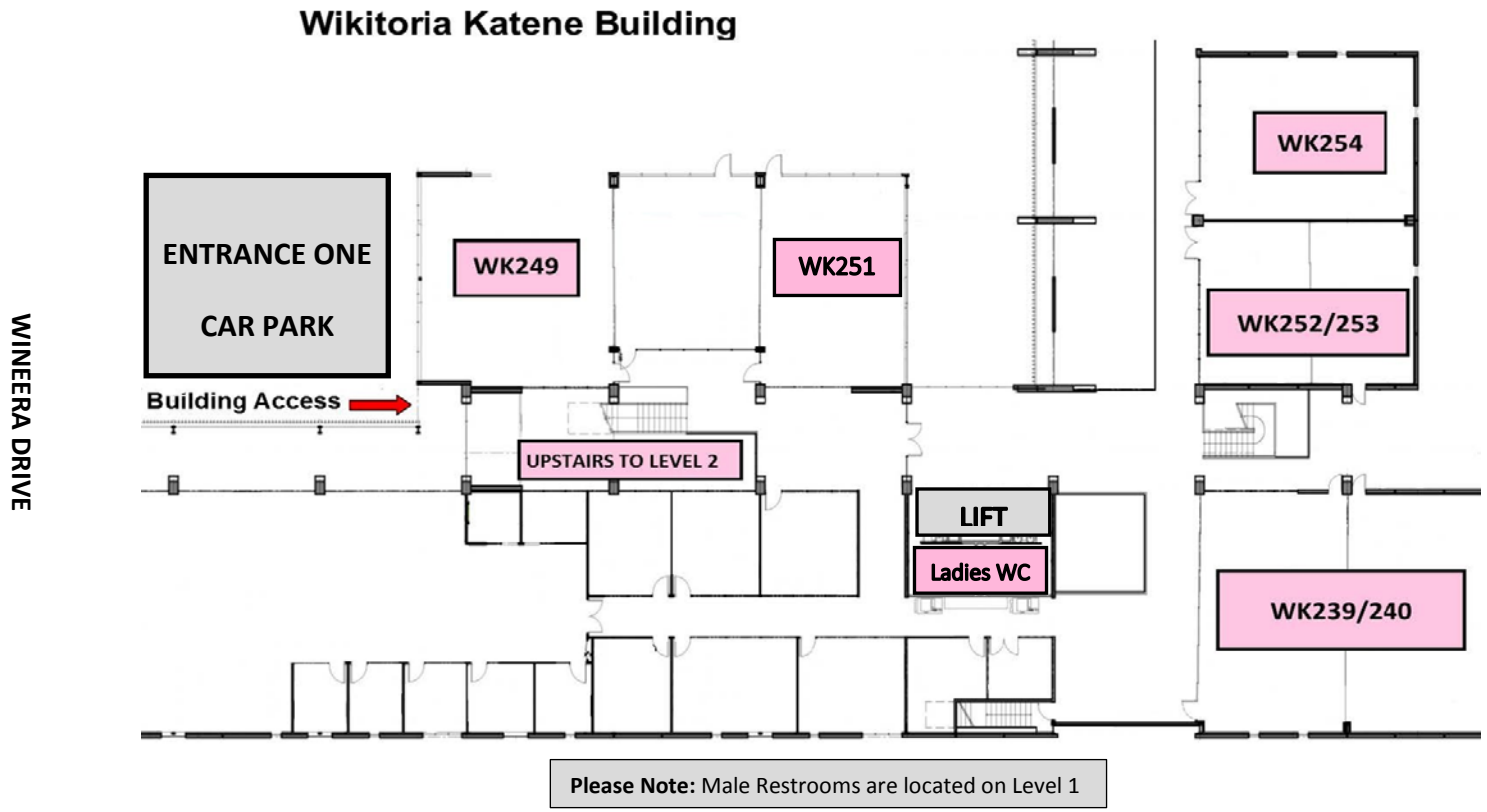
Especial thanks to Lisa Love who never stops doing a sterling job of providing administrative support for the event. Thank you!!

Finally, thank you to everyone who has come to listen and gain insights into the diverse research areas of their colleagues. Your attendance continues to ensure the symposium continues to be the success it is.

Lisa Wong
Research and Innovation
WelTec Whitireia

Symposium Room Guide

WK239/240	Opening/Closing, Key Note speaker, Poster/Exhibits
WK 249	Resilience / Social Work
WK 251	Info Tech/ Info management / Health
WK 252/253	Seismic Activity & Disasters / Engineering / Construction / Māori /Pacific & Pakeha Nexus
WK 254	Teaching & Learning / Language / Creative Arts



Please Note: Male Restrooms are located on Level 1

PROGRAMME

0815-onwards	**Registration**			
0830-0845	**Mihi Whakatau (WK239/WK240)**			
0845-0900	**Welcome - Chris Gosling, Chief Executive WelTec Whitireia**			
0900-0940	**Keynote: "Data driven insights to improve outcomes across New Zealand and to answer New Zealand's most challenging questions" Kylie Reiri, Social Investment Agency**			
0940-0945	*time to move to different sessions*			
	Room WK249	**Room WK251**	**Room WK254**	**Room WK252**
0945-950	**Session 1 – Resilience 1**	**Session 2 – Information Technology & Information Management**	**Session 3 – Teaching & Learning**	**Session 4 – Seismic Activity and Disasters**
	Session chair: Ben Jeffares	Session chair: Ian Hunter	Session chair: Mervyn Protheroe	Session chair: James Mackay
0945-1005	Understanding paramedic mental wellbeing: The International Paramedic Anxiety Wellbeing and Stress (IPAWS) study. ELIZABETH ASBURY	Ethical considerations in Radio Frequency Identification (RFID) use. LUKE STRONGMAN	Transforming information literacy space(s) to support student learning. CATHERINE DOUGHTY	Experimental seismic assessment of heritage masonry buildings. NAJIF ISMAIL, RUWAN JAYASOORIYA
1005-1025	How can the obstacles to students developing resilience in counsellor education programmes be addressed during their studies? TONI HORRELL	A SECI-based knowledge conversion model of business process capture. DIANE STRODE, ADRIAN HARGREAVES, JECH CHUNG	Crossing boundaries: working in a creative way. MICHAEL FITZSIMONS, APII RONGO-RAEA, SUSAN BEAUMONT, ALI'ITASI S'UA-TAVILA, ROGER NGAHOORO, TEREMOANA HODGES, JEAN MITAERA	Response of reinforced concrete buildings to near field blast events. RUWAN JAYASOORIYA
1025-1045	Youth worker resilience: Sustaining and educating youth workers in a newly professionalised sector. AMANDA HAY	Augmented Reality: Next frontier in New Zealand banking. SWATI PURI	Integrated assessment: Making assessment meaningful. JILL CLARK, JULIE McGOWAN	Cross-boundary information sharing by knowledge brokers during a disaster. FAHIMI ALI
1045-1105	Addictions, students and adult resilience. GAYLE MCGARRY	Artificial Intelligence and Semantic Text Analysis. ROHIT PANDE	Providing students better support to complete the Level 4 New Zealand Certificate in Information Technology Essentials programme. ARISTOTLE SANTOS, JOEY DOMDOM	Seismic restraint of non structural suspended systems. NAJIF ISMAIL, ADRIAN FERGUSON, RICHARD FOREMAN
1105-1130	**Morning Tea**			

PROGRAMME

	Room WK249	Room WK251	Room WK254	Room WK252
	Session 5 - Resilience 1	**Session 6 – Health Services**	**Session 7 - Language**	**Session 8 – Engineering / Construction**
	Session chair: Ben Jeffares	Session chair: Wendy Trimmer	Session chair: Catherine Doughty	Session chair: Najif Ismail
1130-1150	Neurodiversity and resilience: Dispelling the entity theory of intelligence and personality. KAARYN CATER	Barriers to accessing mental health services for Chinese in Aotearoa New Zealand. TERESA CHIN, JOEY DOMDOM	Toku Reo Tupuna: Together we can save our Cook Islands Māori language. TEREMOANA HODGES, SUSAN BEAUMONT, APII RONGO-RAEA, ALI'ITASI S'UA-TAVILA, MICHAEL FITZSIMONS, ROGER NGAHOORO, JEAN MITAERA	How house size impacts type, combination and size of rooms: A floor plan study of New Zealand houses. IMAN KHAJEHZADEH
1150-1210	The neuroscience of resilience: Findings from current research. MARIA ULLOA	Enhancing professional counselling practice with mindfulness meditation: A literature review. RUSSELL VANT, JOEY DOMDOM	Sustaining the Māori language in New Zealand Early Childhood services: Exploring student teacher narratives. SUJATHA GOMATHINAYAGAM	Friction factors in pipeline design to withstand pipe-bursts in augmented water schemes. INDUKA WERELLAGAMA
1210-1230	The side effects of a chronic obsession with the resilience narrative in the addiction field. TONY CARTON	Developing a methodology to understand I-Kiribati immigrants navigating their health and illness in New Zealand. TERAMIRA SCHUTZ	On the distinctions between L1 acquisition & L2 learning. YAO-KUN LIU	Using Computer Aided Design to teach Engineering – A study of learner motivation and engagement. GARETH GRETTON
1230-1250	RESILIENCE: Panel discussion	The Chili Session: Turning up the Heat on Avoidant/Restrictive Food Intake Disorder. JANELL VAUGHN	Service through language - Toku Reo, Toku ia Atamira: Purua. JEAN MITAERA, TEREMOANA HODGES, APII RONGO-RAEA, SUSAN BEAUMONT, ROGER NGAHOORO, MICHAEL FITZSIMONS, TUPE LUALUA, EVAN HIPPOLITE	
1250-1330	**Lunch**			

PROGRAMME

	Room WK249	Room WK251	Room WK254	Room WK252
	Session 9 - Social Work 1	**Session 10 - Teaching & Learning: Health / Social Services**	**Session 11 - Teaching & Learning: Technical Subjects**	**Session 12 – Māori / Pacific & Pakeha Nexus**
	Session chair: Elizabeth Asbury	Session chair: Suzanne Manning	Session chair: Kaaryn Cater	Session chair: Jeanette Grace
1330-1350	Evaluation of the Bachelor of Social Work practice learning centres. JEAN MITAERA, ALI'ITASI S'UA-TAVILA, SUSAN BEAUMONT, ROGER NGAHOORO, MICHAEL FITZSIMONS, APII RONGO-RAEA, EVAN HIPPOLITE	Becoming a researcher in a tertiary education provider: chalk and cheese or horse and cart? RUTH CRAWFORD	Embedding sustainability in tertiary education: A brief review at Toi Ohomai Institute of Technology, overseas institutions and subsequently the researcher's path to embedding sustainability. ADELE CARSON	Bicultural consciousness – piloting and praxis. BERNARD WHELAN
1350-1410	Social Work and the Community Investment Strategy: A literature review. ASHLEIGH PRICE	Applied Bio-Nursing teaching approach for Bachelor of Nursing students. TERAMIRA SCHUTZ, LOMA-LINDA TASI, ANA KININIKI	Application of EPIC (Executive-Process Interactive Control) memory model in teaching. DON KANNANGARA	What literature is available to enable non-Pacific tutors to understand, appreciate and recognize Pacific epistemologies? JOY RICHARDS, BRENDA BAKER, RACHAEL BOWEN
1410-1430	The use of a closed Facebook group as a community of practice for social workers. NEIL BALLANTYNE, SIMON LOWE, LIZ BEDDOE	Combining visual arts and digital techniques in the teaching of human anatomy. PHILLIP SILVERMAN, MALCOLM DOIDGE	Developing and tracking profiles of students' conceptions of force through an engineering degree. JAMES MACKAY	How do traditional Māori values affect the sustainability of Māori tourism businesses? ADAM RANSFIELD
1430-1450	The reciprocity approach to service learning from a Social Work perspective. ALI'ITASI S'UA-TAVILA, JEAN MITAERA, TEREMOANA HODGES, APII RONGO-RAEA, ROGER NGAHOORO, SUSAN BEAUMONT, MICHAEL FITZSIMONS	Critical Management Studies, critical leadership, ethnography and auto ethnography. STEPHANIE KELLY	Student understanding of their engineering laboratory learning. FRANK COOK	The Evolution of Information Technology Capstone Projects into Collaborative Research Projects. MARTA VOS, SUE CHARD, GEORGE TONGARIRO
1450-1510	**Afternoon Tea/Break**			

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	Room WK249	Room WK251	Room WK254	
	Session 13 - Social Work 2	**Session 14 - Health Care Workforce**	**Session 15 – Creative Arts**	
	Session chair: Kerri Arcus	Session chair: Ali'itasi Su'a-Tavila	Session chair: Phillip Silverman	
1510-1530	Meaningful practice leadership: Extending the borders of practice frameworks. STEPHANIE KELLY	Exploring possibilities for a 'Tracer Study'. APII RONGO-RAE, JEAN MITAERA, ALI'ITASI SU'A-TAVILA, MICHAEL FITZSIMONS, TEREMOANA HODGES, ROGER NGAHOORO, SUSAN BEAUMONT	Visual communication design (VCD) learners' creative design processes: A pedagogical branding project from Hunan City University in China. BRENDA SARIS	
1530-1550	What informs practicing social workers for engagement with diversity in an Aotearoa New Zealand context? SUSAN BEAUMONT, KERRI ARCUS, STEPHANIE KELLY	The lived experiences of Filipino migrant caregivers in the Kapiti Coast, Aotearoa New Zealand: Implications to aged care and vocational training JOEY DOMDOM, JUDITH SALAMAT, MAYIE PAGALILAUAN	Somes Island Palimpsest. MALCOLM DOIDGE	
1550-1610	Metaphors informing social work practice. ROGER NGAHOORO, MICHAEL FITZSIMONS, TEREMOANA HODGES, APII RONGO-RAEA, ALI'ITASI S'UA-TAVILA, JEAN MITAERA, SUSAN BEAUMONT	Juggling paid work and first year nursing studies: Whitireia findings from the SWAN (Studying and Working amongst nursing students) Australasian multi-institutional study. RUTH CRAWFORD, BELINDA McGRATH, SHAYOLA KOPERU, WENDY SCOTT		
1610-1630		Maintaining momentum in integrating co-existing problems in Health Education. CATHERINE FULLER, WENDY TRIMMER, LOMA-LINDA TASI, VICKY JENNINGS		
1630-onwards	*Time to move to closing session*			
	Closing remarks and Karakia (WK239/WK240)			

PROGRAMME

	POSTERS & EXHIBITS
Available to view all day. **Presenters will be available during the lunch break from 1250 to 1330pm**	An evaluation of Collaborative Learning among the third year Bachelor of Nursing, Business and Information Technology students. PREMA SAMPATH, AGUSTILIA RODRIGUES, KIERAN BEGGS
	Accuracy of stereo vision based camera sensors for the purpose of driver assistance systems. WAQAR KHAN
	Whose career is IT?: Bridging the great divide. SARAH SNELL, CATHERINE SNELL-SIDDLE
	A non-blocking Binary Search Tree (BST). MANISH SINGH
	The Presbyterian Support Central Wi-Fi Network Deployment. IAN HUNTER, ALAN LYFORD
	Facilitators and barriers of waste minimisation practices at New Zealand festivals. LEANNE NICHOLAS
	Supporting internationally qualified nurses in postgraduate study at Whitireia. SUZANNE MANNING, KERRI ARCUS
	Anxiety: How does it affect the paramedic student? HOWARD WILLS
	EXHIBIT - Combining visual arts and digital techniques in the teaching of human anatomy. PHILLIP SILVERMAN, MALCOLM DOIDGE

Keynote: **Kylie Reiri, Lead Analyst, Social Investment Agency**

"Data driven insights to improve outcomes across New Zealand and to answer New Zealand's most challenging questions"

Kylie is a data scientist working at the forefront of the revolution in how government is using data to answer New Zealand's most challenging questions. Kylie was instrumental in building key reusable tools to reduce time to gain insight across the social sector. Kylie was a recipient of a Te Tipu Putaiao (Māori Knowledge) Fellowship from the former Foundation for Research Science and Technology and maintains a special interest in Māori data and outcomes.

She holds an MSc in Applied Statistics and is a member of the New Zealand Statistics Association Executive Committee. Kylie is currently lead analyst at the Social Investment Agency, the government's agency charged with using data driven insights to improve outcomes across New Zealand.

The Social Investment Agency is championing a new way of working in Government. Using analytics to look across individuals' lives to understand what works for whom, at what cost.

This presentation will show what the Social Investment Agency is doing differently, demonstrate why it is useful, and provide some principles for working in a way that moves analytics in New Zealand further together.

Understanding paramedic mental wellbeing: The International Paramedic Anxiety Wellbeing and Stress (IPAWS) study

Elizabeth Asbury

Whitireia

Introduction: Alarming statistics relating to paramedic attrition, mental health and suicide risk are causing concern worldwide. An Australian Senate Inquiry found that 110 emergency services personnel committed suicide between 2000 and 2012, and over a third of American paramedics had contemplated suicide. Trauma related mental health issues among paramedics have been explored in isolation, but little is known about the development of psychological morbidity among a broad paramedic population.

This presentation will outline the International Paramedic Anxiety Wellbeing and Stress (IPAWS) Study, an investigation into paramedic mental health and wellbeing. Background Emergency medicine is arguably one of the most decision-rich areas of healthcare. Impaired clinical decision making impacts upon patient safety and the relationship between mental health and cognition has been repeatedly demonstrated. Decision making skills and performance are adversely affect by stress, depression and Post-Traumatic Stress Disorder (PTSD). Stress and fatigue have been cited in 45% of prescribing errors, while mood state can contribute to diagnostic error. Poor mental health can adversely affect clinical decision making, which in turn can have a catastrophic impact on patient care.

Method: IPAWS is a five year international, longitudinal, quantitative research project with an initial cohort of 500 final year paramedic degree students.

The study is being coordinated from New Zealand and currently has 28 affiliated institutions from across Canada, Australasia, Europe and South Africa. Participants will be required to complete a battery of psychological and demographic online questionnaires, using a secure web-based platform on an annual basis for the five year duration of the study. Recruitment will be undertaken during 2017 and 2018 to accommodate both northern and southern hemisphere academic schedules.

Discussion: IPAWS is the first international longitudinal study to explore the cumulative impact of trauma on paramedic mental wellbeing against occupational experience. Overall analysis will provide evidence for optimally timed interventions, while regional analysis will identify best practice in supporting paramedic mental health. IPAWS may lead to an improvement in trauma related mental health, improve cognitive load and better patient care.

How can the obstacles to students developing resilience in counsellor education programmes be addressed during their studies?

Toni Horrell

WelTec

Counselling students face many challenges during the course of their studies. This presentation will describe these challenges and provide the outline of a proposed literature review to look at best pedagogical and pastoral practice to support students in developing the resilience required to meet the challenges. Those attending this presentation are encouraged to add their ideas and thoughts to help develop the next stage of this review.

The demands on student counsellors are considerable. They are expected to fulfil academic expectations, gain counselling experience through practicums and find the means to support themselves financially during their period of study, including the cost of personal counselling and supervision. Student colleagues' and clients' shared content, as well as some teaching content can be distressing and the counselling curricula requires that students practice ongoing personal development. This includes self-awareness and cognitive flexibility development to deal with personal reactions and challenges to their world views. When students enrol on counselling programmes, they may not fully understand the possible complexities of the challenges ahead of them even if they are informed about these at the beginning.

Observation and experience show that many students struggle and some demonstrate difficulty with self-regulation and the ability to fulfil the requirements of the programme. The literature identifies that anxiety and depression are common at some stage of a counselling student's period of study. These can be compounded by students' previous experiences of abuse and trauma which have not been sufficiently processed.

In the face of these challenges and demands, what is best pedagogical and pastoral practice to help students develop resilience and how can this be done within the academic programme? The literature review cannot hope to address all the complexities of this issue, however it will examine the current state of best practice in relation to these student challenges, and begin to frame suggestions for ongoing research.

Youth Worker Resilience: Sustaining and educating youth workers in a newly professionalised sector

Amanda Hay

WelTec

Research has shown that 'formal education or training' is an important component to resilience in health and social service workers. Considering the high burnout rate amongst Youth Workers it would be valuable to know what resilience factors are being drawn upon to sustain and prepare youth workers who have managed longevity in the industry, without formal education or training. This research will investigate a group of employed youth workers from both rural and urban areas in New Zealand, with between 5-10 years sector experience, whom anecdotal evidence indicates may be reluctant to engage in training, and asks how they prepare and sustain themselves in their Practice. The sector is currently undergoing a professionalisation process an there is much discussion on whether formal qualifications (Certificate plus 5 years fulltime experience or Diploma plus 3 years fulltime experience) should become a minimum requirement for youth workers, or not. Therefore, the experiences of what prepares and sustains these practitioners at this pivotal point in the history of the profession in Aotearoa/New Zealand, will provide valuable qualitative findings for development of the profession into the future. The research design will be outlined, and initial qualitative findings will be presented for discussion.

Addictions, students and adult resilience

Gayle McGarry

WelTec

In Addictions we work in a world of trauma and triumph. Most of the people we work with are struggling with addictions and mental health issues or the sequalae of those. Equally many students who enrol in the Addictions degree have their own lived experience of addictions. Both groups also have had lives where they are dealing with the aftermath of events that have been disastrous or traumatic.

As addiction workers we bring our expertise and compassion, they bring bodies, minds and compromised lives. Together we have a shared task of identifying and enhancing capacities for daily living in recovery. Our clients have varying degrees of functional ability, some with determination and resiliency, others with little confidence life is actually worth living. What is the difference?

In the presentation the key factors that build resilience in adults are discussed and will be of interest to those in the social services and adult education sectors. What are the different strategies that contribute to this shared focus?

This presentation is informed both by my practice with clients and also from readings in my role as educator with students. The presentation will consider the key factors which increase resilience in the recovery from addiction and in the partnership of the work we do as client and practitioner or student and educator.

Ethical considerations in Radio Frequency Identification (RFID) use

Luke Strongman

Open Polytechnic of NZ

Radio Frequency Identification or RFID is radio wave communication between a microchip and electronic reader. The technology of RFIDs is based on remote recognition of objects. RFID communicate ID numbers to readers via radio wave. RFID use is undergoing revolution, and is increasingly used with automobile keys and packaging and transport and, in other forms, connected to IoT – the 'internet of things'. Millions of pets worldwide have been 'chipped'.

Although RFID technology is only about the size of a grain of rice, RFID packaging has been used mainly by businesses to track goods and farmers to track livestock (also known as PIT, Passive Integrated Transponder tag); but the potential with use in everyday society is for it to become overly intrusive, or open to abuse. If a store manages its 'connect payments' such as EFT-POS or Visa with RFID information, it could be used to collect specific customer information and to persuade customers to make future purchases based on data from previous choices. Anyone could construct a detailed picture of individual's life, given a sustained pattern of RFID interactions. Furthermore, a chip under the skin is now commonplace among the human-controlled animal population but the blurring of boundaries between people and technologies with the ubiquitous uptake of RFID use for consumer identification raises a number of ethical questions about human dignity and free-will that are of concern to both privacy advocates, users, and consumers.

This paper will discuss and define the ethical concerns that surround the use of RFID technologies. Using constructs from ontological, deontological and utilitarian frameworks of ethical theory the paper employs qualitative analysis to describe the uses and abuses of RFID technologies. Comparative textual critique is entered into that examines dilemmas of civil liberties and privacy concerns. Issues of consequence to all users of technologies in the everyday market place are described and critiqued. An ethics of privacy in RFID use asks the central question of what protections are there in data gathering? Views on privacy differ. There are different ethical boundaries between rival philosophical views, deontological theory, social contract theory, and a stakeholders' 'right to be left alone'.

A SECI-based knowledge conversion model of business process capture

Diane Strode, Adrian Hargreaves, Jech Chung

Whitireia

The purpose of capturing a business process is to ultimately create a map, or model, of the process so an organisation can understand their process at a high conceptual level. Such understanding supports effective process management, reorganisation, or automation, and is also used when designing digital systems.

Capturing a business process as a model involves eliciting process details from those who best understand it and validating that the process is captured accurately. Typically, a business analyst discusses the process with domain experts familiar with the process. Once the process is captured within a model, it is verified by domain experts to ensure it accurately reflects the process of interest. A business process can be elicited by studying written procedures, automated systems, datasets, or by observing work flow but we focus on the elicitation and validation of business processes when the business analyst draws forth the experiential knowledge of the domain expert.

Business process capture is the first step in business process management. There is a wealth of research on business process management, including business process analysis, modelling, languages, and re-engineering. Within this body of knowledge, current understanding and practical insights as to how experienced analysts elicit and validate business processes are limited. This lack of insight into business process capture led us to pose the research question. How do business analysts elicit and validate business processes in practice?

In this paper, we view business process capture as a form of knowledge conversion whereby the tacit knowledge of the domain expert is converted to explicit knowledge in a model. A well-recognised theory of knowledge conversion is the SECI process of socialisation, externalisation, combination, and internalisation, whereby tacit knowledge is converted to explicit organisational knowledge in a cyclic process. Therefore, in addition to addressing the research question, we also explore the applicability of the SECI process in the context of business process capture.

We collated comments made by business analysts in response to open-ended questions in an online survey. The comments came from 42 analysts who made 78 comments. We used a general inductive approach to identify themes in the comments that we conceptualised as business process capture activities. Then we used the SECI modes as a coding frame and analysed the comments to determine if the activities aligned with the SECI modes of knowledge conversion.

We found seven business process capture activities: combining, confirming, engaging soft skills, involving, simplifying, tailoring, and training. We also found that business process capture is a knowledge conversion process as each SECI mode occurs during business process capture.

The paper contributes a SECI-based knowledge conversion model of business process capture and insight into capture activities for business analysts.

Augmented Reality: Next frontier in New Zealand banking

Swati Puri

WelTec

Augmented Reality (AR) is a technology that superimposes a computer-generated image on a user's view of the real world, thus providing a composite view. In this new age of digitization, there is an increasing number of companies and financial institutions, which are adopting AR technology to create an incredible user experience. Banks too, need to get rid of their old-fashioned structures and follow suit. With the increasing number of customers relying on online banking systems for carrying out their operations, AR can revolutionize banking systems and benefit both the users and the banks.

This paper discusses the emerging role of AR technology in New Zealand banking sector. The first part of the paper describes the role of AR technology on various aspects of banking such as cost-effectiveness of a branch, ease in banking operations, its use in back office operations to analyse complex data, time to market new features, and in enhancing overall customer experience.

The second part of research focuses on how fast New Zealand is acting to integrate Augmented Reality into their systems and the challenges faced by them in adopting this new technology. Since this subject is at a nascent stage, the paper is based on already published literature and articles. The articles and data collected are analysed and examined in detail to address the issues. The conclusions of the research give an insight into the use of AR technology in New Zealand banks and how it would open extraordinary possibilities in the banking sector in the future. It also provides future research directions for anyone who is interested in AR technology.

Artificial Intelligence and Semantic Text Analysis

Rohit Pande

Whitireia

Background: Human knowledge has developed due to the ability of humans to read information from textual documents and gain knowledge from this activity. However, due to the increasing adoption of information technology (IT) there has been a rapid advancement with the generation of textual documents at an unprecedented level and this has created the problem of 'big data'. As a result of this, it is not possible for humans to be able to read all of these documents to generate knowledge anymore.

Furthermore, IT has not been able to keep pace with the ability to analyse documents of such volume using traditional methods. This has created a need to come up with innovative solutions and use advanced IT and Artificial Intelligence (AI) systems to help with this effort. This study, therefore, looks at the challenges with this process and how AI helps to resolve these challenges.

Research Questions: 1. What are the challenges with learning the semantics within textual documents by computers?

2. How does artificial intelligence help to resolve these challenges?

Methodology: The study is a review of the latest literature in this field.

Findings: The study finds that human languages have unique idiosyncracies. According to Lyons (1991), languages are "structurally adapted to the psychological nature of man". This indicates the organic and evolutionary nature of language development. Additionally languages have complications like dialects, linguistic ambiguity and multiple interpretations (Jackson & Moulinier, 2007). These are some of the key factors that make it very difficult for computers to gain knowledge from information that is written in human language format. However, in spite of such challenges, technologies like data mining, AI and Natural Language Processing (NLP) have developed to a very advanced level. The understanding of natural language data can be done with simple traditional methods, like keyword spotting, lexical affinity and statistical NLP. Advanced semantic analysis like Latent Semantic Analysis, Latent Dirichlet Allocation, algorithms like Skip-gram and Continuous Bag of Words can be coupled with deep learning that is based on Neural Networks. These advanced technologies have produced some very effective results in the understanding of the knowledge within the text by computers.

Conclusions: The study finds that AI systems and NLP are new developments in the field of IT. Since NLP is in its nascent stages, there is significant potential for development and advancement. AI and NLP are increasingly being adopted for research in scientific and business domains.

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Transforming information literacy space(s) to support student learning

Catherine Doughty

Whitireia

This national Teaching and Learning Research Initiative (TLRI) funded project aims to improve students' information literacy competencies and learning across the senior secondary and tertiary sectors.

It is a partnership with six secondary schools and four tertiary institutions. The researchers will use participatory action research to develop new ways for teachers and librarians to collaboratively plan and implement instructional approaches that prioritise critical use of information literacy skills to learn disciplinary content knowledge.

Outputs include a set of information literacy progressions (New Zealand Qualifications Framework Levels 1-3 in schools and 4-7 in tertiary institutions) and teaching resources for use in schools and tertiary institutions. This presentation will attempt to provide a brief overview defining Information Literacy and will outline developments with this project in its first year, 2017. It will also describe plans for years two and three of the project.

Crossing boundaries: Working in a creative way

Michael Fitzsimons, Apii Rongo-Raea, Susan Beaumont, Ali'itasi S'ua-Tavila, Roger Ngahooro, Teremoana Hodges, Jean Mitaera

Whitireia

Background: This reflection (paper) looks at the author's experiences of crossing boundaries, whilst working in the roles of a Learning Strategist, Accessibility Advisor, and Social Work academic. In the varying roles the author interacts with students in varying ways. How the interaction occurs and roles are maintained requires the crossing of boundaries. These boundaries vary according to the interaction.

Research Questions/Aims/Objectives: The initial notion that a multiplicity of roles has the potential for boundary crossings is the focus of this reflection. The reflections will also address the impact of the boundary crossings and student/staff perceptions. Underpinning these reflections is the creative way the boundary crossings are acknowledged and celebrated as keys to student success.

Methodology: The Kolb reflective learning cycle will be utilised to direct the reflections and draw valid conclusions.

Results: The reflection will identify and build on the author's toolkit for boundary crossings and student interactions. This insight will be of import for other staff and students contemplating how to manage boundary crossings.

Integrated assessment: Making assessment meaningful

Jill Clark, Julie McGowan

Le Cordon Bleu New Zealand

Assessment practices in higher education have three main objectives: to certify achievement, to assist learning and to prepare students for participation in work and life after study.

Integrated assessment, combining multiple subject areas and learning outcomes in authentic scenarios that reflect the professional environment, meets all of these objectives. Integrated assessment tasks are designed to help students see the connections between the knowledge and skills they learn in various subject areas across the degree programme and understand their relevance to the workplace. Students work individually or in groups on complex, challenging, real world tasks that require the application of not only a broad range of subject knowledge but also transferable skills such as critical thinking, communication, problem solving and collaboration.

Various aspects of a task are assessed in different subjects across the degree programme: the planning and production of a restaurant event, for example, forms part of the assessment of the Volume and External Catering Management course and the associated marketing plans and activities are assessed in Marketing Principles. Assessment is both formative and summative with on-going opportunities for feedback and feed-forward from lecturers', practitioners' and peers. This enables students to reflect on their strengths and weaknesses, evaluate and improve their immediate performance and, in the longer term, transfer what they have learned to professional contexts.

This type of assessment engages, motivates and challenges students in ways that traditional assessment methods do not. This presentation will examine the use of integrated assessment on an undergraduate degree in a New Zealand higher education institute. Authentic assessment tasks, combining knowledge and skills from multiple courses across the programme, are designed to reflect the complex reality of the professional environment the students will enter. The aim is to offer a more holistic learning experience than traditional assessment methods; an engaging, participative and contextualised experience that meets both immediate learning needs and long term outcomes.

Providing students better support for completing the Level 4 New Zealand Certificate in Information Technology Essentials programme

Aristotle Santos, Joey Domdom

WelTec

The Level 4 New Zealand Certificate in Information Technology Essentials is the lowest entry level programme into WelTec's Information Technology study. It is made up of four standard courses which students must complete, ideally in one semester. At this level, the students are introduced to different pathways into Information Technology. A review of the programme's past results has prompted us to ask the question, "How can we further help students to successfully complete this programme?"

This study investigated the factors that contributed to the students' inability to complete the programme. The main goal was to dissect and understand these factors and ultimately to provide effective solutions. To identify the contributing factors, the study has come up with three procedures. First, it collected and analyzed the tutors' past course reflection reports. Second, it has performed student profiling. And lastly, it has analyzed recent student behaviours and trends.

To address these same factors, the study has developed relevant interventions that have provided effective solutions. The findings revealed that some of the controllable reasons why our students fail are: lack of necessary skills to do Information Technology, lack of skills to do tertiary level of study (being overwhelmed by the amount of workload demanded by each individual course), and the untimely recognition of students who are struggling.

The study has also identified a number of effective solutions. These include the development of simple tools such as:

(1) an attendance and performance tracking tool, (2) staggering assessment tool, and (3) programme handbook. It also included the use of an existing tool that is to embed the literacy and numeracy quiz tool at the start and before the end of the programme. Another set of solutions is to modify how assessments are offered. These include (1) a focus on collaborative assessments, (2) a big assessment that is instead broken down into manageable parts, and (3) a big assessment that is shared by at least two courses.

At this point, the solutions appear to have a significant effect. The completion rates were up by at least 40% and the students who have gone to further IT study were up by at least 50%. From its findings, the study concludes that identifying the specific factors and issues that impact academic performance can be addressed both within the context of individual students and within the programme.

Experimental seismic assessment of heritage masonry buildings

Najif Ismail, Ruwan Jayasooriya

WelTec

Background: Unreinforced masonry (URM) parapets pose one of the highest life-safety risks in an earthquake. There are approximately 4,000 URM buildings around New Zealand many of which have critical structural weaknesses that could cause parapets to collapse in a seismic event. These need to be assessed and made secure under the Building Amendment Act 2016 and as per recommendations 77-81 of the Canterbury Earthquakes Royal Commission. Additionally, the Government has recently created an Order under Council which requires owners of URM buildings, who are notified by their council, to secure street facing parapets within one year. One typical retrofit parapet restraining detail involves mounting a steel section along the entire length of the inside of a parapet and around the corners, which is then braced back to the roof/floor. While this restraining detail has been widely accepted, other solutions need further testing in a timely manner. One such solution is textile reinforced matrix (TRM), which has been noted to perform extremely well during past earthquakes.

Objectives: The research aims to evaluate in-situ physical properties of New Zealand heritage URM materials, as-built strength of URM parapets, and the effectiveness of TRM as a parapet strengthening solution.

Methodology: Masonry material properties were determined by testing extracted brick and mortar samples, giving indication of values that could be expected from URM buildings of the same age located elsewhere in New Zealand. Two full scale URM walls were tested onsite for out of plane strength at the keg storage (constructed in early 1900s) of the historic Speight's Ale house. The test walls were detached from the top beam (i.e. free up the top edge of the wall). A test frame was fabricated to best suit the budget, site conditions, manoeuvrability requirements, and safety requirements. The test frame was bolted to test walls because the asphalt driveway could not take the required load. A displacement controlled monotonic force was applied using a hydraulic cylinder coupled with a 200 kN load cell. Test wall deformations were measured using two draw wire-type potentiometers.

Results: The testing of as-is URM walls and extracted URM material specimens provided testing methods for evaluation of material properties in heritage URM buildings. The brick and mortar had an average compression strength of 11.01 MPa and 3.89 MPa, respectively. The TRM strengthened URM wall did not reach an ultimate limit state even at a force of 2.4 times the force required to initiate cracking in as-built URM wall. The out-of-plane strength and stiffness increments due to TRM retrofitting was noted to be 140% and 308% when compared to as-built tested URM wall, whilst the strengthening intervention remained relatively inconspicuous. The increased initial stiffness in turn reduces the deformation, increases the natural time period i.e. reduces the likelihood of parapet collapse in an earthquake.

Response of reinforced concrete buildings to near field blast events

Ruwan Jayasooriya

WelTec

High occupancy iconic and public buildings are highly vulnerable to near field blasts events carried out by terrorists using vehicle borne incendiary devices in order to claim a maximum number of lives and cause extensive damage to public property. At such an event, initial casualties are due to direct blast shock while collapse of structural elements may significantly increase the total figure.

In New Zealand, most of these buildings have been or are built without consideration of their vulnerability to explosion events. Therefore, a blast response investigation is necessary for these buildings although they are designed to earthquake loads.

Because of recent terrorists activities that have occurred in many parts of the world in the recent past, the vulnerability assessment of New Zealand buildings to deliberately exploded bombs is important to provide mitigation strategies to protect the building's occupants and the property. This study investigates the response and damage of reinforced concrete (RC) framed buildings together with their load bearing key structural components to a near field explosion event.

Finite element method (FEM) based analysis is used to investigate the structural framing system and components for global stability, followed by a rigorous analysis of key structural components for damage evaluation. The investigation includes four important areas in structural engineering. They are blast load determination, numerical modelling with FEM techniques, material performance under high strain rate and non-linear dynamic structural analysis.

The research outcome helps to identify the true response of New Zealand buildings to deliberately targeted bomb blast loads. Overall, this study broadens the current knowledge of the blast response of buildings specially designed already to resist earthquake loads in New Zealand. Suitable methods to evaluate and mitigate blast impact on key elements of multi-storey buildings are also proposed.

Cross-boundary information sharing by knowledge brokers during a disaster

Fahimi Ali

WelTec

Background: Many recent disasters have shown that the lack of information sharing among different groups has a major impact on the responsiveness of emergency services. Multiple-agency information sharing remains as a central focus in disaster management. This research focusses on the process used to share information during a disaster. The process remains unclear, but gaining an understanding is important in managing information flow in a disaster. 'Knowledge brokers' (KB) are people that receive and share, and manage the flow of information across the boundaries of different groups. They need to be able to assess the veracity of the information, and its relevance.

Research questions: How do KB assess the veracity of the information they receive from a source located in a different group during a disaster? How do KB assess to whom the information is relevant during a disaster?

Methodology: This research used multiple case studies, in-depth face-to-face interviews, and an inductive process to generate theories about information sharing during disaster. Case studies were taken from New Zealand disasters. The unit of analysis was the scenario experienced by a KB. Data units were arranged into 10 vignettes that represented different disasters involving 22 unique scenarios, which were thematically analysed.

Results: It was found that a KB went through two phases when determining the value of the information they received. Phase 1 began with the KB receiving information from a source located in a different group and ended when a decision on the veracity of the information was made. Phase 2 ended when a decision was made about the relevance of the information to a different group. In both phases, KB received and shared seven types of information (i.e. request, recommendation, update, investigative, notification, advisory and informative). The information flowed across four types of boundaries (i.e. hierarchical, unit, organization and community) using five types of media (i.e. face to face, radio, telephone, pager and Facebook). KB were also found to use different types of cognitive resources to determine the veracity and relevance of the information (i.e. confidence in the source's credibility, having social ties with the source, triangulating the information, following a set of rules, having insider knowledge, recalling previous experience, scanning for vested interest, being asked by someone, recalling the training, and following the organizational structure).

Implications / Contributions to practice include:

1) enhancing existing community resilience plans by adding the information sharing process,

2) innovating disaster management systems with a deeper understanding of the process of information sharing during a disaster, and

3) improving emergency service personnel training modules by introducing the concept of information sharing flow and an understanding of how KB share information during a disaster through the scenarios.

Seismic restraint of non structural suspended systems

Najif Ismail, Adrian Ferguson, Richard Foreman

WelTec

Background: The research presented herein is the first step of a larger proposed project focused around developing models to estimate earthquake losses resulting from non-structural components (NCS). The project will be a collaboration between WelTec, GNS Science, BRANZ, and Massey University. The Christchurch earthquakes and the Kaikōura earthquake drew attention to the poor seismic performance of NSCs in commercial buildings, having caused huge – but likely preventable – economic costs due to reinstallation and business interruption. The research focuses around first finding the key reasons for the poor performance and to address the most important knowledge gap by producing a comprehensive catalogue of earthquake proven seismic restraint details.

Objectives: The 2016 Kaikōura earthquake has given a unique opportunity to gather information regarding the performance of suspended systems in many medium- to high-rise commercial buildings in the Wellington region. Timing is critical to undertake this research to record the experience and lessons learnt so that the poor performance of NSCs can be addressed, with the benefit of having better performing solutions when the next earthquake strikes anywhere in New Zealand.

Methodology: With an ultimate goal to prepare a catalogue summarising the knowledge gained by the industry stakeholders including trade companies and consulting engineers on typically adopted seismic restraint details, the project was started by data collection on typical restraint details, then the damage patterns observed were interrogated, and the strategies adopted for repair were critically evaluated. The prepared catalogue provides a comprehensive ‘one-stop-shop’ reference for all the individual trade sectors involved in the design and installation of suspended systems. It is envisaged to promote interaction and co-ordination among trade companies during installation, thereby minimising risk of failure. Also explored is the possibility of employing Building Information Modelling (BIM) at the design stage of a case-study building, allowing a new benefit that will identify the interaction and performance of different suspended systems during earthquake loading.

Results: Some reasons for the poor performance were attributed to construction practices, such as contracting terms with NSC companies regarding pricing and NSC design specifications; lack of co-ordination among subcontractors during installation; lack of diligent site inspection, to mention a few. The project outcome improved the engineering curriculum, and ties in well with WelTec’s leadership vision for vocational training to deliver practical, relevant qualifications. The graduates will, in turn, be ambassadors for best NSC installation practice relaying their knowledge to other stakeholders, thus increasing the reach of the positive impacts of this study.

Neurodiversity and resilience: Dispelling the entity theory of intelligence and personality

Kaaryn Cater

Whitireia

Successful students are resilient students. All students face challenges and adversity at some stage during their learning journey, and the way in which they navigate these challenges can have a profound impact on their academic success. For neuro-diverse students, the challenges can be greater than for neuro-typical students.

Current resilience research seeks to identify factors that contribute to positive outcomes including education, prevention and strategies. For the purposes of this paper, resilience is considered to be protective factors and positive adaption to challenging, stressful or adverse experiences, and the degree to which an individual is able to transfer useful knowledge and skills to new and novel situations.

Goals and beliefs about effort (learning strategies) are affected by implicit theories an individual holds about themselves. Individuals who hold an entity (fixed) theory of intelligence and personality are likely to view these things as fixed, and may repeat unhelpful behaviours particularly when faced with challenges. In contrast, individuals who view intelligence and personality as incremental (malleable) see challenges as opportunities and growth, whether they are achievements or setbacks. A belief in incremental intelligence and personality underpins resilience. In a previous study, the researcher examined the learning experiences of a cohort of neuro-diverse students with minority forms of information processing, many of whom had negative mindsets about their intelligence and/or personality. The study found that participating students believed that knowledge of their particular issues and the subsequent development of specific learning strategies was beneficial in managing their life and study.

Phase two of the research is a three year longitudinal study which seeks to identify at-risk students at the inception of their degree. Participants complete a battery of on-line questionnaires that indicate possible information processing issues, and those who score highly on any of the questionnaires are offered the opportunity to meet with a learning advisor in order to discuss learning strategies, conduct screenings, or refer to appropriate professionals or services.

The data are being collected using the 'Question Pro' platform with the raw data being used to identify possible at-risk students. Participants will be surveyed annually to determine academic perceptions and completion rates. Data collection is on-going and students are being contacted for learning advisor appointments.

120 first year students have taken part in the study, and initial results indicate that a high percentage of the participating students score highly on one or more of the scales. It is anticipated that early intervention for at-risk degree students may assist in building resilience capability, and ultimately contribute to academic success for students who may otherwise fail to complete due to academic and/or social stresses.

The neuroscience of Resilience: Findings from current research

Maria Ulloa

WelTec

Neuroscience makes possible a new understanding of the way the brain learns from experiences and rewires itself through interactions with parents, teachers, counsellors, coaches, peers, and lifelong partners. Findings from modern neuroscience are conducive to the implementation of tools, interventions and techniques that create new experiences to efficiently and effectively rewire our brains to be more flexible and resilient (Graham, 2013).

This presentation brings the literature from current ideas about the interpersonal neurobiology of stress, emotion, social engagement and empathy that can help us make sense of challenges and stressful circumstances and find ways to embark on personal, organisational and cultural change.

This presentation will outline findings from the literature and research in neurosciences, which have found mechanisms of self-directed neuroplasticity the brain uses to re-write patterns of response, including resilient coping strategies. (Davidson & McEwen, 2012).

These findings also lead to empirically validated techniques that allow us to resource, regulate, and/or reflect on ourselves to expand our connectedness with others, enhance our flexibility of responses to shift perspectives and create options for resilience.

The side effects of a chronic obsession with the resilience narrative in the addiction field

Tony Carton

WelTec

Background: There is no doubt that mostly we in the addiction field venerate the prevailing sacred mantras around positivity, resilience, protracted upbeatness and compulsory optimism. But with a regularity (declining of course) many of us stray into archetypal strange and beautiful gardens. Not so much to smell the roses but to wear the crown of thorns as we partake in the tragic beauty of the garden of Gethsemane experience. Many in the addiction field have a suspicion of the current hubris around the resilience narrative as they know that redemption through suffering is the precursor to resilience. It's just not the other way round.

Research aims: We review the productive effects of practice such as client centred practice, cognitive behavioural approaches, twelve step therapy and motivational interviewing and also discourses around deficit and strength base and their respective and colliding political agendas.

Methodology: By the utilization of a critical discourse analysis we review the language used in the addiction counselling field over recent times. We analyse the productive effects of verbal softeners, euphemisms, fabricated binaries and inversions routinely utilized by addiction clinicians.

Results: We review how the language of the counselling field has altered not due to clinical propositions but represent a virulent enactment of a neo-liberal agenda, wherein language is implicated in the recreation of new subjectivities conducive to a declining social state.

Conclusions: We consider the ethical issues around how addiction clinicians are enrolled as ground troops in this political project. At the very least, the aims of this research is to sow the seeds not so much of mistrust but at least a casual indifference to the latest fad in a field where mood swings are the norm.

Barriers to accessing mental health services for Chinese in Aotearoa New Zealand

Teresa Chin, Joey Domdom

WelTec

In New Zealand the population of those in Asian communities continues to grow. Out of all the Asian ethnic groups, Chinese continue to be the largest. Sitting alongside this is the need to understand the health and mental health needs of those within these communities. The prevalence of mental illness within Asian ethnic groups in New Zealand, let alone the Chinese community, remains unknown. Despite the growing number of the Asian migrant population, their mental health needs are largely overlooked. This is a greatly under researched area.

This study focuses on exploring the socio-cultural and practical barriers to mental health services faced by Chinese living in New Zealand. The objective of this study is to gather research evidence on the barriers that prevent Chinese individuals from accessing mental health services. To provide credible empirical answers to this question, online databases were searched for recent studies on the Chinese population's use of mental health services. A set of inclusion and exclusion criteria was defined, narrowing down the number of research articles that directly address the aims and objectives of this study. Selected studies were critically analysed, guided by the Evidence-based Practice's levels of evidence and a framework for critical appraisal of literature.
The findings were categorised into the three main themes of socio-cultural barriers, practical barriers and appropriateness of mental health resources and services. Results reveal that the social stigma of mental illness is one of the strongest socio-cultural barriers for Chinese to access mental health services. For Chinese whose first language is not English, communication is a strong practical barrier in utilising available resources for mental health issues. The study further reveals the lack of culturally sensitive and appropriate interventions available for Chinese with mental health problems. This review highlights the importance of specific cultural considerations that needs to be in the forefront of the minds of mental health professionals when working with ethnic Asian communities.

Further educational implications for those who are preparing future mental health professionals are also provided.

Enhancing professional counselling practice with mindfulness meditation: A literature review

Russell Vant, Joey Domdom

WelTec

In recent years, mindfulness meditation, a practice grounded in ancient Eastern philosophy has found a home within contemporary Western psychology and counselling. Entire therapeutic modalities have been formed around this practice and mindfulness meditation was found to be effective in supporting the treatment of a variety of mental health problems.

The aim of this study is to investigate the effect of counsellors engaging with their own personal mindfulness meditation practice, asking the question, how can mindfulness meditation enhance a counsellor's professional practice? This question is approached from three distinct but related directions, essentially comprising three research objectives, investigating mindfulness meditation in relation to counsellor self-care, the development of core counselling attributes, and client outcomes.

This study is driven by a desire to disseminate information and stimulate discussion about what constitutes effective, ethical practice among the counselling community in Aotearoa New Zealand, and to support the informed development of evidence-based counsellor training and ongoing professional development programmes. The purpose of this analysis was to gather evidence on how mindfulness meditation when approached as self-care influences a counsellor's professional practice. Relevant primary sources were searched from online databases.

A set of selection criteria was developed narrowing down the number of searches that directly address the aims and objectives of this study. Selected studies were critically analysed guided by the Evidence-based Practice's levels of evidence and a framework for critical appraisal of literature.

Results indicated that mindfulness meditation as a self-care approach may enhance professional practice that reduces stress and anxiety, and increases self-compassion and personal confidence. The findings further revealed that the practice of mindfulness meditation has been associated with core counselling attributes such as clearer thinking, increased capacity for reflection, empathy and compassion. However, overall the results do not provide conclusive evidence of a direct causal relationship between mindfulness meditation and enhancement of professional practice. Implications based on the evidence gathered are provided for those training to become counsellors, individual practitioners, educational facilities and organisations.

Developing a methodology to understand I-Kiribati immigrants navigating their health and illness in New Zealand

Teramira Schutz

Whitireia

As an I-Kiribati immigrant nurse, I have noted that I-Kiribati immigrants face dilemmas in making decisions about how to manage their health and illness. They must negotiate, adapt, integrate or complement their cultural health and illness worldview to the New Zealand health system.

In this presentation, I will describe an interpretive qualitative research approach I propose to use to understand how I-Kiribati immigrants navigate between their cultural beliefs about health and illness and Western medicine in New Zealand. I will use an approach I refer to as “te kora.” “Te kora” is a Kiribati string made by two soft dry coconut husk fibres called “binoka”. The two "binoka" are manually twisted in a process called "kakano", I am using "te kora" as a metaphor for how I-Kiribati manage their health, viewing one “binoka” as a Kiribati cultural health-illness strand, the other “binoka” is the Western medicine strand. This research will also examine when and how one strand might be preferred over another and the degree to which they are negotiated, integrated, adapted or complemented.

The research strives to fill in knowledge gaps about I-Kiribati health and illness approaches in the New Zealand context, identify future interventions to benefit the health systems of New Zealand, other host countries and other immigrant populations.

The Chili Session: Turning up the heat on Avoidant/Restrictive Food Intake Disorder

Janell Vaughn

WelTec

Background: Avoidant/Restrictive Food Intake Disorder (ARFID) is an eating disorder that when left untreated can lead to nutritionally compromised clients. Examining the case of a client with ARFID is informative in determining future treatment and outcomes associated with this relatively new eating disorder.

Clinical Case: This case study is a 15 year old boy diagnosed with ARFID after the nutritional compromise left him with subacute loss of vision. Alongside medical intervention, therapeutic intervention was provided to the individual to treat the underlying symptomology of ARFID. Central to the therapeutic treatment in this case study is the power struggle and transfer of control between client, clinician and family and the resilience needed to overcome ARFID. In brief, the intervention included a graduated exposure approach to food re-introduction resulting in the client developing a wider food repertoire. Ultimately, it is an examination of the crucial stage of rapport building that led to a successful outcome. To our knowledge this is the first case of a client with vision loss due to ARFID in New Zealand. It continues to be vital for medical and therapeutic practitioners to be aware of abnormal eating patterns and provide interventions early for clients.

Toku Reo Tupuna: Together we can save our Cook Islands Māori language

Teremoana Hodges, Susan Beaumont, Apii Rongo-Raea, Ali'itasi Su'a-Tavila, Michael Fitzsimons, Roger Ngahooro, Jean Mitaera

Whitireia

Background: Cook Islands people represent the second largest Pacific community in New Zealand. The UNESCO Atlas of Languages in Danger (2011) has measured the Rarotongan dialect as 'vulnerable' and the dialects and languages of the northern Cook Islands are at risk of extinction. The concerns of the Porirua Cook Islands community mirrors the latter. In 2013 a language class for adults was developed with this in mind.

Contributing to a wider evaluation of Toku Reo Tupuna, this research reflects on engaging and sustaining community support for the Toku Reo Tupuna language classes.

Research question: What is needed to help Cook Islands Māori language grow within the Porirua Cook Islands Community?

Objectives:

• To identify the processes and strategies developed to raise Cook Islands community awareness of the vulnerability of their language
• To examine the issues discussed and the agreements reached with the Cook Islands community to establish Toku Reo Tupuna
• To develop a map of stakeholders and their roles, responsibilities/contributions to establish and sustain Toku Reo Tupuna Methodology.

This research will adopt the Turanga Māori framework approach (MSD, 2012) of turanga, acknowledgement of self and others of ones position; piri'anga, individual and collective belonging to a reciprocal network; akau'enga, fulfilment of individual and collective duties; and kia ta'anga'angaia, putting into practice what one has learnt from the relationship.

My conversation in this symposium will focus on how the objectives for this study were achieved. The methodology for collecting data will be a review of the next 3 months of current and past practices with tutors as well as students on how we achieved our objectives.

Implications are wide for this study with two critical themes. One is to seek the support of the community in providing their different knowledge and wisdom of their respective islands and secondly seek financial assistance for the development of resources by the community.

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Sustaining the Māori language in New Zealand Early Childhood Services: Exploring student teacher narratives

Sujatha Gomathinayagam

Whitireia

In Aotearoa New Zealand, Te Whāriki (Ministry of Education, 2017) the childhood curriculum document is underpinned by concepts drawn from te ao Māori and asserts that all early childhood settings should be committed to protect and promote the Māori language and culture. This presentation is based on the results of an action research (for Masters' thesis) which gathered the narratives of student teachers doing the final year of the Bachelor of Teaching course, specialising in early childhood education.

The objective of the research was to find out the factors which influence student teachers' understandings about te reo Māori and gather their experiences in the implementation of the language in early childhood settings. Six student teachers were interviewed and their narratives were researched using a qualitative methodology and interpretive approach. Rose Pere's Te Wheke (octopus) health model, which was adapted to education, informed the thematic analysis of this thesis. Four out of the eight tentacles of the wheke, namely; wairua (spirituality), whanaungatanga (family relationships), mana ake (identity of individuals), and whatumanawa (open and healthy expression of emotions) were used to interpret the findings (Pere, 1991). The entire research was underpinned by Kaupapa research methodology (a Māori way).

The findings of the research revealed that language learning is fostered in social contexts and when relationships are established. For student teachers, the relations they established with the teachers during their practicum and the links they fostered with parents and community emerged as powerful influences on their own practice of te reo Māori. The Māori language was not an "add on" of the early childhood curriculum, alone in itself, comprising of letters and words for communication, but was seen as a strong cultural tool, which was intertwined with feelings and emotions of the heart. The narratives of the student teachers inadvertently demonstrated an interplay of the tentacles of the wheke in operation. This research recommends that within teacher education, the student teachers should be empowered to be strong in Māori concepts, and explicitly articulate them in the very language that they are in.

The presentation concludes that engaging student teachers in reflective practices which nurture their spiritual dimensions might be a powerful pathway to enhance their te reo Māori competencies and empower them to undertake their journey of sustaining the indigenous language with confidence.

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On the distinctions between L1 acquisition & L2 learning

Yao-Kun Liu

Whitireia

Over the past hundred years, different theories on second and foreign language teaching methodologies came into being one after another. Yet “few of which are based on second language acquisition research or have been empirically tested” (Richards, 2001, p. 249). In fact, both theories and practice in first language acquisition have been observed and followed as models to launch approaches, build up teaching methodologies and design learning procedures for second or foreign language teaching and learning. Thus confusion in the characteristics of and distinctions between first language acquisition and second or foreign language learning is unavoidable.

However, language learners at different ages have different learning conditions, goals, competences and cognitive skills, and should be taught with different content and methods, and be expected different outcomes.

My research presents a comparative study of first language acquisition with second and foreign language learning. It is an attempt to explain the different natures and perspectives of first language acquisition and second or foreign language learning, exploring the different learning conditions, goals, competences and cognitive skills with learners at different age groups in their first language acquisition and second / foreign language learning.

Service through Language - Toku Reo, Toku ia Atamira: Purua

Jean Mitaera, Teremoana Hodges, Apii Rongo-Raea, Susan Beaumont, Roger Ngahooro, Michael Fitzsimons, Tupe Lualua, Evan Hippolite

Whitireia

Social work is a practice-based profession and an academic discipline that promotes social change and development, social cohesion, and the empowerment and liberation of people. This is why the Bachelor of Social Work programme is underpinned by service learning. Service learning entails three key steps: planning; experiential learning; and, reflection. At Whitireia service learning involves both students and tutors.

The SOWK5322 Pacific Peoples and their Protocols course aims to support students' context knowledge of the Pacific communities that they will work with and serve. Course content focuses primarily on Samoan and Cook Islands cultural concepts and how they are lived in Aotearoa New Zealand as well as introductory Samoan and Cook Islands languages.

In their preparatory work tutors' attention was drawn to two facts, firstly that Cook Islands language week is annually celebrated during the course delivery dates, and, secondly that UNESCO assessed the Cook Islands language as 'endangered'. These facts motivated the tutors to work alongside the Cook Islands Language Committee (CILC) to identify a space in which social work tutors and students could give. With the CILC a plan was developed that included:

(a) co-developing a calendar of events for Cook Islands language week that would include a mix of CILC and Whitireia led events; and

(b) the development of language resources informed by the local Cook Islands community.

Using the service learning steps of planning, experiential learning and reflection, this presentation discusses Whitireia's service to support the teaching and use of the Cook Islands language which resulted in the launch of the publication: Toku Reo, Toku ia Atamira – Purua (My Language, My Sovereignty) on 4 August 2017 at Whitireia.

How house size impacts type, combination and size of rooms: a floor plan study of New Zealand houses

Iman Khajehzadeh

Open Polytechnic of NZ

Several sources indicate a recent increase in the average floor area of New Zealand houses, making these often much larger than their older counterparts, and a similar pattern can be seen in other developed countries. While building and living in large houses seem to have become accepted, the features of these large houses have been less investigated. In addition, there is limited knowledge of how the increase in houses size has affected the size and configuration of the internal spaces. Building larger houses also equates to using more natural resources, but to investigate this further, more detail on the layout of these houses is needed. To this end, floor plans of 287 New Zealand houses of varying ages were analysed using Auto Cad 2015–2016.

Floor plans were selected from those built in New Zealand or designed for the New Zealand market, so all samples relate to the existing or potential New Zealand housing stock. The main sources of floor plans were books, New Zealand Home and Building (for old plans), and the catalogues and websites of New Zealand design companies (for current plans). Internal spaces were categorised and average floor areas of all types were calculated for each house size. The results were further analysed in SPSS using analysis of variance one-way and independent sample t-tests. These results were checked against those of a survey of 286 households.

The survey was a subset of a PhD study to investigate the environmental and behavioural impacts of living in various-sized New Zealand houses. Both sets of results showed that as houses increased in size, so did the floor areas of similar room types. The investigation also revealed that larger houses have more multiple rooms of the same function, sanitary spaces, specialised rooms and living rooms. Additionally, the average floor area allocated to bedrooms in an 8-room house is 133% more than that of a 4-room house, whereas the comparable figures for sanitary and circulation spaces are 185% and 364%, respectively, meaning more of the additional floor area of large houses is going into spaces that may be seldom used and into circulation areas. These results should be considered against a background of falling household size, which is important when it comes to considering how efficiently resources are used in different sized houses.

Friction factors in pipeline design to withstand pipe-bursts in augmented water schemes

Induka Werellagama

WelTec

A new water treatment plant was commissioned in Kandy, Sri Lanka. This new system began feeding the existing city water pipe network in 2007. The main distribution line analysed in this paper is PVC 280 mm reducing to 100 mm, over 5 km length. While the transmission mains were upgraded to withstand calculated pressures from network modelling, domestic pipe systems were not upgraded. The consumers only expected better service. Once connected, many houses had the internal pipes bursting or dislocating at pipe joints. This situation can be universal and needs addressing when old subdivisions are connected to new water networks.

The supply elevation was 567m. The pipe bursts occurred at the subdivision elevation of 458m. At the beginning of the water scheme, with not many connections and taps closed in night-time, the pressures in pipelines reached around 100m head (Hydraulic Energy, m). The domestic pipelines designed to withstand pressures <100m resulted in night-time pipe bursts.

In water pipeline design, the Hazen-Williams formula is used. C (Hazen Williams Coefficient) represents Head Loss. Often C = 140 is used for new PVC pipelines. Actual values may be higher for larger diameter pipes. If incorrect C values are used in modelling, actual pressures at the user end can be higher than calculated values, leading to pipe bursts even at high water usage times (daytime).

To avoid assumptions of C resulting in abnormal pressures, some devices (e.g. gate valves) can be incorporated into the water pipe network in a subdivision, until all houses are connected. Pressure reduction valves for each house (before the water meter) can be recommended, until the subdivision is fully occupied.

The correlation between the C predictions and the actual field values should be researched in a Hydraulics lab setting (verification of theory) and then at subdivision level (real world situation) with pressure measuring points along pipelines coupled to telemetry.

Using Computer Aided Design to teach Engineering – A study of learner motivation and engagement

Gareth Gretton

WelTec

Computer Aided Design (CAD) is a key component course of the mechanical engineering programmes taught at WelTec. Student motivation to study CAD is generally high given the practical nature of the course and the obvious applications in industry, and this translates into success in this course. This paper explores the extent to which it is possible to harness this motivation to use CAD in order to teach concepts from other courses, including mathematics, mechanics, machine elements, structures and fluids. These are courses in which students often have lower levels of engagement and hence success. What is different about the use of CAD here is that it is not an end in itself (as it is in a CAD course) but an aid to teaching and learning in other courses.

This study into this wider application of CAD has been conducted at WelTec and at the South-Westphalia University of Applied Sciences in Germany, and relies on observation, student participation in the research process, and survey data.

Evaluation of the Bachelor of Social Work Practice Learning Centres

Jean Mitaera, Alliitasi Sua-Tavila, Susan Beaumont, Roger Ngahooro, Michael Fitzsimons, Apii Rongo-Raea, Evan Hippolite

Whitireia

Social work is a practice-based profession and an academic discipline which promotes social change and development, social cohesion, and the empowerment and liberation of people. Within the Bachelor of Social Work (BSW) programme teaching and learning is underpinned by service learning.

Service learning has three key aspects: planning; experiential learning; and, reflection. At Whitireia service learning involves both students and tutors.

Preparing for the 2016 implementation of the four year BSW degree one of the issues the Whitireia team considered was the increased demand for student field placements. This inspired the idea of a Practice Learning Centre (PLC) which would involve a 'service-centred' relationship between Whitireia and its placement organisations (PO). Whitireia approached two non-government organisations to discuss service learning and PLC. Both organisations supported establishing a PLC within their organisation with three broad criteria:

1. PO will identify a need it does not currently have capability in e.g. policy writing, professional supervision of staff, practice models/frameworks, SWRB registered social worker

2. Whitireia to match a social work tutor with the relevant skill set needed by the PO

3. PO will host more than one BSW student. This paper discusses the PLC concept and presents the findings of the evaluative conversations undertaken with the PO, students and tutors.

Findings:
1. PLC a unique 'service-centred' concept - designated learning and development space - SWRB registered social work tutor an asset to an NGO.

2. Match of tutor to the PO - required PO to assess their specific short-term and mid to long-term needs - organisation staff saw tutor as a colleague - students felt supported, tutor did not compromise student relationship with their placement supervisor.

3. Tutor supported student placements - tutor support with orientation and placement planning alleviated pressure on PO.

4. Social work tutors strengthen their practice relevance - tutors extend their professional networks - exposure and access to current service processes - observation of and participation in social work practice.

Social Work and the Community Investment Strategy: A literature review

Ashleigh Price

Whitireia

In 2015 the Ministry of Social Development launched the Community Investment Strategy, a neoliberal social policy with a strong focus on results-based measures and contracting, evidence-based accountability and data collection. This approach will have far reaching implications for social work practice, the delivery of social services and service recipients.

This literature review is part of a broader study investigating the meaning of the Ministry of Social Development's Community Investment Strategy for social workers in a not-for-profit setting, as part of a Master of Professional Practice thesis. The topic for this study cuts across more than one essential area in the review of the literature. Fundamental to the area of focus is the ideological and policy model neoliberalism, the practice of social work within the Community Investment Strategy framework, and the strategies and suggested responses social workers employ to navigate their practice within the current ideological parameters.

The use of a closed Facebook group as a community of practice for social workers

Neil Ballantyne, Simon Lowe, Liz Beddoe

Open Polytechnic of NZ, University of Waikato, University of Auckland

Background: The rise of social media and the growth of social networking sites has created a proliferation of virtual spaces where people gather to chat, share content and associate with family, friends and people who share their interests. Some commentators argue that these online spaces are leading to new forms of civil society where citizens can engage in deliberative, democratic discussions within shared communities of practice, others warn of the risks associated with social media and the emergence of online incivility. This study investigated the use of a professional Facebook group called Social Work in Aotearoa New Zealand (SWANZ): a closed group of 850 members (at the time of the study) with the stated purpose of being "a safe place for social workers in Aotearoa New Zealand to meet and discuss issues relevant to our practice".

Research questions: Our specific research questions were:

1. What do participants value about their membership of the SWANZ Facebook group?

2. What problems or issues are associated with membership?

3. What factors are associated with active engagement and with reluctance to participate in the SWANZ community?

The findings add to a growing literature on the use of social media by social workers and to our understanding of the issues of social media use by professional workers.

Methodology: Members of the Facebook group were surveyed to explore: what they valued about the group? The problems or issues associated with membership? And factors associated with participation or reluctance to participate. A non-probability, self-selection sample (N=53) completed an anonymous online survey.

Results: Survey findings suggest that participants valued: feeling connected to a community of practice; the ability to post and share information; and access to news and information. However, participants also expressed concern about online incivility, and experienced reluctance to post opinions because of concerns about the critical comments of others.

Conclusions: The creation of an online community of practice in which users can engage and share news, information and opinions was valued highly by social workers.

However, in this case study, there were issues associated with examples of online incivility and a pervasive reluctance to express policy or political opinions because of concerns about critical comments by others. What is not clear is the extent to which concerns about critical feedback are just a normal, and sensible, part of interaction in networked public spaces; and the extent to which our respondents were reacting to a group climate and recent events in this particular Facebook group.

The reciprocity approach to service learning from a Social Work perspective

Ali'itasi Su'a-Tavila, Jean Mitaera, Teremoana Hodges, Apii Rongo-Raea, Roger Ngahooro, Susan Beaumont, Michael Fitzsimons

Whitireia

Fundamental to the social work profession is the provision of effective service that promotes social change, social cohesion and a just world to liberate the oppressed. The aim of this action research project is to understand the value of reciprocity between the two partners, the Whitireia School of Social Work and a local non-government organisation (NGO).

The objectives are to reflect on how reciprocity strengthens the relationship between the student, service provider and the educator and to ensure the two key partners have an understanding that reciprocity has an impact on service learning. The notion of service provided to the community and the experience gained by students is a dual approach that aligns with the integration of theory into practice.

Research outcome revealed practicing the element of reciprocity between the partners' demonstrated self-assurance and an appreciation of good partnership. The project significantly changed the perception between the service provider, educator and students in relation to effective service learning. In turn it has a positive impact on student's academic learning, the NGO's approach to embracing students on placement and the educators' role of supporting both the student and the NGO.

Becoming a researcher in a tertiary education provider: chalk and cheese or horse and cart?

Ruth Crawford

Whitireia

Background: Teaching in a polytechnic can be all consuming and overwhelming. Most tertiary teachers enter teaching practice with comprehensive discipline practice and knowledge but limited or no teaching experience, so learning how to teach takes precedence in the initial period. Teachers need to learn to not only share their discipline expertise with learners, but also understand the 'how to' of teaching practice. Further, in the polytechnic sector, timetabled teaching hours are high and there can seem little value in adding research to the daily life of a teacher. How then does the tertiary teacher add being a researcher to their already overflowing day?

Objective: This presentation will focus on anecdotal evidence and evidence-based research related to the process of becoming a researcher in the Institutes of technology and polytechnics (ITP) sector. The focus is on the 'how to' rather than the 'why bother', with the aim of providing tertiary teachers real life experiences and light-bulb moments when considering whether researching is 'worth the effort'.

Conclusions/implications: Teaching and researching are not polar opposites, they go together. Implications for teachers who incorporate research practice into their daily lives will be explored. Expect to leave this presentation armed with tools to enable your teaching practice to be enriched and enlightened by your own research practice.

Applied Bio-Nursing Teaching Approach for Bachelor of Nursing Students

Teramira Schutz, Loma-Linda Tasi, Ana Kininiki

Whitireia

Applied Bio-Nursing (ABN) is one of the Level 6 and Level 7 courses undertaken by nursing students of the Bachelor of Nursing Pacific (BNP) degree programme. It enables the students to build on their fundamental knowledge in Bio-science gained in level 5 as first year nursing students. The ABN course provides knowledge of how to recognise altered body functions that result from illnesses, adaptive and compensatory changes within the body systems. Students also learn how to assess body systems, identify alterations and illnesses and provide nursing interventions.

At the end of this ABN course, students are assessed with a summative exam. We noted that over the last three consecutive years, the pass rate for ABN range was 50% to 70% for different student cohorts. Our aim is to find out how we can enhance our teaching approach to increase our Pacific nursing students' pass rate to 90% for their first attempt of the ABN exam.

Our initial approach is to provide key findings from a literature review exploring different teaching approaches that enhance students' success for ABN. This literature review identifies how ABN is taught in different institutions, explore effective teaching and assessing approaches for ABN and critically evaluate and integrate our findings that are relevant to better improve our teaching approach for ABN.

Our proposed research methodology is exploratory qualitative research to identify an effective teaching approach for BNP nursing students. Key findings from the reviewed literature help us understand effective teaching strategies to increase our Pacific nursing students pass rate in their initial assessment for ABN.

Combining visual arts and digital technologies in the teaching of human anatomy

Phillip Silverman, Malcolm Doidge

WelTec

Logistically and practically it is difficult for most to study structure in real bodies, consequently the heavy reliance on models in anatomical teaching. This has created a challenge as the field of functional anatomy has recently emerged as a result of health science incorporating allied providers. Traditional anatomical models have been designed with a biomedical philosophy leading to a reductionistic outcome that can lead to confusion for those seeking a more integrated understanding.

The purpose of this research is to investigate alternatives. Specifically, a focus on movement and posture within models. Here photogrammetry can be adopted for producing a 'virtual' model of functional anatomy.

Traditionally, anatomical knowledge has developed from the visual arts and the sciences. This project returns to this union and takes a collaborative approach between the Exercise Science and Creative Technologies departments at WelTec using an interpretive methodology borrowed from both disciplines (Mckenzie & Knipe, 2006). This initial research focused on the creation of an ecroche anatomical model.

The aim of this study was to develop an understanding of human anatomy as an integrated dynamic system. A structural adaptive solution to a given posture or movement to support the teaching of functional anatomy, for areas such as Sports Medicine, Exercise Science, and Digital Creative Technologies such as animation and Illustration.

A clay ecroche model was designed and constructed during a residency at the New York Academy of Art's specialist department for ecroche models and forensics. Returning to New Zealand, the original clay ecroche model was moulded and cast as seven iterations in high density urethane. This physical copying process had a digital counterpart using photogrammetry, a process which utilises recent advances in cloud computing that maps and correlates common data points from a series of images - of the skeleton - to construct a 3D, virtual digital image.

Seven physical skeletal models have been created physically in urethane for class teaching plus a digital counterpart using photogrammetry. A second physical anatomical model displaying the muscular system is under construction, there are also plans to provide a model of gait as a digitally animated process.

The ecroche model will be exhibited at the symposium.

Critical management studies, critical leadership, ethnography and auto ethnography

Stephanie Kelly

WelTec

This presentation introduces an overview of critical management studies, critical leadership studies, and critical management ethnography, with particular focus on the range of research presented at the recent 10th International Critical Management Studies (CMS) conference in Liverpool, United Kingdom (July 2017).

This is followed by a short overview of the author's own methodological and theoretical contributions to the fields of critical management and critical leadership studies through her presentation at the 10th International Critical Management Studies conference entitled, 'What are you going to do about it? Weaving the public, the private and the professional theoretically, methodologically and really'. This conference presentation drew on autoethnographic material from the presenter's own professional practice, and argues for the importance of qualitative methods and ethnographic findings to better make sense of the contextual and complex processes of leading and following which characterise contemporary social service environments.

The presentation will finish by discussing how critical leadership theories, and qualitative methodologies and methods, including ethnography, are being utilised in teaching Professional Leadership in the WelTec/Whitireia Professional Practice programmes.

Embedding sustainability in tertiary education: A brief review at Toi Ohomai Institute of Technology, overseas institutions and subsequently the researcher's path to embedding sustainability

Adele Carson

Toi Ohomai Institute of Technology

Worldwide there is growing concern over sustainability, observed in our homes, among governments, within businesses and among education providers. Many tertiary education providers have been committed to embedding sustainability for some time, largely due to the Talloires Declaration (Clugston & Calder, 1999). At Toi Ohomai Institute of Technology, sustainability incorporates six aspects, including financial and environmental sustainability.

The researcher was informed by postgraduate student feedback that Toi Ohomai requires sustainability to be embedded in the Masters programme. The researcher's preliminary investigations found there was a gap and that sustainability is actually required on all of our programmes. This study is in the early stages, but aims to briefly review the following: In the researcher's experience, to what extent financial and environmental sustainability are embedded into education generally at Toi Ohomai? How successful is embedded sustainability in tertiary education elsewhere in the world? The study also aims to cover in more detail: How could sustainability be embedded in education better in the future?

Self-analysis was a key methodology. A literature review regarding the Talloires Declaration and how other tertiary educational facilities were implementing sustainability was also valuable.

An organisational sustainability analysis found that definite and obvious efforts are being made to promote financial sustainability, but fewer tactics concerning environmental sustainability are in place. An analysis of communications papers taught, including course descriptors, assessments and teaching material showed little reference to organisational or environmental sustainability issues. A review of literature around what other educational institutes worldwide are doing showed barriers around implementation to be an issue (Lindgren, Rodhe & Huisingh, 2005), the need for "affective learning" in sustainability education (Shephard, 2007, p.95) and the need for institution leaders and academics to endorse and engage in sustainability (Clugston & Calder, 1999).

In conclusion, this research should improve the researchers teaching, preparing students' more for sustainability challenges ahead. It could highlight to management the need for commitment to a more environmental focus, in line with stated goals. Finally, it may inspire other lecturer's to evaluate their courses and if necessary, nudge change.

Application of EPIC (Executive-Process Interactive Control) Memory Model in Teaching

Don Kannangara

Toi Ohomai Institute of Technology

There are computer programming concepts which are complex and hard to understand. Many students have had difficulties with such concepts at Toi Ohomai Institute of Technology; as a result many students have failed in computer programming courses. Therefore, it was crucial to improve both teaching and learning in this regard. This research was based on a study carried out to explore the possibility of improving teaching such concepts. A number of researchers have studied the limitations of the Working Memory (WM) of the human brain (Clark et al., 2006; Smith, 2000; Smith & Jonides, 1999).

A number of Memory Models have been proposed describing how inputs to the human brain are processed (Kieras et al., 1999). The literature on different cognitive loads: intrinsic, extraneous and germane, suggests the importance of manipulating and managing learners' cognitive loads for effective learning (Clark et al., 2006).

Some research has also discussed the ways of preparing teaching materials for better utilisation of WM (Yuan et al., 2006). This research was carried out in the classroom environment, teaching complex computer concepts using specifically prepared teaching materials, based on the Executive-Process Interactive Control (EPIC) architecture Memory Model to utilise WM effectively. The effectiveness of the use of new teaching materials was evaluated using a questionnaire and also a number of classroom tests.

Since the introduction of the new teaching materials, the performance of students has improved so they achieve higher grades. This result clearly supports the success of teaching activities designed in accordance with the principles of Cognitive Load theory (CLT) with properly managed intrinsic, germane, and extraneous cognitive loads and also EPIC architecture (Kieras et al., 1999). These findings would ideally lead to further studies in designing kinaesthetic and visual teaching materials based on EPIC architecture and also balancing cognitive memory loads to improve teaching programming concepts.

Developing and tracking profiles of students' conceptions of force through an engineering degree

James Mackay

WelTec

Research over the last four decades has shown that common misconceptions about force are particularly resistant to change. The development of Newtonian ideas of force is important in structural and mechanical engineering, where basic understanding of Newton's laws are imperative for the understanding of trusses and the operation of machines. These ideas are used in the engineering curriculum again and again, but evidence from assessment shows that while students are able to solve problems and perform at a relatively high level, they have often not fully understood the underlying Newtonian concepts.

In order to detect and ameliorate these misconceptions, a number of excellent diagnostic tools have been developed. Probably the most well-known of these are the Force Concept Inventory (FCI) and the Mechanics Baseline Test (MBT), developed by David Hestenes and his colleagues at Arizona State University (Hestenes, Wells & Swackhamer 1992). Both of these tests been statistically validated and used worldwide in many different contexts. Evidence from data collected in 2016 shows that students in their final year of study perform as poorly as those in their first year on the FCI. What is not shown by these data is the way in which the students' conceptual profiles change as they progress through their courses of study.

Conceptual profiles can be used to map the evolution of student conceptual thinking (Mortimer 1995; Mattos 2012). In this project, we use the FCI to develop conceptual profiles for individual students enrolled on two programmes of study; the Bachelor of Engineering Technology and the New Zealand Diploma in Engineering, both of which start with introductory physics courses, but rely on force concepts throughout the qualification. In this project I track the evolution of these profiles as the students progress through their programmes of study. The study is in the first year of a three year cycle and this paper outlines the research design and reports on the changes that have taken place in the first six months of the students' qualifications after they have completed a basic mechanics course. Initial findings suggest that conceptual profiles fall into three categories: those that show a steady progression, those that show a paradigm shift in thinking, and those that remain unchanged.

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Student understanding of their laboratory engineering learning

Frank Cook

WelTec

Background: An initial case study by the author examined students' perceptions of laboratory work. This study, which concerned mechanical engineering degree and diploma students at Wellington Institute of Technology, showed among other things that all the students valued the laboratory work as a benefit to their understanding of the course. The value was over four distinct areas: relation of theory to practice, delivery of real world behaviour, learning by doing, and finding out why things did not work. The case study data was obtained from interviews of seventeen students across mechanical engineering.

Following on from this study is an attempt to gain a further understanding of the students' perception of their learning by requiring an individual reflection on each laboratory report they submitted. All reflections are associated with thermodynamics laboratories.

Research questions/Aims/Objectives: The objective of this extension to the earlier study is to examine the effect of introducing a formal reflective component to the standard laboratory activity on the student's conceptual learning.

Methodology: The individual reflections formed the basic data. The number of reflections, around one hundred and fifty, has been analysed by variations within a particular experiment and similarities across experiments.

Results: At this stage in the analysis there are three main findings. Firstly the reflection has shown the understandings by the student do not match what is actually written in their write-up. Secondly the reflection process has helped students develop a better understanding of the concepts involved in each particular experiment, and finally the reflections themselves have improved the teacher's understanding of the students' understanding, leading to improved laboratory teaching material.

Conclusions: Incorporating a reflection component into laboratory work assists student learning.

Bicultural consciousness – piloting and praxis

Bernard Whelan

Whitireia

This presentation looks at a pilot for a PhD study into the bicultural consciousness of journalism education in Aotearoa New Zealand. Central to this study is biculturalism, a notion born of Te Tiriti o Waitangi, but which has become a slippery term which has been made to mean different things. For example, politically the term has been used in a way that is closer to assimilation than it is to the self-determination which a biculturally conscious reading of Te Tiriti understands. For research which is biculturally conscious, it means all Pakeha share a responsibility for maintaining a relationship of equals. The latter stance is foundational in this study, and for this reason I intend to maintain reasoning from a Māori paradigm by using the proven Culturally Responsive Methodology of Narrative Inquiry. It is one thing as Pākehā to strive for reasoning from a Māori paradigm, and quite another to achieve it.

The objective of the pilot is to ensure that the researcher's semi-structured interview skills and processes serve the participants and the intent of the research. The primary PhD question is: How is biculturalism articulated in the everyday praxis of journalism schools in Aoteatora New Zealand. The researcher intends to use colleagues at Whitireia Journalism School to pilot in-depth, sequential, semi-structured interviews into their experiences incorporating biculturalism and Te Tiriti o Waitangi in their everyday praxis. The intent is to use Narrative Inquiry to build a complete story with the participants because the methodology has been proven as a tool which allows for cultural consciousness to underpin and arise in the process. However, as a researcher, I am inexperienced in the use of Narrative Inquiry, and so the pilot will be an exploration not only of the process, but also the language involved.

The presentation will therefore present findings from the pilot study. Those findings will centre on:

1) a broad reflection of the use of Narrative Inquiry;

2) particularly its value as a culturally responsive methodology capable of assisting the interviewer and interviewee in maintaining reasoning from a Māori paradigm; and

3) on the researcher's reflexive development through the pilot interviews in readiness for the full study to take place in 2018.

The implications of the pilot study are expected to flow into the full study in journalism schools through Aotearoa New Zealand where the research interviews will eventually take place, potentially more broadly into journalism practice through graduates of those programmes, and to the researcher's tertiary education practice.

What literature is available to enable non-Pacific tutors to understand, appreciate and recognise Pacific epistemology?

Joy Richards, Brenda Baker

Whitireia

The Bachelor of Nursing Pacific (BNP) programme caters for a learning environment that gives Pacific students a sense of belonging. The aim of the program is to strengthen the Pacific health workforce by building the capacity and capability of Pacific Nurses.

The BNP programme has both Pacific and non-Pacific tutors, however in reality most students will be taught by non-Pacific nursing tutors both in the classroom and in clinical placement. Questions have been raised around the importance of the tutors understanding the different ways of knowing for Pacific students. The literature has identified that there is an abundance of research on Western epistemology and limited literature on Pacific. Pacific students learning and success rates improve when Pacific values, language, identity and cultural knowledge are acknowledged by non-Pacific tutors. Therefore understanding Pacific epistemology by non-Pacific tutors provides a sense of belonging which then builds capable and confident Pacific nurses.

How do traditional Māori values affect the sustainability of Māori tourism businesses?

Adam Ransfield

WelTec

The Māori economy has seen significant growth over the last 100 years. Research conducted in 2010 estimates the Māori economic base to be valued at 36.9 billion (MBIE, 2015). While this figure represents the Māori economy, Māori tourism makes a significant economic contribution to this asset base. Furthermore, Statistics New Zealand indicate that Māori participation in, and proportion of the labour market, will increase in the future (Stats NZ, 2015). Understanding the effects that Māori values have on business sustainability could contribute to further growing this asset base by mitigating conflicts between values and sustainability. This knowledge could be beneficial to government, industry and researchers involved in the tourism industry. From a practical view point, having a study that focuses on Māori tourism businesses and their incorporation of Māori values into their business has the potential to generate best practice that could be applied to other Māori tourism businesses (Harnsworth, 2005). The key research question for this study which will form a Masters thesis is: 'How do traditional Māori values affect the sustainability of Māori tourism businesses?'

An interpretivist paradigm will be used to examine the research questions. The Māori worldview is not static – change is embraced suggesting that development is ongoing with no infinite end. Keelan and Woods (2006) refer to this concept as "Te Ao Hurihuri" or the Turning World. This view supports the notion that Māori tourism is a field that is constantly evolving and developing. This aspect compliments the use of an interpretivist paradigm. Taking this aspect into consideration, the research methodology must be influenced by a Kaupapa Māori (Māori ideology) research methodology. Smith (1999) defined Kaupapa Māori (Māori ideology) research methodology as "research by Māori, for Māori and with Māori" (p. 184). Semi-structured interviews were selected as an appropriate method of data collection to obtain relatively large amounts of rich data from respondents. The interview questions will be structured in an open way to allow for narrative to develop. The sample size for this study is eight CEO/management teams from eight different Māori Tourism businesses from around New Zealand. Convenience sampling and snowball sampling were seen as being the most effective methods for the recruitment of research participants for this study. Personal relationships with Māori Tourism, Regional Tourism Organisations (RTOs) and Māori Tourism businesses should provide the researcher with the number and type of respondents required to inform the study.

The evolution of Information Technology capstone projects into collaborative research projects

Marta Vos, Sue Chard, George Tongariro

Whitireia

In this paper, we update our progress developing the capstone projects in the Information Technology degree, and the movement of these community based projects into post-graduate research embedded in the Postgraduate Diploma in Information Technology, and the Master of Information Technology.

A number of capstone and research projects based around a community collaboration with Ngati Toa Rangatira, Te Wananga Māori, and Te Mauri o te Mana Māori, have been completed. These completed projects include two applications to assist with the learning of Te Reo, Te Hiringa o te Reo, to be used in the learning of Māori at Whitireia Te Wananga, and Te Puna Reo a general application available on the Google Playstore.

Further applications have been developed or are in development including a number of Masters research projects. These applications and projects form the basis of the effort to strengthen collaborative ties between the School of Information Technology and local Iwi including Ngati Toa Rangatira and Te Atiawa, as well as increasing understanding of the place of culture within the Information Technology programme.

Meaningful practice leadership: Extending the borders of practice frameworks

Stephanie Kelly

WelTec

Leading professional social work practice is a fraught endeavour (Aronson and Smith, 2011). In New Zealand and the United Kingdom, political and managerial influence dominates the activities and agenda of practice leadership. The neo-liberal reshaping of welfare in recent decades has significantly affected how we understand leadership and what the core activities tend to be. According to the British Association of Social Workers (BASW) organisational leaders should have a right to expect support from social workers; yet this is proving increasingly difficult as competing demands on the activities that constitute leadership are oft at odds with the moral and intellectual focus needed to advance social work practice for vulnerable people, families and communities.

Increasing evidence shows also that practitioners are at risk of suffering dissonance at the intrapersonal level; as organisational oppression, stress, and burnout trends suggest; as they grapple with reconciling the powerful discourses of neoliberal managerialism with the heritage of social justice and resistance. Organisations, practitioners and leaders need real practical tools and a guiding framework for how to lead practice and how to follow the needs of clients and of managerial imperatives. To help offset this growing divide, teaching partnerships have been funded between local government and universities in the United Kingdom to provide a closer relationship been the social work teaching and research academy and the employing workplace.

This presentation introduces one of these, the West Midlands teaching practice partnership, formed between Birmingham City Council and Birmingham University. The presenter/author works as an Advisor with the practice framework development team, to develop this evidence based leadership framework.

The project is in Phase one: development of evidence based Leadership Framework.

Phase two will involve application of the framework to practice settings in the Birmingham region. Phase three will carry out an evaluation of the effects of Leadership Framework on social work practice. Phase four will involve completion of the model, and writing up of findings.

The final phase will see the model being piloted for use with child protection social work practitioners in the West Midlands region. The leadership framework draws on the sociological imagination to inform and guide social work leadership at all levels of organisations and communities.

This presentation will briefly outline the context of the development of the West Midlands Leadership Framework, followed by an overview of the literature and evidence informing the Leadership Framework (Phase one).

The presentation will end with discussion about the relevance and possibilities of this policy initiative for Social Work practice in Aotearoa New Zealand.

What informs practicing social workers for engagement with diversity in an Aotearoa New Zealand context?

Susan Beaumont, Kerri Arcus, Stephanie Kelly

Whitireia

The social work profession aims to respond to population diversity through the education and competency levels of social workers (IASSW, ICSW, IFSW, 2016). Yet gaps in effective terminology, training and knowledge are widely identified (Boyle and Springer 2001; Danso, 2016). There is little published research focusing explicitly on diversity in health and social practice, or on what social workers themselves understand to inform their practice with diversity.

This research draws from constructionist qualitative research methods and aims:

1. To collect and examine narratives from practicing social workers about what informs their engagement with diversity.

2. To gain insight into what best informs practicing social workers for engagement with diversity.

The research findings show that diversity is complex. What informs social work practice with diversity is difficult to articulate as the term itself 'gets in the way'. Diversity is understood by participants through life experiences and the 'doing' and 'reflecting' elements of the profession. Diversity can be engaged with through a wide or narrow lens for the practical purpose of meeting need. In addition, this study revealed social workers central challenge when engaging with diversity did not come from frontline engagement, but from what participants experienced as mono-culturalism and an output focus within organisations.

It is suggested that attention is needed on how social workers' personal lens of the term 'diversity' influences their definition of the term, and their practice focus. Diversity training that considers social workers own practice model may be useful. Findings also indicate that further support and resources for social workers to challenge organisational practices and policies that inhibit effective engagement with diversity are needed.

Metaphors informing Social Work practice

Roger Ngahooro, Michael Fitzsimons, Teremoana Hodges, Apii Rongo-Raea, Ali'itasi Su'a-Tavila, Jean Mitaera, Susan Beaumont

Whitireia

Why do I care? It is difficult to align the narrowness of early colonial history that asserted itself to be the knight in shining armour of the 'savage' Māori. Enter the post-modern colonial thinkers who now present themselves as a conduit for human relationships and the empowerment and liberation of people to enhance their well-being (ANZASW, 2008). As a Māori Social Worker who ascribes to the latter I continually engage, interpret, and integrate prevailing knowledge as a platform for building new theoretical thinking for my practice in the hope that when I have the opportunity to share it with others they can connect with their own practice.

Aim: The aim of this piece is to explore the following:

1. Theoretically underpinnings
2. Audience
3. Māori application

Methodology: Is to explore idea development using metaphors to create parallel couplings between post-colonial Social Work theory, audience cultural heritage and Māori application.

Results: The ideal outcome is to add value to the post-modern Social Work practice conversation.

Implications: It creates a parallel coupling between post-colonial Social Work theory and practice, audience cultural heritage and Māori applications.

Exploring possibilities for a 'Tracer Study'

Apii Rongo-Raea, Jean Mitaera, Ali'itasi Sua-Tavila, Michael Fitzsimons, Teremoana Hodges, Roger Ngahooro, Susan Beaumont

Whitireia

Background: Looking at the literature and anecdotal evidence and experience suggests that graduates by and large have some form of association with their tertiary institution as a way of returning something and to assist build strong networks that will support further graduate development. Our group support this direction and would therefore want to explore the potential and possibilities of this proposed study.

Research Questions/Aims/Objectives: At this initial stage of exploring possibilities, our intention was to have an informal face to face dialogue with a small group of recent graduates (last five years, largely because of ease of access) of the Social Work programme at Whitireia to test and discover the possibilities, what they are doing, where they are employed.

The research questions and objectives will also address the impact tertiary education i.e. graduating from Whitireia's Bachelor of Social Work has had on siblings, immediate families, extended families and important others in their lives. Underpinning these is the key question, 'given the opportunity would you be interested in a graduate network and if so what would it look like? And what are the key priorities?

Methodology: The process of the methodology is 'Komakoma'. This is a process of slow, deliberate and calm/peaceful conversation. We will be relying on and adapting the following Cook Islands key concepts. This is because we see Social Work graduates as part of our Whitireia family networks:

Papa'anga – determines the individual place within the collective

Turanga – the acknowledgement by self and others of one's position/standing and potential within the collective

Piri'anga - the individual & collective belong to a reciprocal network. Piri'anga identifies and responds to collective and shared responsibilities and privileges inside and outside of papa'anga

Akaue'anga – the acknowledgement and fulfilment of individual and collective duties

Ngakau aro'a – willingness and conviction of the heart, generosity to self and others.

Results: The revelations of their individual stories were moving, ranging from outright support of tertiary studies to complete opposition. It ends well however as everyone appreciated the value of further education demonstrated through the attitudinal changes of the graduates. All support the ideas of professional networking that is specific to Social Work knowledge and practice models. A conference to showcase best practice examples and a publication that is more about getting practice knowledge circulating; encouraging debate and sharing rather than a perfected piece of writing. Social Work days celebrated through particular themes, to be decided annually

The lived experiences of Filipino migrant caregivers in the Kapiti Coast, Aotearoa New Zealand: Implications to aged care and vocational training

Joey Domdom, Judith Salamat, Mayie Pagalilauan

WelTec, Summerset Paraparaumu, Little Earth Paraparaumu

The increase in population of aged citizens in many developed countries causes an increased demand for health workers. Workers from less developed countries are recruited to meet this demand resulting in an unprecedented migration of health workers across the globe. At the forefront of this phenomenon is the formal caregiver sector, a sector that is unregulated and under-researched in New Zealand. The aim of this study is to gain an understanding on the lived experiences of the Filipino migrant caregivers who provide aged care in Kapiti Coast.

The study uses phenomenology as the design of inquiry. Audio-recorded face-to-face semi-structured in-depth interviews with the ten participants were conducted using a focus but open-ended questions. Data from the interviews were transcribed, translated from Filipino language into English and analysed following Colaizzi's (1978) strategy of data analysis.

Results from this study indicate the unique description of the phenomenon from the participants' perspectives and experiences prior to becoming caregivers and when they became caregivers. Common themes include motivating factors for becoming caregivers in New Zealand, the uncertainty they feel about recent changes in policy that have direct consequences on them and their families' immigration status and their sense of security. At the core of these challenges, themes around a source they draw strength from like faith, family, and hope for a better future have also emerged from the analysis of the participants' experiences.

This study provides additional knowledge on aged care in New Zealand through the experiences of the Filipino caregivers. It identifies challenges the workers have. It further provides opportunities to explore potential solutions for improved aged care through engagement in inter-professional dialogue and collaboration among education providers and health professionals.

Juggling paid work and first year nursing studies: Whitireia findings from the SWAN (Studying and Working amongst nursing students) Australasian multi-institutional study

Ruth Crawford, Belinda McGrath, Shayola Koperu, Wendy Scott

Whitireia

Background: Studying and working has become accepted in higher education. How does paid employment affect the experiences of students within a Bachelor of Nursing programme? In 2016, as a result of attendance at an Australian conference focused on student transitions, achievement, retention and success, the School of Health at Whitireia Community Polytechnic was invited to participate in an Australasian multi-institutional study of commencing nursing students. Three Bachelor of Nursing programmes in the School of Health, Bachelor of Nursing Māori, Bachelor of Nursing Pacific and Bachelor of Nursing are taking part in this study.

Research aims: The aim of the larger SWAN study is to examine working while studying and its relationship to academic performance across diverse student groups and across higher education institutions in Australia and New Zealand. Specifically the study aims to explore how individual students juggle competing commitments while studying.

Methodology: Using both quantitative and qualitative approaches, researchers in this sequential mixed methods study have collected survey data during nursing students' first two weeks of their BN programme, interviewed consenting students and collected summative assessment results of students who consented in the survey.

Results: This presentation focuses on qualitative data collected during interviews with nursing students in the three Whitireia programmes. Fourteen students across the programmes agreed to be interviewed. Thematic analysis of the interviews has uncovered a range of information, including the type of work students are undertaking, their reasons for working, the value of the work from the students' perspective, how their paid work informs their nursing studies and the skills and attributes paid work gives the students. Students freely discussed how they juggled work and study and offered advice for other first year students managing work and study. In this presentation, themes arising from the interview data will be shared and discussed.

Conclusions/implications: First year degree students are affected by the paid work they are undertaking, concurrent with their studies. The findings of this study will be valuable to staff and students in all degree level applied programmes.

Maintaining momentum in integrating co-existing problems in Health Education

Catherine Fuller, Wendy Trimmer, Loma-Linda Tasi, Vicky Jennings

Whitireia

Background: In 2016 educators within the Faculty of Health, Whitireia participated in a Co-existing (mental health and addiction) Problems (CEP) Train the Trainer Workshop. This was tailored for individual health programmes linking learning outcomes to Let's Get Real competencies and Te Whare o Tiki: CEP knowledge and skills framework (2013).

Objective: This workshop was designed and delivered by Te Pou and Matau Raki with the purpose of overt integration of CEP into the curriculum and capacity building for staff to confidently deliver CEP content. The workshops covered CEP prevalence, impact, and brief intervention models.

Method of evaluation: The workshop was evaluated using Survey Monkey and thematic analysis was conducted.

Results: Survey responses indicated 40% of participants had worked in the area of mental health and addiction, 20% had some exposure in their own education and 40% indicated no experience in CEP. 100% indicated that the workshop was relevant to practice, and resulted in increased confidence in CEP education. Emerging themes were increased knowledge, increased motivation, and recognition of the importance to developing professional practice. Comments included:

• *I knew almost nothing about the topic. I gained an excellent overview and grounding in the topic. I will have to think about how to integrate this into my teaching, but at least now I know what I don't know :) It's provided me with an excellent starting point.*

• *I will include this topic when teaching 3rd Year Nursing students. I will ensure we integrate it into scenarios during Simulated Lab sessions and also during a session on marginalisation.*

• *It will help me better understand in order to assist the students when teaching mental health. Also a great resource provided on USB for further reference.*

• *We are considering integrating aspects of CEP into the paramedic curriculum so this workshop was very timely.*

Conclusions/Implications: The results of the evaluation indicated that educators working at all levels within the Faculty of Health Whitireia would incorporate, and felt supported to integrate, CEP into their teaching. CEP champions have been identified to support integration and the use of Te Whare o Tiki to assess CEP content in their programme. The self-assessment and data collection will be further evaluated in 2018. Whitireia will continue to work with Te Pou and Matau Raki to fully integrate and overtly demonstrate CEP principles in their curriculum. This method of integration supports current strategic documents and workforce development.

Visual communication design (VCD) learners' creative design processes: A pedagogical branding project from Hunan City University in China

Brenda Saris

Whitireia

The practices of teaching creative design processes and understanding how cultural backgrounds hold implications for effective learning are compounded when learners' cultural and social contexts are different from the educators (Ryan & Louie, 2007). Despite ample evidence about the paradox of Asian student success (Kember, 2000), studies have been limited in revealing how learners from the People's Republic of China achieve in creativity areas. This is a matter of consequence to Visual Communication Design (VCD) educators. This PhD research uses Cultural Historic Activity Theory (CHAT), for the analysis as it recognises the critical role of social and cultural historic processes in activity processes (Engeström, 2001). Multiple case studies will be conducted in China and New Zealand institutional settings, with data recently obtained from Hunan City University second year VCD students for the first case study. Preliminary findings and reflections from this pedagogical branding project will be presented at this symposium.

Somes Island Palimpsest

Malcolm Doidge

WelTec

My 2017 Performing, Writing Symposium performance on Matiu/Somes Island, 'Meum et tuum' (what is yours and what is mine) was an ad hoc traverse sweeping island paths. Two Go Pro cameras, mounted on the broom, live streamed sweeping and its sound to dedicated twitter sites. Matiu/Somes Island was both a named place and a non-place; the latter a twitter site displacing live performance to somewhere else, an "absence of the place from itself, caused by the name it has been given".[1] As a pakeha guest of Taranaki Whānui on Matiu/Somes Island, my site-specific framework was necessarily bi-cultural and also discursive. Performing sweeping was a vicarious gesture propitiating colonial land use where: "Mr Somes and his ilk..." referenced the 1976 hikoi poem by Hone Tuwhare, Papa-tū-ā-Nuku (Earth-mother). Hone Tuwhare said of that hikoi and walking to Parliament: " 'To know Papa-tū-ā-Nuku, you have to go through slowly, on foot.' . . .".[2] Being pakeha, I am unable to claim Tuwhare's indigenous 'knowing' of whenua but in the spirit of my pepeha (where from and whom I am descended), Papa-tū-ā-Nuku - the poem - offers me guidance. Hone Tuwhare lived and wrote near Tokata (The Nuggets), South Otago. My palimpsest here is in homage to Tuwhare's affiliation with my tūrangawaewae near there and also I introduce both myself and this abstract as a bi-cultural and site-specific response – to place and non-place – on and about Matiu/Somes Island. The sweeping bricoleur cobbles together a twitter palimpsest – a mediated island site – presented here as layers for writing on and wiping over. Meum et tuum, what is yours and what is mine.

1. Kaye, N. (2008). Site-specific art. Performance, place and documentation. New York, U.S.A: Routledge.

2. Chappel, G. (2011). Te Araroa: A walking guide to New Zealand's long trail. N.Z: Random House.

An evaluation of Collaborative Learning among the third year Bachelor of Nursing, Business and Information Technology students

Prema Sampath, Agustilia Rodrigues, Kieran Beggs

Whitireia

This poster project is part of ongoing research into Collaborative Learning (CL). The researchers involved have chosen to investigate the importance of CL, focusing on diverse groups of learners. The main aim of the research was to discover how students themselves viewed CL and its contribution to their overall learning.

CL is viewed as a constructivist form of learning, implying that learners are creating something new by integrating new material with their current knowledge. Common forms of collaborative learning are group reports and presentations, however technology has preened up more opportunities for different kinds of CL, both inside and outside the classroom.

As the researchers themselves have found, much of what has been written on CL has identified a variety of positive outcomes. According to Gokhale (1995), individuals are able to achieve higher levels of learning and retain more information when they work in groups, this applies to both the facilitators of knowledge (the instructors) and the learners. Laal & Ghodsi (2011) state that CL (compared with competitive and individualistic efforts) has numerous benefits resulting in higher achievement and productivity.

The research initially began with a literature review, and continued with the gathering of primary data. A questionnaire was distributed to students studying at Whitireia. To remain consistent with one of the research goals (focusing on diverse learners) the questionnaire was administered among students from three different subject disciplines, Nursing, Business and Information Technology.

Initial results from the questionnaire have found importantly that the majority of participants recognise what CL is. The majority also agreed that CL was taking place within their programs. Respondents were also able to recognise situations when they had been involved in CL outside of the classroom. Group presentations, group discussions and online forums were recognised by respondents as common and useful forms of CL. Participants also had a mostly positive view of collaborative learning, and mostly agreed that working collaboratively (CL) can have a number of positive outcomes. Respondents agreed that CL assists students to resolve conflicts, improve communication skills as well as improving overall engagement of students inside the classroom. CL also gave learners the opportunity to work in diverse groups. These were just some of the findings derived from the results of the primary research. The study did not address cultural diversity specifically, but diversity of gender, age and learning spaces. The outcomes of the primary research will be used in the later stages of this project to give recommendations to tutors and academic staff.

References: Gokhale,A (1995). Collaborative Learning Enhances Critical Thinking. Journal of technology education Volume 7 (1).
Laal, M., & Ghodsi, S. M. (2012). Benefits of collaborative learning. Procedia-Social and Behavioral Sciences, 31, 486-490.

Accuracy of stereo vision based camera sensors for the purpose of driver assistance systems

Waqar Khan

WelTec

Driver assistance systems (in particular collision warning systems) rely on different sensors like radar, laser scanner, sonar and cameras for the purpose of understanding the environment around the ego-vehicle. The effectiveness of each sensor is derived based on its field of view (FoV), time efficiency and accuracy.

Laser scanner is the most accurate option, however, it takes relatively more time in computing the depth as well. Whereas, sonar and radar have a limited FoV. Stereo cameras on the other hand can have a broader extent of stereo FoV; they can perform in real-time i.e. 30 frames per second; and they can produce somewhat accurate depth maps. Another factor based on which stereo cameras become a preferable choice in a highly competitive vehicle industry is the cost of sensors.

The only downfall is that the accuracy of stereo sensors is dependent upon the stereo matching algorithms used in computing the depth map. Furthermore, the stereo matching algorithm also has processing time affiliated with it. Depending on the depth resolution required; the processing time of a dense depth map generating algorithm can vary.

Depth resolution and extent of stereo common Field of View (CFoV) are responsible for determining the trajectory of a colliding hazard accurately and in a timely fashion. Accuracy is important; in differentiating between true-positives and false-positives. Timing of a warning is also important; a driver can apply brakes to avoid the collision in time. Both accuracy and timing eventually effects the usefulness of the system. The depth resolution and the extent of stereo CFoV are derived from the stereo configuration parameters. So, to evaluate them, there is a need of theoretical modelling. This modelling can take into account the stereo parameters, vehicle braking parameters, driver response time etc. The output can assist a safety engineer in identifying a suitable configuration which can become useful in urban traffic environment.

The objective of this study would be to identify the maximum tolerable collision speed of the hazard in front of the ego-vehicle which is safely avoided by the safety system.

By considering the stereo configuration parameters like focal length f, baseline length b, pixel size τ, depth resolution δ, image resolution (w x h), the depth Z of each feature point p_i on the hazard can be measured. Because the camera sensor consists of discrete pixels, the measured depth is integral in nature. So, the measurement always has an uncertainty ΔZ affiliated with it.

The results are in the form of contour maps suggesting the maximum tolerable speeds in front of the ego-vehicle.

Increasing b improves the distribution of depth resolution. However, it is limited to by the width of the ego-vehicle. Similarly, increasing the f also improves the depth resolution however, it also reduces the extent of stereo CFoV.

Whose career is IT?: Bridging the great divide

Sarah Snell, Catherine Snell-Siddle

Open Polytechnic of NZ

"With more than 28,000 companies employing around 100,000 people, the tech sector is the fastest growing and the third biggest industry in New Zealand" (Clark, 2017). With the demand for IT skills growing, employers are finding it difficult to recruit the right talent. If more women were encouraged to study towards a career in IT, the talent base would be hugely increased, of which the IT industry is in desperate need of. This is supported by a statement from New Zealand's Digital Future Manifesto that "the IT industry continues to experience a significant shortage of individuals with specialist skills and expertise in New Zealand. This is the largest impediment to growth in our sector and is a significant issue for the economy as a whole, and that the prosperity of New Zealand is inextricably linked to how we embrace our future as a digital nation" (New Zealand's Digital Future Manifesto, 2017).

Diversity in the workplace is a hot topic in the IT industry, and with statistics showing that women still only represent approximately 20 per cent of the tech workforce, there is still much work to be done to close the gender gap. In addition to these statistics, research has shown that just three per cent of 15-year-old New Zealand school girls consider a career in IT. The literature suggests that there are several reasons for the under representation of women in IT careers and engagement in tertiary study. It suggests issues around national and educational policies, relationships with teachers, use of computers at school and home, differences in attitude, confidence, interest and experience, family, and community, influence of peers, life aspirations, images of popular culture, and computer games. The IT industry is one that offers opportunities for innovative, challenging, collaborative, and creative work, and it is this message that younger generations of women need to hear. There are a number of women tech groups and support networks who are working towards closing the gender gap, as well as many strategies and initiatives from industry associations, and educational institutions, to encourage and inspire primary and secondary school students and women considering a career change.

Strategies and initiatives being undertaken in New Zealand, to encourage more women to participate in computing related study and careers will be discussed, and suggestions provided for further research that could assist in bridging the great divide.

References: Clark, J. (2017). Research needed for more women to get into tech careers. Retrieved from http://www.nztech.org.nz/research-needed-women-get-tech-careers

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A non-blocking Binary System Tree (BST)

Manish Singh

WelTec

The evolution of multi-core/many-core systems has necessitated the design of scalable and efficient concurrent data structures. The asynchronous model of computation in such systems makes it notoriously hard to design a correct and efficient concurrent data structure, which will synchronize access to the shared memory.

A considerable amount of research has been done towards making a concurrent version of sequential data structures. Single linked data structures have been studied most by many researchers while developing their concurrent versions. A concurrent design is non-blocking if it ensures that no thread/core accessing the data structure is postponed indefinitely while waiting for other threads that operate on that structure.

Non-blocking algorithms are further classified into obstruction-free, lock-free, and wait-free according to the progress guarantee they provide. Wait-free is the strongest progress condition, guarantees progress of every thread in a bounded number of steps, and is considered hard to design. Lock-free guarantees system-wide progress, and obstruction-free guarantees progress in absence of conflicts.

The Binary Search Tree (BST) is a fundamental data structure, but relatively, less work has been performed providing a non-blocking implementation of it. In recent years, some implementations of concurrent BST (both blocking and non-blocking version) have been proposed but a full non-blocking balanced BST is yet to be seen. Performance has been always an important factor, and thus will always drive the design of these data structures.

Our work focuses on designing a non-blocking, scalable, and highly concurrent balanced BST. The current status of our work is, a comprehensive literature review has been already completed as well as shortcomings of previous work has been investigated (both theoretically and empirically). A new non- blocking balanced tree algorithm has been designed. Unlike, some of the previously published every operation in our tree is lock-free, which is our main contribution.

We have compared our work with recently published algorithms, and the results outperform all other design in terms of throughput. Currently, results are taken using a relatively old 16 core sun-SPARC system only. We are looking to get access to a contemporary 64-core system to compare the performance of our tree with other designs.

The Presbyterian Support Central Wi-Fi Network Deployment

Ian Hunter, Alan Lyford

WelTec

The Presbyterian Support Central Wi-Fi Network Deployment project involved analysis and a pilot implementation of Wireless (Wi-Fi) services to residents living in care facilities, giving them access to full Wi-Fi services and to also enable Presbyterian Support Central (PSC) to automate bedside administration of their healthcare.

As more and more requirements from Government Agencies and funders are being applied to the different industries that PSC is currently working in, more data is required to be collected and entered into either PSC or Government run systems. The point of data collection thus can no longer be restricted to just a few locations within the facility, as the need for assessments to be performed at the resident's bedside or medication to be tracked and dispensed wherever the resident is within the facility adds further complexity in the collection of patient data.

As PSC is currently using different devices like Laptops, Terminal Laptops and Android Mobiles all with different Operating Systems, a selection of these devices needed to be made available for testing purposes. As PSC is planning on using the Wi-Fi for Bring your own Devices (BYOD) to residents, other devices like Android Tablets, iPad, Mac, Chromebooks and Voice over the Internet (VoIP) handsets, also needed to be tested. Other tools were also identified for testing and Test Plans were created.

This pilot project has been in operation successfully throughout the PSC community for nine months now and is in testing. Once the pilot had been fully trialled and approved by PSC, it will be rolled out across twenty-two of its other sites throughout the lower North Island of New Zealand.

Facilitators and barriers of waste minimisation practices at New Zealand festivals

Leanne Nicholas

WelTec

Background: Festival generated waste is one of the most prominent environmental impacts of the sector. Internationally, efforts are being made to improve waste minimisation practices (WMP) in alignment with government policy, environmental awareness, industry pressures and audience expectations. WMP at NZ festivals are unregulated, and local authority (LA) waste minimisation guidance varies dramatically. The management of waste in NZ by both LAs and industries has been criticised as being behind international standards. With no compliance-based motivation and inconsistent LA guidance influencing festival organisers to implement WMP, few festivals are attempting to limit their environmental impact.

Research Aim: This study, of 21 festivals, seeks to gain a more in-depth understanding of the facilitators and barriers towards WMP. Due to the lack of a comparative study within a NZ context, it will contribute to the growing body of knowledge on festivals sustainability.

Methodology: The interpretivist approach taken allows for the exploration of perceptions and understandings. Utilising purposive sampling, festivals promoting their WMP were identified, practices observed and semi-structured interviews are ongoing. Nvivo software is being used for coding and analysis.

Findings to Date: The following themes are emerging as significant to perspectives on both facilitators and barriers; WM expertise, Planning/ resourcing, Community and Service provision quality. While participants have a commitment to waste diversion, a barrier is lack of expertise pertaining to the complexity of waste components. There is overwhelming support for the introduction of regulation of WMP. The costs, and time, associated with developing plans, consequential resourcing and management of service providers are significant barriers; yet funding and sponsorship are not considered problematic. Overall, participants desire to belong to a festival organiser's community, which shares and educates, enhancing their festival waste minimisation journey.

Implications: Due to the absence of regulation of waste minimisation at festivals, the NZ sector has not yet achieved a level of maturity of this aspect of festival operations. Waste minimisation is a relatively new concept at NZ festivals; therefore it is unsurprising that unpacking the complexity of waste minimisation is perplexing to festival organisers. The scarcity of regulation is influencing the waste minimisation guidelines and resources available at governmental level. As a consequence, self-regulation is being adopted by participants with environmental values, and a sector looking inwardly for solutions. Festival organizers are benefiting from sharing information but still require an improved understanding of sustainable practices. The modest NZ events sector, partial to working together to improve 'best practice', could possibly be the catalyst for the whole sector, including government, to collaborate and improve WM practices.

Supporting internationally qualified nurses in postgraduate study at Whitireia

Suzanne Manning, Kerri Arcus

Whitireia

The Nursing Council report that Internationally Qualified Nurses (IQNs) continue to make up 26% of the nursing workforce in New Zealand. Those IQNs who undertake postgraduate study at Whitireia not only have to transition to higher level study but also to a new country's education approach. These students need to make this double transition as quickly as possible to be successful in their studies. This study, undertaken in partnership between the School of Health and Poutama, Whitireia, aimed to explore ways of supporting IQNs to be academically successful. This poster reports on the first research phase. The first phase was an online survey that collected demographic data and opinions on the nurses' perceptions of their prior skills, their learning needs, and support required in order to be successful in their studies. An invitation to participate was sent in semester 2, 2016 and semester 1, 2017. Postgraduate teaching staff in semester 2, 2016 were invited to answer a similar survey. Seven of the nine IQNs who responded were from the Philippines, and five had trained in the English language. The majority were in the 30-39 year age bracket, and had worked as a Registered Nurse in NZ for an average of 4.8 years.

The IQNs identified their nursing knowledge as their main prior skill, and were expecting to extend their nursing knowledge alongside developing their academic scholarship. The support they wanted was from experienced and knowledgeable staff with whom they could develop a relationship. Academic staff identified the IQNs cultural competencies as a prior skill, but also that these students needed to acquire an understanding of the NZ cultural context. Cultural knowledge and skills were not generally identified by either cohort of nurses. Furthermore, staff were clear about the academic scholarship needs of IQNs, alongside acknowledging the IQNs' prior nursing knowledge and experience and a motivation to learn new nursing knowledge. Staff also commented on IQNs personal attributes, especially related to their resilience.

The next phase of the research will design and pilot specific support interventions that take account of IQNs' and staff members' views as indicated by this survey, within the constraints of current resources and with a view to establishing sustainable and effective practices.

Anxiety; How does it affect the paramedic student?

Howard Wills

Whitireia

Summative assessments are an established form of assessing student performance, knowledge and ability against the learning outcomes of a course. The importance of achieving a good grade that the student attaches to these assessments can manifest itself in unwanted stress and anxiety. The potential for this issue to have an impact on student success is not well understood but may adversely affect student outcomes and therefore deserves further exploration. Literature reviewed from nursing, medical and some other programmes including aviation found that assessment anxiety is recognised as a feature that can impact on undergraduate student success.

Method: The study aim was to determine the level of anxiety in the undergraduate student body in the paramedic programme at Whitireia New Zealand. A mixed method data collection was used. A three part online survey was used including the Westside Test Anxiety Scale and questions relating to the programme employing a Likert scale response format and a free response section which invited further detail. Data was analysed using SPSS™ and thematic analysis.

Results: 128 students consented to participate in the study and 117 completed the questionnaire. Significant differences in anxiety were found in previous educational achievement between diploma and degree (36.72 ± 5.92 vs 31.42 ± 7.58, p = 0.02); between full-time work/part-time study than full-time study/part-time work (36.71 ± 7.0 vs 32.09 ± 7.25, p = 0.027). The qualitative section identified three themes, stressors, obstacles to learning, and negative experiences.

Conclusion: This study identified a high level of anxiety across the student body. There were significant differences seen in previous educational achievement and between full time and part-time students. While these results are similar to other studies, the student body has two streams, with diverse backgrounds and ages making comparisons with more homogenous groups less valid.

Combining visual arts and digital technologies in the teaching of human anatomy (Exhibit)

Phillip Silverman, Malcolm Doidge

WelTec

Logistically and practically it is hard for most to study structure in a real bodies, consequently the heavy reliance on models in anatomical teaching. This has created challenge as the field of functional anatomy has recently emerged as a result of health science incorporating allied providers. Traditional anatomical models have been designed with a biomedical philosophy leading to a reductionistic outcome that can lead to confusion for those seeking a more integrated understanding.

The purpose of this research is to investigate alternatives. Specifically, a focus on movement and posture within models. Here photogrammetry can be adopted for producing a 'virtual' model of functional anatomy.

Traditionally, anatomical knowledge has developed from the visual arts and the sciences. This project returns to this union and takes a collaborative approach between the Exercise Science and Creative Technologies departments at WelTec using an interpretive methodology borrowed from both disciplines (Mckenzie & Knipe, 2006). This initial research focused on the creation of an ecroche anatomical model.

The aim of this study was to develop an understanding of human anatomy as an integrated dynamic system. A structural adaptive solution to a given posture or movement to support the teaching of functional anatomy, for areas such as Sports Medicine, Exercise Science, and Digital Creative Technologies such as animation and Illustration.

Methodology: A clay ecroche model was designed and constructed during a residency at the New York Academy of Art's specialist department for ecroche models and forensics. Returning to New Zealand, the original clay ecroche model was molded and cast as seven iterations in high density urethane. This physical copying process had a digital counterpart using photogrammetry, a process which utilises recent advances in cloud computing that maps and correlates common data points from a series of images - of the skeleton - to construct a 3D, virtual digital image.

Seven physical skeletal models have been created physically in urethane for class teaching plus a digital counterpart using photogrammetry. A second physical anatomical model displaying the muscular system is under construction, there are also plans to provide a model of gait as a digitally animated process.

List of Primary Presenters

KEYNOTE

- Kylie Reiri, Lead Analyst, Social Investment Agency

ORAL PRESENTATIONS

Session 1

Resilience 1

- Elizabeth Asbury, Whitireia
- Toni Horrell, WelTec
- Amanda Hay, WelTec
- Gayle McGarry, WelTec

Session 2

Information Technology / Information Management

- Luke Strongman, Open Polytechnic
- Diane Strode, Whitireia
- Swati Puri, WelTec
- Rohit Pande, Whitireia

Session 3

Teaching and Learning

- Catherine Doughty, Whitireia
- Michael Fitzsimons, Whitireia
- Jill Clark, Le Cordon Bleu
- Aristotle Santos, WelTec

Session 4

Seismic Activity and Disasters

- Najif Ismail, WelTec
- Ruwan Jayasooriya, WelTec
- Fahimi Ali, WelTec

Session 5

Resilience 2

- Kaaryn Cater, Whitireia
- Maria Ulloa, WelTec & Whitireia
- Tony Carton, WelTec

Session 6

Health Services

- Teresa Chin, WelTec
- Russell Vant, WelTec
- Teramira Schutz, Whitireia
- Janell Vaughn, WelTec

Session 7

Language

- Teremoana Hodges, Whitireia
- Sujatha Gomathinayagam, Whitireia
- Yao-Kun Liu, Whitireia
- Jean Mitaera, Whitireia

Session 8

Engineering / Construction

- Iman Khajehzadeh, Open Polytechnic
- Induka Werellagama, WelTec
- Gareth Gretton, WelTec

Session 9

Social Work 1

- Jean Mitaera, Whitireia
- Ashleigh Price, Whitireia
- Neil Ballantyne, Open Polytechnic
- Ali'itasi Su'a-Tavila, Whitireia

Session 10

Teaching and Learning: Health / Social Services

- Ruth Crawford, Whitireia
- Teramira Schutz, Whitireia
- Phillip Silverman, WelTec
- Stephanie Kelly, WelTec

Session 11

Teaching and Learning: Technical Subjects

- Adele Carson, Toi Ohomai Institute of Technology
- Don Kannangara, Toi Ohomai Institute of Technology
- James Mackay, WelTec
- Frank Cook, WelTec

Session 12

Māori / Pacific and Pakeha Nexus

- Bernard Whelan, Whitireia
- Joy Richards, Whitireia
- Adam Ransfield, WelTec
- Marta Vos, Whitireia

Session 13

Social Work 2

- Stephanie Kelly, WelTec
- Susan Beaumont, Whitireia
- Roger Ngahooro, Whitireia

Session 14

Healthcare Workforce

- Apii Rongo-Raea, Whitireia
- Joey Domdom, WelTec
- Ruth Crawford, Whitireia
- Catherine Fuller, Whitireia

Session 15

Creative Arts

- Brenda Saris, Whitireia
- Malcolm Doidge, WelTec

POSTER PRESENTATIONS

- Prema Sampath, Whitireia
- Waqar Khan, WelTec
- Sarah Snell, Open Polytechnic
- Manish Singh, WelTec
- Ian Hunter, WelTec
- Leanne Nicholas, WelTec
- Suzanne Manning, Whitireia
- Howard Wills, Whitireia

EXHIBITIONS

- Phillip Silverman, WelTec