

HIHIRI / HONO

ARA INSTITUTE OF CANTERBURY

Research Kōrero 2019

Welcome



Our vision for research at Ara Institute of Canterbury is:
“Creative, applied research that inspires teaching and learning and responds to community and industry needs”.

As an applied vocational education institute, we are proud that our tutors are excellent teachers, excellent practitioners in their industry, and excellent practitioners of research, developing leading-edge knowledge around their disciplines to inform their teaching. Research practice is one way that supports students in learning the “soft” skills of problem solving, critical thinking, application of knowledge, working in teams and communication.

Ara’s research is inspired by connections across our community, for example:

- Students - addressing Pasifika student success, more authentic assessments and place as a teaching resource
- Workforce - looking to the future for a sustainable workforce in nursing
- Health - understanding chronic pain to inform better treatments
- Industry - improving the productivity of our construction sector
- Liveability of our city – inspiring art works
- Award winning photography

For these reasons we have chosen a name for our research publication - Ara Research Kōrero - to reflect Ara’s values of hihiri (inspire) and hono (connect).

We are delighted to present some of our researchers who have been making a difference in their discipline, in their teaching and in the community, nationally and internationally. These are just some of the amazing stories. A full list of the research undertaken by Ara researchers in 2018 is included, to illustrate the benefit to our community, and awards which highlight national recognition of our researchers.

We look forward to growing more connections with our community to inspire more great research.

A handwritten signature in black ink, appearing to read 'Margaret Leonard'.

Dr. Margaret Leonard
Manager Research

A handwritten signature in black ink, appearing to read 'G. Nelson'.

George Nelson
*Deputy Chief Executive
Academic, Innovation and Research*



The image on the front cover comes from Tiritiri-o-matangi-reia, the carved pou that stands outside Te Puna Wānaka at Ara. The narrative of this pou speaks to the attainment of knowledge according to mātauranga māori (Māori understanding, world view and knowledge). The image itself focuses on the ipurangi or tattooed forehead which is the section of the mataora (facial tattoo) that recognises the knowledge acquired by the person in question. Te Puna Wānaka acknowledges all contributions contained in this publication and encourages greater focus on the connection, reflection and celebration of Mātauranga māori moving forward.

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International success for New Zealand Disability Theatre



Dr. Tony McCaffrey

Dr. Tony McCaffrey's experience includes acting, writing, directing and teaching theatre. For the past thirteen years at Ara Institute of Canterbury he has been teaching the Bachelor of Performing Arts degree at NASDA (National Academy of Singing and Dramatic Art) and postgraduate degrees in performing arts.

Since 2004 Tony has been closely involved in researching performance by actors with intellectual disabilities as the director and co-producer with Different Light Theatre Company in Christchurch. Different Light is one of a very few companies worldwide creating such theatre and

has gained international success, having been invited to perform at festivals such as the Ludus Festival in Leeds. Tony has presented papers about this work at conferences around the world including Stanford University, the Sorbonne and Shanghai Theatre Academy.

Tony's research has been published in academic journals and he has contributed a chapter to *The Routledge Handbook of Disability Arts, Culture and Media*. His book *Incapacity and Theatricality: Politics and Aesthetics in Theatre Involving Actors with Intellectual Disabilities* has recently been published in the Routledge series *Advances in Theatre and Performance Studies*.

Tony McCaffrey never expected it would be his life project that puts Christchurch on the map. But Tony's passion to include people with disabilities in theatre gained worldwide attention with remarkable outcomes. He is now at the forefront of research and practice in a growing global movement.

It all started around 15 years ago when he was asked by Christchurch City Council to run a series of workshops.

"I agreed to teach some classes but wasn't sure what to expect when I started working. When the classes came to an end I didn't want the work to stop. That is why I developed Different Light as a theatre company.

"Different Light is Christchurch-based but we have had people from Japan, Belgium and the United States come over here to work with us. When we started there weren't many companies like this in the world so people wanted to engage with us and see how we operate."

The current company comprises a core group of six performers. Tony shapes what the actors devise and directs the productions. The group process consists of long periods of planning and rehearsing before putting on a show. The latest one, *The History of Different Light*, is to be presented at the Christchurch Arts Festival. It is an attempt to let the performers tell their own stories of the past fifteen years and to show who or what appeared and disappeared over that time.

Since founding the theatre company Tony has seen productions with actors with intellectual disabilities beginning to appear on main stages and arts festivals throughout the world. According to him such performances challenge and redefine ideas about the politics and aesthetics of theatre.

Tony undertook a PhD in Theatre and Film Studies as he was curious to find out what was happening in other parts of the world and how disability theatre has developed historically. His PhD has led to the book *Incapacity and Theatricality* and an increased profile for Different Light Theatre. The work has attracted worldwide attention and puts Christchurch at the forefront of research and practice in this growing movement. Tony is pleased that his research has received the highest level of international recognition in the latest Performance Based Research Fund (PBRF) New Zealand assessment.

The book focuses on key moments in the global history of performance by actors with intellectual disabilities across different media. It gives an account of the processes and performances of groups similar to Different Light. Performances by companies including Back to Back Theatre and Theater HORA, which are written about in the book, show that apparent limitations can create exciting new creative possibilities.



“Through my book and my work I want to show that people with disabilities, especially people with intellectual disabilities, can do many, many things. They can have many different kinds of intelligence. Once you spend time with a person you learn what they can do, not just what they can’t do.”

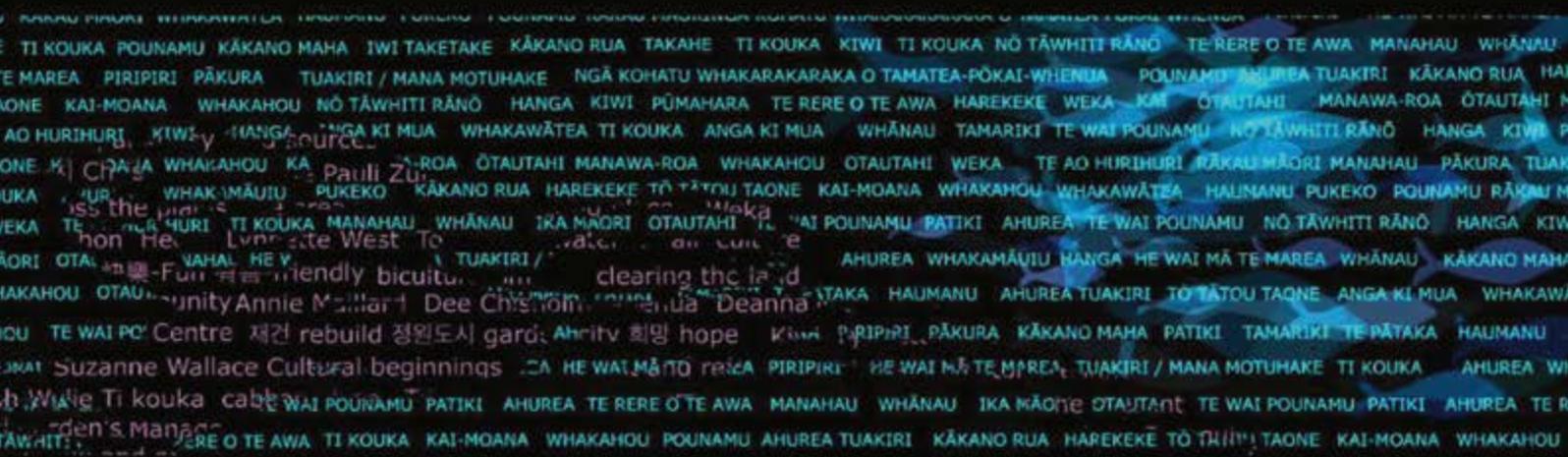
Tony says his research also showed the complex and politically interesting relationship between people with intellectual disabilities and people deemed not disabled. In the current political and ecological environment, people with intellectual disabilities are not the only people who appear to be disempowered and offered a pretence of inclusion and autonomy. At the same time, out of very unpromising conditions, they are creating interesting and thought-provoking performances.

He acknowledges his debt to Ara and his colleagues. "I'm really lucky that Ara has supported me and the performers to make this work and to present it at conferences and festivals in Australia, the United States and the United Kingdom."

The group is planning to go to Galway in Ireland in 2020 to present at the International Federation for Theatre Research, participate in the Arts Festival and liaise with Irish disability theatre companies.

Tony is currently planning another book to be published by Routledge with the working title *Giving Voice: Making Theatre with Actors with Intellectual Disabilities*. The book will be part written by him and part written and illustrated by the performers themselves. ■

Documenting landscapes under threat



John Maillard

John Maillard studied film, photography and animation at the Surrey Institute in the UK. He was a commercial photographer and photojournalist before starting a Master's degree in photography, which he combined with User Experience Design (UX) and User Interface Design (UI).

He began teaching web design at Ara Institute of Canterbury in 2002 and was made Head

of Photography in 2004. He currently teaches or supervises photography, interactive design and game design to students in the Bachelor of Design and has also supervised Master's students at Ara.

John has exhibited in galleries around New Zealand and the United Kingdom for more than three decades. He has published or collaborated on four books about native plants, New Zealand landscapes and cultural history.

If you had to describe Christchurch in a word, which one would you choose? John Maillard asked the residents of Christchurch to suggest words that represent Christchurch, the people, the cultures and the languages of the city, to create a *River of Words*. The resulting animation is a semi-permanent outdoor exhibition that was commissioned by the Christchurch City Council and was selected as a two-year legacy project from the Botanic D'Lights festival in 2018.

The changing interactive animation on Cashel Street is updated regularly and the work fits neatly into the ecological landscape theme of John's photography, using words and animation in place of the photographic image. For Language Week 2018, John worked with Ara's Te Puna Wanaka students to transform the *River of Words* project into Te Reo.

John describes himself as a traditional landscape photographer and a quiet environmental protester. His work lies in creating photographic, interactive and installation works that represent an alternative view to the common perception of New Zealand as a 'scenic wonderland'.

“My research is about photography and the notion of ‘the marks of man’ on the landscape. The landscape is presented as natural, whereas it has been manipulated, changed and decimated by humanity. Look at the Port Hills.”

John draws inspiration from past photographers who were environmentalists, like Ansel Adams. Adams was instrumental in the birth of the American National Park system through showcasing his landscape photography of the American West and educating the public about the fragility of the environment.

“New Zealanders need to be alert to, and re-evaluate their relationship with the environment, as it is being exploited as a commercial resource, rather than acknowledged as an essential part of the biosphere.” John's approach is that of a quiet, philosophical photographer, rather than an artist who relies on visual shocks to draw people's attention to an issue. “In my opinion, photography should be about contemplation, meditation and record keeping. My images honour and document the landscape which is under threat.”

John has recently started to exhibit his work internationally. A visit to John's studio by the Curator of the Turchin Center for the Visual Arts at the Appalachian State University in North Carolina led to an invitation for John to exhibit at their international exhibition *Art from Down Under: Australia to New Zealand*. They selected John's time-based photograph *Punakaiki* which was made by using a scanner in the back of an old plate camera. Being studio equipment, it had to be re-engineered for use outdoors. John used long exposure times to build an image, so that light and time are captured. In this image the scanner and waves moved in opposite directions. This distorted the natural movement of the water creating an alternative view of the world captured by the camera. The exposure time was half an hour. “I knew if the light changed the photograph would be ruined because of digital aberration.”

For his next research project, John is experimenting with the idea of combining images and sounds. “I still want to work visually, and photography is still the most important thing, but I also want to bring sound into the picture. The thing about creative research is that when you come up with a starting point you don't know where you'll end up.” ■



Where are all the men? Nursing's future workforce





Dr. Isabel Jamieson

Dr Isabel Jamieson has been at Ara Institute of Canterbury for around 18 years, teaching on the Bachelor of Nursing. Currently she is the Programme Coordinator for the graduate entry to the nursing programme, the first of its kind in New Zealand. Her clinical background is in the operating theatre and infection control where she spent almost 20 years before she started teaching. Her research builds on her PhD on nursing workforce development.



John Withington

John Withington is a nursing lecturer at Ara, a position he has held since 2010. Previously he worked in a variety of clinical nursing, midwifery and health management roles, primarily in rural and remote Australia.



Dianne Hudson

Dianne Hudson is a nursing lecturer who has been working at Ara since 2015. Prior to that she was a clinical lecturer for the Bachelor of Nursing. Her clinical experience is working in emergency departments and in cardiology.

While women have made significant inroads into traditionally male health professions, men remain poorly represented in nursing in Western countries. For decades the numbers have remained around 10%. In order to best serve people’s health needs, the nursing profession needs to reflect the diversity of the population.

Research on graduate programmes overseas suggests that postgraduate programmes are attractive to men as they see it as a fast track to a more satisfying career in the nursing profession.

When Ara, in conjunction with the University of Canterbury (UC), began offering the graduate entry programme, research staff at Ara and UC noted that the initial cohorts had a higher proportion of male students, compared to the undergraduate Bachelor of Nursing course.

Isabel Jamieson notes:

“Through our own study we wanted to find out why men were interested in nursing at that stage in their lives and in their careers, and if a generic degree gave them a social contract to say it’s ok now I’m doing nursing instead of starting out in nursing as a school leaver.”

The research project *Men in nursing: Fast track graduate entry* is important because, to date, no published literature exists about students enrolled in nursing graduate entry programmes in New Zealand.

The data was collected by interviewing male students who were enrolled in the UC/Ara graduate entry programme from 2014-2018.

Two primary themes were evident:

1. The participants were in search of a satisfying career
2. The time was right.

According to John Withington: “One of the main outcomes of the research was the dismissal of the notion that men who choose nursing as a career want to move into senior manager positions i.e. a ‘glass elevator’. The men in this study were very clear that they were primarily motivated by a desire to help people and to become expert nursing clinicians.”

The results of the research were presented at the National Nurse Education Conference in Melbourne, Australia, in 2018 where John was awarded Best Presenter. Collaborative research projects like this strengthen the already close relationships between UC and Ara researchers. ■

The Port Hills

The importance of place



Ivor Heijnen

Ivor Heijnen has worked in the sustainability and outdoor education sector for around 12 years. Initially he was an adventure guide and instructor, now he is a lecturer in the Sustainability and Outdoor Education programme at Ara Institute of Canterbury.

In 2018, Ivor completed his Master's degree in Social Science at Lincoln University and was awarded the 2019 Best Master's Thesis in Geography Award from the New Zealand Geographical Society Inc.

Currently he is teaching theory and practical courses in environmental science, education for sustainability, safety management, adventure tourism, tramping and rock climbing.

Ivor believes in experimental and critical approaches to education, which allow students to explore and examine their values and behaviours. This approach aims to establish clear links for the students between their learning activities and future professional roles in the sector.



They are visible on the skyline to the South from most of Christchurch, the familiar volcanic ridge that divides the city and plains from the hilly Banks Peninsula. But how well do local residents actually know the Port Hills?

For Ara Sustainability and Outdoor Education specialist Ivor Heijnen, the Port Hills are an outdoor classroom with layers of recreational opportunities, cultural context, sustainability issues and solutions, and historical markers that collectively give us a sense of not just where, but who, we Cantabrians are.

“The Port Hills are an important area for me. Over the past 10 years I’ve spent a lot of time there with my friends and family and I’ve been living on or near the Port Hills at all times as well. So many of my important life experiences took place there.”

For that reason it came as no surprise that he chose this popular area for his Master thesis *From Place - Responsive to Place - Constructive Outdoor Education: A Case Study of the Port Hills* -an analysis of the way Christchurch’s outdoor educators are using the Port Hills in their practice.

With his thesis completed, Ivor also created a practical resource for Christchurch’s teachers to learn more about the Port Hills, take their students there and pose some interesting questions to them, such as: What can we contribute to the Port Hills? This is a central idea for Ivor.

“Constructive is in the title because it means the student-Port Hills relationship can be and should be reciprocal, so it is not

only about what can we get from the Port Hills but what can the Port Hills get from us.” For his thesis Ivor selected eight outdoor educators from Christchurch who regularly take students for lessons to the Port Hills. “I didn’t want to do a mass survey and ask all teachers in Christchurch because that didn’t fit with my view. Rather, I wanted to be more in depth with my methodology. I was looking for a wide spread of educators from primary schools through to tertiary institutions. I didn’t select each participant based on demographics but I wanted to make sure I had a broad range of people.”

Ivor conducted two interviews with each of the educators. The first one was a structured sit-down interview that followed a set of questions. The participants were invited to bring along maps and photos that were discussed. The second interview took place during a one hour to 90 minute walk at a place of importance to the participant in the Port Hills. This interview mostly covered follow up questions plus anything that came up during the walk.

“My thematic approach made it quite a complex analysis. I ended up looking at commonalities that people talked about. The mapping and visualisation also meant that I was able to find hotspots of activity and I wrote three little case studies within the thesis. They are about Victoria Park, Godley Heads and Castle Rock – three places with some uniqueness about them.”

Ivor said a couple of things stood out for him from his findings.

“One of my discoveries was how much the Port Hills are involved in the lives of outdoor educators. How truly important they are in so many different aspects of their lives and for their mental wellbeing. Not just theirs but also of their friends and families. I also found that people can interact with places in different ways. One way is the level of responsiveness to place. People can be anywhere, from very responsive to ignoring where they are and not paying any attention to their surroundings. Another way that people interact with a place is through giving back. In the Port Hills people are actively involved in track building and planting. I learned that primary schools in particular are very involved in projects like that.”

Ivor presented his research at the International Outdoor Education Conference in Australia last year. It is a premier international conference for the presentation of research in outdoor education and is held biannually, alternating between the northern and southern hemisphere. Ivor said it was a great opportunity to present to world leaders in this field. At the end of 2019 he is heading to Queenstown for the Australia New Zealand Association for Leisure Research conference to talk about walking, which is an emerging research methodology. ■

Osteopathy & chronic pain

Exploring how it works



Dr. Kesava Kovanur Sampath

Dr. Kesava Kovanur Sampath was a physiotherapist before becoming an osteopath 11 years ago, upon graduating from Unitec Institute of Technology with his Master's degree (Osteopathy). Kesava completed his PhD (Physiotherapy) at Otago University in Dunedin in 2018.

He started at Ara Institute of Canterbury in 2018

and is teaching courses in the new musculoskeletal degree which leads into the Postgraduate Diploma, a pathway to registration as an osteopath. This is the only four-year osteopathy qualification in New Zealand.

Recently a new teaching clinic has been set up to give students practical experience in osteopathy and Kesava is highly involved in running it and teaching students in real-life situations.

Chronic pain is a major disruption to a person's life and at the moment there is no golden bullet to treat it. The fact that Kesava Kovanur Sampath suffered from chronic pain himself plays a role in his desire to contribute to research on the topic.

“Pain is a key element that I deal with every day. Research shows there is evidence that what we do as manual therapists has an effect but the exact mechanism how it works needs more research. I wanted to know how manual therapy works.”

Kesava started looking into the sympathetic nervous system, which is responsible for our intuitive fight or flight response. According to Kesava this system may become dysfunctional for people who are in pain.

“There is a direct connection between pain and the sympathetic nervous system that made me look closer into this relationship. I also decided to look at cortisol, which is a hormone that the body releases when it's under stress. It helps us to deal with the immediate situation, fight or flight, but if the body keeps producing cortisol for a long time it can get problematic in a number of ways. Background research shows that these two systems work together and may become dysfunctional.”

However, no manual therapy research previously had measured the sympathetic nervous system and cortisol within the same study. Kesava's research was aimed at filling this gap in knowledge.

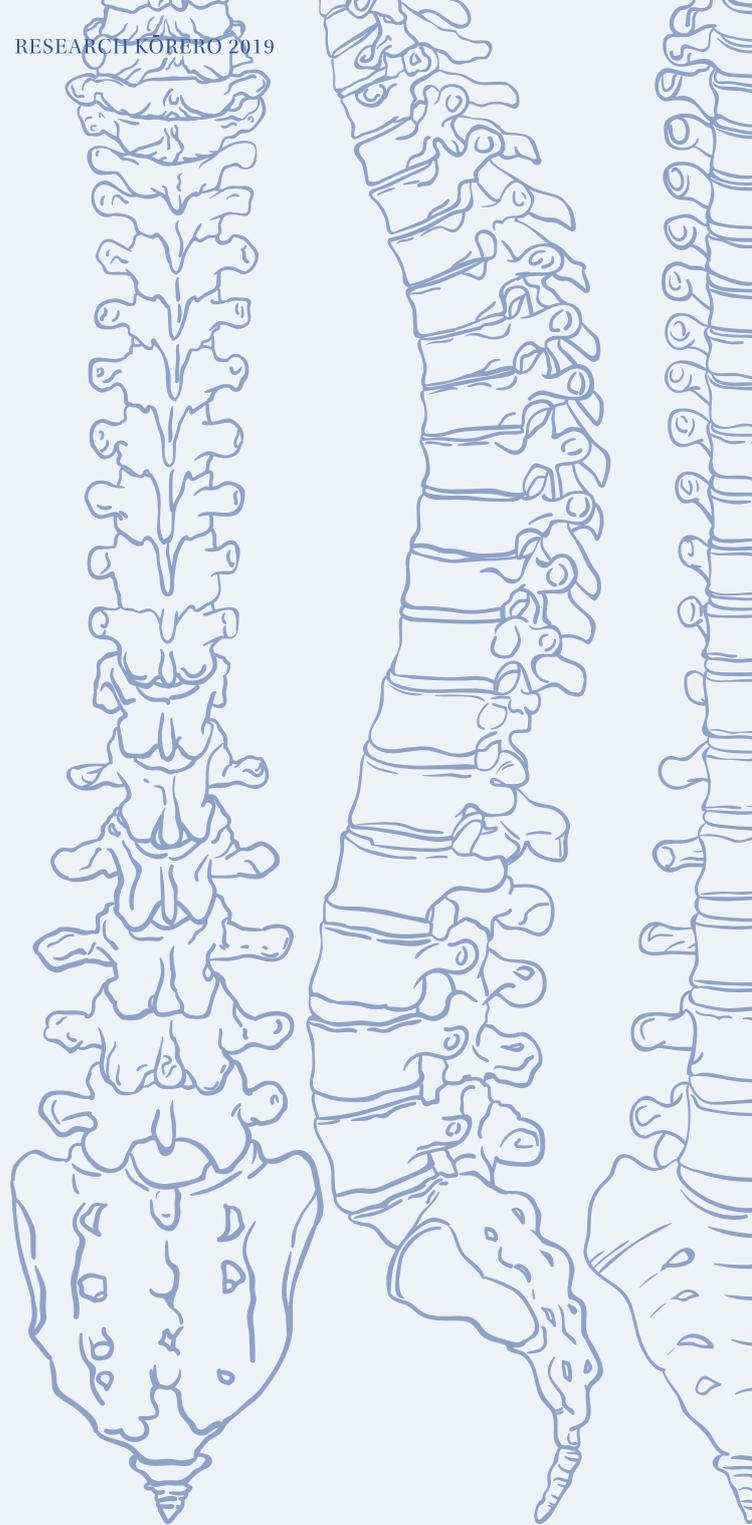
For the feasibility study, a trial was done on healthy men who were randomised into a 'sham intervention' group or a 'spinal manipulation' group. Only men were included in this study as both cortisol and testosterone can be influenced by the menstrual cycle. Through this feasibility study statistically significant changes in blood flow and hormone levels were found in the spinal manipulation group.

This led to the next phase, a cross-over trial with individuals who all suffered from Achilles tendinopathy. The subjects were males and females between 18 and 60 years. They were divided into two groups and received either a spinal

manipulation or a sham intervention. One week later the groups were swapped over and received the other intervention. The outcomes, including hormone levels, blood flow and heart rate variability, were measured and Kesava found changes that made him curious.

“Our findings were surprising. Since it was done on a small scale we originally didn't expect to see many changes. But in our last study we saw a significant improvement in hormone levels after the spinal manipulation. That was quite fascinating.”

Kesava's plan is to build on the current findings and pursue further investigations through collaboration with other eminent researchers in this field in New Zealand and internationally. Ideally he would like to replicate the study in a clinical setting to access more patients and offer not only manual treatment but a package of treatments including manual and exercise therapies. ■



A toolbox for Pasifika student success



Sam Uta'i

Sam Uta'i has worked at Ara Institute of Canterbury for over 20 years, teaching in the 'Next Step Centre for Women'. The Centre offers a wide range of courses to assist women to explore their options, update skills and develop confidence.

She has also taught other courses including Health & Wellbeing and Gagana Sāmoa – Samoan language.

Sam is a member of Ako Aotearoa's - Pacific People's Caucus, as a representative of the Pacific

community and has recently been promoted to the Ako Aotearoa Board. She is an active participant in her community and helped with the development of the Ara Pasifika Advisory Group and the Pasifika strategy. She is also part of the *SPACifically PACific* collective of secondary and tertiary teachers which aims to support successful transition from school to tertiary study.

The Emerging Leaders Breakfast is now an annual event in the suite of activities for Pasifika secondary school students. Sam also chairs the Establishment Board of Trustees for Haeata Community Campus.



Throughout the Pacific, the turtle is an important cultural symbol and its shell patterns are believed to represent the concept of unity. The sea turtle is also known for its navigational skills. Therefore it is appropriate that a turtle was chosen to symbolise the factors that were identified in the research project *Pasifika Success Indicators*.

Sam was the Ara lead on the underpinning research, and the implementation and evaluation of a 'Pasifika Success Toolkit', targeting Pasifika student success.

This research project was a collaboration lead by the University of Canterbury (UC) with Lincoln University and Ara Institute of Canterbury. It was funded by Ako Aotearoa and was the first collaborative project for the three institutions in this area. The institutions have different student cohorts, with diversity across place of birth (New Zealand or the Pacific Islands), age, levels of study and gender. This allowed the views of a wide diversity of Pasifika students to be included.

The toolkit that was developed through this research included a definition of Pasifika success, a set of Pasifika Success Indicators, examples of good practice and a model for cultural responsiveness training and development.

The main aims of the project were:

- To understand how Pasifika learners define success,
- To learn more about the initiatives in place to enhance Pasifika success,
- To encourage use of the toolkit across the participating institutions and the tertiary sector.

Passion drew Sam to the project with the aim of incorporating the findings into Ara's Pasifika Strategy, supporting Pasifika students.

Pasifika students across the three institutions were asked:

1. How do we know what we are doing to support Pasifika student success is working?
2. What does success mean to Pasifika students?

"I think what's made the difference in this research is our experts are actually students who were in these tertiary institutions."

Students from each cohort were interviewed by a person from a different institution so the students could feel comfortable expressing candid views in a safe environment.

Sam was part of the group of that interviewed students based at UC and Lincoln University.

"We were really thoughtful about how we could get the voices of students into whatever we were producing."

The team developed ideas and settled on various strategies after the interviews to feedback the findings of the research, which included workshops (fono) that staff from the different institutions attended.

Both Ara and UC also hosted their own workshops and staff said afterwards they now have a better understanding and more knowledge of Pasifika cultures and values, as well as being more motivated to implement strategies to help Pasifika learners succeed.

"Working together has benefited the individual institutions."

“My personal, ideal outcome is that Pasifika student achievement and retention improves hugely and that Pasifika staff are really clear about how they are contributing to the achievement of student, through the strategy.”

Another strategy was to showcase the success indicators on the shell of a turtle. The turtle outlines a wide range of indicators of success grouped under 5 C's: Connect, Contextualise, Create, Cultivate and Construct.

Sam is not surprised at all about the themes. Being Pasifika herself she has had the same experiences as the students she interviewed.

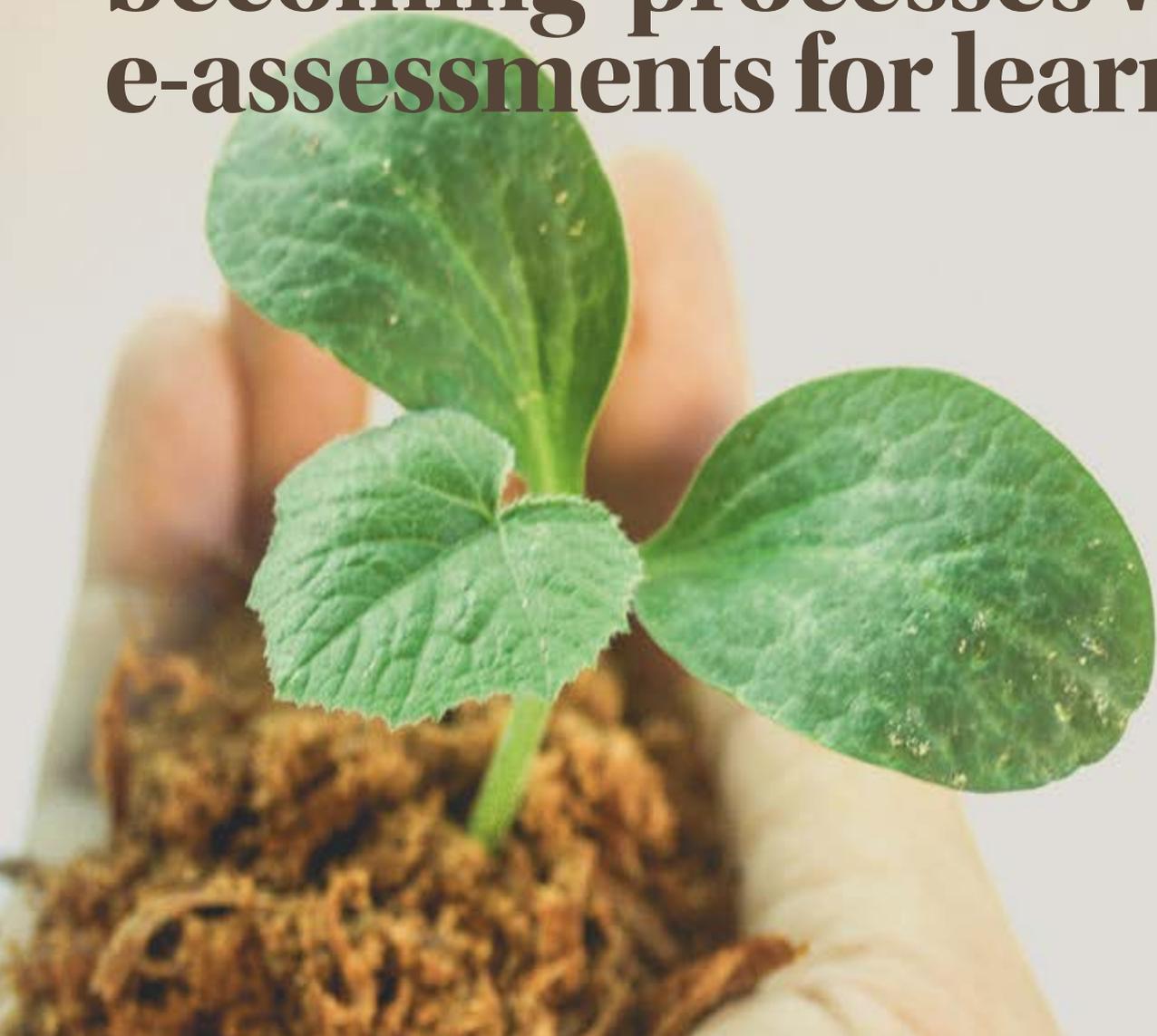
Following the study, Sam and her colleagues presented the research at the Ako Aotearoa Regional Symposium on Teaching and Learning at Otago University and then at the European Society of Oceanists Conference in England in 2018. This important event is a well-known gathering of academics to discuss and promote Pasifika issues. Presentation at the conference was made possible through an Ara Foundation grant.

"The topic was pretty popular at the conference. People were really glad to talk about something that was values-based as opposed to academic-based."

The research group published the toolkit on the Ako Aotearoa website and presented it nationally in a number of forums. The team's research was also presented at the International Education Association Conference in 2017, where they received the "Best Workshop Award". Sam is looking forward to working within Ara to implement professional development opportunities that have arisen from the research and toolkit.

To access the toolkit [click here](#). ■

Supporting 'learning as becoming' processes with e-assessments for learning



Dr. Selena Chan

Dr. Selena Chan has been working at Ara Institute of Canterbury for 38 years and spent 18 of those undertaking education research.

A baker/pastry cook by trade, Selena taught students the profession for 25 years before switching from teaching to staff development.

She completed a Master's degree in Education in 2002 at Massey University. Her PhD was completed with Griffith University, Brisbane, and focused on the apprentice's journey.

As an education developer she works with staff to design their programmes and assists them to improve teaching, learning and assessment approaches. The findings and insights from her research inform the work of the Ara academic division and the wider vocational education and training sector.

Over the last ten years Selena received project funding for nine projects from Ako Aotearoa, the New Zealand Centre for Tertiary Teaching Excellence. Two of these were national funded projects, one of which was completed in late 2018.



How do you become a baker, or carpenter? Attaining an occupational identity is important in life as we spend so much time at work. Understanding 'learning as becoming' underpins Ara's approach to teaching and learning. Selena Chan's work conceptualises how apprenticeships develop a professional identity through the phases of belonging, becoming and being. Her research clarifies and applies the influences that support the 'learning as becoming' approach in vocational education.

Selena said her interest in education research developed as she was doing her Bachelor and her Master's degrees.

“The learning from completing these qualifications opened up my horizons to the possibilities for undertaking research into vocational education. In particular to use research to understand how learning in the trades area is enacted and to improve the teaching and learning experience for students in the trades sector.”

Her most recent research project is titled *Multiliteracies - based e-assessments: Guidelines for effective assessment for learning in Level 2-5 programmes post qualification review*. This project was co-funded by Ako Aotearoa and the New Zealand Qualifications Authority. Selena was the project leader in a collaboration with NIMT, Te Tapuae o Rehua and Unitec.

The main objective of the project was to construct guidelines for development and deployment of e-assessments through innovative e-assessment activities. In total there were seven e-assessment activities: three from Ara, one from NIMT,

one with Te Tapuae o Rehua and two at Unitec. At Ara, the e-assessment activities centred around supporting the learning of how to kayak by using video (developed by Steve Chapman, Sustainability and Outdoor Education), evaluating apps to help cookery students improve their vocabulary to describe what food tastes like (developed by Cheryl Stokes - Hospitality and Service Industries) and supporting quantity surveying students on work experience with OneNote class notebook.

Previously most e-assessment activities were centred on text-based summative assessments and focused on the prevention of plagiarism. The multiliteracies e-assessment project took a much wider perspective on assessments for learning (formative assessments) by envisioning digital technologies as enablers for feedback on learning. Feedback from digital technologies can be in the form of learning analytics e.g. graphs from a virtual welding simulator or through online discussion with peers.

The project was conducted with a qualitative method that included an interpretive/constructivist approach to understand how people learn.

“This is because human experiences cannot be confined to black or white, right or wrong answers. The many influences on human lives mean there is no one-size-fits-all answer. Research can only report on perspectives attained from studies set in specific contexts and situations and give an understanding of said perspectives followed by proposed avenues for support.”

The outcomes of the research project were refined into guidelines that can be accessed on the [Ako Aotearoa website](#) and publications on the individual projects are forthcoming.

Impact evaluations of this as well as Selena's other projects show that they have had a big influence on how learning a trade is now viewed. Specifically that learning a trade is a complex journey that requires focused support for students from ITOs, tutors, workplace trainers and managers.

Selena is currently writing a book with the title *Processes, pedagogy and technology enhanced: Learning a trade* which is set to be published in 2020 by Springer. This book collates the main themes that have guided her research through the last decade. ■

The 5Ms Modelling construction productivity





Dr. Serdar Durdyev

Dr. Serdar Durdyev has been a lecturer in construction management at Ara Institute of Canterbury since 2017.

Prior to that he worked in Turkey, Malaysia and Cambodia in the civil engineering industry and as a lecturer at the Malaysian University of Science and Technology and the Cambodian Zaman University.

Serdar has two Master's degrees. He received his first degree in civil engineering from Istanbul Technical University and his second degree in construction management at Massey University.

In 2014 he finished his PhD at the University of Technology Malaysia. His research was funded

by the Malaysian government and focused on construction productivity in the infrastructure industry. He received the Best Student Award for his thesis titled *On-site Construction Productivity Constraints and Improvement Measures in Malaysia*.

Serdar is working closely with other researchers, predominately in Cambodia, Malaysia and New Zealand, on construction productivity, construction safety performance, integrated project delivery, sustainability and Building Information Modelling (BIM). His work has been published in numerous journals and he has been asked to collaborate on Association of Southeast Asian Nations (ASEAN) funded projects.

The construction industry not only makes a remarkable contribution to the performance of the economy of a country but it also serves as a significant source of employment. Failed construction projects and companies seem to be hitting the headlines frequently. Such news can have serious consequences not only for the company but also staff, contractors and the overall economy. In his latest research Serdar Durdyev has found that labour productivity correlates with wages and employment in the New Zealand construction context.

A well-performing construction sector is an essential building block in the socio-economic development of a country, which also enables the growth of other sectors.

Serdar was part of the first research team that used Structural Equation Modelling (SEM) as a methodology in construction productivity studies in Malaysia. SEM is an analysis technique that was used to quantify the relationship between factors influencing construction labour productivity. These factors can be categorised into five areas, called the '5Ms'; management, money, manpower, materials and machinery. Apart from the 5Ms, external factors are also hypothesized as latent factors having an impact on labour productivity.

“Construction productivity has been researched by a number of people but in the Malaysian context there was almost no research focusing on infrastructure, which is a leading sector in Malaysia. The Malaysian government is aiming to achieve higher productivity levels by 2020.”

Serdar said the SEM questionnaire that was developed for the research project was tested and approved by a panel of experts from different levels such as project managers, contractors, senior managers and academics who each had between 5-10 years of industry experience.

In most other studies about construction productivity, labour knowledge and skills have been reported to be the most important factors. However, this groundbreaking study, published in the prestigious *Journal of Construction Engineering and Management*, showed that frontline management teams are responsible for improvements in construction productivity performance. The research concluded that a project management team should familiarise themselves in depth with the planned works before dispatching tasks to the workers. This will result in more effective coordination of tasks. It is also essential to monitor feedback from site activities to better manage performance and be able to identify constraints that might impact on construction productivity.

Additionally, the research recommends implementation of an effective material management system to ensure timely delivery of materials. Continuous client support also significantly helps to enhance the commitment among industry professionals and can assist a management team to improve overall productivity performance.

For Serdar, the next step is to investigate the impact of various innovative delivery methods on construction productivity performance in New Zealand. ■

Time & raindrops creating unique images



Stefan Roberts

Stefan Roberts has worked at Ara Institute of Canterbury for almost 16 years in the Art and Design Department. During this time he was part of the changes the department underwent from teaching analogue photography and film to digital photography. He is teaching students in the Bachelor of Design, specialising in photography.

Stefan's passion for photography started at an early age. His father, a keen amateur photographer, regularly took him to camera club meetings and over time he became fascinated with photography as a means of communication and expression.

In 2018 Stefan was awarded the Premier Award at the Walker & Hall Waiheke Art Awards.



The image Harper River

Waterlog – 92mls features the Harper River close to the Southern Alps. This river is significant as it feeds into the Rakaia River, helping to make it one of New Zealand’s largest braided rivers. The water from the Harper River is also used to feed a hydroelectric power station. The 92mls reference in the title of the work is the amount of rain water collected within the camera.

Some photographers would consider their work ruined if water got on the negatives. Not Stefan Roberts. He has developed a unique way of creating art by using rain water, pinhole cameras and long periods of time.

“My technique is very novel, mixing water and light together with an analogue camera to alter the formation of an image on light sensitive paper. The light sensitive paper forms a negative from which the final image is derived.”

Through experimenting and exploring new creative ways to take pictures he is also highlighting the importance of water as a crucial element that sculpts and nourishes the New Zealand landscape.

“While scientific research into environmental conservation issues is important, adding an artistic approach to the topic can give a general audience another doorway to enter the discussion.

“I want them to be thinking about the natural environment on a larger timescale. When people look at a picture and they realise that it represents such a long period of time it helps them to stand back and think about the environment from a bigger perspective over a longer period of time. It helps them think about how water plays out on the environment.”

Stefan got the idea for this project after one of his long exposure pinhole shots went wrong. “One time, when my camera developed a leak over the long time it was open, water entered and started to damage the paper. I was using paper negatives at the time. So that made me think about a way I could creatively use that result in image making.”

Stefan develops his pinhole cameras from upcycled materials. He uses recycled tins and cans and adds special coatings to them to make them resilient for exposure in the outdoors. He also adds a funnel for the rainwater to trickle into the camera.

“Pinhole cameras are the most basic you can get. It’s basically a dark chamber with a pin prick opening within tinfoil. I work with very precise openings so I generate my own pinholes and I scan them with high-resolution scanners to measure them.

“While there is the ability to develop an ideal opening for your camera, it is important to remember that I am working with such long periods of time and exposure. So many surprises can happen. The water can rot the paper so you have nothing in the end, or you can get a really beautiful image that you wouldn’t have predicted. There is definitely an incredible amount of chance, accidents and discoveries in my work.

“Allowing nature to contribute to the creative image making process is a journey full of surprises. You cannot predict the effect of water in the final image.”

The pinhole cameras are placed in locations that feature water in the landscape such as the foothills of the Alps or in bays around Banks Peninsula. They can remain in the same spot for up to a year. The pictures start off as an analogue paper negative but to print them and archive them, the negative needs to be re-photographed and then inverted using Photoshop.

Stefan says he has to interpret the tones to create the toner range that gives the image its final look. He also cleans up dust spots and blemishes. The project is still in the making with the aim to exhibit around 12 pictures next year.

Over the last few years his art has been exhibited as a finalist in 14 competitions and three images have recently won awards:

- *The National Contemporary Art Award in 2017 - exhibited in the Waikato Museum.*
- *The New Zealand Painting and Printmaking Art Award 2017 - exhibited at the Hamilton Gardens Arts Festival.*
- *Walker & Hall Waiheke Art Award 2018 - exhibited at the Waiheke Community Art Gallery. ■*

2018 Research Outputs

Academic Services

Chapter in Book

Chan, S. (2018). Perspectives of beginning trades tutors on teaching and learning. In S. Loo (Ed.), *Multiple Dimensions of Teaching and Learning for Occupational Practice* (pp.56-71). London and New York: Routledge - Taylor and Francis Group.

Chan, S., Beatty, B., Chilvers, D., Davies, L., Hollingworth, A., & Jamieson, I. (2018). Work-integrated learning in Aotearoa/New Zealand: Diversity, biculturalism and industry-led. In S. Choy, G. Wärvik & V. Lindberg (Eds.), *Integration of vocational education and training experiences. Technical and Vocational Education and training: issues, concerns and prospects* (Vol. 29, pp.165-187). Singapore: Springer Nature Singapore.

Conference Contribution - Other

Chan, S., & Stokes, C. (2018, August). E-assessments for learning: Supporting learning as becoming. Oral presentation at the 27th National Vocational Education and Training Research Conference, Sydney, Australia.

Department of Creative Industries

Authored Book

McCaffrey, T. (2018). *Incapacity and theatricality: Politics and aesthetics in theatre involving actors with intellectual disabilities*. London, UK; New York, NY: Routledge.

Chapter in Book

Chan, S., Beatty, B., Chilvers, D., Davies, L., Hollingworth, A., & Jamieson, I. (2018). Work-integrated learning in Aotearoa/New Zealand: Diversity, biculturalism and industry-led. In S. Choy, G. Wärvik & V. Lindberg (Eds.), *Integration of vocational education and training experiences. Technical and Vocational Education and training: issues, concerns and prospects* (Vol. 29, pp.165-187). Singapore: Springer Nature Singapore.

McCaffrey, T. (2018). Institution, care, and emancipation in contemporary theatre involving actors with intellectual disabilities. In B. Hadley, & D. McDonald (Eds.), *The Routledge Handbook of Disability Arts, Culture, and Media* (pp.189-202). London, UK; New York, NY: Routledge.

Conference Contribution - Other

Beatty, B. E., & Pauling, B. (2018, July). What next for access radio? Futureproofing community radio in Aotearoa New Zealand. Oral presentation at The Radio Conference, Prato, Italy.

Neill, K. (2018, July). Assessing professionalism for New Zealand's changing global media landscape. Oral presentation at the Australian and New Zealand Communication Association Conference, Auckland, New Zealand.

Neill, K. (2018, December). The professional skills required by broadcast journalism graduates entering an evolving industry. Oral presentation at the Journalism Education Association of New Zealand Conference, Wellington, New Zealand.

Vavasour, K. A. (2018, August). Fractured landscapes and frozen moments: Music videos and solastalgia after disaster. Oral presentation at the Royal Geographical Society - IBG Annual Conference, Cardiff, Wales.

Pauli, D. E. (2018, December). Feeling blue and seeing red: The work of Michael Reed. Oral presentation at the Art Association of Australia and New Zealand Conference, Melbourne, Australia.

McCaffrey, T. (2018, June). Framing singularities: The urgent and precarious place of actors with intellectual disabilities in contemporary performance. Oral presentation at the Australian Drama Studies Association, Melbourne, Australia.

McCaffrey, T. (2018, July). Welcome to our world: The promise of hospitality and the threat of hostility in contemporary theatre with actors with intellectual disabilities. Oral presentation at the International

Federation for Theatre Research World Congress, Belgrade, Serbia.

Creative Work - Exhibition

Maillard, J. (Exhibitor). (2018, 6 July - 8 December). Ten seconds on Birdling's flat [aluminum composite], By the Tasman Sea [aluminum composite], Punakaiki [aluminum composite], Near the Sign of the Bell Bird [aluminum composite], Pukaki [aluminum composite]. M. Redding (Curator) In *Art from Down Under: Australia to New Zealand*. Turchin Center for the Visual Arts, Boone, NC.

Thomson, S. M. (Artist). (2018, 1-9 September). Shrinking Place, [screen print]. K. Lowe (Curator) In *Impact 10*. Santander, Spain.

Roberts, S. C. (2018, 10-11 November). Flipped out [site specific camera obscura projections]. J. Arnott (Curator) In *Necessary Traditions*. The Arts Centre, Christchurch, New Zealand.

Roberts, S. C., Lornie, S., Lacey, M., Carter, C., Beaver, J., Batchelor, D., Bagust, J., Pusateri, J., et al & Densham, A. (2018, 19 October - 11 November). Harper River - Waterlog - 92mls [pigment and ink on paper]. N. Ivanoff (Curator) In *Walker & Hall Waiheke Art Award*. Waiheke Community Art Gallery, Auckland, New Zealand.

Creative Work - Other

Maillard, J. P. (Artist), Wall, D., & Henderson, B. (2018). Faerie flute, Pink faerie, Scary faerie. In *Botanic D'Lights*, Hagley Park, Christchurch, New Zealand. Christchurch City Council.

Maillard, J. (Artist). (2018). River of words. In *Botanic D'Light*, Arts Centre, Christchurch, New Zealand. Christchurch City Council and interactive animation in Cashel Street, Christchurch, New Zealand.

Maillard, J. (Artist). (2018). River of words [interactive animation]. Cashel Street, Christchurch, New Zealand.

Pauli, D.E. (Project leader). (2018, 8-12 August). We never knew your name [video installation]. M. McEntyre (Curator) In *Nights of D'Lights*. Botanic Gardens & Art Centre, Christchurch, New Zealand.

Creative Work - Performance

McEntyre, M. (Set designer), Kouka, H. (Author), & George, M. (Director). (2018, 28 February - 4 March). Bless the child. Play. Live performance in Hannah Playhouse, Wellington and Q Theatre, Auckland, New Zealand. Tawata Productions, New Zealand International Arts Festival, and Auckland Arts Festival.

Quigan, A. (Author), Gumbley, R. (Director), & McEntyre, M. (Set designer). (2018, 15 September - 6 October). Mum's choir. Live performance in Court Theatre, Christchurch, New Zealand. Court Theatre.

McCaskill, J. (Author), Gumbly, R. (Director), & McEntyre, M. (Set Designer). (2018, 16 June - 14 July). The biggest. Play. Live performance in Court Theatre, Christchurch, New Zealand. Court Theatre.

Pearce, C. (Trumpet). (2018, 24-26 August). Catch me if you can. Musical. Live performance in Christchurch, New Zealand. Blackboard Theatre Company.

Pearce, C. (Arranger). (2018, 8 September). NZ Music of the 80's: Orchestra, singers combine for memorable music. For Today Concert. Live performance in Horncastle Arena, Christchurch, New Zealand. Christchurch Symphony Orchestra.

Pearce, C. (Trumpet). (2018, 6-21 April). Wicked. Musical. Live performance in Christchurch, New Zealand. Showbiz Christchurch.

Creative Work - Film, Video, Musical Recording

Wilkinson-Baker, V. (Director). (2018) Hyundai Country Calendar, Episode 13 - Super sheep. [Television programme]. New Zealand: TVNZ.

Pearce, C. (Trumpet). (2018) Tami Neilson SassaFrass. [CD]. Christchurch, New Zealand: The Sitting Room.

Journal article

McCaffrey, T. (2018). A dance that draws you to the edge of your seat: Acting and disability faced with technology. *L'archée Revue D'art en Ligne: Arts Médiatiques et Cyberculture*, Juillet, pp. 1-9.

Oral presentation

Pauli, D. E. (2018, May). Edward Fristrom: Lake Wakatipu, c1905. Presented to the Christchurch Art Gallery Te Puna o Waiwhetu, Christchurch, New Zealand.

Beatty, B. E. (2018, March, July). Broadcasting as nation-building: A crucial business. Presented to the University of the Third Age, Art Gallery, Christchurch, New Zealand.

Beatty, B. E. (2018, 31 July). Social cohesion in the digital age. Presented to the University of the Third Age, Art Gallery, Christchurch, New Zealand.

Wilkinson-Baker, V. (2018, August). Ethics and difficulties of making quality television news. Presented to the University of Third Age, Art Gallery, Christchurch, New Zealand.

Other Form of Assessable Output

Borrie, L. (2018). Radio with pictures: A history 1. C. Bourke (Ed.), Audio Culture. NZ On Air: Wellington, New Zealand.

Borrie, L. (2018). Radio with pictures: A history 2. C. Bourke (Ed.), Audio Culture. NZ On Air: Wellington, New Zealand.

Roberts, S. C. (2018). As time passes. Julianne Liebeck, Societe. Photo Essay.

Department of Computing

Conference Contribution - Other

Sarkar, A., & Ghatak, S. (2018, October). Vision API and its application in tertiary sector. Oral presentation at the Rebuilding for a Diverse Future Tertiary ICT Conference, Christchurch, New Zealand.

Conference contribution - Published

Burger, D., Weiß, J., Sarkar, A., Kirsch, K., & Dünweber, J. (2018). Combining fill-level sensing with route optimization for a more efficient waste collection. In R. Bouzas-Lorenzo & A. Cernadas Ramos (Eds.) Proceedings of the 18th European Conference on Digital Government, 1, (pp.24-32). Santiago de Compostela, Spain: Academic Conference and Publishing International.

Sarkar, A., Laybourne, C., & Wingreen, S. (2018). Organizational decision priorities to ensure project management success: A Q-methodology approach. In I. B. M.E. de Waal & P. Ravesteijn (Eds.), Proceedings of the 14th European Conference on Management, Leadership and Governance, 1, (pp.122-131). Utrecht, Netherlands: Academic Conferences and Publishing International.

Department of Business

Authoried Book

Maleka, M. J., Rugimbana, R., Carr, S. C., Meyer, I., Parker, J., & Barry, M. - L. (2018). Reflections on a study conducted in New Zealand and South Africa to ascertain the extent to which living wages are a panacea for a quality life for low-income work. SAGE Research Methods Cases.

Chapter in Book

Chan, S., Beatty, B., Chilvers, D., Davies, L., Hollingworth, A., & Jamieson, I. (2018). Work-integrated learning in Aotearoa/New Zealand: Diversity, biculturalism and industry-led. In S. Choy, G. Wärvik & V. Lindberg (Eds.), Integration of vocational education and training experiences. Technical and Vocational Education and training: issues, concerns and prospects (Vol. 29, pp.165-187). Singapore: Springer Nature Singapore.

Ishrat, S. I., Grigg, N., Jayamaha, N., & Pulakanam, V. (2018). Cashmere industry: Value chains and sustainability. In K. Y. Lo Chris, & Jung Ha-Brookshire (Eds.), Sustainability in Luxury Fashion Business (pp.113-132). Singapore: Springer Singapore.

Conference Contribution - Other

Arbouh, P., Ballantine, P., & Veer, E. (2018). Prior brand attitude and advertising effectiveness. Abstract in the Proceedings of the Australian and New Zealand Marketing Academy Conference, (pp.396). Adelaide, Australia: ANZMAC.

Murray, J. S. (2018, February). Network effects across equity crowdfunding platforms: Evidence from the New Zealand market. Oral presentation at the New Zealand Finance Colloquium, Palmerston North, New Zealand.

Murray, J. S., & Steen, A. (2018, December). Listing activity on the Singapore exchange's main and second boards. Oral presentation at the 31st Australasian Finance and Banking Conference, Sydney, Australia.

Steen, A., & Murray, J. S. (2018, November). Death, disability and digital service agreements. Oral presentation at the 4th International Conference on Private Capital and Intergenerational Wealth, Hong Kong, China.

Conference contribution - Published

Albertyn, F., Hanjra, H., Guttikonda, S., Gandluri, A., & Sangoi, A. (2018). Expanding business intelligence using internet data. In E. Erturk (Ed.), Proceedings of the 9th Annual Conference of the Computing and Information Technology Research and Education New Zealand, (pp.106-109). Wellington, New Zealand: CITRENZ.

Van der Klei, M., Love, T., Nesbit, T., & Carpenter, L. (2018). Making IT occupations more attractive to Maori: Key factors from the literature. In E. Erturk (Ed.), Proceedings of the 9th Annual Conference of Computing and Information Technology Education and Research in New Zealand, (pp.114-120). Wellington, New Zealand: CITRENZ.

Nesbit, T., Chan, M., & Martin, A. (2018). Use of Facebook to enhance student engagement in undergraduate higher education. In E. Erturk (Ed.), Proceedings of the 9th Annual Conference of Computing and Information Technology Education and Research in New Zealand, (pp.59-65). Wellington, New Zealand: CITRENZ.

Journal article

Ahmed, H., & Cohen, D. A. (2018). Stakeholder attributes and attitudes during privatisation: a New Zealand case study. *International Journal of Public Sector Management*, pp. 1-19. doi:10.1108/IJPSM-09-2017-0258

Ahmad, M. U., & Murray, J. (2018). Understanding the connect between digitalisation, sustainability and performance of an organisation. *International Journal of Business Excellence*, 17, pp. 83-96. doi:10.1504/IJBEX.2019.096909

Carr, S.C., Maleka, M., Meyer, I., Barry, M-L., Haar, J., Parker, J., ... & Naithani, A. (2018). How can wages sustain a living? By getting ahead of the curve. *Sustainability Science*, 13 (4), pp. 901-917. doi:10.1007/s11625-018-0560-7

Wu, J., Habib, A., Weil, S., & Wild, S. (2018). Exploring the identity of audit committee members of New Zealand listed companies. *International Journal of Auditing*, 22(2), pp. 164-184. doi:10.1111/ijau.12111

Sharma, R.S., Kshetri, N., & Nesbit, T. (2018). Revisiting Turing's initiation game: A commentary on replacing teachers with internet devices. *Communications of the Association for Information Systems*, 43(4), pp. 432-441. doi:10.17705/1CAIS.04324

Department of Engineering and Architectural Studies

Journal article

Durdyev, S., Zavadskas, E. K., Thurnell, D., & Banaitis, A. (2018). Sustainable construction industry in Cambodia: Awareness, drivers and barriers. *Sustainability*, 10(2), pp. 1-19.

Durdyev, S., Ihtiyar, A., Banaitis, A., & Thurnell, D. (2018). The construction client satisfaction model: A PLS-SEM approach. *Journal of Civil Engineering and Management*, 24(1), pp. 31-42. doi:10.3846/jcem.2018.297

Syed Ahmed, M., & Kabir, S. M. (2018). The acceptance of smartphone as a mobile learning tool: Students of business studies in Bangladesh. *Malaysian Online Journal of Educational Technology*, 6(2), pp. 1-10.

Durdyev, S., Ismail, S., & Kandymov, N. (2018). Structural equation model of the factors affecting construction labor productivity. *Journal of Construction Engineering and Management*, 144(4), pp. 1-11. doi:10.3390/su10020392

Durdyev, S., Ismail, S., Ihtiyar, A., Abu Bakar, N. F. S., & Darko, A. (2018). A partial least squares structural equation modeling (PLS-SEM) of barriers to sustainable construction in Malaysia. *Journal of Cleaner Production*, 204, pp. 564-572. . doi:10.1016/j.jclepro.2018.08.304

Tokbolat, S., Karaca, F., Durdyev, S., Nazipov, F., & Aidynkaliyev, I. (2018). Assessment of green practices in residential buildings: A survey-based empirical study of residents in Kazakhstan. *Sustainability*, 10(12). doi:10.3390/su10124383.

Martek, I., Hosseini, M. R., Shrestha, A., Edwards, D. J., & Durdyev, S. (2018). Barriers inhibiting the transition to sustainability within the Australian construction industry: An investigation of technical and

social interactions. *Journal of Cleaner Production*, 211, pp. 281-292. doi:10.1016/j.jclepro.2018.11.166

Durdyev, S., Eng, H. T., & Cheng, K. Y. (2018). Quantification of critical success factors of contractors in Cambodia: AHP approach. *Journal of Management, Economy, and Industrial Organization*, 2(2), pp. 51-61. doi:10.31039/jomeino.2018.2.2.4

Durdyev, S., & Ihtiyar, A. (2018). Structural equation model of factors influencing students to major in architecture, engineering, and construction. *Journal of Professional Issues in Engineering Education and Practice*, 145(2). doi:10.1061/(ASCE)E1.1943-5541.0000402

Abu Bakar, N. F. S., Ismail, S., Che Amat, R., & Durdyev, S. (2018). Sustainable construction in Malaysian mixed development projects: The barriers and critical success factors. *The Journal of Social Sciences Research*, 6, pp. 885-892. doi:10.32861/jssr.spi6.885.892

Durdyev, S., Ihtiyar, A., Banaitis, A., & Thurnell, D. (2018). The construction client satisfaction model: A PLS-SEM approach. *Journal of Civil Engineering and Management*, 24(1), pp. 31-42. doi:10.3846/jcem.2018.297

Askarinejad, H., Barati, P., Dhanasekar, M., & Gallage, C. (2018). Field studies on sleeper deflection and ballast pressure in heavy haul track. *Australian Journal of Structural Engineering*, pp. 2-10. doi:10.1080/13287982.2018.1444335

Zhang, Y., Sivakumar, M., Yang, S., Enever, K., & Ramezaniapour, M. (2018). Application of solar energy in water treatment processes: A review. *Desalination*, 428, pp. 116-145. doi:10.1016/j.desal.2017.11.020

Ramezaniapour, M., & Sivakumar, M. (2018). Decentralized net-zero greywater reuse for blue infrastructure of a regenerative house. *International Journal of Sustainable Energy Development*, 6(2), pp. 324-333. doi:10.20533/ijesd.2046.3707.2017.0042

Cronje, T. F., & Gaynor, P. T. (2018). Electroporation of Ishikawa cells: Analysis by flow cytometry. *IET Nanobiotechnology*, pp. 58-65. doi:10.1049/iet-nbt.2018.5194

Conference contribution - Published

Askarinejad, H., Chakraborty, A., & Williamson, I. (2018). Application of IoT-based systems in seismic monitoring of structures. In *Proceedings of the New Zealand Society for Earthquake Engineering Conference*, Auckland (pp 1-5). New Zealand: NZSEE.

Askarinejad, H., Xie, W., Le, S., & Suntharavadivel, T. G. (2018). Bond stress-slip of strand in pre-stressed concrete sleepers. In J, Shiau, V. Vimonasit, S. Yazdani & A. Singh, *Streamlining Information Transfer between Construction and Structural Engineering*, (pp.1-6). ASEA Conference, Brisbane, Australia.

Department of Humanities

Authored Book

Hunter, M. A., April, A., Hill, A., & Emery, S. (2018). *Education, arts and sustainability: Emerging practice for a changing world*. Singapore: Springer Nature.

Chapter in Book

Corbett, M., & Hill, A. (2018). Action research and criticality: Working out the stone in your shoe. In D. Kember, & M. Corbett (Eds.), *Structuring the Thesis* (pp.109-120). Singapore: Springer Nature Singapore.

Kezabu, K., McMahon, J., Kember, D., & Hill, A. (2018). Intersections of indigenous knowledge and place based education: Possibilities and new visions of sustainability education in Uganda. In D. Kember, & M. Corbett (Eds.), *Structuring the Thesis* (pp.139-148). Singapore: Springer Nature Singapore.

Irwin, D. (2018). Students and teachers: Te hone moana/the ocean swell: Learning to live with the sea. In M. Brown, & K. Peters (Eds.), *Living with the Sea* (pp.167-182). New York, NY: Routledge.

Yokoyama, T. (2018). Official and realized hiring policy of Assistant Language Teachers in Japan. In J. Crandall, & K. M. Bailey (Eds.), *Global Perspectives on Language Education Policies* (pp.106-116). NY: Routledge & The International Research Foundation for English Language Education.

Conference Contribution - Other

Dofs, K. (2018, June). Second language identity development exposed through student narratives. Oral presentation at the Sociolinguistics Symposium 22, Auckland, New Zealand.

Journal article

Cure, S., Hill, A., & Cruikshank, V. (2018). Mistakes, risk and learning in outdoor education. *Journal of Outdoor and Environmental Education*, 26(2), pp. 153-171. doi: 10.1007/s42322-018-0012-y

Robson, D., & Basse, B. (2018). Advantages and disadvantages of an innovative tablet technology learning activity: A ten year case study in small tertiary mathematics classrooms. *Journal of Information Technology Education: Innovations in Practice*, 17, pp. 225-239. doi:10.28945/4165

Thesis

Heijnen, I. (2018). From place responsive to place constructive outdoor education: A case study of the Port Hills, Christchurch, New Zealand (Masters, Lincoln University). Lincoln, New Zealand.

Department of Nursing, Midwifery and Allied Health

Chapter in Book

Chan, S., Beatty, B., Chilvers, D., Davies, L., Hollingworth, A., & Jamieson, I. (2018).

Work-integrated learning in Aotearoa/New Zealand: Diversity, biculturalism and industry-led. In S. Choy, G. Wärvik & V. Lindberg (Eds.), *Integration of vocational education and training experiences. Technical and Vocational Education and training: issues, concerns and prospects* (Vol. 29, pp. 165-187). Singapore: Springer Nature Singapore.

Conference Contribution - Other

Kovanur Sampath, K., Mani, R., Katare, R., Cotter, J. D., & Tumilty, S. (2018, September). Thoracic spinal manipulation and Achilles Tendinopathy – A mechanistic study. Oral Presentation at the Osteopathic International Alliance Conference, Dubai, UAE.

Kovanur Sampath, K., Mani, R., Katare, R., Cotter, J. D., & Tumilty, S. (2018, August). Changes in tissue oxygenation index of the calf muscle following a spinal manipulation in people with Achilles Tendinopathy. Poster at the Health Research Society of Canterbury Poster Expo, Christchurch, New Zealand.

Aamir, R., Viry, A., Kirkbride, T. E., Rajeswari, M., Stamp, L., Polson, M., Guyen, O., Becce, F., & Anderson, N. (2018, February). Characterisation of calcium crystal types in osteoarthritic meniscus at spectral photon-counting CT. Poster at the European Congress of Radiology, Vienna, Austria.

Kirkbride, T. E., Anderson, N. G., & Raja, A. Y. (2018, February). Use of calcium chloride as a calibration phantom material to aid identification of clinically significant compounds with spectral CT. Oral presentation at the European Congress of Radiology, Vienna, Austria.

Kensington, M., Daellenbach, R., Davies, L., & Gilkison, A. (2018, August). Sustainable rural midwifery in New Zealand/Aotearoa. Oral presentation at the 15th Biennial New Zealand College of Midwives National Conference, Rotorua, New Zealand.

Daellenbach, R., Grigg, C., Tracy, M., Kensington, M., Tracy, S., & Schmeid, V. (2018, August). What influences women to breastfeed? An analysis of the data from the EMU study. Oral presentation at the 15th Biennial New Zealand College of Midwives Conference, Rotorua, New Zealand.

Richardson, A., McAllum, A., Richardson, S., Davies, L., & Yarwood, J. (2018, May). Using the 15 Minute interview in district nursing: An educative, collaborative project. Oral presentation at the 17th National Nurse Education Conference, Melbourne, Australia.

Witherington, J., Jamieson, I., Harding, T., Hudson, D., & Dixon, A. (2018, May). Where are all the men? Nursing's future workforce. Oral presentation at the 17th National Nurse Educators Conference, Melbourne, Australia.

Jamieson, I., Dixon, A., Papps, E., Norris, K., & Short, K. (2018, May). Demographic characteristics of New Zealand Masters pathway nursing students. Oral presentation at the 7th International Nurse Education Conference, Banff, Canada.

Jamieson, I., Dixon, A., Papps, E., Norris, K., & Short, K. (2018, May).

Second degree graduate entry nursing, the New Zealand experience: Why nursing? Why now? Why fast track? Oral presentation at the 7th International Nurse Education Conference, Banff, Canada.

Norris, K., Neville, S., Jones, M., & Milligan, K. (2018, September). Unravelling collaborative practice through Bourdieu's 'Theory of Practice'. Poster at the All Together Better Health IX Conference, Auckland, New Zealand.

Hughes, M., Kirk, R., & Dixon, A. (2018, May). Direction and delegation. It should have been resilient and resourceful. Oral presentation at the 40th New Zealand Nurses Organisation Enrolled Nurse Conference, Christchurch, New Zealand.

Roberts, L. (2018, November). Investing in Youth Students: The policy-data nexus of neoliberal educational governance. Oral presentation at the New Zealand Association for Research in Education Conference, Auckland, New Zealand.

Roberts, L. (2018, August). PhD in progress: Silencing youth through numbers. Oral Presentation at Involve: Looking Back to Move Forward, Wellington, New Zealand.

Conference contribution - Published

Hughes, M., Kirk, R., & Dixon, A. (2018). Telling tales: Using a narrative inquiry approach to explore nurses' perceptions of delegation interactions. In *International Journal of Qualitative Methods*, 23rd Qualitative Health Research Conference, 17, (pp.20-21). Quebec, Canada: Sage. doi:10.1177/1609406917748701.

Hughes, M., Kirk, R., & Dixon, A. (2018). The wondering and puzzling involved in a narrative inquiry approach. In *International Journal of Qualitative Methods*, 23rd Qualitative Health Research Conference, 17, (pp.20). Quebec, Canada: Sage. doi:10.1177/1609406917748701.

Journal article

Choukri, M. A., Conner, T. S., Haszard, J. J., Harper, M. J., & Houghton, L. A. (2018). Effect of vitamin D supplementation on depressive symptoms and psychological wellbeing in healthy adult women: a double-blind randomised controlled clinical trial. *Journal of Nutritional Science*, 7, pp. 1-10. doi:10.1017/jns.2018.14

Bateman, C. J., Knight, D., Brandwacht, B., McMahon, J., Healy, J., Panta, R. K., ... Kirkbride, T... & Butler, P. H. (2018). MARS-MD: Rejection based image domain material decomposition. *Journal of Instrumentation*, 13(5), pp. 2-14. doi:10.1088/1748-0221/13/05/P05020

Crowther, S., Deery, R., Daellenbach, R., Davies, L., Gilkison, A., Kensington, M., & Rankin, J. (2018). Joys and challenges of relationships in Scotland and New Zealand rural midwifery: A multicentre study. *Women and Birth*, pp. 1-11. doi:10.1016/j.wombi.2018.04.004

Kensington, M., Rankin, J., Gilkison, A., Daellenbach, R., Crowther, S., Deery, R., & Davies, L. (2018). 'Living the rural experience-preparation for practice': The future proofing of sustainable rural midwifery practice through midwifery education. *Nurse Education in Practice*, 31, pp. 143-150. doi:10.1016/j.nepr.2018.06.001

Trip, H., Tabakakis, K., Maskill, V., ... Josland, H., McKay, L., Richardson, A., Cowan, L., ... & Houston, G. (2018). Psychological health and resilience: The impact of significant earthquake events on tertiary level professional students. *Contemporary Nurse*, 54(3), pp. 319-332. doi:10.1080/10376178.2018.1503549

Lienert-Brown, M., Taylor, P., Withington, J., & Lefebvre, E. (2018). Mental health nurses' views and experiences of working with undergraduate nursing students: A descriptive exploratory study. *Nurse Education Today*, 64, pp. 161-165. doi:10.1016/j.nedt.2018.02.021

Richardson, D., Adamson, S., & Deering, D. (2018). Therapeutic alliance predicts mood but not alcohol outcome in a comorbid treatment setting. *Journal of Substance Abuse Treatment*, 91, pp. 28-36. doi:10.1016/j.jsat.2018.04.007

Oral presentation

Kovanur Sampath, K. (2018, June). Thoracic spinal manipulation results in neuro-endocrine response in people with Achilles Tendinopathy - a cross-over trial. Presented to the Centre for Health, Activity and Rehabilitation Research, University of Otago, Dunedin, New Zealand.

Daellenbach, R. (2018, 16 May). Well women birth better in primary care: Findings from the evaluating maternity units study. Presented to the Health Research Society of Canterbury, Ara Institute of Canterbury,

Christchurch, New Zealand.

Hughes, M. E. (2018, February, April, May, July). Delegation and direction. Presented to the Canterbury District Health Board, Christchurch, New Zealand.

Hughes, M. E. (2018, 6 October). Direction and delegation the findings and recommendations from a research study in 2017. Presented to the New Zealand Nurses Organisation, Southern Region Enrolled Nurse Section, Dunedin Hospital, Dunedin, New Zealand.

Roberts, L. (2018, 10 May). Tools for academics. Presented to the South Island Tertiary Wellbeing Forum, Ara Institute of Canterbury, Christchurch, New Zealand.

Department of Science and Primary Industries

Journal article

Gamlen-Greene, R., Harding, J. S., Hawke, D. J., & Horton, T. W. (2018). Forest stream biota carbon: nitrogen ratios are unaffected by nutrient subsidies from breeding Westland petrels (*Procellaria westlandica*). *Marine and Freshwater Research*, 69(10), pp. 1508-1516. doi:10.1071/MF17301

Craine, J. M., Elmore, A. J., Wang, L., Aranibar, J., Bauters, M., Hawke, D. J., ... & Zmudczynska-Skarbek, K. (2018). Isotopic evidence for the oligotrophication of terrestrial ecosystems. *Nature Ecology And Evolution*, 2(11), pp. 1735-1744. doi:10.1038/s41559-018-0694-0

Hawke, D., Brown, J., & Bury, S. (2018). The prevention and detection of human error in ecological stable isotope analysis. *Methods In Ecology And Evolution*, 9(12), pp. 2326-2333. doi:10.1111/2041-210X.13077

Department of Hospitality and Service Industries

Journal article

Tran, M. N. D., Moore, K., & Shone, M. C. (2018). Interactive mobilities: Conceptualising VFR tourism of international students. *Journal of Hospitality and Tourism Management*, 35, pp. 85-90. doi:10.1016/j.jhtm.2018.04.002

Conference Contribution - Other

Chan, S., & Stokes, C. (2018, August). E-assessments for learning: Supporting learning as becoming. Oral presentation at the 27th National Vocational Education and Training Research Conference, Sydney, Australia.

Research prizes

Department of Creative Industries

Stefan Roberts

Walker & Hall Waiheke Art Award 2018 - Winner of the Premier Award. The curator and judge for this award was Noel Ivanoff, Director MFA Programme, Whitecliffe College of Arts & Design.

Department of Nursing, Midwifery and Allied Health

Robert Withington

Awarded Best Presenter at the 17th National Nurse Education Conference, Melbourne, Australia, 1-4 May 2018.



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