



Institute of Canterbury

Ara rau, taumata rau

Research Kōrero **2021**



KIA ORA

Welcome

Tēnā koutou

Welcome to Ara Institute of Canterbury's 2021 Research Korero.

Our refreshed vision for research at Ara is for a flourishing and impactful research culture which values, embraces and celebrates the research activities and achievements of our colleagues and learners. Embedded in this vision are the principles of Te Tiriti o Waitangi, partnership, engagement and impact.

These principles have become increasingly salient as a foundation from which to grow the contribution of research to Māori and Pacific learners, disciplines, communities and industries. The coalescence of the Te Pūkenga network, and the (re)focusing of research agenda towards impactful connection and applied outcomes, confirms Ara's position as an important research contributor.

This contribution is reflected in the research stories of this 2021 Research Korero. Ara continues to demonstrate expertise, relevance and impact across a broad range of disciplines and programme areas. We continue to grow our postgraduate research footprint and build our research and development commercialisation capability. The latter has been greatly supported through Ara's partnership with the Ministry of Awesome, via our Te Ōhaka Centre for Growth and Innovation.

The following is a snapshot of the valuable work our researchers are undertaking. Also included is a full list of 2020 research outputs by Ara researchers to illustrate the breadth and depth of our contribution to the research environment and beyond.

Ngā mihi nui



M Shone

Dr Michael Shone
Manager – Research, Scholarships & Postgraduate Studies

Cover image:

Matariki, one of two mauri stones which sit in the heart of Te Matauranga Māori (wharenuī) ki Te Puna Wānaka.

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Researchers collaborating for a sustainable future

Collaboration was a key part of this year's Aotearoa New Zealand Sustainable Development Goals Summit, and being able to work together will be critical long-term for addressing climate change and sustainability, according to Dr Allen Hill.

Dr Hill, who chaired the Summit's workshop, 'Education 2030: Conversations on Revisioning Education in Aotearoa New Zealand', is the principal lecturer in Sustainability and Outdoor Education at Ara Institute of Canterbury.

He has a keen interest in seeing what education and sustainability research could eventuate from conversations at the Summit and is in the early stages of his own investigation into academic staff and student experiences in relation to sustainability.

"The Sustainable Development Goals Summit was a great opportunity to start discussions with others who work in this area," he says. "Around 80 people from different sectors and education settings attended the online workshop, and it was very encouraging to see the relationships it fostered."

"Connections are important, not just for sharing research findings, but for developing the research ideas themselves. Bringing people together helps to identify what actually needs

to be investigated from an education, sustainability and sustainable goals perspective."

The Aotearoa New Zealand Sustainable Development Goals Summit attracts people from different industries to discuss ways of driving meaningful change for the United Nation's Sustainable Development Goals (SDG). The UN's 17 goals were adopted in 2015 as a roadmap for creating a better and more sustainable future for the world's population. Among these goals are gender equality, climate action, an end to poverty, quality education and affordable, clean energy.

Dr Hill reports that sustainability and action on climate change are front of mind for many researchers right across the spectrum, from accounting and teaching through to engineering, nursing and the arts.

"People from all professional backgrounds have entered into this space," he says. "Discussing sustainability really is everyone's business. We're seeing people from many different disciplines to think about the environment, so being able to assemble everyone's ideas and working together is so important for creating a coherent path for the future."

Dr Hill is now beginning a study into exploring the experiences of academics and students in relation to sustainability

and indigenous knowledge, and he will be engaging with the community to collaborate on how the research will come together.

"Initial conversations with tāngata whenua and other stakeholders have been really positive. The study is in the design stage at the moment, but it will be about looking into interdisciplinary and transdisciplinary understandings of sustainability."

He says that, as with previous research at Ara Institute of Canterbury, te ao Māori and mātaunga Māori will be central to the project.

"We have been very deliberate about incorporating a Māori worldview and Māori expertise in our previous studies, and this needs to continue. It's important for our commitment to Te Tiriti o Waitangi and in developing an even greater understanding of our subject matter."

While much of his focus has now turned to sustainability, Dr Hill also remains passionate about Education Outside the Classroom (EOTC). Last year, he completed a study investigating why New Zealand schools were beginning to cancel their excursions and other out-of-classroom experiences, and has been discussing the findings with educators and fellow academics at recent conferences.▲

Dr Allen Hill Department of Humanities

Dr Allen Hill is a principal lecturer in Sustainability and a programme leader of Postgraduate Sustainable Practice at Ara Institute of Canterbury. Prior to joining the institute, he was a senior lecturer in the Faculty of Education at the University of Tasmania, Australia. He obtained his Doctor of Philosophy from University of

Otago in 2011.

A key focus of Dr Hill's research and teaching is how education can engage people with meaningful outdoor learning experiences and contribute to a sustainable future, through connecting people with each other and the places they inhabit.





“ We’ve had some great supporters of the book,” Dr Beatty says. “It’s quite niche but it’s definitely of interest to the people involved in community media and those interested in radio. It’s important to have something documenting this sector.”



A first-of-its-kind book featuring extensive research into Aotearoa’s community access radio stations has been recently published, shining a light on the dedicated people keeping their communities informed, connected and entertained.

The book, *Sharing the Mic: Community Access Radio in Aotearoa New Zealand* was launched in April 2021 at the New Zealand Parliament, coinciding with the fortieth celebration of access media. It was co-authored by Ara Senior Lecturer Dr Bronwyn Beatty and New Zealand Broadcasting School (NZBS) founder Dr Brian Pauling, with editing by NZBS researcher Karen Neill.

Access radio is delivered by the diverse and multi-cultural communities of Aotearoa who are not well served by mainstream broadcast media. There are about 400 different programmes,

broadcast in more than 40 different languages, being produced for access radio stations.

“We’ve had some great supporters of the book,” Dr Beatty says. “It’s quite niche but it’s definitely of interest to the people involved in community media and those interested in radio. It’s important to have something documenting this sector.”

Research for the book was conducted by Beatty and Pauling through personal interviews with people who are currently involved, or have had a past involvement, in access radio. Other research included examining old newspaper clippings and board minutes from New Zealand On Air, which funds access radio. Dr Beatty says annual reports from the individual stations to New Zealand On Air were another important source of information.

“One of the key things I found while doing this research was the enormous commitment that so many people have poured into community radio over the years,” Dr Beatty says.

“There’s a real sense that people are doing something worthwhile and contributing to their community. They also learn from each other and that’s really valuable. There’s an important place for access radio, as it serves many different people and reflects Aotearoa in all its diversity. Having a voice assists social inclusion.”

In particular, Dr Beatty says access radio has played a huge role for communities around Aotearoa during difficult events like the Christchurch earthquakes and the COVID-19 pandemic. There are many shows celebrating different languages and cultures broadcast on access radio stations, and during these

events hosts have been able to translate official information to help reassure people and keep them up-to-date with what is happening.

“You’re always going to feel more reassured by someone who speaks your language or is from your culture,” she says. “Community access radio is nimble and flexible. There are 12 stations in Aotearoa and each has its own flavour and can respond to what their communities need. For example, during the 2020 COVID-19 lockdown, Free FM in Hamilton put together equipment packages for programmers so they could carry on over lockdown and continue to create high quality content.”

Upon its release, the book was the best seller of the week at Unity Books in Wellington. A book signing was also hosted by the authors at the store in June.

Dr Beatty says her research will be ongoing. The next project on her list is delivering a presentation on the varying uses of technology in the access radio sector, which she will present at an upcoming conference. The presentation will explore how radio is more than just a live broadcast and how different stations are producing media to be listened to on-demand, like podcasts. She says she hopes that more will be written about the individual access radio stations serving New Zealand in the future, documenting the passion and endeavour that goes into access radio and the important role it plays for many minorities.

“There’s a lot to explore with access radio and I intend to keep engaging with it,” she says. ▲



Dr Bronwyn Beatty
Department of Creative Industries

Dr Bronwyn Beatty contributes to the Media Ecology programme at the New Zealand Broadcasting School, where contextual aspects of the media such as history, audiences, ownership and representation are explored. She has researched fan culture and popular culture, but her current research focuses on access media; its history; the sector’s responses to crises; and its ongoing value to an increasingly diverse society.

USING **Aroha**
TO DISMANTLE **HATE** IN
Aotearoa



In the aftermath of the deadliest terror attack in New Zealand history, the displays of kindness from people around the country played a pivotal part in the healing process for Aotearoa's Muslim community.

Ara Architectural Studies tutor Dr Mazharuddin Syed Ahmed, himself a survivor of the 2019 mosque shootings, started researching and documenting the outpouring of support in Christchurch from the very next day, as he walked through the city taking photos of what he observed.

In the weeks following, reporters from around the world descended upon the city and began broadcasting to millions of viewers. Their backdrops were filled with the tens of thousands of floral tributes and handmade cards and posters people had laid in memory of the 51 people who were killed, and the dozens of others injured or affected by the attacks.

Since then, Dr Ahmed has accumulated documentation and images of more than 100 displays of kindness including memorial events,

vigils, kapa haka performances, tribute shows, bicycle rides, community dinners and interfaith gatherings. He has used the material that he has documented to develop a course, Using Aroha to Dismantle Hate in Aotearoa, which he has delivered to various groups including the New Zealand Police and Defence Force, as well as religious groups and other professionals.

"The March 15 attack is one of the biggest events that has happened in New Zealand history and it's one that



affected everybody in some way," Dr Ahmed says.

"One of the biggest things I learned while researching and photographing the events and tributes was that there was a collective thinking among New Zealanders to do something and act, rather than just stay at home and read about it. It's something that people around the world saw. There has been this huge growth in how people overseas view New Zealand, from the response to the attacks and then the response to COVID-19. People say we are very blessed to be here."

The feedback he has received from people who have attended the course has been incredibly positive, with many saying they found great value in taking part.

Since there is no formal teaching content available yet about the mosque attacks, Dr Ahmed says it is his goal for his course to be formally recognised and included in humanities or law studies as part of the curriculum in the future.

Originally from India, Dr Ahmed moved to New Zealand in 2013 to complete his PhD in technology integration in engineering and architecture education at Ara.

He is also planning the next step for his research, which is finding the support he needs to convert what he has documented into a book or into some form of national archive that future generations can access and learn from.

"I think it is an important way to honour the people who have been affected," he says. "Every month, there is still something happening to show solidarity and to remember. Each one of these events captures a moment in time that helped support and connect communities together. I hope people are inspired to continue sharing the messages of love, peace and harmony from these acts of aroha."



Dr Mazharuddin Syed Ahmed
Department of Engineering & Architectural Studies

Dr Mazharuddin Syed Ahmed has a doctorate in Technology Education Data Mining. He is an experienced academic at Ara Institute of Canterbury where he teaches Building Information Modelling, virtual design and construction. He has experience in teaching and research that spans over 21 years. He also has experience in building performance analysis,

data visualisation, student mentoring, integrating educational technologies and curriculum development. He is actively engaged in spreading awareness of the dangers of hate and he is also developing a framework for Smart Citizens which aims to build professional development for future job skills.

CHANGING UP OUR ACT:

innovative greywater treatment design helping to improve sustainability

Safeguarding access to enough clean water has been a growing concern for many urban communities around the world, and its importance for New Zealand has not gone unnoticed.

Dr Matt Ramezani Pour from Ara Institute of Canterbury, with the assistance of Professor Muttucumara Sivakumar (University of Wollongong), has led an innovative study into the development of a water treatment system that makes greywater from washing machines potentially suitable for reusing around the house or garden, or perhaps even drinking.

Washing detergents used in households around the country are a type of surfactant, a substance that makes water molecules slipperier so that they are able to interact with oil or grease on dirty laundry.

Dr Pour says that, unfortunately, the surfactants also make it difficult for water treatment systems to filter the greywater, when the aim is to convert greywater to vapor which mimics what occurs in nature in terms of water cycle.

His research has however uncovered an effective solution that he hopes will support green home design and water sustainability in the future.

“There are different types of membranes used to filter substances from water – whether that be drinking, waste or greywater,” he says. “The surfactants we put in washing machines lead to what is known as ‘membrane wetting’, where the filtration system stops being able to effectively separate the substances in the water.”

Through his research, Dr Pour has found a way of removing the surfactant before it reaches the membrane, using an innovative solar-powered electro coagulator unit.

“We have built an electrocoagulator unit that passes electrical current through the greywater, turning the surfactants in the water into sediment and scum. We are then able to easily remove these substances, ready for the water to pass through the membrane filtration.”

“We test the clean water that comes through the membrane distillation unit to monitor how the system is operating

and have found that pure water can be generated from washing machine discharge.”

The project has launched a new era of research into membrane distillation for greywater treatment, and Dr Pour says it has the potential to be implemented in green buildings and smart homes.

“There has been quite a lot of work happening in the water scarcity and sustainability space, but there are gaps in the research,” he says. “My work has focused on addressing some of these gaps and investigating how the filtration system can use solar power or another source of renewable energy.”

“Hopefully, we live in a country where water scarcity does not become an ongoing problem for our future, but we need to look ahead and think about what problems we may encounter. This research is an important part of developing sustainable solutions and valuing the principles of kaitiakitanga.”

Dr Pour is now finishing the development of the electrocoagulation unit and membrane distillation system. The final stage will see the system connected to a solar power source. ▲

Dr Matt Ramezani Pour

Department of Engineering and Architectural Studies

Dr Matt Ramezani Pour is a senior lecturer in engineering and architectural studies at Ara Institute of Canterbury. He has a particular interest in water and wastewater treatment including hybrid processes; groundwater and stormwater pollution management; mining-impacted wastewater treatment; sustainable urban water restoration; membrane

distillation and desalination techniques; renewable energy; and information modelling. Dr Pour completed his PhD in Environmental Engineering at the University of Wollongong, Australia, and has published more than 30 articles and conference papers on his areas of expertise. He has lectured at Ara Institute of Canterbury since 2016.





***Transmission —
performance design
for verbatim theatre***

Aotearoa's response to the COVID-19 pandemic, and swift elimination of the virus during a nationwide lockdown in 2020, made headlines around the world.

Leaders including Prime Minister Jacinda Ardern, Finance Minister Grant Robison and epidemiologist Michael Baker became household fixtures on television news broadcasts.

When Ara Senior Lecturer Mark McEntyre was asked to design and develop the set for a theatre production based on a series of interviews with these leaders, he knew it would be an exciting challenge.

Co-directors Stuart McKenzie and Miranda Harcourt conducted several interviews with Ardern, Robison, Baker and journalist Mei Heron in 2020. The verbatim excerpts from these interviews formed the script for the project, called Transmission.

"I hadn't worked on a verbatim theatre project like this before but I had worked with Miranda and Stuart a number of times," McEntyre says. "They are very highly respected in New Zealand and

internationally, so I felt lucky to have the opportunity to work and spend time with them and their team."

McEntyre says he spent about four months working on the set design which included conceptualising how the stage would look and the architectural elements. A lot of this time was dedicated to researching other pieces of verbatim theatre, as well as many online meetings with the creative team. One of the main challenges was thinking about how each design element would impact the narrative of the script.

"We looked at the topic of COVID-19 and the things you saw in the media at that time, like the signs and banners from the 1pm briefings delivered by the Prime Minister, and the visual language from that. We even researched streetscapes and the architecture of the Beehive," he says. "There were lots of ideas and it was a case of coming up with something and then really stripping it back and refining it."

He says there were many details to be considered, such as the surface colours on the stage and the tape

on the floor, and how the lighting or projector would make each element look. Since Transmission was a new and original piece of work that hadn't been previously performed, there was no guide to follow like other well-known productions.

"Any concept needed to fit with what the sound and lighting crew were doing, so it was very much a collaborative process, and there was a lot of dialogue between the key creatives involved," McEntyre says. "It was a very simple, pared back set but its complexity came from the narrative and how the story was told. We were putting together the threads from the interviews with design elements and thinking about the impact they would have. Everything the audience sees has to have been deliberately considered to be there."

The project received funding from Creative New Zealand for its initial development stage. Opening night at the BATS Theatre in Wellington was a big success, with the Prime Minister in attendance along with other notable guests. ▲



Mark McEntyre

Department of Creative Industries

Mark McEntyre is best known in the theatre world for his set designs for Tawata Productions, Pacific Underground, NZ International Festival of the Arts, Melbourne Arts Festival, Christchurch Arts Festival, Taki Rua Productions, The Court Theatre and The Auckland Theatre Company. Mark has represented

New Zealand in the Prague Quadrennial of Scenography and Theatre Architecture. This year has been a busy year completing projects for Toi Toi Opera and Stuart McKenzie and Miranda Harcourt on a new production called 'Transmission'. Mark has also taken part in the Prague Quadrennial for Performance Design and

Space. Mark's particular design focus in the last fifteen years has been his design collaboration with Māori and Pacific Island theatre practitioners. Currently, Mark is a Programme Leader in Applied Visual Arts, Bachelor of Design at Ara and has just finished his Master of Creative Practice.



MĀUI MUA

Research into the experiences of Māori taira/students who were the first in their whānau to enter tertiary education, is helping to shape new models for success in learning at Ara Institute of Canterbury.

The Māui Mua project involved interviews with taira who graduated with a Māori language degree. The findings from this research and analysis of the taira learning experience, from their first day through to graduating, are being used to develop the Māui Te Taira initiative, to create culturally specific learning models for Māori, including pastoral support, mentoring and teaching practices.

The research has involved contributions from Department of Humanities researchers and kaiako Heperi Harris, Mariechen Ngarotata, Reimana Tutengaehe, Niki Hannan and Faye Wilson-Hill. Their work examines what skills and strategies are needed for taira to be successful graduates, what support mechanisms are needed and how Māori graduates have transferred their learning at Ara into life after their studies have ended.

“What we’re trying to do is create better mindsets,” Tutengaehe says. “We want to develop people’s mentalities and their philosophies to help them through study. For many whānau with a first-generation tertiary learner, there is very little understanding of what tertiary learning entails and the demands it puts on that person.”

The research findings will help identify any gaps in the Māui te Taira initiative and guide programme design and delivery to support Māori achievement.

“Māui Te Taira, which our research is informing, is largely based on Joseph Campbell’s The Hero’s Journey, which is a narrative template for the success of a hero,” Tutengaehe says. “We’re telling this narrative to our students using Māui and all the stories relating to Māui. Everybody experiences elements of it every day, in every situation that they come across.

So when taira become familiar with this framework, they can start to identify things in their life and where they might be in terms of the cycle.”

Analysis of the interviews has demonstrated how important Māori values and tikanga are to the success of taira. Hannan says that many students embark on a journey of self-discovery while learning and interacting with their peers and teachers.

“They’re culturally reconstructing as well,” Hannan says. “Some are getting in touch with who they are in terms of being Māori. They’re building their ability to start talking in Te Reo and being able to encourage and transform their whānau and themselves. This is a very big ask and it’s different from what many other students face.”

Hannan says that throughout the interviews, taira would talk about what kept them going through their studies. She says they were highly motivated by the modelling of their tutors, academic

support from Ara, and being immersed in tikanga Māori. Findings also highlighted the importance of students supporting and encouraging each other through challenging times and building strong relationships.

“It’s really important to note that the students were totally immersed in tikanga, Te Reo and mātauranga Māori,” says Tutengaehe. “All those students are now holding important roles in the community. There is someone working in the Māori Land Court, there are secondary school teachers, and there are several people who are working in pastoral care positions in organisations. They were transformed by this way of learning.”

Currently, the researchers are putting together an article for publication about their findings and creating presentations about the research. Tutengaehe says that future research will likely look at staff capability and how Māui te Taira can be embedded in teaching practices.▲



Reimana Tutengaehe
Department of Humanities

Reimana Tutengaehe has been a kaiako and member of staff at Ara Institute of Canterbury since 2011. He has contributed considerably to the design of current programmes held at Te Puna Wānaka, located at the institute’s central Christchurch campus. Reimana holds a Te Panekiretanga o Te Reo Māori and a Bachelor of Languages (Māori).

His goal is to instill positivity in learning environments and he enjoys both theoretical and hands-on approaches to teaching and learning.



Niki Hannan
Department of Humanities

Niki Hannan is a kaiako on the Graduate Diploma of Tertiary Teaching at Ara Institute of Canterbury. Niki and colleague, Charmaine Tukua facilitate Te Tiriti Workshops on the Teacher Education qualifications. Niki has over 20 years’ experience as a teacher educator in community and tertiary settings.

Engaging offenders in *rehabilitation*



Ongoing research shows male offenders are more likely to successfully engage in rehabilitation if they are involved in the process, take ownership of their situation, and work alongside people with lived experience.

Ara Institute of Canterbury Senior Academic Dr Andrew Frost says his research could extend the development

of new targeted strategies to help achieve positive rehabilitation outcomes. He has been discussing the results with colleagues in Australia and North America, and the hope is that they can soon apply the research in real-life prison populations.

With a background in social work, Dr Frost has worked in violence, abuse and offender rehabilitation research

since the early 1990s. For many years, he worked at Kia Marama, Rolleston Prison's special treatment unit for sex offenders, where he was involved in setting up a therapeutic community and supervised the unit's therapy programme. Some of this work formed the basis of his PhD and, most recently, his Ara Institute of Canterbury research.

Dr Frost's research, which was conducted at Kia Marama, focused on men taking part in a programme of group rehabilitation, key sessions of which were recorded with their permission. "They were invited to discuss their offending and background in ways which incorporated their responsibility for their abusive conduct," he says. "And we asked them to identify the parts of that session which were particularly salient and rang bells for them. We then played the videos back to them in a laboratory setting and asked them to comment on what they saw of themselves, to articulate their thoughts, and discuss the experience."

This work helped to build an idea of the various ways clients engage with a rehabilitation programme. The results were subsequently validated by recent research. In other research, programme participants were asked to talk about their overall experience of being in prison and taking part in the rehabilitation programme. With their permission, recordings of these conversations were played to men coming into prison to inspire those resistant or reluctant to participate.

"It had good therapeutic benefits for the men who had completed the programme, because they felt like they were giving something back," Dr Frost says. "And the new men were being convinced they should engage with rehabilitation by their peers, rather than us."

"Because of my social work background, I focused on interpersonal aspects of rehabilitation, rather than intrapsychic. I'm interested in peer support and group work, how men relate to and inspire one another."

Through his research, Dr Frost has identified four main ways that people engage with rehabilitation. One is that the person genuinely wants to understand how and why their offending took place and will encourage other men to try therapy. Then there are those who will deny, resist and refuse to engage. Others want to please people (placatory) and some are anxiety-driven - afraid of the consequences and the responses of others - and will adopt strategies to avoid engagement. Dr Frost is now looking into whether

these four engagement styles may correspond with adult attachment styles, which form in childhood and stay with us throughout our lives.

In the shorter term, his research means rehabilitation strategies can be adopted and applied to work for a wider range of people. "We can learn to predict the way men will engage in programmes because they can be very resistant," he says. "If we can predict this, we can be better at identifying their needs and tailoring responses."

"It's about engaging them in a reconsideration of their lives, in terms of what they want to get out of them. What do they want to achieve? If it's things like love and respect, are there better ways to achieve that?"

Dr Frost has been discussing his findings with colleagues in North America and Australia and the results are promising. "We are going to look at prison populations in Australia and are hoping to test these theories there," he says. ▲



Dr Andrew Frost

Department of Applied Sciences and Social Practice

Dr Andrew Frost has been working, teaching, and researching in offender rehabilitation since 1993. At Ara Institute of Canterbury, he teaches social work and professional supervision qualifications. Prior to that, he led a team of educators in the Domestic and Family Violence Practice programme at CQUniversity. His practice and award-winning research

into group work with violent offenders, along with the establishment of a forensic therapeutic community, has spawned a range of publications across books and academic journals. Theoretical models and other outcomes from this work have been used by state, NGO, and independent service providers to inform practice. Andrew is the

co-author of a 2019 textbook on domestic and family violence for students and practitioners, published by Routledge UK.

Dr Frost currently coordinates a course on professional supervision and his latest research concerns the connections between problem gambling and family violence.

Learning in LOCKDOWN:

delivering practice-based training during COVID-19

What happens when a hairdressing student can't practise hair cutting techniques? If a welding apprentice has no access to their equipment? Or if a trainee chef hasn't worked in a commercial kitchen?

This has been the conundrum faced by teachers and their students around the world, ever since COVID-19-enforced lockdowns saw workplace-based training shift to dining room tables and home offices. When Ara Institute of Canterbury students were forced to study at home, educational developer Dr Selena Chan wanted to find out how to support them in the best way possible.

"Ara is a hands-on, practise-based learning institute," she says. "Our teaching and learning occurs in our labs, studios, workshops, training kitchens and restaurants, hairdressing salons and barber shops, so when Aotearoa went into lockdown in 2020, it was a significant challenge."

"Before this time, we had never really considered moving everything to distance learning because it really disadvantages trades learners."

Dr Chan based her research on her own 41 years' experience at Ara, which included 25 years as a baking tutor, research and scholarship on 'how learning by doing' is best supported, and discussions with international colleagues. She drew on this information to write the e-book, Digitally Enabling 'Learning by Doing' in Vocational Education: Enhancing 'Learning as Becoming' Processes, which was published in July 2021. Dr Chan has since presented her findings at online conferences and received a considerable amount of positive feedback.

"The concepts described in the book came about when, Ara Whakapiki Ako (AWA), was working long hours during the first semester of 2020 to support colleagues to shift to distance learning," she says. "My colleagues in Australia are now back in lockdown and are struggling with the effects of continual closure of their institutions. The concepts, frameworks and recommendations in the book have helped them focus on the salient learning required, and to re-evaluate and reconfigure the ways assessments are carried out."

According to Dr Chan, the subject of supporting practise-based learning through distance delivery, has been a surprisingly un-researched field. "There is very little in the literature on supporting vocational education with digital learning," she says. "There has been some anthropological research, such as how we learn crafts, but one-on-one teaching and learning is difficult to apply into a formalised learning environment."

In her findings, she concluded that there are ways to replace some of the face-to-face aspects of workplace-based training, but it is not the best way to teach vocational subjects. "When we have to go to remote teaching, there's often no time to build the resources and it takes a great deal of research," she says. "There is a lot of stuff online, such as on YouTube, but it tends to be either very DIY-based and not professional enough, or American and in feet and inches."

"Some aspects of learning hairdressing and cooking, for example, may be able to be done in the home during a lockdown, and vet nurses, for example, have been very creative about it, but things like



welding become more difficult because students haven't got the tools at home."

One way to overcome this, says Dr Chan, is for tutors to look at ways we know learning occurs best in practise-based study, and develop tools and strategies as support systems.

"The fallback is to cover the theory first," she says. "Tutors need to identify the key learning that needs to happen, and that might not be the actual 'doing' with machinery or equipment. It might be the ability to observe, sketch or calculate things. It's about being a bit more creative and having the ability to adapt."

"There's no best tool, app or magic ingredient. We need to ask, 'what's the learning outcome?' 'How do we best achieve it?' Then, match the learning required with an online tool or online learning activity."

Dr Chan is currently co-editing a book tentatively titled Innovations in Aotearoa NZ Vocational Education and Training and has started writing a follow-up book: Learning Design to Enhance 'Learning by Doing'.



Dr Selena Chan
Academic Services
Division

Dr Selena Chan is an educational developer at Ara Institute of Canterbury. Her research informs her work which includes facilitating curriculum development, technology-enhanced learning projects and academic staff development. She has worked on various projects, many funded by Ako Aotearoa (the NZ Centre for Tertiary Teaching Excellence). These projects have focused on enhancing learning for trades and work-placed based learners.

She has published widely in vocational research journals; authored two books (the most recent – Digitally Enabling 'Learning by Doing' in Vocational Education); is the co-editor for the International Journal of Training Research and is on the editorial board for the Journal of Vocational Education and Training.

Māori pedagogies in post-disaster recovery

Ngā kaiako o Te Puna Wānaka tell their stories of teaching through the 2011 Christchurch earthquakes. (A Māori perspective told 10 years later).

Ten years after Christchurch's devastating 6.3 magnitude earthquake, six academic staff from Te Puna Wānaka at Ara Institute of Canterbury have been interviewed about their experiences during this difficult time and how Māori pedagogies (teaching methods) assisted them and their ākonga (students) to cope and continue with their work programme.

The research was led by Te Puna Wānaka programme leader Charmaine Tukua and teacher educator Niki Hannan, who were both working at CPIT (now Ara Institute of Canterbury) at the time of the earthquake.

Together, they looked at Māori pedagogies used before, during and after the 22 February 2011 earthquake. "We wanted to know how important they had been in assisting our students during this time of crisis - the majority of whom graduated from their courses and went on to successful careers in teaching, management, and other fields," Tukua says.

Maintaining continuity of teaching and learning was incredibly difficult after the earthquake, as several parts of Christchurch were badly damaged, including the Central Business District and eastern suburbs. CPIT was in the central city and most of Te Puna Wānaka's ākonga lived in the east.

While it took six weeks before some parts of the institute were back up and running, Te Puna Wānaka's kaiako used their connections to relocate their ākonga to the Cashmere Club (a local workingmen's club). They started teaching within two weeks, establishing a safe environment for students using Māori tikanga and mātauranga Māori to allow adaptive Māori pedagogies.

The team also went above and beyond to support ākonga to keep learning. "Because there was no public transport, staff picked up students in the east in a van and took them to Cashmere," Tukua says. "There was a sense of normality at the Club that was not in their suburb, community or whānau."

Although most of the Cashmere Club members had little experience of young Māori and Pasifika people from Christchurch's eastern suburbs, Tukua says they were incredibly supportive.

"They allowed us to establish a safe environment, fed us and looked after us. We didn't want to leave, they embraced us and showed us hospitality and whanaungatanga."

During the day, the Te Puna Wānaka team used the core elements of Māori pedagogy, including karakia, waiata, ako, wānanga, whanaungatanga and kōrero, to immerse students in their learning.

"From our experience and talking to the six research participants, we found that the Māori protocols used in this environment made for quite a unique and powerful pedagogy," Tukua says. "For example, we did a lot of work through wānanga or workshops. And we used tuakana/teina where you pair those with knowledge with those still learning. It worked so well, our degree students continued working with our new students for some time after we returned to campus."

Mason Durie's Te Whare Tapa Whā model for Māori Health also assisted kaiako to take a holistic approach to their teaching. "We truly wanted to know what was happening for ākonga and their whānau. No-one had the same story," Tukua says.

As part of Taha Hinengaro (one of the model's pillars, which focuses on the mind or mental wellbeing), students were asked to write for 30 minutes each morning about how they were feeling and what they were experiencing. Their tutor was allowed to read it but with little emphasis on correct use of Te Reo. Hannan used the focus group process to support the kaiako, Tukua says.



"The results from our research concluded that following the February 2011 earthquake, the Māori pedagogies that were used helped our staff to cope and our students to successfully complete their studies," she says. "It affirms that Māori, like other indigenous

people, have a way of being in times of crisis that should be valued. We have important contributions to make."

Charmaine Tukua and Niki Hannan are now looking to pursue further research into creating

a resource for new emerging teachers on pedagogies/strategies to cope during times of crisis. ▲



Charmaine Tukua

Department of Humanities

Charmaine Tukua is of Tainui and Kai Tahu descent and is a programme leader and pouako for Te Puna Wānaka at Ara Institute of Canterbury. She is responsible for leading all Māori and Pasifika programmes and teaches te reo Māori both at the institute and externally. She has decades of experience as a Pouako/educator.



Niki Hannan

Department of Humanities

Niki Hannan is a kaiako on the Graduate Diploma of Tertiary Teaching at Ara Institute of Canterbury. Niki and colleague Charmaine Tukua facilitate Te Tiriti workshops on the Teacher Education qualifications. Niki has over 20 years' experience as a teacher educator in community and tertiary settings.



Tackling inequity

providing the data for women's sport

New Zealand is a world leader in women's rugby, but access to GPS tracking technology is helping to further improve equity in the sport and increase opportunities for athletes to perform at their best, according to Dr Peter Olsen.

Dr Olsen is the principal lecturer and programme leader for the Bachelor of Applied Science and the Certificate in Exercise at Ara Institute of Canterbury. As part of a team* at Ara, he has completed a study that captures the movements around the field of the Canterbury Women's Rugby team.

Dr Olsen explains that professional rugby teams have been using global positioning system (GPS) technology for many years to fine tune the amount of training, intensity of activity and recovery needed for players to be at their best. But until very recently, this tool was largely only being used for male athletes, and there had been a gap in information available on the women's game.

"Women's rugby is an area of research that hasn't received a lot of attention," Dr Olsen says. "Training regimes and game strategies are typically based on data from the men's game. Prior

to our research, the only published study on female players using GPS had examined just two rugby positions. We were the first to conduct this research over the course of a playing season for all team positions."

The GPS units, which are attached to vests during training sessions, or sit inside a pocket at the back of players' necks in a game, track data such as top running speed, distance travelled, tackles and collisions, and acceleration.

Trainers and coaches then analyse the information to determine not only how well each player is performing, but to customise their training regime, decide

how much rest or activity they need to recover, and even how they safely return injured players to the game.

Dr Olsen's study was carried out in 2018 on the Canterbury Women's Rugby team which plays in the country's provincial competition, the Farah Palmer Cup.

"We found that total running distances in a game were similar to the data from male players, but less distance was covered at high speeds, especially for the outside backs such as wingers and fullbacks.

"We suspect that this is probably due to there being less kicking in the women's game relative to male data, which had been found in previous research of World Cup rugby matches.

"We also found that the half back position recorded the greatest distances for running, high intensity running, and distance overall compared to all other positions on the field. This corresponded with data from male half backs."

The opportunity to collect GPS data for the women's game got underway after Dr Olsen's manager, James Jowsey, approached him about using the technology for the Canterbury Women's team.

"They didn't have their own GPS units and it was great to be able to do that for them. James has been involved in rugby for a long time and has coached a lot of teams including the Canterbury Women's team. We had some excellent connections with Canterbury Rugby Union through Mark Vanner and also with our student placement at the team, Alice Busbridge.

"Alice collected the data for running distances and speeds. We then shared the findings with the coaching team, so they could use it to help inform their training sessions," Dr Olsen says.

Information from GPS units is used to design training programmes and conditioning for athletes. Dr Olsen says it's an important tool for finding

the 'sweet spot' between under- and over- training a player. Training too hard or not enough can lead to injuries or impact how well players perform on the field.

He says the study has not only been a good step in improving knowledge about women's rugby and bringing greater equity to women's sport but has fostered wonderful collaborations between Ara Institute of Canterbury and Canterbury Rugby Union.

"Thanks to the relationships we've built on, we are now looking at collaborating with the union on researching nutrition, health and wellness for players. It's a great opportunity to learn and support female athletes in a high-performance environment and promote equitable opportunities in sport."

*Dr Peter Olsen (Ara Institute of Canterbury), Alice Busbridge (Ara Institute of Canterbury), Professor Michael Hamlin (Lincoln University), James Jowsey (Ara Institute of Canterbury, Canterbury Rugby Union) and Mark Vanner (Ara Institute of Canterbury). ▲



Dr Peter Olsen
Department of Applied Science and Social Practice

Dr Peter Olsen is the principal lecturer and programme leader for the Bachelor of Applied Science at Ara Institute of Canterbury. He has a passion for teaching and sports science, particularly sports performance and evaluation. Dr Olsen teaches a wide range of sport science and research courses and has a keen interest in investigating sport performance and health in real world settings.

MARS Bioimaging, the next frontier of diagnostic medicine

Revolutionary new 3D colour x-ray technology, developed by MARS Bioimaging Ltd (MBI), has the potential to drastically change diagnostic medicine. Images produced by the MARS Imaging System (spectral photon-counting CT scanner) are so clear, it's like looking at a colour photograph of the internal workings of the human body. Bone is easily distinguishable from fat and soft tissue, and any anomalies quickly identified for early treatment or preventative measures.

At the forefront of this incredible work is the MARS Bioimaging team, based in Christchurch. One of these researchers is Ara Institute of Canterbury Bachelor of Medical Imaging programme leader, Dr Tracy Kirkbride.

"This new imaging system is breathtaking," Dr Kirkbride says. "We have started trials in bone health but there are so many areas this technology could go. It's basically the difference between having a digital camera that

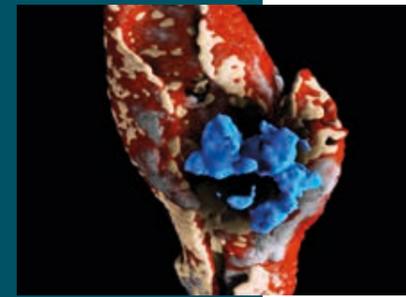
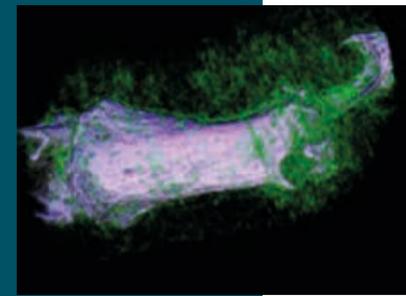
produces colour images, to one that produces black and white images. It is next level technology that could, in the future, be used in cancer diagnosis, and cardiovascular and brain imaging."

With a traditional x-ray-based imaging system, x-rays are sent into the body. Some will be allowed through and, depending on the type of the material, a certain amount will be stopped. Detectors then count the number of x-rays that make it through the different areas of the body, which result in the x-ray image. With the new colour system, however, the detectors also count the energy of the x-rays getting through the body.

"An x-ray beam consists of a range of energies," Dr Kirkbride says. "If the detector can see that the material stops the different bands of energies by different amounts, then the material itself looks different in the image. Bone, soft tissue and metal all stop x-ray energy differently, so we can identify each type of material and assign them a different colour in the image."

MBI was co-founded in 2007 by Professor Phil Butler and Professor Anthony Butler. The MARS Microlab 5x120, designed for preclinical research, is based on x-ray detectors developed by the European Council for Nuclear Research (CERN), as well as the University of Canterbury, University of Otago and others. The overarching goal is to improve access to healthcare, with the hope that one day clinical scanners, such as the MARS Extremity 5x120, will be available in GP and after-hours clinics across the globe (www.marsbioimaging.com).

For the MARS system to recognise different materials, it needs to be programmed using a 'phantom'. Part of Dr Kirkbride's research has been to develop phantoms that contain different calcium compounds found in the body to determine whether the system can differentiate them. Her internationally published work has involved developing phantom data and protocols for the MARS Imaging System.



"When I started, we used calcium chloride solution as the signal for bone," Dr Kirkbride says. "I was working in breast screening and because there are two types of calcium inside potential breast pathology, I thought, why can't we see the two different types of calcium? I adjusted the settings and we proved that the system could distinguish these small differences in the materials."

"So now we've developed other protocols that can be used with the system, depending on what pathology we're scanning for. One of these protocols is used for highlighting contrast material or things that change quite drastically, and another is for material that looks quite similar. As a result, we can now image gout, the properties of which are very similar to bone."

With the correct protocol, the MARS Imaging System has the ability to see pathology within the body. So, in the future, medical professionals will be able to identify areas in the body that are prone to conditions such as osteoarthritis and step in to treat them. This opens the door to preventative medicine opportunities, such as identifying cancers and observing whether a drug treatment is working.

The MARS Imaging System is also unique in the way it can identify and assign a colour to metal. If, for example, a patient with a hip implant underwent a traditional CT scan, the implant could mask the surrounding region. With MARS, the resulting image quality is vastly improved, and metal can be differentiated from bone and soft tissue.

Clinical trials looking into bone health are currently underway, and Dr Kirkbride is excited about where the technology will take us in the future. "This has been a big team effort with national and international collaboration," she says. "I feel very lucky to be part of it. Because I'm a lecturer on the medical imaging programme, it feeds straight into my lectures, so I've been able to teach my students about this during their final year of study. They've been getting quite excited about it too." ▲



Dr Tracy Kirkbride
Department of Health Practice

Dr Tracy Kirkbride has been a lecturer at Ara Institute of Canterbury for 18 years and programme leader of the Bachelor of Medical Imaging since 2007. Her main teaching areas are Imaging Equipment, Radiation Protection and Research Methods.

Prior to moving to New Zealand in 2002, Tracy was a senior scientific officer in charge of a technical support unit that was responsible for deploying security equipment to large national events.

Dr Kirkbride's PhD focused on novel security equipment and this theme of new technology has continued throughout her career. In 2014, she became an Honorary Researcher with the University of Otago (Christchurch) in conjunction with MARS Bioimaging Ltd. Her area of research is in novel medical imaging technology and involves the development of scanning protocols. This research links to a final-year paper within the Bachelor of Medical Imaging where students learn about advances in imaging techniques.



Nurses working in paediatric palliative care require more support and adequate time to debrief following a tragic death, new research shows.

The findings came from paediatric nurse educator Emma Densem's Master of Nursing thesis, which investigated how nurses cope following the death of a child in a hospital setting. Emma's research found that while nurses will generally offer support to each other - especially more experienced nurses

assisting newer graduates - the overall support provided in workplaces varied. Nurses also reported the difficulty of returning home after experiencing a death and finding their partners, flatmates and friends struggled to comprehend their experience.

"There's a real mix of ways nurses are dealing with it," Densem says. "It's such a personal, individual experience that everyone approaches it differently but there's no specific way organisations are supporting their staff to manage

following a death. Some nurses were supported through it well and some not so much. It was quite varied for something that everyone can predict is going to be a really difficult experience."

Since completing her undergraduate nursing training at Ara Institute of Canterbury, Densem has worked at Christchurch Hospital as a nurse educator in the paediatrics department, and as a Registered Nurse in the children's oncology department. As part of her thesis, she interviewed eight

nurses from an undisclosed hospital, at varying stages in their career, about their experiences after a child had died.

While there has been research into palliative care and the experiences of families, Densem found there was little research into how nurses manage both palliative situations and sudden deaths. "This research came out of an experience while I was working on the oncology ward," she says. "There was one death in particular that hit me a bit harder than others. I was thinking, how am I going to make sense of all of this? At the same time, I was looking for my research topic, so that's where the idea came from. On reflection, it did help me to process the death as well."

Through her interviews, Densem found that newer graduates were particularly affected when a child died. Generally, nurses who had worked in paediatrics for some time had developed coping strategies, but those who were early in their careers were still figuring this out.

"Nurses are at the frontline," she says. "We remain in the room and work with the families beforehand and afterwards, we care for the child's body, that is all on the nurses. Until you experience it, you can't predict how that's going to be and each one hits you differently. You might have experienced one death before, but it doesn't mean the next one is going to be the same.

"That's why time to debrief and reflect is so important but there's not always time and space to talk about it afterwards. Some nurses I spoke with didn't always have people on hand to support them through the dying process or afterwards. Those who did have others on hand to support them definitely reflected more positively about their experience."

Densem found that while education into paediatric palliative care would be beneficial for trainee nurses, it's difficult to teach because every death and experience is so different. "It's hard preparing people for something that they might not come across for years," she says.

There is an educational focus on maintaining professional boundaries, which though important, can also be hard to manage in paediatric palliative care. "It's probably one of the toughest spaces to maintain that professional boundary," Densem says. "Especially for some deaths where you have built quite long-term relationships with the family."

Overall, Densem found that the debriefing process is vital in helping support nurses through the difficulties and stress of a child's death. She says "reaching a plausible understanding" of the sequence of events and the dying process may also be useful.

"The death of a child is quite a unique experience compared to an adult death. It doesn't happen as often but when it does, it goes against nature. We all expect we will die when we're old and have lived a good life, not that we will be supporting parents through the death of a young person. All nurses experiences are different but similar at the same time."

Densem's research was supervised by Dr Isabel Jamieson and Dr Rea Daellenbach. Dr Jamieson is Ara Institute of Canterbury's principal nursing lecturer and a senior nursing lecturer at the University of Canterbury. Dr Daellenbach also lectures at Ara in the midwifery and post-graduate health practice programmes. Densem received a grant from the Ara Foundation to complete her Masters thesis. ▲



Emma Densem

Nurse educator,
CDHB; Ara Masters
graduate

Registered Nurse Emma Densem has worked in the paediatric department at Christchurch hospital since she was a new graduate, almost eight years ago. For the past three years, she has worked as a nurse educator across the paediatric department, as well as a ward nurse in the children's oncology ward.

Emma completed her undergraduate nursing training at Ara Institute of Canterbury (then CPIT) and continued with Ara in her postgraduate studies. Emma graduated with a Master of Nursing at the end of 2020, following the completion of her thesis exploring the experiences of nurses after a child had died.

Passion & **HARD WORK** yield success

for Master of Music Arts graduate



Ara Institute of Canterbury's annual Eke Panuku offers two Supreme Awards each year: one each for outstanding Māori and Pacific students. Last year's 'Pathways to Treasures' Pacific Supreme Award went to Feleti Pesefea (Afamasaga), who will graduate in 2021 with Ara's first-ever Master of Creative Practice.

Although he was born and raised in Christchurch, Feleti's parents surrounded him in Samoan culture. He says their hard work and sacrifice gave him and his siblings the educational opportunities they themselves never had.

"My parents think in a way that's typical for first-generation parents - they want us to be doctors, they want us to be lawyers, you know, it's the classic thing. For me it was a different path, and it was just based around church, with all the Easter plays and all those other things that are heavily in the performing arts and storytelling areas. I just naturally drifted that way - it would be different for a kid growing up who had no connection to the church."

Feleti's work adapts traditional Samoan performance forms of music, song and movement to give audiences a heart-stopping interpretation of the Samoan

'Mau' independence movement of the 1920s.

Supervisor Tony McCaffrey is thrilled to be supervising the institute's first Creative Practice Master and is especially happy that Feleti is choosing to explore his Pacific heritage. Tony says of Feleti's work: "What's exciting about the Master's project is that he's not only going to use ensemble dance, singing and performance forms from Samoa, but also storytelling with characters that relate to today and to the Mau movement of the 1920s."

The performance, which was staged over two nights to over 500 people

in December 2020, speaks to young Samoans of the culture of their ancestors and their search for identity throughout a process of diasporic displacement.

It has been quite a journey for this highly-motivated graduand, leading him all the way from trades training, through to a Music Arts degree and postgraduate studies at Ara. Feleti attributes his success so far to his strong cultural values such as perseverance and gratitude.

"If I could explain my life in one word, it would be blessed, because of all that my parents have done for me and my siblings; their influence and raising us in our culture to be aware and understanding," Feleti says.

When he finished school in year 13, Feleti wasn't sure what he should do next.

"I thought I'd take a year off, work and save a bit of money, but then the Pasifika Trades Training scheme came along. That was 2012 and my dad said 'Why don't you just try it out and see how it goes'. So, I was part of the first PTT scheme at Ara, and I loved it."

After getting a pre-trade qualification in plumbing, Feleti got a job at Hynds Pipes.

"It was really good to be earning money to help my parents, cause that's what we do in Pasifika families."

He was only 20 when his team leader at Hynds left and his boss asked him to step up to the role. Feleti accepted the challenge. "I think he saw something in me and entrusted me to look after that team."

After three successful years working at Hynds, Feleti decided to move on. "I was working, working, working and it was cool, the money, but I just felt like it wasn't fulfilling. That's when I realised how much of a passion music was for me. Whenever I was doing something with music, it just made me a different person and gave me the freedom to express myself."

Feleti enrolled in the Bachelor of Music at Ara. He liked the small class sizes and particularly enjoyed learning from local professional musicians. "They were veterans of music and they were giving back to us," he recalls. "It was inspiring and I thought 'I can do that'. That's what

my parents instilled in me: the value of giving back."

Dr McCaffrey adds, "Ara has played a large part in a kind of new wave of Samoan performance in Christchurch, and we have to remember that Christchurch was the home-base for Pacific Underground - an amazing company that's been going for over 20 years, producing theatre and music, and that inspired Pacific festivals here, such as Polyfest."

As well as being involved in the church choir and youth choir, Feleti has worked as a youth leader and as a music tutor to Pasifika students.

He says: "A big motivation for me is to give young Pasifika children good advice, encourage them to study hard, and to be an advocate for the importance of education. There are so many things you can do if you work hard. If you persevere and stay true to yourself, there's no reason why it's not achievable." ▲

Feleti Pesefea

Department of Creative Industries (Masters graduate)

Feleti had little idea of what he wanted to do after school. Fortunately, he started on a path of study and, as one thing led to another, he explored his talent and passion for music.

It has been quite a journey for the 24-year-old Samoan graduate, leading him all the way from trades training, through to a Music Arts degree and postgraduate

studies at Ara. He attributes his success so far, to his strong cultural values such as perseverance and gratitude.

After getting a pre-trade qualification in plumbing, Feleti got a job at Hynds Pipes.

Following his passions Feleti enrolled in the Bachelor of Music at Ara where he liked the small class sizes and particularly enjoyed learning

from local professional musicians.

Now that Feleti has completed his Bachelor of Music Arts (Honours), he is looking to do further study in a Master of Arts.

"There are so many things you can do if you work hard. If you persevere and stay true to yourself, there's no reason why it's not achievable."



Ara Hub updates



Research Hub update

Research reaching new heights as Ara capabilities grow

2021 saw the establishment of Ara's new 'Research Hub' - a resource connecting industry, students and academics through research designed to create successful commercialisation of innovative technologies, processes, products and services.

The Research Office leads the Research Hub in collaboration with Te Ōhaka, Ara's Centre for Growth and Innovation, and its mandate is to facilitate opportunities for businesses to tap into the institute's R & D expertise.

The experts within the Research Hub identify industry partners with research or project needs and pairs them with suitable students who can undertake the work. One of Ara's fundamental priorities is giving student access to 'work-integrated learning', which is a highly efficient way to develop students' practical abilities. The Research Hub facilitates this process for degree and diploma students undertaking industry projects or internships as part of their course requirements.

Key areas of strength within the Research Hub include ICT, engineering and laboratory science - backed up by Ara's status as an IRD Approved Research Provider.

In 2021, the Research Hub gained a significant grant to begin work for

Kelpn, a start-up based at Te Ōhaka, to identify the best chemical composition of a biomaterial alternative to plastic made from seaweed.

Ara researchers are highly motivated to work productively with industry to turn new ideas such as this into commercially viable initiatives or improve existing products or services. This process may involve the resolution of design and technical issues or, more broadly, the application of new practices or systems.

The Research Hub also has a strong focus on generating ideas for the integration of sustainability principles into everyday operations - as its work with Kelpn demonstrates. This year the Research Hub made an important contribution to the ongoing development of sustainable low-emissions power generation, transmission, storage and use in New Zealand, via its connection with the Orion Accelerator programme.

Eleven startups have been identified as most likely to develop workable innovations in areas such as smart power grids, novel power storage methods or devices, EV charging and smart energy-saving construction.

In June this year, the teams began a seven-week, mentorship-focused programme with Ministry of Awesome. Ara's Research Hub provided services and support to the cohort of start-ups and Dr Michael Shone - acting as an official partner - provided mentoring throughout the Accelerator programme.



Te Ōhaka update

A year of major developments at Te Ōhaka

Te Ōhaka - the Centre for Growth and Innovation - is the powerhouse

partnership between Ara and The Ministry of Awesome.

It's both a physical space, facilities ('te ōhaka' means 'the nest' in Te Reo Māori) and a network of access and expertise woven between Ara learners, a cohort of outstanding start-up enterprises nurtured by Ministry of Awesome, and regional support from ChristchurchNZ, who joined the partnership in 2020.

The unique value proposition of Te Ōhaka is that start-ups are able to involve students who are keen to incorporate start-up development into their learning.

In 2021, the space was home to a wealth of innovative groups including Partly, a company that aims to bring the automotive parts industry into the digital age, Myovolt, a thriving 'garment-integrated electronics' designer and Komodo, a wellbeing application for school students which evolved from Komodo Monit's original software product, designed for strength and conditioning coaches to use when tracking athletes' workloads.

The startup incubation programme at Te Ōhaka has been extremely successful, with over \$5m raised by the more than 20 start-ups who have been through the programme since May 2019.

This year was also notable for the advent of two courses offered at Ara designed to develop business and innovation ideas. As self-employment options grow and the drive to improve on technology continues, people studying traditional tertiary subjects or vocational education can benefit greatly from familiarity with the art and science of entrepreneurship.

The two courses, taught by Jacob Varghese, who manages the accelerator and corporate innovation programmes within Te Ōhaka, were offered for the first time in 2021 as short 12-week courses that can be undertaken on their own or as part of a longer programme of study.

The new 'Business Accelerator' course is designed to give students the skills and insights that will enable them to validate and commercialise their own business ideas, using proven industry frameworks. The 'Innovation Accelerator' course teaches students how to spot and engage with innovation opportunities within an existing organisation or industry.

Not unnaturally, Te Ōhaka attracts its fair share of distinguished visitors, who are keen to find out more about how the centre is contributing to innovation within the Canterbury region. In June, staff from the US Embassy made time to visit the centre as part of a two-day study tour hosted by ChristchurchNZ, which took in key aspects of the regional innovation ecosystem.

Also in June, Christchurch's Mayor came to learn more about the centre, listening to speakers from Te Ōhaka companies Moover and Datch. The Mayor, in her reply, spoke to the audience about her earlier career as a Member of Parliament, responsible for the Commerce and Small Business Portfolios, and how this led her to become attuned to the mindsets of entrepreneurs and the environments that foster them.

The following month, the Hon. James Shaw, New Zealand's Minister for Climate Change and Statistics, Associate Minister for Finance and Co-leader of the Green Party of Aotearoa came to Te Ōhaka to discuss sustainability and entrepreneurship issues.

Mr Shaw was joined by Ara Masters of Sustainability students and staff from the Sustainability & Outdoor Education programmes. Also present were the founders of Te Ōhaka's sustainability-focused start-ups, including Andy Nurse and Graeme Pile from Fertigation Systems, PhD candidate Ngarie Scartozzi of EClean, Brendon McIntosh from Brothers Green, Caroline Thalund from Sustainability 360 and Fernando Gutierrez from Ananda Simply Wholefoods.

The Minister's visit highlights Te Ōhaka's role as part of the wider Christchurch Economic Recovery Plan to grow jobs and talent in the region and reposition Christchurch as a smart, sustainable city. To date, the centre has contributed 96 new jobs to the city, and through the partnership with Ara will continue to match students and graduates to jobs which best suit their skillsets.



Tech CoLab update

New social enterprise sees savvy students solving business problems

At a time when COVID continues to disrupt face-to-face transactions, an effective online presence is more important than ever. In 2021, Tech CoLab, Ara's new social enterprise, began matching the skillsets of business and IT students to problems and tasks submitted by local organisations.

By putting the talents of Ara IT and business students to use in offering cost-effective digital products and services to the community, students gain the opportunity to work on industry-based projects for real-world customers before they graduate and local businesses get high-quality work for a fraction of the cost. CoLab clients are only charged a small fee for the completed work to cover the costs of supervisor hours and the administration involved, creating a true 'win-win' outcome for all involved.

Potential clients include small local businesses and not-for-profit organisations, which can seek help with website and app-creation as well as SEO, database management, sales and marketing strategies.

This year, Vibration Action founder Jason Johnstone was looking for help with developing a wristband and digital monitoring device, designed to measure vibration exposure in hands-on industries such as construction, agriculture and construction. The project is motivated by Johnstone's own life-changing experience of being diagnosed with a rare nerve condition known as Hand-Arm Vibration Syndrome (HAVS), which is thought to be caused by repeated exposure to vibration. When industry-based quotes for a project prototype came back in the six-figure region, accompanied by a lengthy timeframe for initial development, Johnstone turned to other avenues for support and eventually came to Tech CoLab.

Bachelor of Information and Communication Technologies student, Alliah Czarielle Calla, worked with Johnstone on developing Vibration Action's system software for her final degree project. Since working within Tech CoLab, Calla graduated and received multiple job offers, before accepting a position with local tech company NV Interactive.

Business owner Johnstone was thrilled with the outcome, saying "Tech CoLab was able to develop a project - including a fully operational prototype - that cost under \$4000 and was delivered start to finish in less time than other options. This work exceeded the original design brief with more functionality than originally requested."

This success indicates that Tech CoLab has already found a beneficial niche within the local economy, complementing the activities of Ara's partnership with Te Ōhaka, which nurtures a range of start-ups with plenty of potential, but not a whole lot of cash with which to launch their ideas.

2020 Research Outputs

Academic Services

Learning Design

Authored Book

Chan, S. (2020). Identity, pedagogy and technology-enhanced learning: supporting the processes of becoming a tradesperson. (1 ed.) Singapore: Springer. 978-981-15-2128-7.

Research Department

Conference contribution – Published

Shone, M., & Fortescue, K. (2020). Modelling destination image: visitor and resident perspectives of Ōtautahi-Christchurch. In D. Williamson, T. Harkison, T. Brothers, P. Jose (Eds), CAUTHE 20:20 Vision: New Perspectives on the Diversity of Hospitality and Tourism Events. Proceedings of the 30th Annual Conference, (pp.461-463). Auckland, New Zealand: Auckland University of Technology.

Department of Applied Sciences and Social Practice

Applied Science

Conference contribution – Published

Busbridge, A., Hamlin, M., Jowsey, J., Vanner, M., & Olsen, P. (2020). Running demands in women's rugby. In Masters, R and Driller, M (Eds), Sport and Exercise Science New Zealand Annual Conference, (pp.19).

Marshall, H., Goodall, T., Callahan, D., Olsen, P., & Chen, D. (2020). The effect of a volunteer-led community-based exercise programme on health outcomes in patients with chronic obstructive pulmonary disease. In Masters, R and Driller, M (Eds), Sport and Exercise Science New Zealand Annual Conference, (pp.44).

Journal article

Busbridge, A., Hamlin, M., Jowsey, J., Vanner, M., & Olsen, P. (2020). Running demands of provincial women's rugby union matches in New Zealand. The Journal of Strength and Conditioning Research, April 13th, doi:10.1519/JSC.0000000000003579

Takamori, S., Hamlin, M., Kieser, D., King, D., Hume, P., Yamazaki, T., Hachiya, M., & Olsen, P. (2020). Senior club-level rugby union player's positional movement performance using individualized velocity thresholds and accelerometer-derived impacts in matches. The Journal of Strength and Conditioning Research, March 09, doi: 10.1519/JSC.0000000000003523

Laboratory Technology

Oral presentation

Dolamore, B. (2020, November). Impacts of cyanobacteria blooms in Lake Forsyth/Te Wairewa, Canterbury. Presented to the WINTEC: Sustainable Futures Symposium, Hamilton, New Zealand.

Osteopathy

Journal article

Kovanur Sampath, K., & Fairs, E. (2020). A piece of the puzzle: response to Esteves et al. International Journal of Osteopathic Medicine, 38, pp. 39-40. doi:10.1016/j.ijosm.2020.10.010

Kovanur Sampath, K., Darlow, B., Tumilty, S., Shillito, W., Hanses, M., Devan, H., & Thomson, O. (2020). Barriers and facilitators experienced by osteopaths in implementing a biopsychosocial (BPS) framework of care when managing people with musculoskeletal pain – A mixed methods systematic review protocol. International Journal of Osteopathic Medicine, 10.1016/j.ijosm.2020.01.001, pp. 1-5. doi:10.1016/j.ijosm.2020.01.001

Regen, R., Kovanur Sampath, K., Devan, H., & Arumugam, A. (2020). Effectiveness of physiotherapy interventions on disease-specific and generic outcomes for individuals with cardiovascular diseases in India a systematic review and Meta-analysis. Physical Therapy Reviews, doi:10.1080/10833196.2020.1792204

Social Work

Journal article

Kan, K., Connor, H., & Beddoe, L. (2020). Accessing social service support: barriers and problems experienced by Chinese migrants living in Auckland, Aotearoa/New Zealand. Aotearoa New Zealand Social Work, 32(4), pp. 131-144. doi:10.11157/anzswj-vol32iss4id800

Department of Business and Digital Technologies

Business

Journal article

Ainsworth, J. (2020). Feelings of ownership and volunteering: Examining psychological ownership as a volunteering motivation for nonprofit service organisations. Journal of Retailing and Consumer Services, 52, January, doi:10.1016/j.jretconser.2019.10.1931

Computing

Conference Contribution – Other

Davidson, B., Correia, E., & Jhuo, M. (2020, October). Automation in a lab network. Abstract and oral presentation at the 11th Annual CITRENZ Conference, Wellington, NZ.

Smith, H., Proctor, M., & Correia, E. (2020, October). Redevelopment of programmes. Oral presentation at the ITx CITRENZ, Web based.

Conference contribution – Published

Otinpong, B. (2020). Mobile app development course during lockdown: a reflection. In Emre Ertuk (Ed.), Proceedings of the 11th Annual CITRENZ Conference (2020), (pp.28-29).

Sarkar, A., & Ray, S. (2020). A data-driven decision making and contact tracing app for organizations to combat COVID-19. Proceedings in International Conference on Computing, Networking, Telecommunications & Engineering Sciences Applications (CoNTESA), (pp.88-93). Tirana, Albania: IEEE. doi: 10.1109/CoNTESA50436.2020.9302854.

Sarkar, A., & Ray, S. K. (2020). Smart contract-based electric vehicle charging: A practice-based economy of things application. In D. Vogel, K Ning, S Pan and S Ling (Eds), Pacific Asia Conference on Information Systems (PACIS) 2020 Proceedings, 72, (pp.1-8). Dubai, United Arab Emirates: Association for Information Systems. doi: https://aisel.aisnet.org/pacis2020/72/.

Sarkar, A., Wingreen, S., Ascroft, J., & Sharma, R. (2020). Towards a practice-based view of Information Systems Resilience Using the Lens of Critical Realism. In Tung Bui (Ed), Proceedings of the 53rd Hawaii International Conference on System Sciences | 2020, (pp.6184-6193). Honolulu, United States: University of Hawai'i. doi: http://hdl.handle.net/10125/64498.

Weir, D. (2020). Getting to know your neighbourhood during lockdown: a level 7 multimedia project course. In E. Erturk (Ed), Proceedings of the 11th Annual Conference of Computing and Information Technology Education and Research in New Zealand, (pp.18-19).

Department of Creative Industries

Art and Design

Conference Contribution – Other

Lowe, K. (2020, October). Marama III (embossed ghost print 27 x 28cm); Orbit (embossed relief print with ink and gold leaf 21 x 28cm). Online exhibition at the International Academic Printmaking Alliance 3rd Printmaking Biennale and Academic Symposium, Beijing, China.

Creative Work – Exhibition

Maillard, J. (Exhibitor). (2020, 7 August - 29 August). "Around my house during lockdown" Photographic print, pigment ink on etching paper. 35 x 28" Wide flat white frame, white mat 28.5 x 21.5" Image, Glass. W. Feeney (Curator) Isabel Petrache-Briels (Curators) In The Junction. Live in vacant spaces, The Junction, Christchurch, New Zealand.

Maillard, J. (Exhibitor). (2020, 18 - 21 June). Punakaiki Archival Photograph Behind my house #1 Archival Photograph West Coast Archival Photograph Napi Napi Beach Archival Photograph Behind my house#2 Archival Photograph West Coast Sea Archival Photograph Tasman star Light Archival Photograph Morning Archival Photograph Birdsongs Archival Photograph The Bay Archival Photograph Ohau Archival Photograph Cardona Archival Photograph.

J. Morrison (Curator) In Christchurch Art Show (Covid Online). Online due to Covid.

Russell, B. (artist), & Wood, L. (artist). (2020, 14 October 2020 to 14 February 2021). Etonian by Visceral Realists (sound recording). F. Lopez (Curator) In Audiosphere Sound Experimentation 1980-2020. Museo Nacional Centro de Arte Reina Sofia, Madrid, Spain.

Creative Work - Film, Video, Musical Recording

Russell, B. (improviser), Morley, M., & Yeats, R. (2020) Unknowns. [LP record/compact disc]. Dunedin, New Zealand: My Pit/Pacific Heights. (Engineer/Musician/Improvisor).

Russell, B. (improviser), Morley, M. (improvisor engineer), & Yeats, R. (improviser). (2020) All Goodbyes / The Dead C. [7" EP Record]. Dunedin, New Zealand: Kā Pukepuke-o-Te-Waiparapara.

Oral presentation

Maillard, J. (2020, October). Photography in an era of digital overload and photography by John Maillard. Presented to the Christchurch Photographic Society, Riccarton Community Church, 44 Elizabeth Street, Riccarton, 8041 Christchurch, New Zealand.

Broadcasting Communications

Creative Work - Film, Video, Musical Recording

Wilkinson-Baker, V. (Director). (2020) Hyundai Country Calendar, Episode 16 - Where the Buffalo Roam. [Television Programme]. New Zealand: TVNZ. (Director).

Music Arts

Creative Work – Performance

Taylor, K. (Singer and Band Leader), Reynolds, G. (Saxophonist and Arranger), Taitoko, S. (Trombonist), Pearce, C. (Trumpeter and Arranger), Rainey, T. (Pianist and Arranger), Story, M. (Bassist), & Smillie, L. (Drummer). (2020, 18, October). Kate Taylor and Band. Concert. Live performance in The Great Hall, Christchurch, New Zealand. Concerts for Christchurch Foundation Trust.

Performing Arts

Journal article

McCaffrey, T. (2020). Polyfest postponed: performing 'us' in Christchurch in 2019? Australasian Drama Studies, 76 (April 2020), pp. 88-122.

Department of Engineering and Architectural Studies

Architectural Studies

Conference contribution – Published

Mulligan, K., Basse, B., & Robson, D. (2020). Bubble wrap or slippers? That is the question: From hamlet to home insulation. In H. Askarinejad, S. Yazdani, and A. Singh (Eds), International Structural Engineering and Construction, 7(2), (pp.HOS-02-1 - HOS-02-6). Fargo, North Dakota, United States of America: ISEC Press. doi: https://www.isec-society.org/ISEC_PRESS/ASEA_SEC_05/xml/HOS-02.xml.

Journal article

Alkhezzi, F., & Ahmed, M. (2020). A review of mobile learning technology integration: Models, frameworks, and theories. College Student Journal, 54(4), pp. 491-504.

Oral presentation

Syed Ahmed, M. (2020, February). Integrating BIM and virtual design and construction (VDC) in architectural curriculum. Presented to the International Institute of Information Technology, Hyderabad, International Institute of Information Technology, Hyderabad, India.

Syed Ahmed, M. (2020, February). Job of the future: Skills for the new reality. Presented to the Osmania University: Muffakham Jah College of Engineering and Technology, Osmania University, Hyderabad, India.

Syed Ahmed, M. (2020, November). Māori Sustainable Values in BIM Data as part of

New Zealand BIM Handbook. Presented to the Christchurch City Council, Christchurch, New Zealand.

Construction

Conference Contribution – Other

Daggubati, S., & Cheng, K. (2020, Facilitating the transition from engineering education into construction management diplomas. Abstract and Oral Presentation at the ITP Research Symposium, Toi Ohomai Institute of Technology, Rotorua, NZ.

Power, K. (2020, November). Use of bills of quantities in the Christchurch rebuild. Oral presentation at the OPSITARA, Invercargill, New Zealand.

Conference contribution – Published

Daggubati, S., & Cheng, K. (2020). Facilitating the transition from engineering education into construction management diplomas. 2020 ITP Research Symposium by Toi Ohomai Institute of Technology, (pp.27). Rotorua, New Zealand: Toi Ohomai Institute of Technology.

Journal article

Durdyev, Serdar. (2020). Review of construction journals on causes of project cost overruns. Engineering, Construction and Architectural Management, doi:10.1108/ECAM-02-2020-0137

Kandymov, Nurmurat., Masha, Andi., Durdyev, Serdar., & Yardim, Yavuz. (2020). Construction materials' properties: Investigation of unreinforced masonry buildings in the cities of Tirana, Durres and Elbasan. Case Studies in Construction Materials, 13, doi:10.1016/j.cscm.2020.e00395

MacDonald, F., & Durdyev, S. (2020). What influences women to study architectural, engineering, or construction (AEC) majors? Journal of Civil Engineering Education, 147(2), doi:10.1061/(ASCE)EI.2643-9115.0000035

Mahdiyar, Amir., Mohandes, Saeed Reza., Durdyev, Serdar., Tabatabaee, Sanaz., & Ismail, Syuhaida. (2020). Barriers to green roof installation: An integrated fuzzy-based MCDM approach. Journal of Cleaner Production, 269, doi:10.1016/j.jclepro.2020.122365

Nodir, Utashev., Zhi Yu, Wang., Qing Yuan, Wang., Serdar, Durdyev., & Rana Faisal, Tufail. (2020). Anchorage of PerFOBOND Leiste shaped shear connector composite dowel with carbon fibre reinforced polymer. Journal of Building Engineering, doi:10.1016/j.job.2020.101711

Engineering

Conference contribution – Published

Askarinejad, H., Naruzberg, A., & Pidwerbesky, B. (2020). Effect of basecourse aggregate properties on strength of foamed bitumen stabilized materials. In H. Askarinejad, S. Yazdani, and A. Singh (Eds), Proceedings of International Structural Engineering and Construction (ASEA SEC 5), 7(2), (pp.1-6). North Dakota, USA: ISEC Press. doi: [www.doi.org/10.14455/ISEC.2020.7\(2\).INF-07](http://www.doi.org/10.14455/ISEC.2020.7(2).INF-07).

Askarinejad, H., Yu, F., Qiu, L., & Cui, J. (2020). Effect of different structural parameters on track lateral stability. In C.M. Wang, V. Dao, & S. Kitipornchai (Eds), Proceedings of the 16th East Asian-Pacific Conference on Structural Engineering and Construction, 2019, vol. 101, (pp.297-307). Singapore: Springer. doi: org/10.1007/978-981-15-8079-6_28.

Ramezaniapour, M., & Kung, S. (2020). Simulation study of water reuse system for a regenerative houseboat by Epanet. In Askarinejad, H., Yazdani, S., and Singh, A., Proceedings of International Structural Engineering and Construction, 7(2), (pp.AAW-05-1 - AAW-05-6). Christchurch, New Zealand: ISEC. doi: [www.doi.org/10.14455/ISEC.2020.7\(2\).AAW-05](http://www.doi.org/10.14455/ISEC.2020.7(2).AAW-05).

Ramezaniapour, M., Levien, A., & Ritchie, G. (2020). Planter box raingarden for zinc removal from storm water. In Askarinejad, H., Yazdani, S., and Singh, A., Proceedings of International Structural Engineering and Construction, 7(2), (pp.AAW-04-1 - AAW-04-6). Christchurch, New Zealand: ISEC. doi: [www.doi.org/10.14455/ISEC.2020.7\(2\).AAW-04](http://www.doi.org/10.14455/ISEC.2020.7(2).AAW-04).

Edited Volume

Askarinejad, H., Yazdani, S., & Singh, A. (Eds.). (2020). Proceedings of the Fifth Australasia and South-East Asia Structural Engineering and Construction Conference, Christchurch, New Zealand, November 30 - December 3, 2020. (7(2)). North Dakota, USA: ISEC Press. ISSN: 2644-108X.

Journal article

Watkins, T., Askarinejad, H., & Yeo, J. (2020). Investigation into Effect of Sonic Drilling Methodology on Standard Penetration Test Results in Dense Sand. Geotechnical Testing Journal, 44, doi:<https://doi.org/10.1520/GTJ20190249>

Ramezaniapour, M., Sivakumar, M., Osborn, N., Zhang, Y., & Kawa, H. (2020). A contact angle study of different greywater sources with hydrophobic membranes. Water Quality Research Journal, 55(3), pp. 310-326. doi:<https://doi.org/10.2166/wqrj.2020.021>

Department of Health Practice

Medical Imaging

Journal article

Kovanur Sampath, K., Darlow, B., Tumilty, S., Shillito, W., Hanses, M., Devan, H., & Thomson, O.P. (2020). 'Barriers and facilitators experienced by osteopaths in implementing a biopsychosocial (BPS) framework of care when managing people with musculoskeletal pain – A mixed methods systematic review protocol'. 'International Journal of Osteopathic Medicine', doi:10.1016/j.ijosm.2020.01.001

Midwifery

Chapter in Book

Daellenbach, S., & Daellenbach, R. (2020). "Good mothers' in the age of finance'. In L. Davies, R. Daellenbach, M. Kensington, Sustainability, Midwifery and Birth (2nd ed.) (pp.266-282). Abingdon, United Kingdom: Routledge. 9780429290558.

Davies, L., Daellenbach, R., & Kensington, M. (2020). Introduction. In L. Davies, R. Daellenbach M. Kensington, Sustainability, Midwifery and Birth (2nd ed.) (pp.1-12). London: Routledge, Taylor & Francis Group.

Davies, L., & Short, K. (2020). Developing the decision-making skills of student midwives in an undergraduate midwifery programme in New Zealand. In E. Jefford & J. Jomeen, Empowering Decision-Making in Midwifery: A Global Perspective. (pp.273-284). Abingdon, Oxon, UK: Routledge.

Kensington, M., & Rankin, J. (2020). Sustaining rural midwives and rural communities. In L. Davies, R. Daellenbach M. Kensington, Sustainability, midwifery and birth (2nd ed.) (pp.146-161). London: Routledge, Taylor & Francis Group.

Welfare, M. (2020). Career or life cycle: The phenomenon of transitioning work-setting within midwifery in order to remain personally and professionally sustainable. In L. Davies, R. Daellenbach & M. Kensington, Sustainability, midwifery and birth (2nd ed.) (pp.131-145). Abingdon, United Kingdom: Routledge. 9780429290558.

Edited Volume

Davies, L., Daellenbach, R., & Kensington, M. (Eds.). (2020). Sustainability, midwifery and birth (2nd ed.). London: Routledge, Taylor & Francis Group.

Journal article

Crowther, S., Rankin, J., Deery, R., Gilkison, A., Davies, L., Daellenbach, R., & Kensington, M. (2020). Experiences and needs of Scotland's rural midwives. The Practising Midwife, 23(5), pp. 36-41.

Daellenbach, R. (2020). Using life cycle analysis for more sustainability in midwifery practice. The Practising Midwife, 23(7), pp. 25-29.

Daellenbach, R., Davies, L., Kensington, M., Crowther, S., Gilkison, A., Deery, R., & Rankin, J. (2020). Rural midwifery practice in Aotearoa/ New Zealand: Strengths, vulnerabilities, opportunities and challenges. New Zealand College of Midwives Journal, 56, pp. 17-25. doi:<https://doi.org/10.12784/nzcomjnl56.2020.317-25>

Nursing

Chapter in Book

Bowen-Withington, J. (2020). Breasts and the lymphatic system. In P. Lewis & D. Foley, Health Assessment in Nursing: Australia and New Zealand Edition (3rd ed.) (pp.379-395). Sydney, Australia: Wolters Kluwer. 9781925058024.

Socha, K., Hanses, M., Gallagher, M., Banasiak, N., & Correia, V. (2020). Health Maintenance Guidelines. In Meadows-Oliver, M. & Banasiak, N., Pediatric Practice Guidelines (pp.1-37). New York: Springer. 978-0-8261-6869-6.

Conference Contribution – Other

Short, K. (2020, August). What do patients understand following the delivery of 'hospital' cardiac health education/information? A New Zealand Study. Oral Presentation at the CEHHD Postgraduate Student Research Showcase 2020 Changing times - Changing lives, Christchurch, New Zealand.

Short, K. (2020, September). Completing a comprehensive consultation process for a national research health project. Oral Presentation at the 2020 ITP Research Symposium., Online.

Thompson, M., & Smit, G. (2020, November). How to get the buy in? Tertiary education in healthcare. Oral presentation at the ITP Sustainable Futures Research Symposium, WINTEC New Zealand (online presentation).

Journal article

Borren, J., & Harding, T. (2020). Evolution of the Canterbury dedicated education unit model. Nurse Education in Practice, 46 (July 2020), pp. 1-7. doi:<https://doi.org/10.1016/j.nepr.2020.102802>

Bowen-Withington, J., Zambas, S., Macdiarmid, R., Cook, C., & Neville, S. (2020). Integration of high-fidelity simulation into undergraduate nursing education in Aotearoa New Zealand and Australia: An integrative literature review / Te whakaurunga mai o te whakataruna whakaahua tūturu ki roto i te akoranga tapuhi paetahi i Aotearoa me Ahitereiria: He arotake tuhinga paihere tikanga. Nursing Praxis, 36 (3), pp. 37-50. doi:<https://doi.org/10.36951/27034542.2020.013>

Davies, L A. (2020). Coming to terms with the enrolled nurse scope of practice. The Dissector, 48(2), pp. 21-22.

Davies, L A., & Asbery, J. (2020). The evolving EN role. Kai Tiaki Nursing New Zealand, 26(5), pp. 18.

Jamieson, I., Norris, K., Short, K., Papps, E., & Dixon, A. (2020). Graduate entry to nursing: An exploration of the demographic characteristics of New Zealand students. Nurse Education in Practice, 48 (October), pp. 1-5. doi:<https://doi.org/10.1016/j.nepr.2020.102855>

Kovanur Sampath, K., Darlow, B., Tumilty, S., Shillito, W., Hanses, M., Devan, H., & Thomson, O. (2020). Barriers and facilitators experienced by osteopaths in implementing a biopsychosocial (BPS) framework of care when managing people with musculoskeletal pain - a mixed methods systematic review protocol. International Journal of Osteopathic Medicine, 35 (March), pp. 41-45. doi:<https://doi.org/10.1016/j.ijosm.2020.01.001>

Steel, M., Seaton, P., Christie, D., Dallas, J., & Absalom, I. (2020). Nurse perspectives of nurse-sensitive indicators for positive patient outcomes: A Delphi study. Collegian, Article in press, doi:<https://doi.org/10.1016/j.colegn.2020.02.009>

Taylor, P., Josland, H., & Batyaeva, N. (2020). The case for appointing Parkinson's disease nurse specialists. Kai Tiaki Nursing Research, 11(1), pp. 50 - 57.

Taylor, P., Josland, H., & Batyaeva, N. (2020). A literature review: The case for appointing Parkinson's disease nurse specialists. Kai Tiaki Nursing Research, 11(1), pp. 50-57.

Withington, J., & Taylor, P. (2020). Preceptorship: the neglected area. Kai Tiaki Nursing New Zealand, 26 (1), pp. 27.

Oral presentation

Richardson, A. (2020, 20-29 October). Multi-site family nursing project. Presented to the Ara Institute of Canterbury, Manawa, Christchurch, New Zealand.

Department of Hospitality and Service Industries

Hospitality

Journal article

Gunawardana, H.M.R.S.S., & Steel, G. (2020). Territorial behaviours and fellow customers' expectations of employee responses in the casual dining environment. Kelaniya Journal of Management, 8(2), pp. 1-17. doi:10.4038/kjm.v8i2.7585

Conference contribution – Published

Shone, M., & Fortescue, K. (2020). Modelling destination image: visitor and resident perspectives of Ōtautahi-Christchurch. In D. Williamson, T. Harkison, T. Brothers, P. Jose (Eds), CAUTHE 20:20 Vision: New Perspectives on the Diversity of Hospitality and Tourism Events. Proceedings of the 30th Annual Conference, (pp.461-463). Auckland, New Zealand: Auckland University of Technology.

Department of Humanities

ESOL

Conference Contribution – Other

Dofs, K. (2020). Mutual adjustment as a leap through the dragon's gate. Oral presentation at the OPSITARA, Invercargill.

Dofs, K. (2020, November). Teaching to the times: A silver-lining in the lockdown situation. Oral presentation at the ALANZ symposium: Teaching to the times, Dunedin.

Japanese

Chapter in Book

Tukua, C., de Burgh-Hirabe, R., Kim, M., & Dofs, K. (2020). Preparing Them: autonomous learning and teaching experiences by four language educators in New Zealand. In C. Ludwig, M. G. Tassinari, & J. Mynard, Navigating Foreign Language Learner Autonomy (1st ed.) (pp.125-147). Hong Kong: Candlin & Mynard ePublishing Limited. 9798630224071.

Mathematics

Conference contribution – Published

Mulligan, K., Basse, B., & Robson, D. (2020). Bubble wrap or slippers? That is the question: from Hamlet to home insulation. In Askarinejad, H., Singh, A., & Yazdani, S., Proceedings of International Structural Engineering and Construction, 7/2, Fargo, ND, United States of America: ISEC Press. doi: [https://www.doi.org/10.14455/isec.2020.7\(2\).Hos-02](https://www.doi.org/10.14455/isec.2020.7(2).Hos-02).

Outdoor Education and Sustainability

Journal article

Hill, A., Emery, S., & Dymont, J. D. (2020). Introduction to the Australian Curriculum Sustainability Cross-Curriculum Priority. Geographical Education, 33, 2020, pp. 8-10.

Watson, S., Hill, A., North, C., Irwin, D., Cosgriff, M., & Boyes, M. (2020). Flourishing EOTC in Aotearoa New Zealand: Challenges and solutions. SET, 2020(2), pp. 25-30. doi:<https://doi.org/10.18296/set.0168>

Report

Hill, A., North, C., Cosgriff, M., Irwin, D., Boyes, M., & Watson, S. (2020). Education Outside the Classroom in Aotearoa New Zealand: A comprehensive national study - Final report. Christchurch: Ara Institute of Canterbury Ltd.

Teacher Education

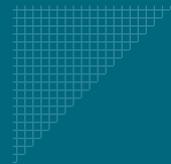
Oral presentation

Hannan, N. H., & Tukua, C. T. (2020, January). Culturally responsive questioning strategies. Presented to the Ara Institute of Canterbury, Madras Campus, Christchurch, New Zealand.



Institute of Canterbury

Ara rau, taumata rau



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