

Southern Institute of Technology | Otago Polytechnic | Ara Institute of Canterbury

# Research Symposium 2020

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# Introduction

In 2020 the combined Southern Institute of Technology, Otago Polytechnic, and Ara Institute of Canterbury Research Symposium (OPSITARA) was hosted by SIT. Abstracts were submitted by staff from all three institutions for 15 Minute Papers and 5 Minute Research 'Bite' Presentations. Many presentations were co-authored with students.

All abstracts were peer reviewed, and those accepted were presented on Thursday 26 November and Friday 27 November at the main SIT campus in Invercargill. The abstracts for these presentations are published in the following proceedings alongside presenters' biographical information, contact email addresses, and ORCID® iDs.

The symposium was organized by Dr Sally Bodkin-Allen (SIT Research Manager), and these proceedings were collated and edited with Dr James Savage (SIT Research Coordinator).

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# Ready for Work in a Pandemic: Understanding Freelancing in Engineering



Rehan Masood, Naveed Ur Rehman and Max Yap

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**Aim/question:** The prime aim of this paper is to study the freelancing market for engineering and identify the essential skills required by engineers to become work-ready in pandemic-like situations, based on completed engineering projects posted in the last ten years at a global scale.

**Research design/methodology:** This study conducts a scientometric review of engineering projects on 'Freelancer', a public web source, through online content scraping followed by analysis for key trends using VOS viewer platform.

**Results:** Engineering projects, at global scale, were classified according to civil, mechanical, and electrical domains along with remuneration portfolio. Further, key high-demand skills required by engineers under each domain were reported. Potential freelancing markets for engineering projects were assessed from the perspectives of demand (employer) and supply (employee). Finally, key trends about the New Zealand freelancing market were discussed for potential economic areas in engineering considering the current pandemic situation.

**Implications for our teaching, industry and/or communities:** This study helps in the development of the engineering curriculum considering the high demand of skills requirements for freelancing work. This study provides an insight for the potential engineering industry dependency on outsourcing of workload considering the pandemic situation. This study opens a venue for prospecting graduates and existing engineering community to consider freelancing as an alternate profession with potential growth and contribution to the economy. This study also helps in achieving the tertiary education commission strategy to revitalize vocational education with innovative skills opportunities delivered through NZIST subsidiaries.

**Keywords:** Engineering skills, Freelancing, Global market, Alternate engineering professions, Scientometric analysis

## Presenter Biographies

Rehan Masood is a tutor in Construction and Quantity surveying at SIT. He has extensive experience of practice and teaching in civil engineering and construction. He has published in peer reviewed conferences and journals with a focus on building information modelling, health and safety management, offsite construction and prefabrication, and construction technology.

Naveed ur Rehman is a mechanical engineering tutor at SIT. He is actively researching in the field of solar energy engineering, particularly potential assessments, systems analysis, and optics, and has published several articles in prestigious journals and international conferences.

Max Yap teaches accounting at the School of Business at SIT. His research interests are in financial accounting, computational modelling, and economic analysis. He has contributed to papers in various capacities, including dataset manipulation, statistical analysis, and mathematical and computational modelling.

# Communities in the Mist: Mapping Communities of Practice at Otago Polytechnic



Amy Benians and Daniel Fridberg

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This report summarises the first phase of a research project aiming to identify and assess the benefits that participation in communities of practice (CoP) holds for Otago Polytechnic (OP) staff. Ethics approval for this research was granted by the OP Research Ethics committee (# 864, July 2020). In this first phase, a survey was sent to and completed by some ninety OP staff members. The analysis of their responses provides a broad picture of what staff members consider as a CoP; how participation in CoPs is utilised to enhance staff teaching practice; and what good practice of operating CoPs looks like. The results of this first phase provide a good departure point for a second, qualitative phase of this research. The outcomes of this research improve our understanding of learning and teaching driven CoPs and their contribution to their members' practice. As the ITP sector is making progress in the Reform of Vocational Education, implications of this study will hopefully inform what nationally dispersed CoPs and collaborations can and should look like.

## Presenter Biographies

Amy Benians has a PhD in clinical pharmacology and has worked as a research scientist, lecturer, scientific writer, and instructional designer. She chose to pursue her passion for learning design after achieving her Graduate Diploma in Tertiary Education (GDTE) at Otago Polytechnic. In her role as a Learning and Teaching Specialist she supports staff to design and develop blended and online courses using Moodle and other educational technologies. Her research interests include professional learning and development within communities of practice, blended learning, and literacy and numeracy education for adults.

Daniel Fridberg has a PhD in Peace and Conflict Studies from the University of Otago. He has a long track record as a practitioner of conflict resolution and peacebuilding. Daniel has joined the learning and teaching development team at Otago Polytechnic. In his role as a learning and teaching specialist, he is leading international teacher training programmes, as well teaching on the GDTE and supporting staff in their curriculum development.

# 'Good is Good Enough': The Experience of Teaching in a Tertiary Institution During Lockdown, Reflections from a Collaborative Narrative Inquiry Project



Cassie Carstensen, Hemal Amarasekara, Selena Coburn et al.

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COVID-19 and the subsequent lockdown of Aotearoa during March and April 2020 had a profound impact on the tertiary teaching environment. This presentation reports on a collaborative project with a group of tertiary educators at SIT exploring the effect of the COVID-19 lockdown on their personal and professional selves. Data were collected via group discussions and personal reflective journaling. The design is emergent and situated within a phenomenological narrative inquiry methodological framework. All contributors are co-researchers so ethical approval was not required. This paper outlines the processes through which the project came about and shares the initial findings. It highlights some of the stories which have come out of the research so far and suggests that while technology was an important tool during this time, it cannot replace the authenticity and spontaneity of face-to-face delivery.

## Presenter Biography

Cassie Carstensen is the Programme Manager for Postgraduate Studies and the Year Three Programme Manager for the School of Nursing at SIT. Cassie's research interests focus on empathy, allergies and the health of health professionals.

# Use of Bills of Quantities in the Christchurch Rebuild

Keith Power

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The rebuild of Christchurch following the 2010/11 earthquakes witnessed high levels of building construction activity yet few bills of quantities (BQ) were produced. The reasons behind declining BQ use in the rebuild of Christchurch are investigated. Opinions are sought from industry stakeholders on the newly introduced Australian and New Zealand Standard Method of Measurement of Building Works, (ANZSMM) 2018 Edition. Findings are used to inform teaching of measurement technique to quantity surveying students and are of significance to builders, quantity surveyors, subcontractors, building clients and developers.

The declining use of BQ's in Christchurch has not been studied previously. This work is important because whether or not a BQ is produced, measurement of quantities is carried out and their cost ultimately paid by building clients, yet in the absence of a client supplied BQ, many of its benefits are lost.

Semi-structured interviews with experienced quantity surveyors from two quantity surveying firms and two contractor's surveyors were carried out. Findings indicate BQ use has declined markedly primarily because developers are driven towards faster, alternative procurement methods. Other commonly accepted reasons for declining use of BQs, such as shortages of staff, incomplete documentation, and poor post-contract usability by contractors, were found to be of secondary importance. BQs remain effective for financial management of building contracts, selection of tenders, evaluation of progress payments and management of variations. For teaching, the method of measurement is not critical but the ability to measure quantities is.

## Presenter Biography

Keith Power is Programme Leader of the Bachelor of Construction at Ara Institute of Canterbury. He is an experienced quantity surveyor and Life Member of New Zealand Institute of Quantity Surveyors. He holds a PGDip in Teaching and Learning and has held teaching and management positions at Ara for over 30 years.

# An Investigation into Culture Shock, its Effect on International Students, and how this Influences the Complex Lives of Academic Staff



Selena Coburn

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An investigation into culture shock, its effect on international students, and how this influences the complex lives of academic staff. This research was conducted as the final requirement of a master's thesis at Massey University. A mixed methodology was used to explore this topic. A questionnaire was administered to international postgraduate students, and a nested sample were chosen to participate in a focus group discussion. Ethics approval was gained from the SIT ethics committee in September 2019 and from Massey in October 2019. The findings showed gaps in the expectations of international students in living, finances, culture and language, as had been shown in various other studies. But, in particular, many expressed confusion over the role of academic staff. The role of the tutor is often quite different for international students to their home experiences and the variety in teaching styles, method and ideology created gaps in student expectations of the role of tutors in New Zealand. Cultural distance was acknowledged by the majority of students as problematic, even though international students conducted a wide variety of pre-study investigation about what to expect when they came to New Zealand. The study confirmed that components of culture shock do adversely affect the experience of international students, but in this instance, it did not affect their overall satisfaction with their study experience. The role of the academic is complex and this study shows that further investigation is necessary to reduce the gap in expectations between students and academics.

## Presenter Biography

Teaching and supervising students across Hotel Management and Commerce programmes at SIT, both at undergraduate and postgraduate level has given Selena a variety of experiences with both international and domestic students. She is interested in how culture and other experiences effect learning and expectations of academic staff.

# An Excellent Adventure: Investigating the Stories of National Tertiary Teaching Excellence Award Winners



Claire Goode

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This paper reports on a doctoral research project using narrative inquiry to investigate the stories of twelve national Tertiary Teaching Excellence Award winners in New Zealand. Preliminary findings highlight awardees' views on their identity, their professional practice, and on what they consider to be excellence in tertiary teaching. The research also reports on common themes in the personal qualities that awardees describe, and on what these nationally recognised educators would like to see in place around Tertiary Teacher Development.

Educators, mentors, trainers, and curriculum designers can gain a deeper understanding of what teaching excellence looks like, and of how teachers perceive their own practice and their impact on others. This may enable different interventions to develop best practice from staff, and to raise standards. It is hoped too that, by reflecting on the stories of teachers who have been recognised for 'excellence', educators will relate to and recognise elements of their own practice, and will feel motivated and inspired to share these with their peers and the wider academic community

## Presenter Biography

A Principal Lecturer in the Learning and Teaching Development team at Otago Polytechnic in Dunedin, Claire has 23 years' experience teaching in a variety of contexts, including prison education, university, and foundation programmes, principally in New Zealand, France, and the UK. Her interests include teacher development and teacher identity.

# Mutual Adjustment as a Leap Through the Dragon's Gate

Kerstin Dofs

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The research problem areas revolves around English as an additional language (EAL) students' academic and social adjustment, while studying and using English at a higher educational institute (HEI) in NZ. It is also looking at the roles of language and the HEI in EAL students' academic and social adjustment process.

This is a study with both an ethnographic and a multiple case methodology approach, drawing information from many different sources such as student and staff interviews, observations, focus group discussions, and readings of HEI policy documents. The students are from a range of countries and study in a School of Business which has a high proportion of EAL students. It has ethics approval from Macquarie University and Ara Institute of Canterbury.

The findings show that EAL students often are capable, self-forming, autonomous, active agents, in charge of their own lives, and their autonomy and second language use may impact positively on their academic success. Moreover, staff and learners are generally aware of a range of adjustment issues. An analysis of the reasons for the challenges revealed that there are typically two types; either caused by individual learners, or by the teaching and learning inherited from the prevailing pedagogic approach by the institution. The presentation suggests acknowledging the positive results of EAL students' study efforts, and seeing student challenges in relation to the pedagogy, to heighten awareness of the necessity of mutual adjustment, by both students and HEIs. This will optimally lead to more successful students, in a more student-centred teaching and learning environment.

**Keywords:** EAL students, HEI, language role, autonomy, mutual adjustment

## Presenter Biography

Kerstin Dofs has a Master of Arts in Language Learning and Technology, through The University of Hull, UK. She is currently a PhD student at Macquarie University. Her research covers English as an additional language students' adjustment issues at higher educational institutions, and how these are dealt with presently.

# Using Holograms to Develop Clinical Reasoning Skills: Results of a Study

Liz Ditzel and Emma Collins

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**Introduction:** Augmented Reality (AR) and the HoloLens app is an easily used immersive teaching technology that provides nursing educators with access to virtual standardised patients who display symptoms and behaviours typical of a medical condition (e.g. burns) or event (e.g. heart attack).

**Aim:** This study evaluated first-year nurses' experience of performing a nursing assessment for 'Jerry', a life-sized moving and breathing hologram of young man admitted to Emergency Department following a mountain bike accident.

**Methods:** In tutorial groups, students followed the steps of the clinical reasoning cycle (i.e. look, collect, process, decide, plan, act, evaluate & reflect) to collect cues and information about Jerry's condition which worsens as he develops anaphylactic shock. Data were collected via a post-activity survey approved by the institution's Research Ethics Committee (OPREC 2019-790).

**Results:** Respondents (N=91, 72.5%) reported a high level of satisfaction and engagement with this mode of learning. Quantitative data showed that students were confident about assessing the patient from the visual and aural cues and found the experience surprisingly real. Thematic analysis of qualitative data identified 17 advantages of using holograms, including realism, a reduced level of self-consciousness, and better preparation for clinical practice. Disadvantages mostly related to technical projection issues such as blurry image quality.

**Implications:** Results indicate that time spent carefully observing and processing the symptoms and behaviours displayed in a standardised patient hologram assisted students to develop clinical reasoning skills. The learning experience also helped students to link theory and practice thereby increasing readiness for the clinical setting.

**Keywords:** immersive learning, student nurses, holograms, clinical reasoning

## Presenter Biographies

Professor Liz Ditzel is Research Coordinator, mentor and ethics committee chair at Otago Polytechnic. Her research interests include immersive learning and teaching technologies, clinical reasoning, storytelling, and creative teaching practices.

Emma Collins is a Principal Lecturer and Year 2 Programme Leader within the School of Nursing at Otago Polytechnic. Her research interests include Nursing Informatics, ePortfolios, and augmented reality in nursing education using the Microsoft HoloLens.



# A Study to Identify the Relationship between Intercultural Effectiveness and Cultural Intelligence (CQ) Scores of Nurse Educators Teaching in New Zealand Nursing Schools



Reen Skaria and Jed Montayre

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A study to identify the relationship between Intercultural Effectiveness and Cultural Intelligence (CQ) scores of nurse educators teaching in New Zealand nursing schools.

The aim of the research is to identify whether CQ contributes to improving the Inter- Cultural Effectiveness of nurse educators teaching in New Zealand nursing schools.

This study uses a mixed method approach. Phase I of the study is a quantitative study which includes measuring the CQ scores and inter-cultural effectiveness of nurse educators using the Cultural Intelligence Scale (CQS) and Inter-Cultural Effectiveness scale (ICE). Phase I of the study is planned to be completed by the end of September 2020. Quantitative analysis will be done using IBM SPSS Statistics. Phase II is a qualitative study to understand the inter-cultural effectiveness of nurse educators teaching in New Zealand. This includes individual face to face interviews and will be conducted in 2021. Ethics approval was granted from the SIT ethics committee in April 2020.

It is anticipated that the findings of the study will illuminate the relationship between intercultural effectiveness and cultural intelligence of nurse educators teaching in New Zealand nursing schools. Educators will be able to reflect on their interactions and be aware of their colleagues and students' cultural preferences. It is also anticipated that those with high CQ scores will be able to provide high quality education to culturally diverse students.

## Presenter Biographies

Dr Reen Skaria has completed her Doctorate in Education through Massey University, New Zealand. Reen has experience in working as a registered nurse for 15 years and for four years was the programme manager for the Bachelor of Nursing year 3 programme at the Southern Institute of Technology (SIT). She is currently the paper co-ordinator for the clinical diagnostic reasoning and health assessment postgraduate course run by SIT.

Dr Jed Montayre is a senior lecturer at Western Sydney University, Australia. In 2016, Jed was the co-recipient of the Young Nurses of the Year Award given by the New Zealand Nurses Organization. Jed is also involved in various research projects with SIT and other institutions.

# Identifying the Factors that Enhance or Inhibit BN's Entry into Aged Care



Lynda Harding, Sara Sundarajoo and Anu Ganeshkumar

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The aged sector needs registered nurses to improve the quality of life for the residents. However, not many nurses are attracted to this sector. This research will identify factors that could enhance or inhibit new nurses from entering this sector. The findings could help into re-designing the BN curriculum in order to trigger the interest of new nurses to take up careers in aged sector. The methodology used is a qualitative, phenomenological and mixed method research design where questionnaires and photo elicitation with speech bubble are used to collect data across three consecutive years of BN students. Thematic analysis will be used to identify factors that enhance & inhibit interest in gerontological nursing among student nurses. Ethics approval was obtained from SIT Ethics committee in 2017. The research is currently in the analysis stage with preliminary findings indicating that some students show clear progression towards positive opinions to work in the age care sector while some show no change in their opinions.

## Presenter Biographies

Lynda Harding (RN, BN) is a Care-home manager at Bupa Villages & Aged Care-NZ, Windsor park Care home, Gore.

Sara Sundarajoo (PhD, MN, BN and RN) is a Nurse Educator at Southern Institute of Technology.

Anu Ganeshkumar (MSc Genetics) is a Nurse Educator at Southern Institute of Technology.



# Preparing Them: Autonomous Learning and Teaching Experiences by Four Language Educators in New Zealand

Charmaine Tukua, Kerstin Dofs, Ryoko de Burgh-Hirabe and Mijung Kim

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The focus of this presentation is on the experiences by four language teaching and learning educators. It will cover heritage language learning, Māori; foreign language learning, Japanese and Korean; as well as a combination of classroom and self-access support for English for speakers of other languages.

All the contributors work at the same institution, Ara Institute of Canterbury (Ara) in Christchurch, New Zealand. The presentation is an example of a co-operation between people of different cultural backgrounds, and it has led to a better understanding about each other's teaching and learning approach.

We have thus opened to learning about other cultures, which in turn, ultimately may lead to changes of our own learner support and teaching style.

## Presenter Biography

Tainui / Ngai Tahu. Charmaine Tukua is a full-time Senior Academic Staff Member at Te Puna Wanaka / ARA.

# Navigating Web Design Curricula in a Field of Rapidly Changing Technology

Martin Kean

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As a senior lecturer in the Communication Design degree programme at Otago Polytechnic, I teach courses in web design. As part of my teaching practice, I need to constantly review my teaching materials and tools within a rapidly changing professional environment. Each teaching semester I find I need to undergo critical research and reflect on contemporary trends to discover which new technologies are suitable and appropriate for class teaching. In this paper, I will outline the methods I use to scan the environment, and select and evaluate a sample of web design tools, technology and software, and quickly learn these in time to share with learners within a formal class structure. I will share an emerging framework that I am developing to evaluate these technologies and software. I will demonstrate how the emerging framework is currently being used to evaluate software for upcoming courses, specifically reflecting on an online store elective workshop I delivered in June 2020. Through presenting my research I hope to develop a community of practice with other web design lecturers to better support our learners and improve teaching outcomes.

**Keywords:** web design, curricula design, evaluating contemporary online technologies

## Presenter Biography

Martin Kean is a Senior Lecturer in the School of Design, Otago Polytechnic. He currently investigates contemporary technologies to enhance his teaching practices. A designer for web and print, he also runs a LPFM radio station, and is an advocate for open source communities.

# Emotional Intelligence (EI) of NZ Diploma in Enrolled Nursing Students



Reen Skaria, Debbie Watson, Tash Cunningham, Jed Montayre

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The aim of the research is to identify whether current nursing curricula increases the Emotional Intelligence (EI) of NZ Diploma in Enrolled Nursing students by the end of their nursing training.

This is a quantitative quasi-experimental pilot study utilising an EI test based on the Schutte's Self Report Emotional Intelligence Test (SSEIT). This EI test was administered via Google forms at the start of the Level 4(L4) and Level 5 (L5) Dip EN programme. The 2018 intake cohort had their EI post-test at the end of the programme in 2020 and this data is considered as the control data.

The 2019 intake cohort have had their EI pre-test measures. This cohort will then have an intervention (Workshop on EI) in October 2020 and further post-tests of EI scores in February 2021. Ethics approval was granted from SIT ethics committee in March 2019.

The current findings are that in the control group EI scores had a mean of 125.1 in the pre-test and in the post-test a mean of 131. The 2019 intake cohort had means of 124.6 and 128.3 for the start and end of Level 4.

Implications: The control data did not have a statistical difference, which implies that the current curriculum does not increase the average Dip EN student nurses EI per se. Further data will imply if an intervention workshop would make a difference in the EI scores. This study is a unique research project on EI in Dip EN students in NZ.

## Presenter Biographies

**Dr Reen Skaria:** Nurse Educator, SIT. Reen completed her Doctorate in Education through Massey University. Reen worked as a registered nurse for 15 years and was a programme manager for the Bachelor of Nursing for four years. She is the paper co-ordinator for the Advanced Assessment and Diagnostic Reasoning postgraduate course.

**Debbie Watson:** Programme Manager for NZ Diploma in Enrolled Nursing, SIT. Debbie has been an RN for 20 years and a Nurse Educator at SIT for the past ten years. She has experience in general medical/surgical and mental health. She is the Programme Manager for the New Zealand Diploma in Enrolled Nursing programme.

**Tash Cunningham:** Nurse Educator, SIT. Tash has completed her Post Graduate Diploma in nursing from the University of Auckland. Tash has 21 years of nursing experience in acute, long-term conditions, and management. Tash joined the SIT school of nursing in June 2019, and is paper coordinator for the Enrolled Nurse Rehabilitation paper.

**Dr Jed Montayre** is a Senior Lecturer of Nursing at Western Sydney University.

# “When Are You Going to Retire?” Factors that Inform Nurses’ Decisions to Continue or Cease Work



Trish Conradson

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**Aim:** The aim of this research project is to capture the factors that influence nurses to continue or cease working as they approach retirement age.

**Research design:** This research project is based on an exploratory design. As such this project does not aim to provide final and conclusive answers about factors that inform the retirement of nurses, but to generate insights into influences that encourage nurses to continue or cease work.

**Methodology:** A comprehensive search of national and international peer reviewed literature related to the project aims is the methodology used. In addition to this media releases and publications from the New Zealand Ministry of Health seeking assistance from retired nurses during Covid-19 pandemic are included. The reviewed literature findings are then analysed and organized on a thematic basis for presentation. The central premise is that retirement is a social construct and as there is no official retirement age for nurses in New Zealand (or in many other countries), factors that influence nurses to continue or cease work are salient. This section of the research project does not involve human subjects so ethics approval was not sought.

## Presenter Biography

Patricia is a nurse educator and has worked as a registered nurse and registered midwife both in New Zealand and overseas. Patricia believes that lifelong learning is a professional priority. She has a Bachelor of Arts degree, a Certificate for Graduates ( Social Science) post-graduate Diploma in Health Service Management and Masters in Adult Education. Patricia's research interests include historical and contemporary trends in nursing education and factors that inform nurses' decisions to retire.

# Co-creating Assessments: A Case Study at Otago Polytechnic Auckland International Campus (OPAIC)



Vera Nistor and Suhaimi Abd-Latif

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Experiential learning and student-centred practice are two preferred modern learning and teaching strategies at the basis of any co-creation attempt. The aim of this paper is to share findings of a case study conducted at our tertiary institution, in order to answer three questions: how a co-creation experience could help students with their engagement and motivation in the course; to what extent co-creation of assessment works in an otherwise strictly set curriculum; and how much benefit students see in being more actively engaged in the process of designing assessments. In the first part, two classes of students studying different subjects (English and IT) participated in classroom trials co-creating one assessment for their course, with the guidance of a teacher. In the second part, the students completed an anonymous online survey, where they got the opportunity to express their feelings about their experience in part one and about the process of co-creation in general. The paper contains a qualitative analysis of the students' responses during the classroom trials, as well as their responses in the online survey. This case study was conducted in accordance with the ethics approval gained from Otago Polytechnic's Research Ethics Committee. Overall, students seem to have found this co-creation experience very useful and engaging. We believe that this case study can be an encouraging base for further action research into the co-creation of assessments and that, in the future, this could ideally help students gain more autonomy over the different factors involved in their study.

**Keywords:** Co-creation, Assessment design, Student engagement, Student motivation, Student autonomy

## Presenter Biographies

Vera Maria Nistor is a Lecturer in the English Department at Otago Polytechnic Auckland International Campus, currently teaching English for Academic Purposes to international students who are pursuing postgraduate studies in New Zealand. Her research interests include interdisciplinary research on experiential learning and learner-centred teaching practice and their applicability across different academic subjects.

Hymie Abd-Latif joined Otago Polytechnic Auckland International Campus in March 2016 then later Otago Polytechnic (in Dunedin) in August 2019, as a Senior Lecturer for Bachelor of Information Technology. He has an M.Sc. in Computer Information Engineering from International Islamic University Malaysia, a PhD in Engineering from Massey University New Zealand, and a Graduate Diploma in Tertiary Education from Capable NZ Otago Polytechnic.

## Update on AKO Research Projects

Jennifer Leahy

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Ako Aotearoa is a government-funded organisation committed to supporting tertiary sector educators to be the best they can be for learner success. It co-funds a range of projects aimed at improving tertiary sector teaching and learning and creating system-wide change. Every project is a partnership, where each partner shares project costs and takes responsibility for the project's success and outcomes, as well as its potential impact on the sector.

The projects co-funded by Ako Aotearoa build capability, encourage collaboration and influence changes that make a positive difference for tertiary sector teachers, organisations and learners. Ako Aotearoa shares all outputs created from our projects under the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International license (CC BY-NC-SA 4.0).

### Presenter Biography

Jennifer Leahy is the Southern Region's Sector Services Manager for Ako Aotearoa, based in Christchurch. As part of her role, Jennifer works with a number of co-funded research projects in the South Island.



# Pause, Consider and Decide: Stimulation for Large Student Cohorts



Johanna Rhodes

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**Background and Aim:** A continuing challenge for learning and teaching using simulation modalities is working with large cohorts of students and maintaining the interest and engagement of the students who are observing the simulation as the audience. The development and implementation of Pause, Consider and Decide: Audience Led Simulation is based on 'choose your own adventure books', also known as 'pick a path' books. The audience decide the clinical interventions using the game-based platform Kahoot during the simulation at specific pause, consider and decide moments. The aim of this study was to develop, implement, review, and evaluate Pause, Consider and Decide: Audience Led Simulation through a cyclical process.

**Research Design:** This action research design guided a series of continuous improvement phases. Data gathered from educators and students included observations and questionnaires, resulting in continuing reflective processes and improvements.

**Results:** The positive results of this research offer a simulation method that is specifically designed for large cohorts of students, enabling increased engagement and promotion of active inclusion. The use of Pause, Consider and Decide: Audience Led Simulation promotes a shared responsibility for the interventions and outcomes for simulated patients. The flexibility of this simulation method is its usability with many different simulation modalities.

**Implications for Teaching:** Pause, Consider and Decide is an approach that enables observers and participants active involvement in simulation-based learning. This presentation offers you an opportunity to participate in a Pause, Consider and Decide: Audience Led Simulation, enabling you to consider using this in your education practice.

## Presenter Biography

Johanna is the Head of School of Nursing at the Southern Institute of Technology. She believes that in this tempestuous period of change, embracing teaching modalities that reflect the 'real world' is critical to developing graduates who are equipped to work in the electrifying, intricate and fluctuating world of healthcare. Johanna is inventive, and seeks opportunities to develop her management, leadership, research and teaching, while maintaining focused strategies to create interesting and realistic learning opportunities.

# Scoping Digital Software and New Technologies Across a Spectrum of Creative Disciplines for Future Fashion Design and Production



Traci Meek, Rachel Mann and Emma Cathcart

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**Aim/question:** How can new technologies in digital software help create better efficiencies within the fashion and textile design process, thereby making fashion production more sustainable?

**Design/methodology:** A series of software programmes used in gaming, animation, and fashion design will be explored in unison with new technologies in measuring and printing for fabric/garment design. Scoping several digital pipelines, such as CLO 3D, Photoshop, Illustrator, Pepakura, Unity, and Marvellous Design. Investigation of traditional and digital methods in 2D and 3D measuring, printing, and laser cutting for improved efficiencies in fashion design. No ethics approval is required at this stage.

**Implications for teaching & industry:** Staying industry relevant through utilisation of new digital software technologies in gaming and animation will improve the environmental impact fashion currently has on the planet by mitigating the amount of fabric waste and pollutants. It also has the potential to reduce the carbon footprint on shipping and returns/rejection of unwanted merchandise that is not 'fit' for purpose.

Creating collaborative, efficient pipelines using digital methods will generate new ideas and approaches between creative disciplines, which can be employed at a local and international level. It will also highlight the need and benefits for more sustainable approaches to be taken by the next generation of apparel designers and manufacturers. Graduates will be armed with a wider variety of software and technological knowledge, collaborative experience, and a holistic overview, which will offer greater scope for employment and benefit the future of fashion.

## Presenter Biographies

Traci Meek is a Tutor in Screen and Visual Arts at SIT. Traci is exploring the nexus between digital and traditional craftsmanship and how 3D printing and modelling technologies are changing theatrical design, animation and video games. Her work in costume craft includes armour-making, puppetry, and mascots for theatres in the USA and television and corporate events in New Zealand.

Rachel Mann is a Tutor in Screen and Visual Arts at SIT. Rachel has a Masters in Design. Her major area of interest is in representation within animation and game development. She is passionate about growing the local industry and runs the local game development group and is the city manager for the Global Game Jam.

Emma Cathcart is a Tutor in Fashion Design at SIT. Emma has a Fine Arts Degree from the UK and Diploma in Fashion since settling in Invercargill fifteen years ago. She has been tutoring at SIT for the last ten years and has driven many real-world experiences through student and research collaborations. Emma also has a passion for implementing sustainable and innovative techniques with an eye to digital development.

# Developing a Degree Apprenticeship Pathway: A New Opportunity for ITP and Industry Partnership

Hana Cadzow and Sarah Hexamer

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[Not Presented]

Otago Polytechnic in partnership with Wellington Institute of Technology, TEC, and the Institute of Public Works Engineers Australasia (IPWEA) have been developing New Zealand's first degree-level apprenticeship as an innovative new delivery mechanism for the Bachelor of Engineering Technology. The model developed draws from international examples and situates itself within a uniquely New Zealand context within the asset management industry. We will begin a pilot phase of delivery at Otago Polytechnic in Semester Two 2020.

This presentation reflects on the process of identifying the needs of industry, learners, and relevant academic or engineering authorities, and designing a delivery model which appropriately addresses this diverse collection of stakeholders. The research component of this phase of the project has been largely reflective, with team members from both OP and WelTec asking "how would we do this differently if we were to do it again?" and "where else can this process generate positive results for industry and learners?". As the project progresses into delivery, formal ethics applications will be made at both OP and WelTec to allow us to collect data directly from apprentices and their employers and evaluate the strengths and weaknesses of the model.

We believe, based on the initial reception of the new model, that degree-level apprenticeship programmes can form an important part of the tertiary education space across a range of industry contexts. The findings of this reflection process will be presented here as a set of considerations and recommendations for undertaking this process in other settings.

## Presenter Biographies

Hana Cadzow is a Principal Lecturer in the Engineering Technologies Team at Otago Polytechnic. She has over 10 years' experience working in an engineering education context and her research draws on this to explore how new and innovative delivery models can be used to engage with a wider variety of learners.

Sarah Hexamer is a new addition to the team at Otago Polytechnic. She joined the Engineering Technologies Team in 2020 to take over the management of apprentices in the new Degree Apprenticeship programme. She comes with significant experience working with Lifeline Utilities providers across the lower South Island.

# Addressing the Skill Shortage Issues in the Residential Construction Supply Chain: An Exploratory Study



Don Amila Sajeevan Samarasinghe

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The New Zealand construction industry is characterised by low productivity, lack of innovation, high unemployment, skill shortages and poor-quality output even though it is the largest sector of New Zealand's infrastructure and continues to boom. Due to skill shortages and a lack of innovation in the construction processes, New Zealand still utilises traditional methods to build houses which have led to increasing house prices. The construction skill shortage issues have also significantly lowered the quality, workmanship and productivity of construction work. This is an exploratory study that aims to analyse the construction labour market. It aims to explore the essential skills that are required for residential construction supply chain improvement.

A qualitative approach, combined with a comprehensive literature review and subject matter expert (SME) interviews, will be used in this study. Semi-structured interviews will be conducted; SMEs who have experience and knowledge about the construction labour market will be invited to participate in this study. The qualitative data will be used to analyse the construction labour market in New Zealand, and thereby the current industry trends in terms of what particular skills are urgently needed will be identified. The findings of this study would be useful to propose effective ways of upskilling construction practitioners. Subsequently, this would help educational providers to design and deliver skill upgrade training programmes for the construction practitioners in New Zealand.

## Presenter Biography

Don is a highly enthusiastic research and education professional. His qualifications include a PhD in Engineering (Construction Management), a First Class Honours Bachelor of Civil Engineering and a Graduate Diploma in Tertiary Education (GDTE). Don's research interests include Construction Innovation, Construction Supply Chain Management, Digitisation in Construction and Construction Education.

# The Impact of Human Behaviour in Lean Construction Implementation

Nilmini Thilakarathna

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Lean construction (LC) emerges to solve numerous productivity and efficiency issues in the construction industry. During the past few decades, LC has been widely practiced globally by implementing several tools and techniques. However, the extant literature informs us LC implementation is slow and still not matured enough in many constructions settings. Moreover, there are barriers in implementing Lean Practices, and one of the significant reasons for those barriers is the behaviour of humans involved in the construction processes. Despite the technological advancement, individuals' contribution to the construction industry is more vital. Hence, this paper discusses the impact of human behaviour in LC implementation. This study is based on a systematic review with document analysis. The recently published literature in Scopus, Google Scholar and Elsevier on Lean Construction Implementation were reviewed to identify the impact of human behaviour for enhanced LCI. The findings reveal that human behaviour plays a significant role in LCI, and culture, attitudes, emotions, values, authority, and rapport are affected to LCI.

**Keywords:** human behaviour, lean thinking, lean construction implementation

## Presenter Biography

Nilmini is a Senior Lecturer at Otago Polytechnic, New Zealand from 2017 and has achieved BSc (QS) Hons, MSc in Project Management and Master of Philosophy, Sri Lanka. In New Zealand, she gained a Graduate Diploma for Tertiary Education (GDTE) and is a confirmed PhD Candidate at AUT. Nilmini is a Fellow member of IQSSL and Member of NZIQS.

# Building Information Modelling (BIM) in Design and Construction

Mazharuddin Syed Ahmed

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Building Information Modelling (BIM) is supposed to be the biggest disruption in the design and construction workflow for the architecture, engineering, and construction (AEC) industry since the advent of Computer Aided Designing (CAD). Both the AEC industry and AEC academia see the exponential benefits of adapting, integrating, and learning this new technology early on. Thus, preparing the new generation of architecture and engineering students to be competent enough on BIM seems inevitable. BIM demands AEC professionals be skilful in computing, simulation, 3D rendering, building performance analysis, construction documentation, real-time collaboration, and communication. Educators who teach AEC often face difficulties in assimilating new paradigms of knowledge that require multiple skill sets. Some of the most common problems faced in teaching BIM are a lack of understanding of its disruptive design process, documentation protocols, real-time collaboration channels, and tools and technologies. BIM is often visualized as more of a tool rather than a disruption in the design and building construction lifecycle.

A distinctive graphically rich user interface version of Moodle Learning Management System was designed to empower the learners in an immersive user interface. Taking advantage of the newly commissioned and fully BIM compliant Architectural college building (K-Block) at the campus, a complete virtual BIM environment was created. Utilizing the Placed Based Learning and Research Based Learning concepts, students will be able to access and explore a virtual 3D model of the building using QR codes or by using Virtual Reality devices.

## Presenter Biography

Mazharuddin is a dynamic multi-skilled professional with 21 years of experience, varied academic degrees, and work experience across continents. He currently teaches BIM and Virtual Design and Construction within the Bachelor of Architecture Studies at Ara Institute of Canterbury. He has taught many subjects in the field of Architecture and Architectural Engineering, including Building Information Modelling and Building Performance Analysis.

# Improving Student Calculation Skills in Online Classes during the COVID-19 Pandemic



Carlo Gabriel

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One way that Tutors can simplify a course is to identify the errors usually committed by students and eventually find a way to address these errors. In this study, the researcher will employ Newman's Error Analysis procedure to identify the errors of students completing calculation problems in Engineering Fundamentals. From the identified errors, the researcher will employ Newman's Error Analysis procedure during online class lectures that would enhance the learning of the course.

The descriptive method of research will be used in this research: it will involve description, recording, analysis and interpretation of conditions that exist. The participants will be pre-tested and post-tested. The pre-test will identify the errors committed by the students in solving calculations in Engineering Fundamentals. From the results of the post-test, statistical analysis will be applied to determine if the Newman's Error Analysis procedure that will be incorporated in the traditional procedure of lecturing calculations in online class during pandemic has a significant effect. The researcher sought permission from SIT Ethics Committee for ethics approval of this research.

Information from this action research will help educators to realise the need for understanding learners in order to remedy the difficulties encountered by the Engineering students on solving and learning calculations in online class during the COVID-19 pandemic. Findings from this research will pose a challenge among engineering educators on how to formulate teaching strategies that will be responsive to students' difficulties in learning calculations in online class during the COVID-19 pandemic.

## Presenter Biography

Carlo Gabriel is a licensed Mechanical Engineer, an Engineering Tutor, and a researcher. As an engineer, he served as a Building and Site Coordinator. As an academician, he served as an adviser in various student projects and student academic organisations, and served as a resource speaker in seminars.

# What are Current Adventure Therapy Practitioners in Aotearoa New Zealand Doing?



Helen Jeffery

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**Aim/question:** What are current adventure therapy practitioners in Aotearoa New Zealand doing, how are they practicing, and what is needed to grow the field?

**Design/methodology:** A mixed method is being used, comprising a focus group, interviews, and a survey. This presentation reports on preliminary qualitative findings gathered through 4 focus groups with 12 participants in total. Participants came from health services, education services and specialist adventure therapy providers. Ethics approval for the research was granted by the Otago Polytech Ethics Committee on 19th June 2019.

**Results:** Participants reported their use of adventure therapy included facilitated groupwork, the use of activity (often an outdoor pursuit) in a nature setting with youth. Adventure therapy was perceived as a set of tools or strategies to augment therapy or teaching, rather than a specific field. Important elements include shared experiences, safe relationships, strengths focus and the importance of trauma informed practice. Some concern was identified regarding differences between practitioners in understanding how to safely utilise adventure therapy strategies with vulnerable youth. The primary way participants developed knowledge and skills in the area was through observation, co-facilitation, mentoring and supervision.

**Implications:** Our developing understanding of the consequences of factors such as the impact of childhood trauma, urbanisation and technification in society and the benefits of experiential learning make adventure therapy knowledge and strategies useful in mainstream education as well as in facilities providing therapy for youth.

## Presenter Biography

Helen Jeffery is an occupational therapist with experience in mental health practice. She has a passion for adventuring in the outdoors, has worked as an outdoor instructor, and has utilised these skills in adventure therapy practices. Helen is a lecturer in occupational therapy at Otago Polytechnic; her research interests are professional reasoning and adventure therapy.



# A Qualitative Inquiry into Students' Perception of Using the Person-Centred Counselling Model in a Community Counselling Service (Kōwhai Centre)



Steff Revell and [Morag Cunningham](#)

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The Bachelor of Social Services Counselling specialty at Otago Polytechnic explicitly uses the theoretical model of Person-Centred Counselling as a core component of the first year of specialty practice. The aims of this study were to allow staff to develop an understanding of students' experiences of using the Person-Centred Counselling framework to inform their counselling work with clients, and to provide students with the opportunity to contribute to the development of the counselling training curriculum.

Semi-structured interviews were conducted, audio recorded, anonymised, and transcribed by an interviewer external to Otago Polytechnic to avoid any potential issue of coercion or dual relationships between teaching staff and students.

The questions asked in the interview related to students' experiences of using the Person-Centred framework in their client work. Ethics approval for the research was granted by the Otago Polytechnic Ethics Committee and approval was obtained from the Kaitohutohu Office.

Results indicated that the students' experience of working in a person-Centred way with clients as trainee counsellors was generally positive. The ways in which students perceived that the Person-Centred Counselling model was able to meet the needs of their clients will be presented. Changes to the counselling training curriculum, selection process, and clinical supervision provision were made in response to research findings, and a summary of these will also be presented.

**Key words:** Person-Centred Counselling; counselling training; students' experience; curriculum development

## Presenter Biography

Morag Cunningham has worked as a counsellor educator on the Bachelor of Social Sciences at Otago Polytechnic since 2017. Morag teaches on the final year of the counselling programme and has been supervising counselling students in their clinical placement at the Kōwhai Centre, a free student-run community counselling service.

# What are the Evidence Based Practice Strategies that are Essential for New Graduate Therapists to Utilise and Supervisors to Promote with Junior Therapists?



Linda Robertson and Helen Jeffery

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**Aim/question:** What are the evidence-based practice strategies that are essential for new graduate therapists to utilise and supervisors to promote with junior therapists, and how are these best integrated into undergraduate education?

**Design/methodology:** A mixed method was used to provide a broad overview of the views of the target audience. This presentation reports on the qualitative findings gathered through interviews and focus groups: Clinicians (11) Lecturers (7) Third year students (16) New graduates (2). Ethics approval for the research was granted by the Otago Polytech Ethics Committee on 10th May 2017, approval number 721.

**Findings or results:** Evidence-based practice is an element of professional reasoning not isolated from client centred practice or from reflective practice. Five sources of evidence to inform competence in professional decision making were identified: 1) research evidence from literature; 2) local environment, resources and culture; 3) clients' expertise and perspective; 4) expertise of others; and 5) practitioners' own knowledge and experience.

The findings have informed the development of a framework for use by students that facilitates regular scanning of each of the sources of evidence to inform clinical decisions. The framework incorporates opportunity for intentional self-reflection and professional self-awareness thereby enhancing skills in self-directed and lifelong learning.

**Implications:** A framework such as this enables students to make links between courses and between academic and practice-based learning opportunities thus preventing the inevitable silo effect in tertiary education.

## Presenter Biographies

Linda Robertson is an experienced lecturer in occupational therapy at Otago Polytechnic, and has been involved with occupational therapy education in NZ and in Scotland for many years. Student learning is a passion, and in particular encouraging students to use a critical lens. Recent involvement with a team of researchers has been stimulating and it has been encouraging to see a positive response to the framework that has been developed.

Helen Jeffery has been involved in occupational therapy as a clinician, clinical supervisor, mentor and now lecturer at the occupational therapy school, Otago Polytechnic. She is motivated by helping others learn and achieve, and is interested in strategies that enhance learning in both academic and clinical settings.

# Examination of Nursing Students' Experiences of Simulation: How Does it Affect their Clinical Practice?



Karyn Madden

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**Aim:** To explore the experiences of nursing students using high-fidelity and immersive technology simulations, and how those experiences affect the transfer of clinical application into practice.

**Abstract:** Simulation is an extensively used and well-established pedagogy in nursing education. High-fidelity simulators (computerised mannequins) have been utilised for many decades with existing research providing evidence of clinical judgement, critical thinking, and student engagement. Immersive technology simulation is relatively new to nursing education and involves the application of a headset in which the student can view a holographic image.

Recent developments in the field of technology and nursing have led to a renewed interest in how simulation experience prepares nursing students for clinical placements. There have been rapid advances in the development of Immersive technology in nursing and whilst there is a plethora of research focusing on simulation, there is an absence of literature examining nursing students' experiences of these two differing simulation modalities.

This research appears to be the first of its kind to use an interpretative phenomenological design to examine nursing students' experiences of these two vastly different simulation modalities and how these experiences prepare them for clinical practice.

## Presenter Biography

Karyn lectures in the School of Nursing at SIT and is a current PhD student through the University of Canberra. Karyn has embraced the teaching methods associated with the hololens and immersive reality, and this simulation modality is now strongly embedded within her teaching. She believes that recent developments in augmented and virtual reality simulation hold promise for new instructional strategies with basic nursing skills.

# Enhancing Wellbeing and Building Resilience for NZ Certificate in Study and Career Preparation Learners



Libby Gawith

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Enhancing wellbeing and building resilience for NZ Certificate in Study and Career Preparation Level 3 (NZ2863) learners at Ara Institute of Canterbury. This research is significant because this 60 credit programme of study offers career pathway opportunities for second chance learners. This first experience at tertiary level is critical for learners as they may or may not be successful and may not therefore engage in further study. Ara is most interested in our NZ2863 learners developing a sense of belonging, having a sense of achievement, passing, and continuing in their learning journeys. There is currently much research on wellbeing and resilience for college or degree level students, but there is a dearth of literature related to initiatives for second chance or non-traditional learners on enabling programmes. Enabling programmes help learners develop lifelong learning skills, self-belief, confidence, and academic rigour and can be described as transformational learning (Doyle, 2006 as cited in James and Seary, 2019). Countryman and Rose (2017) argue tutors need to focus on individual and collective wellbeing in classrooms and that it should 'drive' our practice. Relationships between coping or resilience, wellbeing and school connectedness (e.g. Zimmer-Gembeck & Locke, 2007) are well researched and understood.

This research aims to explore learner wellbeing and resilience initiatives locally and internationally for this cohort and understand what core elements need to be in place for our NZ2863 or second chance learners to enhance their wellbeing and build resilience and be successful at Ara.

## Presenter Biography

Libby Gawith is a Programme Leader for Level 3 second chance learners studying NZ2863 at Ara Institute of Canterbury, and has been a tutor of many years. She previously researched the impact of Christchurch earthquakes, and is now focusing on student wellbeing for the NZ2863 cohort. Her background is in mental health and Community Psychology.

# The Effectiveness of Sauna in Reducing Anxiety

Michael Fallu

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Sauna bathing has a long history as a social and therapeutic practice, and has been linked to many health benefits. The Finnish longitudinal Study on the effects of sauna on Finnish males highlighted a reduction in all-cause mortality. Benefits reported by sauna users in this research were stress reduction and pain relief. Participants reported both during and post sauna an increase in relaxation. One respondent identified an effect of sauna enabling them to work better through the day when the sauna was taken early and helping them sleep better at night when the sauna was taken later in the day.

## Presenter Biography

Michael Fallu worked in the area of intellectual disability as a programmer for 22 years, before completing an undergraduate degree and PhD at the University of Queensland. For the last 17 years Michael has been lecturing and tutoring at the Southern Institute of Technology .

# Literacy Skills and Occupational Therapy Practice

Linda Robertson

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Within occupational therapy practice, there are many occasions where there is the need for documentation to be handwritten. Research stipulates that it is imperative to teach writing skills to ensure that students can reach the literacy requirements of their professional world.

Recent feedback from supervising occupational therapists suggests that literacy skills are becoming an issue whilst students are engaging in their clinical education. It is essential that documentation is clear and coherent due to the legal requirements. This requires the written content to be correct in grammar, punctuation, sentence construction and legibility. Improving literacy skills is an essential component in supporting learners on their journey to becoming occupational therapists.

To explore this issue of what constitutes adequate literacy skills, third year students were invited to participate in a short-contextualised writing assessment. This had 2 components: a response to a video clip of a clinical activity and an exercise where students were asked to identify any literacy faults in a written paragraph. 14 students participated. The students work was evaluated by two experts: a member of student support and an occupational therapy lecturer. This presentation will compare the expectations of the two assessors and consider the implications.

## Presenter Biography

Linda Robertson is an associate professor at Otago Polytechnic who is interested in education at both undergraduate and post graduate levels. Her research interests include clinical reasoning, qualitative research methods, education, teaching evidence based practice, and care of older people.

# Project Transforming Hate

Mazharuddin Syed Ahmed

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"Project Transforming Hate" aims to develop an educational framework as well to create training workshop content (for educators). Further, this project understands the importance of acknowledging the tributes of Aroha, kindness, humanitarian activities and events conducted in support of the 15<sup>th</sup> March Christchurch attack victims. The proposed framework will be based on human rights education and narratives. In light of many recent events (the recent developing unrest in the USA, the communal hatred being stoked in India and last year's Christchurch terror attack), it is important to find collective means and methods to counter hate speech. With New Zealand's recent success in countering the COVID-19 pandemic and successfully addressing the March 15<sup>th</sup> terrorist attacks, New Zealand had set a crisis management template for the world to copy. In that context, The COVID-19 pandemic had witnessed a surge in hate speech and prejudice narratives worldwide. I believe it is our duty to continue to work and engage both locally and globally in educating people of the dangers of hate and also to be united in more pressing humanitarian and global issue.

## Presenter Biography

Mazharuddin Syed Ahmed has a doctorate in Technology Education and Multivariate Data Mining. He has over 21 years of experience in teaching, research, programme and curriculum development, e-learning content design, building information modelling, virtual design, construction, and architectural visual communication. He currently teaches at Ara Institute of Canterbury, Christchurch. He has a master's in Architectural Engineering, a Graduate Diploma in Architecture Design, and a Bachelors is Civil Engineering.

# Longitudinal Study Examining the Value of E-Portfolios in Nursing



Michelle Miller, Stacey Porter, Karyn Madden and Katrina Bowes

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This study was an extension of previous research which examined the value of e-portfolios within the Bachelor of Nursing, undergraduate programme. Due to the short length of previous research, it was recommended that a longitudinal study be commenced examining the value students place on the e-portfolio platform. Validation for this recommendation was due to contradictions in the obtainable literature on e-portfolios and the findings from preceding research. Further justification for this research was that former exploration of the value of e-portfolios occurred over a 9-week duration, and for a more comprehensive examination of the value e-portfolios have for students in their tertiary training. Previous research indicated that international support for e-portfolios have been associated with higher retention and success rates in higher education.

The aim of this study was to explore and examine the value of e-portfolios from the student's perspective with the undergraduate Bachelor of Nursing programme, while also exploring the value of e-portfolio over a longitudinal duration. Bachelor of Nursing students completed an online questionnaire, prior to return of completed e-portfolios, at the end of their first and second year of training. The intention is to complete this questionnaire over a three-year duration. Voluntary participation from students was indicated. The questionnaire was presented to the students following the submission of their e-portfolios but prior to their grade being returned to minimise the potential bias if the student did not receive the grade they were aiming for. Data Analysis will occur annually following the response of the online survey, with first- and second-year data now available. A combination of statistical analysis and content analysis will occur to interpret the results.

## Presenter Biographies

Michelle Miller (SIT) has a passion for the development of nursing students critical thinking skills. E-portfolios allow students to utilise critical reflective practice, which enhances knowledge and retention of material learnt in classroom and clinical practice.

Stacey Porter (SIT) enjoys supporting new nurses into the various fields of nursing, and relishes the use of real-world examples, simulation and hands on within the practical elements of class-based sessions. Stacey's nursing background includes orthopaedics and aged residential care.

Karyn Madden (SIT) has a passion for technology-based education and strongly believes e-portfolio platforms are an ideal mode of transportation between academic and professional environments, as they collate digital applications that enable students to learn and present material in an interactive and collaborative manner.

Katrina Bowes (SIT) works directly with the Bachelor of Nursing students and with the e-portfolio platforms, igniting a passion to understand the value e-portfolio platforms have for the students and has the use of this platform increased knowledge and retention of information.



# Electronic Waste Management in Schools, Industries, and Companies in Invercargill, Southland



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During the last 20 years, new technologies have continually developed with the latest designs including 'smart' functions, which has resulted in many outdated appliances being thrown into landfills without consideration of their impact on the environment. This study investigated how industries, companies, and schools manage e-waste, how much e-waste has been produced per year and what recommendations are needed to be put in action to solve the problem that occurs in Invercargill, New Zealand. E-mail surveys and interviews were carried out during the data collection period to obtain information related to e-waste disposal within a firm. The email survey was completed by seven companies, four schools and two industries, and three interviews were conducted. The findings showed that all respondents from both conducted surveys and interviews are concerned with the possible increase of e-waste. There is also a significant amount of e-waste that is not being recycled and diverted from local landfills. In addition, it was found that there is no management plan available in schools, industries, and companies to control the quantity of e-waste disposed into landfills or for recycling. This study has demonstrated that there are no standard systems of e-waste disposal in schools, companies, and industries in Invercargill, indicating that more needs to be done to improve e-waste disposal.

## Presenter Biographies

Tapuwa Marapara is an SIT tutor in Environmental Management. Professional career has included environmental management consulting along with a variety of roles involving scientific research in agricultural production, water quality and quantity management. My qualifications include a PhD in Eco-Hydrology, an MSc in Sustainable Forest Management and a BSc (Hons) in Agronomy.

Inessa Endawie is a former SIT student in Environmental Management. Inessa currently works as a Sustainability Consultant in Malaysia.

# The Role of a NIMBY Imagined Public in New Zealand and Italian Wind Farm Resources



Claudia Gonnelli

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Despite growing criticism of its actual explanatory value, NIMBY remains a catchall term broadly used to label any form of local opposition and specifically protectionist attitudes towards unwelcome developments in an area. The aim of this research was to explore whether local authorities' characterization of the public involved in wind farm resource consent was consistent with this quasi-scientific explanation and its repercussions on public participation. Under the ethical approval of the University of Auckland Human Participant Ethics Committee, interviews with key informants were conducted in New Zealand and Italy, alongside a comprehensive document and policy analysis. This cross-country comparison revealed that local authorities characterised the imagined public as NIMBY and used this imaginary to legitimise the decision-making process and its outcomes. In line with the depoliticizing nature of the NIMBY explanation, local authorities also presented the imagined public as an amorphous entity that lacked specific recognizable attributes, such as gender and ethnicity. In both countries, the imagined NIMBY public risked discrediting and silencing even well-founded opposition, hence perpetuating a vicious cycle of public discontent and reduced public trust in local institutions. In light of this finding, this research seeks to encourage a more open and transparent discussion on the motivations behind community opposition to increase community trust and achieve a more environmentally friendly development.

**Keywords:** Wind farm, public participation, NIMBY, imagined public.

## Presenter Biography

Claudia lectures in Environmental Management at SIT, and has just completed a PhD in Environmental Science at the University of Auckland with a thesis on public participation during wind farm resource consent applications in New Zealand and Italy. Her main areas of interest include renewable energy, environmental justice, energy transition, and energy governance.

# Using Q Methodology with Images of Environmental Artworks

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Q methodology provides a way of collecting qualitative data in a format that is suitable for statistical analysis. Usually research participants are asked to sort a set of statements (the Q set) selected by the researcher which represent a variety of perspectives on the issue under investigation. The way in which each participant sorts the statements (a Q sort) can be correlated with the results from each other participant to identify patterns and hence groups of participants who responded similarly and hence share a point of view.

This Masters research uses Q methodology with a set of images instead of statements. The aim of the research is to assess the emotional engagement of a curated exhibition of environmental artworks by various artists being held in Dunedin 26/27 September 2020, exploring climate change and other effects of human activity on the environment. The images which comprise the Q set are photographs of the artworks. Participants are being asked to sort them according to the strength of their emotional response to each artwork. Participants then have an opportunity to explain those emotional responses. Ethics approval has been sought.

The research will evaluate the impact of the exhibition and the findings will also inform the use of artworks to engage members of the public emotionally and hence influence pro-environmental behaviours. The research is novel in using photographs of artworks rather than other kinds of images with Q methodology. This presentation will discuss practical issues around using Q methodology with images.

## Presenter Biography

Lesley Brook is a Research Projects Coordinator at Otago Polytechnic. Her work includes increasing the impact of research across the institution.

# 3D Digital Technologies as an Educational Tool in Manual Therapy Education and Clinical Practice – A Scoping Review



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**Background and Objective:** Three-dimensional (3D) digital technologies (emulating virtual, augmented, or mixed reality environments) have been used increasingly in medical/nursing practice and education. However, the usage of these technologies in manual therapy education is currently unknown. Hence, the objectives of this scoping review were to: (1) Summarize the literature on the current usage of three-dimensional (3D) digital technologies in imparting manual therapy education and in improving any outcome relevant to learning of manual therapy by students, clinicians and academics; (2) Synthesise the literature on opportunities and challenges for using 3D digital applications as an educational tool for manual therapy.

**Methods:** Electronic databases (n=6) were searched (from January 2005 till current). Two authors independently searched, assessed inclusion criteria, and extracted the data using the data collection form. A narrative thematic synthesis was used to synthesise findings.

**Results:** A total of four studies (423 participants) met the inclusion criteria and were included in the scoping review. Two studies were done in Germany, one was done in the United States, and the other in China. They comprised one qualitative, one quantitative and two mixed methods studies. All studies utilized haptic feedback in virtual reality, with the four key findings from the review being that it: (1) enhances real time experience; (2) trains perception of different tissue stiffness and tissue abnormality; (3) facilitates and enhances palpation; and (4) increases accuracy and speed of diagnosis.

**Conclusion:** More research may be an urgent priority to understand and develop the role of 3D digital technology in manual therapy education.

## Presenter Biographies

Dr Kesava Kovanur Sampath is a lecturer/clinic lead at the Department of Allied Health and Social Practice, Ara Institute of Canterbury, Christchurch, New Zealand. His research work focuses on mechanisms underpinning manual therapy practice.

Dr Ashokan Arumugam is an Assistant Professor of Physiotherapy at the College of Health Sciences, University of Sharjah, United Arab Emirates. He is an Orthopaedic Manual Physiotherapist and his research to date primarily focuses on biomechanical analyses of the lower limbs.

# Microplastic Concentrations in Invercargill City Waterways: A Case for Bottom-up Citizen Science Approaches



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Microplastics are plastic particles smaller than 5 mm, and have been found in our food, water, and even in the most remote places on Earth (i.e. Antarctica). The majority of literature on plastic pollution is focused on the marine environment and only one study in New Zealand has quantified microplastics present in waterways despite evidence suggesting that rivers contain the highest concentrations of plastic pollution. A further complication is the variation in the methodologies of sample collection, quantification, and identification, which are not yet standardised, making it difficult to compare findings. Using tested methodologies from existing literature, our project adapts and employs a straightforward, inexpensive, and accessible standard operating procedure (SOP), which has successfully been used to quantify microplastics in Invercargill waterways by SIT research students. In this methodology, water samples are collected from rivers using a plankton net and then filtered through an arrangement of mesh sieves. Any organic matter in the sample is broken down using a solution containing hydrogen peroxide; sodium chloride (salt) is added to increase the density of the solution and allow the microplastics particles to float to the top. The separated microplastics can then be counted and categorised (by type and colour) using an inexpensive USB microscope.

The SOP involves quick and easy sampling techniques, as well as equipment and chemicals that are generally available in a tertiary level chemistry laboratory. This means that the sample collection is easily done by school kids and the laboratory analyses could be done by high school students, under the supervision of tertiary students and tutors for health and safety. We have trialled the SOP with primary school, high school, and SIT students in Invercargill, with much success promoting interest and awareness across different education levels (no ethics approval was needed as the programme was run in collaboration with an existing programme – Pūtaiao Tamariki – and the data is not being used for research purposes). Now with the Reform of Vocational Education (RoVE) and merger of all ITPs into Te Pūkenga, this is a unique and timely opportunity to operate the methodology across all of New Zealand using Te Pūkenga institutes as hubs for coordination of sampling by local school and community groups. Besides addressing the paucity of nationwide data on microplastics in waterways, the partnership between schools and NZIST institutes may also help in the recruitment of future students, as well as promoting interest in STEM related courses.

## Presenter Biography

Christine is the Programme Manager for Environmental Management at SIT. Christine holds a PhD from the University of Auckland investigating the geomorphology of reef islands, but her passions nowadays lie in fostering community driven citizen science and guiding young minds towards STEM careers.

# Design Optimization of Solar Water Stills in a New Zealand Context



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Several towns and cities in New Zealand are at high risk of running out of drinking water. Desalinating seawater at a domestic scale seems to be a viable solution, at least for coastal towns. Single slope solar stills can be used for this purpose. These devices are simple and cheap to manufacture, operate and maintain. Although these solar stills were first invented almost a century ago, their poor efficiency has always been the subject of research. Recent studies have shown that their performance can be significantly improved by adding reflecting surfaces and adjusting their angles, based on the geographical location of installation. However, there is a dearth of such studies in the New Zealand context. Therefore, in this study five still designs: (i) non-reflecting, (ii) internally reflecting, (iii) internally reflecting with an external top booster, (iv) internally reflecting with an external bottom booster, and (v) internally reflective with external double boosters, are proposed and numerically optimized to achieve the best year-round optical-irradiation performance, when simulated for a hypothetical coastal location in New Zealand. The performance and the footprint areas of these designs are also compared to help manufacturers make informed decisions while finalizing their designs.

## Presenter Biography

Naveed ur Rehman is a mechanical engineering tutor at SIT. He is actively researching in the field of solar energy engineering, particularly potential assessments, systems analysis, and optics, and has published several articles in prestigious journals and international conferences.

# Being One When Split as Two: Assuming, Playing and De-roling as Simulated Patients



Johanna Rhodes

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**Background/aims:** Evidence of physiological harm and personal mental health risks can occur for students and non-healthcare educators who play roles as simulated patients during simulation encounters. However, what happens for healthcare educators who assume, play and de-role as simulated patients for the purpose of learning and teaching is not often considered.

The aims of this qualitative study are:

1. To gain an understanding of what is happening for educators who assume, play, and de-role as simulated patients, enabling a review of support and training processes to ensure safety for educators and students when using simulation modalities for the purpose of learning and teaching.
2. To develop a substantive theory that explains the process by which educators experience assuming, playing, and de-roling as simulated patients for the purpose of learning and teaching.

**Research design:** This study, guided by constructivist grounded theory methodology has gathered data using intensive interviews from healthcare educators internationally who assume, play, and de-role as simulated patients.

**Results:** Initial and focused coding has revealed categories including:

- Remaining as two people
- Morphed as a part of me
- Shared vulnerability
- Different engagement with manikins
- Stepping into another's shoes
- Feeling what a patient feels

**Conclusion:** It is the person who has assumed and played the role who experiences the suffering, not the patient they are playing. This presentation offers thought provoking consideration of educator safety when assuming, playing, and de-roling as patients using simulation modalities.

## Presenter Biography

Johanna is the Head of School of Nursing at the Southern Institute of Technology. She believes that in this tempestuous period of change, embracing teaching modalities that reflect the 'real world' is critical to developing graduates who are equipped to work in the electrifying, intricate and fluctuating world of healthcare. Johanna is inventive, and seeks opportunities to develop her management, leadership, research and teaching, while maintaining focused strategies to create interesting and realistic learning opportunities.

# The Expectations and Perceptions of Younger (25 and under) Business Students at a Higher Educational Institution in NZ



Robyn Valentine, Lynley Woodward, Hufsa Kazmi and [John Archer](#)

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This presentation will begin with a clear identification of the research questions and the reasons behind the research project: What are the current younger (25 years or under, Gen Z) students' expectations and perceptions of higher level business education at SIT? What potential changes are needed to the management, course content and teaching delivery methods to better meet the expectations of current younger and future students in higher level business education courses?

There will be an emphasis in the presentation of the need to provide a deeper understanding of our younger students' attitudes and expectations of tertiary education. It will help us to better tailor our education management processes and course delivery techniques to the current and future student body and how as educators, most of our group are a little older and we are recognising the need to become more in touch with the needs and expectations of our youngest group of students.

The research methodology will be clearly outlined with discussion of the key findings from the completed literature review. The questionnaire that has been developed to identify the initial expectations of year one students at the beginning of their study in 2021, will be discussed and the ethical issues for exploring students' perceptions of their education at the end of their first year of study via interviews and/ or focus groups will be outlined. A clear rationale for the sampling and research methodology will be provided along with an overview of challenges the project has faced to date.

## Presenter Biographies

Robyn Valentine is a marketing tutor with particular interest in consumer behaviour and purchasing and is a team leader within the Bachelor of Commerce at SIT Invercargill. Robyn is new to academic research and is currently studying towards Master of Applied Management.

Lynley Woodward tutors accounting practices, management accounting and taxation within the Bachelor of Commerce programme at SIT. Previous research has been into New Zealand small business owner's attitudes towards GST compliance.

Hufsa Kazmi tutors a range of management and international business papers across Bachelor of Commerce and Master of Applied Management programmes at SIT. Previous research has been in management and employment related issues in the education and health sector.

John Archer tutors a range of management subjects across the Bachelor in Commerce and Masters in Applied Management programmes at SIT. Previous research areas have focused on the impacts of precarious employment.



# Bridging the Skills Gap in Cyber Security

Syed Faisal Hasan

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There is a growing demand for skilled IT professionals in cyber security. Due to the broad spectrum of the subject area, theoretical foundation and the ever-changing nature of the cyber security landscape, it is often a very difficult to come up with an undergraduate curriculum that is effective in producing qualified professionals. On top of that there is a risk factor and ethical issues in including hands-on content that mimics the real world. In this presentation, I will list the most demanding skill sets for cybersecurity professionals around the world and present a curriculum that balances the theoretical as well as the practical aspect of the subject area to fulfil the skill gaps in the market. I will also present my research result that illustrates security vulnerabilities of many New Zealand based institutions online. The ethical considerations, and challenges of conducting such research will be highlighted as well. Finally, a novel initiative on creating a raspberry pi based cyber security practice lab will be presented that can help motivate students in the field of cybersecurity without exposing them into any risky endeavours while playing with malware.

## Presenter Biography

Syed Faisal Hasan is a Lecturer at Otago Polytechnic. Previously he worked as an associate professor of CSE at the university of Dhaka, Bangladesh and as a Lecturer of ECE at the University of Illinois at Urbana Champaign, IL, USA. He holds a PhD in computer Science from the university of Otago.

# A Transformative Computation Collaborative Design Approach to Leverage Non-Experts in Generating Urban Furniture



Shuva Chowdhury and Andre Bordon

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The recent development in computation allows novel engagement of non-experts to take part actively in the design process. In traditional furniture design, experts take control of design generation and mostly the uniqueness of the design is limited to the choices of the design experts. Non-design experts can hardly participate in designing functional furniture due to a lack of perceptual understanding of the artefacts during the design process. Thus, the research speculates that including computational logic in the design process and their easy understanding of the perceptual affordance can leverage non-experts to become an active part of the decision-making process. Such design logic offers additionality via their real-time generation and visualisation possibilities that are unmatched in conventional realms. The research develops a framework to engage end-users in generating parametric urban furniture. It develops an online-based design generating instrument for non-experts to participate collaboratively. The research brings a design generation instrument to the people to communicate design ideation with fellow design members. The instrument engaged them in a meaningful design discussion to generate a piece of parametric urban furniture. The design framework builds on the ability of the computational instruments and the need for the design problem. The research discusses the findings and learnings that have gained from the experiments. It concludes showing the differences among computer-generated optimised models and the models generated by non-experts.

**Keywords:** Computational design thinking, Non-experts, Interface, Fabrication, Urban Bench

## Presenter Biographies

Shuva Chowdhury is a PhD Candidate in Architecture at Victoria University of Wellington and an Architectural Tutor in SIT. His work focuses on computational design generation, production, communication and collaboration. He is an aligned researcher for National Science Challenge, Building Better, Homes, Towns and Cities (BBHTC) project 'Shaping Places: Future Neighbourhoods'. He is a member of Digital Architecture Research Alliance (DARA). Shuva holds a professional degree in architecture from the Bangladesh University of Engineering and Technology (BUET), a M. Arch in Digital Design Pathway from Mackintosh School of Architecture (GSA), Glasgow, UK, and a post-professional degree in architectural design from Barcelona Institute of Architecture, Barcelona, Spain.

Andre Bordon is an architectural tutor at SIT. His industry experience ranges from multi-storey residential buildings to industrial buildings having worked at Lautrec Technology Group (a consultancy firm in Auckland) and as a resident architect for Carmen Copper Corporation (a mining company in Asia). He holds a bachelor's degree in architecture from Cebu Institute of Technology - University where he spent over a decade teaching architecture.

# Will the Application of Value Engineering on Ongoing Construction Projects Enhance Value for Money?



Samanthi Menike and Thamasha Rukshani Panangala

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This research aims to establish criteria that can be applied directly by industry practitioners to upgrade the current practice of value engineering in their day-to-day operations. Value Engineering is a process of identification and elimination of unnecessary costs of a building element while securing functions envisaged of it. Multiple case analysis on an embedded observational approach was selected as the research strategy.

This research used the cost and performance records of six building elements from four residential and commercial buildings. The functions of selected building elements have been investigated, and value engineering options have been established to achieve functions identified. Costs and performance criteria for each option have been evaluated in-depth, using descriptive analysis, to assess the suitability of each option to meet the specified function of that element. The performance score of each option was established using a pair-wise comparison method.

The cost-saving of building elements was recorded an average 42% which adds significant value to the capital cost of the project. This proves that with the careful dedicated application of value engineering on an ongoing project could yield an effective impact on the value and cost parameters of the product.

**Keywords:** Value engineering, cost, performance, residential, commercial

## Presenter Biographies

Samanthi Menike is a Senior Lecturer in quantity surveying at SIT as well as a professional quantity surveyor with membership of RICS, NZIQS, and IQSSL. She is a first-class honours quantity surveying graduate with MBA. She is working as an Assessor for RICS South Asia and Australasia. She was appointed as a paper reviewer for International Research Conference conducted by General Sir John Kotelawala Defense University Sri Lanka for 2018, 2019, and 2020. Her research interests are Value Management, Value Engineering, and Technical Auditing of Construction Projects.

Thamasha Rukshani Panangala is a first-class honours quantity surveying graduate from University of Moratuwa with more than 3 years of experience. Thamasha completed her undergraduate research on "An Approach to Value Engineering in Sri Lankan Construction Industry". Her research interests are Value Management, Value Engineering, Whole Life Costing for Building, and Infrastructure Projects.

# Project Based Learning in Communication Design: Developing a Framework for Stakeholders



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In Communication Design at Otago Polytechnic we employ Project-based Learning methodologies extensively in the second half of our degree, working with up to 50 community organisations in a year. We find that this is great way to engage learners with live projects, as well help learners to see a place for themselves in the world as designers.

Our mostly young learners need to work with others – outside of their peer group – and develop professional communication skills in the course of their study. The benefits to the community groups we work with are wide-ranging, and they come to better understand their own needs, as well as how to work with a designer.

As this practice has grown quickly I found a lack of coherent resources and consistency in delivery of projects. The aim of my research was to identify existing practices and opportunities for improvement. I reviewed literature, applied for ethics, interviewed a range of stakeholders, reflected on my findings and have begun developing a clear framework. This paper outlines my methods, identifies stakeholders (students, lecturers and organisations), offers a summary of results as a set of identified needs. I also demonstrate the work that I have done on developing an initial framework that responds to these opportunities or needs.

I still need to test my framework at Otago Polytechnic and seek feedback from others in the sector who may be working in similar ways.

**Keywords:** Project-based Learning, Communication Design, Frameworks for WBL

## Presenter Biography

Denise Narciso is fresh from industry, where she worked as a design manager in Manila. She initially came to Otago Polytechnic for postgraduate study in sustainable communication design solutions, working with the Otago Farmers Market. 2020 is Denise's third year teaching.

# Symposium Awards

Symposium participants anonymously voted for the best 15-minute presentation and the best 5-minute presentation. Prizes were given based on numbers of votes.

## 15 Minute Presentation Awards

- First Prize**                    Mazharuddin Syed Ahmed: Building Information Modelling (BIM) in Design and Construction
- Second Prize**                Carlo Gabriel: Improving Student Calculation Skills in Online Classes During the Covid 19 Pandemic
- Third Prize (joint)**         Claire Goode: An Excellent Adventure: Investigating the Stories of National Tertiary Teaching Excellence Award Winners
- Third Prize (joint)**         Christine Liang: Microplastic Concentrations in Invercargill City Waterways: A Case for Bottom-up Citizen Science Approaches

## 5 Minute Presentation Awards

- First Prize**                    Johanna Rhodes, Being One When Split as Two: Assuming, Playing, and De-roling as Simulated Patients
- Second Prize (joint)**       Trish Conradson: "When Are You Going to Retire?" Factors that Inform Nurses' Decisions to Continue or Cease Work
- Second Prize (joint)**       Reen Skaria, Debbie Watson, Tash Cunningham and Jed Montayre: Emotional Intelligence (EI) of NZ Diploma in Enrolled Nursing Students