OTAGO POLYTECHNIC /
SOUTHERN INSTITUTE OF TECHNOLOGY

RESEARCH SYMPOSIUM 2019

DUNEDIN
4 NOVEMBER 2019

OTAGO POLYTECHNIC
Te Kura Matatini ki Otago

SOUTHERN INSTITUTE OF TECHNOLOGY
TE WHARE WANANGA O MURIHIKU

Published 2019
Otago Polytechnic
95 Forth Street
North Dunedin
Dunedin 9016
New Zealand

ISBN 978-0-908846-52-8 (electronic)

Published: Otago Polytechnic
95 Forth Street, North Dunedin, Dunedin 9016

www.op.ac.nz

OTAGO POLYTECHNIC /
SOUTHERN INSTITUTE OF TECHNOLOGY

RESEARCH SYMPOSIUM 2019

DUNEDIN
4 NOVEMBER 2019

Content

Content

2019 OP/SIT research symposium

Sargood Centre, Logan Park Drive, Dunedin

Monday
4 November 2019

Morning tea from 8:45am

9:10am to 5:00pm

Programme

9:10am	**Welcome from Prof Leoni Schmidt**
9:15am	**Session 1, 15 min presentations, chair: Émilie Crossley**
Johanna Rhodes SIT	Using escape rooms to promote learning through teamwork and problem solving
Murray Strathearn SIT	An evolving IPE narrative
Donna Burkett, Rebecca McDiarmid OP	Navigating and nurturing the student nurse journey
Debbie Ruwhiu SIT	Hoake - Let's do this! Raising Māori students' achievement in a mainstream tertiary organisation through culturally responsive practices
10:30am	**Session 2, 15 min presentations, chair: Joy Gasson**
Elise Allen OP	Printing it out: improving the UX of marking using new and emerging technology
Robyn Hill, Robert Horrocks SIT	Evaluating facilitators' use of Blackboard 'discussion boards' for formative / summative assessment, and to enhance online learning engagement
Barnaby Pace OP/SIT	Alice, Bob and the Cat in a Box: Examination of Quantum Mechanics Frauchiger Renner Paradox
11:30am	**Session 3, 5 min presentations, chair: Sally Bodkin-Allen**
Michael Fallu SIT	The Leisure and Recreation for People with Disabilities in Southland, Ten years on (a longitudinal study)
Emma Cathcart SIT	QUEENS GO SOUTH - A real-world collaboration project with CHROMA
Kingsley Melhuish SIT	Pūmoana and Pedal Steel – the natural combination
Yvonne Mosley-Martin, Sally Baddock, Emma Bilous, Deb Beatson OP	Taking education to the people not people to the education: a New Zealand case study in delivering education "closer to home"
Joelle Peters, Hana Cadzow OP	Where are the women? - Exploring enrolments in Level 6 and 7 engineering programmes

12:00	**Lunch**
1:00pm	**Session 4, 15 min presentations, chair: John Mumford**
Bridget Kerkin, Susan Lennox, Jean Patterson OP	Midwifery documentation: What is its purpose?
Naveed ur Rehman SIT	Solar Potential Assessment of Public Bus Routes: A case study in Invercargill
Matt King, Charlotte Flaherty, Jing Lin OP	Physical Design Parameters for Handheld Dynamometers
2:00pm	**Session 5, 15 min presentations, chair: Jo Rhodes**
Samuel Mann OP	Double, double, toil and trouble; Inside the professional practice research bubble
Megan Walker OP	Capturing insights from women about health complications in pregnancy: The introduction of visual and/or vocal segments into midwifery education in response to a photograph
John Mumford SIT	Postgraduate international students' academic writing barriers
3:00pm	**Session 6, 5 min presentations, chair: Jenny Aimers**
Steve Ellwood OP	Discovering personal motivation through new learning
Nayani Landage OP	Recognizing Collaborative Approach to Teaching Construction Projects Estimating over the Conventional Methods of Teaching
Joy Gasson, Adon Moskal, Dale Parsons OP	The 'Art' of Programming
Tania Allan-Ross OP	Sensory Solutions within Tertiary Institutes
Krissi Wood, Dale Parsons OP	Student Affect in CS1: Insights from an Easy Data Collection Tool
3:30pm	**Afternoon tea**
3:50pm	**Session 7, 15 min presentations, chair: Kingsley Melhuish**
Carlo Gabriel SIT	Self-Efficacy and Anxiety in Learning Engineering Fundamentals
Debbie Watson SIT	A study to identify the Emotional Intelligence among NZ Diploma in Enrolled Nursing students
Émilie Crossley OP	Qualitative longitudinal research: negotiating ethics through time
4:45pm	**Close and awards**

PRESENTATION ABSTRACTS

PRINTING IT OUT: IMPROVING THE UX OF MARKING USING NEW AND EMERGING TECHNOLOGY

Elise Allen
Otago Polytechnic

elise.allen@op.ac.nz

Bio:

Elise Allen is a senior lecturer in Web Development, Software Engineering, User Experience Design and Professional Practice in the Bachelor of Information Technology programme at Otago Polytechnic. Her current areas of interest include programming modern web layout, user experience design, and interaction design beyond the mouse, keyboard and touch screen.

This research attempts to determine whether a digital workflow can be developed to mitigate the inefficiencies of printing student assignments for marking while maintaining the sense of efficiency gained by hand-written mark-up and comments.

In response to informal survey of Otago Polytechnic Informational Technology lecturers about challenges they face when they mark student work, an explorative study is warranted into the effect of physical user interfaces on the efficiency of marking assignments where flexible, direct feedback is required.

It appears that the perceived easiest method of marking written work and programming assignments in 2019 is to print student work and mark it up with a pen, or to print one marking sheet per student.

This research involves several members of the teaching staff of the School of IT using the iPad Pro and Apple Pencil to replace previous paper-based marking workflow in order to determine whether this technology helps to mitigate the inefficiencies of working with paper while maintaining the benefits of such a workflow.

Initial results from online surveys of participants' opinions indicate that while a minority of participants felt that dealing with an added technology held them back, the majority of people who marked with the iPad felt it was a superior method of working compared with their normal workflow. More data is needed from lecturers in other disciplines.

New and emerging technology may indeed be able to improve the marking and feedback workflow.

SENSORY SOLUTIONS WITHIN TERTIARY INSTITUTES

Tania Allan-Ross
Otago Polytechnic

tania.allan-ross@op.ac.nz

Bio:

Tania Allan Ross is a Principal Lecturer in the School of Design at Otago Polytechnic in Dunedin. Tania's research focus is user-centred design of therapeutic garments which address sensory integration differences.

This study employs desk top research to examine how prevalent the availability of sensory spaces and tools are within tertiary learning environments.

Sensory spaces containing therapeutic equipment are commonly accessible to preschool learners. Initially designed by occupational therapist for students with special needs, sensory rooms are relaxing and calming environments designed to assist improved personalised sensory input and modulation, to aid positive interaction with others and the ability to focus for learning.

Sensory processing is the neurological organisation of sensory input from multiple senses, including visual, auditory, tactile, olfactory, gustatory, proprioceptive (body awareness) and vestibular (movement). An individual experiencing dysfunction in processing of sensory information may be over-responsive or under-responsive to sensory input from their body or environment.

During recent years, the use of sensory spaces within educational environments has trickled-up through to higher levels, for example Otago Polytechnic, Dunedin. Enabling mature learners to have access to sensory friendly spaces provides the opportunity for individuals' to better manage their sensory needs while studying.

Digitally accessing resources such as press and education posts, has resulted in the gathering and analysis of the current acceptance of the use sensory spaces within tertiary learning settings. Findings conclude a small number of tertiary providers across the world have taken steps to offer sensory friendly spaces, to help learners have a positive learning experience.

NAVIGATING AND NURTURING THE STUDENT NURSE JOURNEY

Donna Burkett & Rebecca McDiarmid
Otago Polytechnic

donna.burkett@op.ac.nz

Bios:

Donna Burkett, RN, BN, MHPrac(Child Health), is a registered nurse, primarily in Child Health and a Lecturer in the School of Nursing at Otago Polytechnic. Donna has a passion for growing and mentoring nursing students to be the best versions of themselves in order to positively impact on patient health outcomes.

Rebecca McDiarmid, RN, BN, MHEd, PGCert, is a Senior Lecturer in the School of Nursing at Otago Polytechnic, with a background in Paediatric and Primary Health Care. Rebecca has an interest in reflective practice as a tool for igniting a passion for lifelong learning.

Research Aim:
To explore undergraduate nursing students experiences of clinical coaching.

Research Method:
Qualitative: retrospective and comparative study completed over a two-year period.

Research Findings:
With consideration for the development of clinical skills required within the undergraduate nursing programme, the facilitators have developed innovative ways to engage learners and prepare them for the evolving health care environment, which took place in 2018 and 2019 as year three learners coached year one learners in clinical skill acquisition within the clinical lab environment.

The research findings explore the four main themes from the students experience from the clinical coaching programme at the School of Nursing at OP. These themes suggest that the student-centred coaching model has enriched the teaching and learning journey for undergraduate nursing students and transformed learning into the clinical setting, enhancing collegial relationship through the creation of safe learning environments which value collaboration and communication, whilst creating a community of learning.

Implications for teaching/profession and our communities:
Through the implementation of this collegial coaching model, research has demonstrated we are preparing nursing students with an edge in regards to professional responsibilities which has prepared them to become work ready graduates in registered nurse practice, which is directly in keeping with our vision here at OP.

QUEENS GO SOUTH – A REAL-WORLD COLLABORATION PROJECT WITH CHROMA

Emma Cathcart
Southern Institute of Technology

emma.cathcart@sit.ac.nz

Bio:

Emma Cathcart has been tutoring on the Bachelor of Fashion (Design and Technology) at the Southern Institute of Technology (S.I.T.) in Invercargill since 2009, where she has been able to indulge her hunger for learning and her passion for passing on her skills and knowledge. As part of her recent research in creating experiential learning beyond the classroom at S.I.T. she is currently working with the local LGBTQI+ community to incorporate a second-year fashion client paper with an up-and-coming public show, the first of its kind in Southland.

Originally from the United Kingdom, where she graduated with a Bachelor of Fine Arts Honours Degree in 1991, she has enjoyed travelling and working extensively amongst diverse cultures before deciding to make New Zealand her home.

This presentation shares a real-world teaching project involving the Bachelor of Fashion (Design and Technology) course at The Southern Institute of Technology this year.

Students designed and produced regular garments consisting of two complete looks for real clients who affiliated with the local LGBTQI+ community in Southland.

The concept for incorporating this project into the classroom was driven by an opportunity to connect with a sector of the local community that had not been considered by the Fashion Department before and by the initial enthusiasm of a (then first year) fashion student, who identified with the LGBTQI+ community. The idea of designing garments as part of the Queens Go South show involving; big hair, fabulous gowns, great dance numbers, and risqué comedy performed by five of New Zealand top gender illusionists (CHROMA, 2018) for the first time in Southland at a well-known public venue, was too good an opportunity to pass up!

Drawing on self-reflective practice, this presentation discusses how this real-world project provided the Year 2 fashion students with valuable real-life experience in the bespoke design, fitting, and production process, and connected students with a sector of society that might not otherwise be recognised or understood. Mutually beneficial relations were established between fashion students and their clients whereby communication skills in providing a service of bespoke design, fitting, and production of garments were tested and fostered. This presentation shows how the overall learning experience was enhanced for the students, whilst providing a public platform to showcase their skills and support a sector of society that is under-represented and catered for.

This presentation also highlights some of the struggles and many of the successes that this collaborative real-world journey took regarding experiential teaching and learning in a field yet to be fully explored and appreciated.

Key words: experiential learning; real-world collaboration; bespoke garment design and production; LGBTQI+ community.

QUALITATIVE LONGITUDINAL RESEARCH: NEGOTIATING ETHICS THROUGH TIME

Émilie Crossley
Otago Polytechnic

emilie.crossley@op.ac.nz

Bio:

Dr Émilie Crossley is a researcher whose work explores volunteer tourist subjectivity from a psychosocial perspective. Her research has been published in Tourism Geographies and Tourism Recreation Research. She currently supervises learners on Capable NZ's Master of Professional Practice and Doctor of Professional Practice programmes in addition to working as a Liaison Advisor.

Qualitative longitudinal research (QLLR) can be used to investigate life transitions, change through time and temporal experience. An increasingly popular approach within the social sciences, QLLR can take various forms, ranging from ethnographies spanning several years to repeat interview studies lasting only months. This presentation explores some of the ethical and methodological challenges associated with QLLR based on the researcher's experience of conducting an ongoing longitudinal study of British volunteer tourists' identities. This project aimed to explore to what extent volunteer tourism has a transformative impact on tourists in terms of promoting future volunteering, charitable behaviour, and lifestyle changes. Data was first collected through four waves of semi-structured interviews conducted with ten travellers in 2010-2011 and more recently a fifth round of interviews took place in 2018 with six members of the original cohort. The methodology used in this research presented ethical challenges such as renegotiating informed consent and finding an appropriate 'tone' for the interviews given the pre-existing researcher-researched relationship. In addition, I discuss the challenges to participant confidentiality and anonymity presented by QLLR given that the rich biographical narratives often generated by this methodology accumulate to form a unique dataset that increases the chances of participants becoming identifiable in research outputs. This presentation explores these ethical considerations that must be considered when conducting QLLR in the hope that other researchers wishing to try this methodology will find useful guidance.

Key words:
methodology, qualitative, longitudinal, temporality, ethics

THE LEISURE AND RECREATION FOR PEOPLE WITH DISABILITIES IN SOUTHLAND, TEN YEARS ON (A LONGITUDINAL STUDY)

Michael Fallu
Southern Institute of Technology

michael.fallu@sit.ac.nz

Bio:

Michael Fallu worked for the Queensland Government as a programmer preparing people with an intellectual disability to transition from an institution to mainstream society (1976-1998).From 1999 to 2003 he worked as an associate lecturer and tutor at Griffith University and University of Queensland while working on his PhD.

Quality of Life is described by Brown, Brown, and Bayer, (1994 p.41) as "The discrepancy between a persons achieved and unmet needs and desires. This refers to the subjective, or perceived, and objective assessment of an individual's domain. The greater the discrepancy the poorer the Q of L. It includes the extent to which an individual increasingly controls aspects of life regardless of the original baseline." Since the 1970's there has been a paradigmatic shift towards social inclusion instigated by the Normalisation theory (Nirje, 1969) which has among other social changes provoked the De-institutionalisation movement. As a result, new legislation has been instigated that has advocated and supported the rights of all individuals to be treated equally and to aspire to the highest possible quality of life. Individuals who have not always had access to this quality of life include people with disabilities. Leisure and recreation are contributors to this quality of life. So, to understand participation in mainstream society and any real or perceived constraints/barriers to participation is important data.

The aim of the New Zealand Disability Strategy: Making a World of Difference – Whakanui Oranga is to eliminate barriers wherever they exist. To this end in 2003/4 the therapeutic recreation student body conducted a research project under the direction of Dr Fran Stanat, providing insight into the situation of people with a disability living in the community in relation to their leisure participation. In 2016/17 this research was conducted again to shed light on what has happened in this area over the past 12/13 years.

The original research protocol was followed using the same questions. The sample for this research involved four groups of people with a mild/moderate intellectual disability, a mental disability and carers and advocates of people with disabilities. The findings of the second project were very similar in relation to needs wants and constraints to leisure. Some service providers when approached to help organise the research expressed no interest in relation to leisure access for people with disabilities.

SELF-EFFICACY AND ANXIETY IN LEARNING ENGINEERING FUNDAMENTALS

Carlo Gabriel
Southern Institute of Technology

carlo.gabriel@sit.ac.nz

Bio:

Carlo Gabriel is an Engineering Tutor, Mechanical Engineer and researcher. He recently published his research study entitled "Enhancing Student Learning to Solve Word Problems in Thermodynamics based on Newman's Error Analysis". He presented the said paper in various seminars and conferences. He is also a member of AAEE Conference review panel. His research interests are in engineering pedagogy and learner's development.

Attitudes toward the learning situation refer to the individual's reaction to anything associated with the immediate context in which the course is taught. It goes without saying that the constructs of "self-efficacy" and "anxiety" have always been emphasized in the academic setting. Owing to this fact, psychologists and educators have long considered self-efficacy and anxiety as predictors of students' achievement and learning which in turn contribute considerably to students' performance (Graham & Weiner, 1996; Bandura & Locke, 2003; Pajares, 1996). Thus, this study is an attempt to examine how these psychological constructs work among tertiary learners.

Using these instruments adopted from May (2009), the study will report the levels of learning self-efficacy and anxiety of NZDE Year 1 students at Southern Institute of Technology enrolled in DE4101 (Engineering Fundamentals). Differences on the two constructs will also be examined in terms of participants' demographics and learning achievement. Finally, the interrelationship between and among them will be explored. Findings might pose a challenge among engineering educators and curriculum planners on how to come up with pedagogical programs, both in the micro and the macro-levels that will be responsive to students' levels of self-efficacy and anxiety.

Key words:
Self-efficacy, anxiety

References:

Bandura, A., & Locke, E.A. (2003). Negative self-efficacy and goal effect revisited. Journal of Applied Psychology, 88, 87-89. Retrieved from http://dx.doi.org/10.1037/0021-9010.88.1.87

Graham, S., & Weiner, B. (1996). Theories and principles of motivation. In D.C. Berliner & R. Calfee (Eds.), Handbook of educational psychology (pp63-84). New York: Macmillan.

May, D. K. (2009). Mathematics self-efficacy and anxiety questionnaire. Dissertation: University of Georgia.

Pajares, F. (1996). Self-efficacy beliefs in academic settings. Review of Educational Research, 66(4), 538-578. Retrieved from http://dx.doi.org/10.3102/00346543066004543

THE 'ART' OF PROGRAMMING

Joy Gasson,
Dale Parsons &
Adon Moskal
Otago Polytechnic

joy.gasson@op.ac.nz

Bios:

Joy Gasson is a Senior Lecturer in IT at Otago Polytechnic. Her research focuses on the learning experience of students in the first year of tertiary study of Information Technology. I am interested in the learner experience, in the interaction between what they need to learn, how they learn and how they feel about their learning.

Dale Parsons is a Principal Lecturer in IT at Otago Polytechnic. Her research area focuses on action research that results in changes to classroom practice. I have been teaching in the IT field for the last 28 years.

Adon Moskal is a Senior Lecturer in IT at Otago Polytechnic. His current research interests are around learning analytics, student evaluation of teaching, and ways of incorporating technology in the classroom to support teaching and learning.

Computer programming is not a robotic exercise, devoid of personal insight and engagement. When students have been asked to draw about their experience of learning to program, we have been surprised at the degree of emotional investment in their responses. The students display feelings of empowerment and elation but also frustration and distress. As teachers, we want to understand these emotional journeys and our role in ameliorating the experience.

In an earlier exploratory study (presented at ICER '17, August 18-20 2017, Tacoma, WA, USA) we analysed 396 drawings as 'group data', taking note of recurring artefacts, actors, activities, aspirations and affect. The observed patterns raised questions around the formation of students' professional programming identities, and the role of affect in learning to program.

As we were aware that these exploratory classifications could be limited by our interpretations of the drawings, we are currently piloting a study where students are asked to draw the response to the question "what does programming mean to you" at three distinct intervals during their first year of study.

We will discuss the interim results and observations of our pilot study and would be interested to hear how those from other disciplines perceive our study.

The implication of this study to the field of computer science education can be considered as: (1) the potential of drawing as a research methodology for computer science; (2) our findings and observations; and (3) providing insight into teaching practice in novice programming courses.

EVALUATING FACILITATORS' USE OF BLACKBOARD 'DISCUSSION BOARDS' FOR FORMATIVE / SUMMATIVE ASSESSMENT, AND TO ENHANCE ONLINE LEARNING ENGAGEMENT

Robyn Hill & Robert Horrocks
Southern Institute of Technology

robynhill6@gmail.com

Bios:

Robyn has worked in the vocational and higher education sectors in Australia and New Zealand for the past 30 years. She is currently an academic facilitator of research methods papers with SIT2LRN, and supervises students undertaking Postgraduate dissertations and Masters Projects and Theses in the Applied management qualifications.

Robert previously had careers in journalism, management and public service. For the past 25 years he has been involved with vocational training and higher education within Australia and New Zealand. Since 2004 he has developed and facilitated business subjects for SIT2LRN. He also supervises undergraduate students undertaking internships and dissertations.

Research aim:
This research aimed to evaluate the educational ways SIT2LRN facilitators use discussion boards for assessment purposes, and to promote online learning.

Ethics Approval:
Approval granted 13/9/2018; Dr Sally Bodkin-Allen (Chair, SIT Ethics Committee).

The research design and methodology:
This interpretivist, inductive research evaluated SIT2LRN facilitators' practice using a mixed methodological approach. An extensive review identified gaps in the literature to support the research.

Examination of Course Outlines and Blackboard records (2018) provided secondary data. Primary data collection employed a quantitative questionnaire (50 facilitators of NZQF levels four to seven); qualitative data was collected through two facilitator focus groups in January 2019.

Sampling for the questionnaire was the entire cohort. Sampling for focus groups was purposive, based on cross-programme representation. Three facilitators piloted each set of questions. Data was analysed thematically and correlated to research questions.

Findings:
The research revealed that facilitators use Discussion Boards to:

1. promote online engagement of students, student creativity and critical thinking. Facilitators note a direct correlation between students' engagement with Discussion Boards and higher grades in assignments.
2. encourage interaction, collaboration, dialogue and reflection among students. Facilitators align course learning outcomes and discussion topics, encourage peer-to-peer feedback, promote camaraderie, encourage sharing work among peers, and provide motivation to progress during long projects. and student interaction

3. structure and manage assessment. Higher level courses have more assessable Discussion Board activity. There is/are:
    a. direct correlation between assessment of the Discussion Board activity and student interaction
    b. diverse approaches to 'assessment' in Discussion Boards, indicating the need to clearer guidelines in the practice, particularly as the assessed activities align with Course Learning Outcomes.

Implications for educational organisations:
This research advocates more consistent approaches in the pedagogical use of Blackboard Discussions for students. The research findings are generalisable to the New Zealand and international student tertiary educational sectors.

Key words:
Online learning; Discussion boards; Blackboard (Bb); facilitation; assessment.

MIDWIFERY DOCUMENTATION: WHAT IS IT'S PURPOSE?

Bridget Kerkin, Susan Lennox & Jean Patterson
Otago Polytechnic

bridget.kerkin@op.ac.nz

Bios:

Bridget has a passion for the education of undergraduate midwifery students and the support of excellent maternity care experiences, with a focus in both on information sharing and shared decision-making within the midwifery partnership. Her research interests include the development of midwifery knowledge in relation to midwifery documentation, and exploration of student experience in midwifery education.

Susan has an interest in high quality maternity care at an individual and population level. She is interested in midwives becoming the best they can be; by working sustainably and being there for one another, but above all providing best practice and individualised continuity of care for women.

Jean is Associate Professor in the School of Midwifery. She has an extensive research career, publishing and presenting internationally on sustainable midwifery in the rural context, and on midwifery education. She effectively develops new research in the school through mentoring colleagues and supervising master of midwifery students.

Introduction:
The appropriate documentation of healthcare is an issue of focus across health professions. Midwives have a professional, ethical and legal obligation to effectively and thoroughly document the care provided to women and the decisions made within the woman-midwife relationship. To understand the best approach to documenting midwifery care, it is important to first understand the purpose of midwifery documentation.

Aim:
The aim of this literature review was to explore current understanding of the purpose of midwifery record-keeping, identifying knowledge to support midwifery practice and any gaps in the literature.

Methods:
A literature search was performed using the CINAHL and Pubmed databases, and then hand-searching through reference lists and exploration of grey literature was undertaken to increase the literature pool.

Results:
A number of themes were identified, demonstrating the contribution of midwifery record-keeping to: the partnership relationship and continuity of care; communication between health professionals; improved standards of care; audits and clinical reviews; research and education; the visibility of midwifery work; the reflective practices of midwives; demonstration of professional accountability; the legal record of care; the narrative record of experience.

Conclusion and implications:
The purpose of midwifery documentation is complex and multi-factorial, involving more than the clinical and legal details of a woman's care. The midwifery record may enhance the maternity care experience, positively impact the safety of mothers and babies, support the role of the midwife and contribute to research and organisational processes. Further research is needed to develop our knowledge of the documentation priorities of women and midwives.

CONSIDERATIONS OF PHYSIOLOGICAL DESIGN PARAMETERS FOR DYNAMOMETERS

Matt King, Charlotte Flaherty & Jing Lin
Otago Polytechnic

matt.king@op.ac.nz

Bios:

Matthew King has a PhD in Applied Mechanics and Engineering Sciences and is an Associate Professor of Mechanical Engineering at Otago Polytechnic in New Zealand with a specialization in Thermodynamics and Fluid Mechanics. He also has 20 years of experience as a Forensic Investigator.

Charlotte Flaherty is in the third year of a Bachelor of Engineering Technology: Mechanical at Otago Polytechnic in New Zealand. She was previously a journalist and a transport planner.

Jing Lin has a PhD in Civil Engineering and is a Lecturer at Dalian Ocean University in Dalian China with a specialization in Management Practices. She has 15 years of experience developing and delivering educational instruction as well as 5 years of research experience.

Purpose:
This paper considers why and how grip strength is measured and establishes a baseline of physical design parameters which will allow for the development of a handgrip dynamometer which generates consistent and accurate results.

Methods:
Relevant publications were reviewed and evaluated to glean insight into the effects of various device design considerations on the test outcomes. Additionally, an investigation into the mechanism which provides grip strength for humans was used to inform appropriate data collection techniques.

Results:
A variety of Dynamometers have been made available on the market with mixed reviews on the consistency of the results, due in part to a lack of understanding of physics and the inconsistent selection of design parameters. A number of physical parameters were consistently reported as having a negative effect on the reliability of the test results. The following physical aspects were considered to inform the design parameters for handgrip strength dynamometers in this paper: Physical characteristics of chosen test Device, Anthropometrics, Test Protocols, Device feedback, shape of handle, material, dimensions, weight and application.

Conclusions:
Test results revealed inconsistent medical examination outcomes. Dynamometer design parameters have been clarified to generate a more standardised outcome from hand grip tests. Recommended design parameters and protocols have been specified to guide future dynamometer development.

Index terms:
Dynamometer, Grip Strength, Jamar, Test protocol, Hand Grip Strength Testing.

RECOGNIZING COLLABORATIVE APPROACH TO TEACHING CONSTRUCTION PROJECTS ESTIMATING OVER THE CONVENTIONAL METHODS OF TEACHING

Nayani Landage
Otago Polytechnic

nayani.landage@op.ac.nz

Bio:

An inspiring, self-motivated and dynamic Lecturer with experience in lecturing Quantity Surveying related subjects. With a strong awareness and passion for students' learning and development, I enjoy being part of and encouraging inclusive education and promoting good positive learning techniques.

The conventional approach to teaching on "Estimating" course involves the lecturer trying to explain the pricing of a construction project along with drawings and specifications within the classroom environment. As estimating is considered as educated guessing for a construction project, this requires a thorough understanding of all resources, methods and external factors related to a construction project. In the world of competitive bidding, there are a number of not-so-obvious factors that could affect the way an estimate is prepared. The conventional teaching approach has shown a lack of effective teaching of estimating resulting in diminished students achievements. Thus, this study investigates the use of collaborative learning strategies to aid learning and enable students to acquire the skills to estimate a construction project effectively. As, certain elements of the estimating process are tedious, repetitive and time-consuming, effective computer applications are identified to perform majority mundane tasks while the estimator can concentrate on pricing. A good estimate is always a result of the collaborative efforts of many people with different talents and "Team Work" is identified as a requisite in Construction Estimating. A detailed literature survey was conducted in reviewing the identified issues in teaching. The study has discovered "Team Projects" and "Field Visits" as the main strategies of collaborative learning instead of full-time in-class lessons. These approaches will be very resourceful for the learners to challenge and to prepare to work in competitive construction industry in terms of basic skills, computer literacy, team working and understanding of industry practices.

Key words:
Estimating, Collaborative Learning Strategies, Construction Project

PŪMOANA AND PEDAL STEEL – THE NATURAL COMBINATION

Kingsley Melhuish
Southern Institute of Technology

kingsley.melhuish@sit.ac.nz

Bio:

Kingsley Melhuish is Programme Manager of the Vocational department at MAINZ Auckland (SIT). He is a multi-instrumental sound artist and songwriter, with a particular interest in improvisation. He has worked with Don McGlashan, Tim Finn, Witi Ihimaera, SJD, and Eve de Castro Robinson among others. His album Chasing Spirits is due for release 23 October 2019.

Steel guitar (lap steel & pedal steel) has been commonly used in Polynesian popular music since the 1940's, including New Zealand's first domestically produced record 'Blue Smoke' by Ruru Karaitiana in 1949 featuring Jim Carter on lap steel. Pūmoana (conch shells) are used throughout Polynesia in ceremonies and also musically in New Zealand as taonga pūoro. While both steel guitar and pūmoana are situated in Pacific music traditions, very seldom do these distinctive and evocative instruments perform together.

In this paper I present my findings of a creative inquiry into the combination of these iconic Pacific musical sounds. The mixed method research project is informed by historiographic, practice-led and action research concepts. As a composer, improvisor and performer of pūmoana, I work collaboratively with renowned producer Zed Brookes, and accomplished pedal steel artist Neil Watson (Neil Finn, Anika Moa, Tami Neilson, Frank Gibson jnr, Mike Nock), to produce recordings of original music.

Drawing on traditions of Pacific popular song writing forms from the 1950s, improvisation and the transcendent aesthetic of taonga pūoro, I begin with a socio-cultural outlook on the sounds created by these redolent instruments including the work of trailblazers Bill Sevesi (NZ/Tonga), Susan Alcorn (US), Geir Sundstøl (Norway), Hirini Melbourne (NZ), Richard Nunns (NZ) and Steve Turre (US) among others.

This research has relevance to creative practitioners as an example of an artist's journey to search for a unique voice. For our young contemporary music students, it is an example of what is possible when celebrating our distinctiveness in the south Pacific.

TAKING EDUCATION TO THE PEOPLE NOT PEOPLE TO THE EDUCATION: A NEW ZEALAND CASE STUDY IN DELIVERING EDUCATION "CLOSER TO HOME"

Yvonne Mosley-Martin, Sally Baddock, Emma Bilous & Deb Beatson
Otago Polytechnic

yvonne.mosley-martin@op.ac.nz

Bios:

Yvonne Mosley-Martin, Senior Lecturer, Otago Polytechnic
Yvonne is a senior lecturer in the School of Midwifery who teaches in both the Postgraduate programmes and the Bachelor of Midwifery. She has a Master of Midwifery and is engaged in research focused on midwifery education. Yvonne continues to work as a midwife alongside her educator role.

Sally Baddock, Professor, Otago Polytechnic
Sally has been an educator for over 30 years teaching bioscience and supervising master's level research. She has a strong research interest in midwifery education as well as the physiology of infant sleep. Her external collaborations have led to HRC funding, and she has published widely in high ranking journals.

Emma Bilous, Principal lecturer, Otago Polytechnic
Emma is an experienced educator and midwife and holds a Master of Midwifery. Her research is focused on midwifery education and on improving midwifery provision - particularly rural provision. She is based in Central Otago where she also continues to engage in midwifery practice as a locum midwife.

Deb Beatson, Senior Lecturer, Otago Polytechnic
Deb has been a lecturer in the School of Midwifery since 2010 and is enrolled in a Master of Midwifery. Her research is focussed on Pasifika student success and on midwives' practice wisdom about physiological placental birth. Deb is based in Whanganui, where she continues to work as a midwife.

Background: Nationally there are challenges retaining health professionals in rural and regional areas. The aim of this study was to explore whether the model of delivery of the Bachelor of Midwifery programme offered by Otago Polytechnic through regional centres across the lower North Island and lower South Island was an effective model to retain midwives in the regions.

Methods: Ethical approval was gained, and data was collected on learner retention in the programme, graduate numbers between 2011 and 2016 and subsequent retention in the midwifery profession both locally and nationally. Descriptive statistics were used to present the data.

Results indicated that the blended delivery model of education that allowed students (often women with families) to live and study in their community, while retaining their support structures, led to a high retention in the regions on graduation.

The model of blended delivery included face to face tutorials, midwifery practice in students' local areas, as well as facilitated online learning, and integration with the other midwifery learners from Whanganui to Southland through block courses at Wellington and Dunedin.

Graduates were retained in the midwifery profession and almost 70% stayed in the regions.

Implications: This case study supports immersive education in the regions as a strategy to retain health professionals in rural and regional NZ.

It also emphasises the importance of collaborating with local health practitioners to meet the professional needs of the regions, and to provide experiential learning opportunities for the students.

Key to the success of this delivery is that both staff and students are immersed locally, but also integrated with other Midwifery school students and staff.

POSTGRADUATE INTERNATIONAL STUDENTS' ACADEMIC WRITING BARRIERS

John Mumford
Southern Institute of Technology

john.mumford@sit.ac.nz

Bio:

John Mumford is an IT Lecturer at the Southern Institute of Technology, whose research interests include Teaching Innovation, Mathematics Education, Adult Literacy and Numeracy and Postgraduate Education. John has a Master of Adult Literacy and Numeracy and has a strong focus on empowering learners to develop their critical thinking capabilities.

Postgraduate international students with English as a second language, face many challenges on their academic writing journeys, as they engage with the English language in academic assessments. Academic writing is one of the most challenging tasks to non-native speakers of English (NNES). Postgraduate study typically requires reading English academic literature and formulating written responses using scholarly language. Students are expected to shape their writing through grammar, the use of meta-discourse markers, referencing, paraphrasing and summarising skills, while simultaneously trying to develop their authorial voices. Action research was employed to address the issues of persistent text matching flagged by Blackboard SafeAssign (a plagiarism detector) through teaching directly about the importance of academic integrity. Ethical approval was sought for a convenience sample involving a single cohort of Postgraduate Information Technology students coupled with access to SafeAssign percentage matching results for draft and final submissions of selected written assignments, to appraise any changes in SafeAssign match percentages. Anonymised assignments from Blackboard were also collected to inform observations about authorial voice. Provisional findings suggest that students writing with a focus on their authorial voices, while addressing referencing, paraphrasing and quoting appropriately, are likely to reduce their SafeAssign percentages, between the draft and final versions. Implications for academics include the value in using Safe Assign to support academic integrity and raised awareness of teaching strategies to assist learners' academic skill development.

ALICE, BOB AND THE CAT IN A BOX: EXAMINATION OF QUANTUM MECHANICS FRAUCHIGER RENNER PARADOX

Barnaby Pace
Otago Polytechnic / Southern Institute of Technology

barnaby.pace@op.ac.nz / barnaby.pace@sit.ac.nz

Bio:

Barnaby is an active researcher in the field of theoretical physics, cosmology including theoretical astronomy, and ontology. He has published several books and presented widely on the topics. He is currently undertaking research with examining how ancient Greek mathematicians and astronomers developed and used mathematical methods to maps the movement of planetary bodies, whilst he continues his work in quantum entanglement.

Research Aim: Recent research by Frauchiger and Renner (Frauchiger & Renner, 2018; Renner & Frauchiger, 2019) has produced a new variation on Schrodinger's classic Cat in A Box thought experiment which highlights the measurement problem within quantum mechanics. The aim of the research is to offer a critical evaluation of the newly developed Frauchiger Renner Paradox. As a part of the evaluation the examination of Schrodinger's original thought experiment will be undertaken, along with Wigner's 1961 variation, as means of developed a contextual reference.

Research Design: This research utilises the thought experiment as a device for the imaginary creation of the nature of the event under investigation (Brown & Fehige, 2019). Thought experiments are conducted within the academic disciplines of philosophy, mathematics, and physics (De Mey, 2006).

Ethics Approval: No ethics approval was required for the research.

Findings: The findings from the examination of Frauchiger Renner Paradox through the use of thought experiments suggest that the current methods for interpreting quantum theory are limited and do not account for the existence of multiple outcomes for identical events.

Implications: The implication is these findings suggested limitation to our current understand of quantum theory and associated perceptions of reality.

References:

Brown, J. R. & Fehige, Y., (2019). Thought Experiments, *The Stanford Encyclopaedia of Philosophy* (Summer Edition), https://plato.stanford.edu/archives/sum2019/entries/thought-experiment/.

De May, T. (2006). Imagination's Grip on Science, *Metaphilosophy*, 37: 222–239

Frauchiger, D., & Renner, R. (2018). Quantum theory cannot consistently describe the use of itself. *Nature communications*, *9*(1), 3711.

Renner, R., & Frauchiger, D. (2019). Quantum theory cannot consistently describe the use of itself. In *APS Meeting Abstracts*.

Wigner, E. P. (1961). Remarks on the Mind Body question, in "The Scientist Speculates". *Heinmann, London*.

WHERE ARE THE WOMEN? - EXPLORING ENROLMENTS IN LEVEL 6 AND 7 ENGINEERING PROGRAMMES

Joelle Peters & Hana Cadzow
Otago Polytechnic

joelle.peters@op.ac.nz

Bios:

Joelle Peters is a Senior Lecturer in the Engineering Technologies Team at Otago Polytechnic and the Programme Manager for the Certificate in Career and Study Preparation (Engineering). She teaches Engineering communication, and study skills and has research interests in the assessment of foundation level courses.

Hana Cadzow is a Senior Lecturer in the Engineering Technologies Team at Otago Polytechnic. Her teaching interests are around engineering communication, ethics and law. She is currently working on a range of research projects focusing on innovative delivery methods for Level 6 and 7 engineering content.

ITPs throughout the country have reported consistently low enrolment numbers from young women into Level 6 and 7 Engineering programs, despite high employment rates for these qualifications. This project, funded by the Engineering e2e project, explored the attitudes of Dunedin high school students around Engineering and careers to better understand why this might be.

The primary data collection method for this project was a survey of 40 students from three Dunedin high schools. Survey questions were approved by the Otago Polytechnic Ethics Committee and asked students to reflect on their views around Engineering, Careers, and Study. Key survey findings included:

- The qualities students seek in a job
- Sources of careers information
- Student views on engineering and engineers
- The timeline for student decision making around study and careers

In general, students showed a deeper understanding of what an engineering career entailed than anticipated, with responses reflecting a wide range of the engineering graduate attributes. This indicated that the lack of enrolments isn't because young women don't know enough about engineering but rather, what they do know doesn't appear to match up with the qualities they are seeking in a career. These qualities included a workplace that they enjoy being in and people they enjoyed being around – a piece of the puzzle which, critically, this project shows may be missing from marketing materials.

USING ESCAPE ROOMS TO PROMOTE LEARNING THROUGH TEAMWORK AND PROBLEM SOLVING

Johanna Rhodes
Southern Institute of Technology

johanna.rhodes@sit.ac.nz

Bio:

Johanna believes that in this tempestuous period of change, embracing teaching pedagogies that reflect the 'real world' is critical to developing 'work ready' graduates who are equipped to work in the electrifying, intricate, and fluctuating world of healthcare. The use of simulation modalities in education offers a willingness to advance the aesthetic narrative of healthcare, while embracing the realism of working with people.

Background:
Preparing students for chaotic and unpredictable healthcare environments is arguably difficult to teach. There is a need to create innovative cost-effective dynamically engaging teaching strategies, which provide an immersive learning environment that promote learning through teamwork and problem solving. The premise of an escape room is that groups of students work in teams, collaboratively solving puzzles and gathering clues involving specific learning objectives to 'escape' from the room before they run out of time. Escape rooms were implemented into timetabled teaching sessions in the School of Nursing at the Southern Institute of Technology during 2018 and 2019.

Research hypothesis:
This study hypothesized that "Escape rooms contribute significantly to student learning by promoting teamwork and collaboration, while exposing students to thinking critically while under time pressure".

Research methodology:
The methodology chosen was Survey Research, which included a post-implementation on-line survey. This consisted of three questions using a five-point Likert like scale to measure the student's perception of their escape room experience in relation to:

1. Teamwork and collaboration
2. Thinking critically while under time pressure
3. Contribution to learning

In addition, participants were able to add any additional comments about their experience.

Ethical approval:
Ethical approval was received from the Southern Institute of Technology Human Ethics Committee.

Research results:
The results from this study confirmed that participating in an escape room had contributed significantly to student learning by promoting teamwork and collaboration while having to think critically while under time pressure.

Implications for teaching:
This presentation offers the audience an opportunity to participate in an escape room, to experience the teaching strategy enabling you to consider using this in your education practice.

Key words:
Escape rooms, education, teamwork, problem solving, Healthcare environments

HOAKE - LET'S DO THIS! RAISING MĀORI STUDENT'S ACHIEVEMENT IN A MAINSTREAM TERTIARY ORGANISATION THROUGH CULTURALLY RESPONSIVE PRACTICES.

Debbie Ruwhiu
Southern Institute of Technology

debbie.ruwhiu@sit.ac.nz

Bio:

Debbie has work in Education for over 26 years, the early teaching years in mainstream primary education followed by bi-lingual education. The transfer from one education sector to the tertiary sector has enabled Debbie to supporting Māori educational development at SIT. Debbie is undertaking PhD studies at Te Whare Wānanga o Awanuiarangi.

Hoake - Let's do this!" was chosen as a name for Southern Institute of Technology's (SIT) Culturally Responsive Practice (CRP). The name Hoake implies it is now time to take action and support Māori learners to achieve educational success as Māori.

Implementing CRP requires examining 'ones' attitudes, beliefs and understanding of those who are culturally different to ones-self (Māori). It requires action from those that support, have contact with and teach Māori students.

This research explores the implementation of CRP within SIT a mainstream tertiary organisation with a focus on three participant groups. This presentation however, will focus on only one of the research questions: What are the effects of, and barriers, for tutorial staff when implementing culturally responsive practices?

Ethics approval was obtained from both SIT and Awanuiarangi in October 2018.

The methodology, a case study underpins the research and can be defined as an intense study of a group of people. The case study was carried out within SIT's main campus.

Mixed methods research (qualitative and quantitative) has been done in the form of a short questionnaire. The questionnaire was then analyzed where themes emerged for later focus group discussion.

The findings provide insight into CRP at SIT that is, what tutorial staff do within the teaching and learning environment to meet the needs of Māori students and how their actions impact both Māori and other students. The findings will identify any barriers staff may face, personally and/or within the organisation.

AN EVOLVING IPE NARRATIVE

Murray Strathearn
Southern Institute of Technology

murray.strathearn@sit.ac.nz

Bio:

Murray teaches in Study and Career Pathways, BN, and PGDip. Teaching's a collective social responsibility embracing and promoting change(s) in synch with contemporary ethical thought enabling health professionals to be socially responsive, engaging, reciprocating, and questioning persons.

Context: An enduring presumption is that health professionals will, by chance, "learn" to work with each other through conjoint and serendipitous exposure within a clinical context. This tripartite IPE (Interprofessional education) project is a planned strategic construction to promote health professionals, towards the end of their baccalaureate health degree(s), to learn about, from and with each other in order to optimise health care delivery.

Research aim: To evaluate the development and implementation of an IPE project in Southland.

Research design: A quasi-experimental design method was employed. Pre, and Post questionnaires measured participant's perceptions. They contained, demographic data, Likert-like scales rating specific key concepts e.g. value given to IPE and augmented via written self-disclosure narratives.

Ethical approval: Ethical approval was received from the Southern Institute of Technology Human Research Ethics Committee. No further ethical approval was required.

Research results: Demonstrating an overwhelmingly positive response as posited by the participant's concurrent rating of the experience and their narratives. There were consistent increases in the value placed on IPE learning, team work amongst health professionals and collaboration on treatment consequent to exposure with other health professionals.

Implications for teaching: The IPE project emphasises and promotes the value of exposure to fellow health professionals within a teaching/learning modality that captures their fascination and has the concurrent potential to improve health consumer outcomes as a direct consequence of co-ordinated interprofessional knowledge of each other and enhanced collaboration.

Key words:
IPE, Exposure, Collaborative problem solving, Awareness, Team building.

SOLAR POTENTIAL ASSESSMENT OF PUBLIC BUS ROUTES: A CASE STUDY IN INVERCARGILL

Naveed ur Rehman & Mohamad Hijazi
Southern Institute of Technology

naveed.urrehman@sit.ac.nz

Bios:

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.

Mohamad Hijazi is a Bachelor of Engineering Technology student at Southern Institute of Technology.

A methodology for evaluating the solar potential of public bus routes is presented in this paper. As access to solar radiation on roads is generally hindered by natural and man-made structures in the surroundings, the methodology mainly involved taking large numbers of fisheye images along the chosen bus route. The visible sky and the structures were then separated using an automated image processing algorithm, also described in this study. The processed images were then deployed in a solar assessment model to yield the direct, diffuse and total solar potential of the route. For the case study, an existing public bus route in Invercargill (New Zealand) was analyzed. An appropriate camera with a GPS recording system, installed on the rooftop of a vehicle, was used to obtain the images. Most locations along the route were able to capture good amounts of solar radiation, except for those within the city center. The results could be different in more modern cities such as Auckland, where the sky is frequently obstructed by tall buildings. This study will help councils (and/or bus contractors) to make informed decisions about moving to solar photovoltaic integrated hybrid buses, based on their designated routes.

Key words:
solar potential; solar roads; fisheye image; sky detection; sky view factor

CAPTURING INSIGHTS FROM WOMEN ABOUT HEALTH COMPLICATIONS IN PREGNANCY: THE INTRODUCTION OF VISUAL AND/OR VOCAL SEGMENTS INTO MIDWIFERY EDUCATION IN RESPONSE TO A PHOTOGRAPH PROVIDED BY THE WOMAN.

Megan Walker, Karen Wakelin & Sally Baddock
Otago Polytechnic

megan.walker@op.ac.nz

Bios:

Megan Walker is a Senior Lecturer, and Year One Coordinator, in the School of Midwifery at Otago Polytechnic. She has worked as a community and a Core midwife in Dunedin and is the immediate past Chairperson of the NZCOM Otago region. Megan is passionate about primary birth and midwifery education.

Karen Wakelin, Senior Midwifery Lecturer, Otago Polytechnic.
Karen Wakelin is a midwifery lecturer on the Bachelor of Midwifery and Post-graduate Midwifery programmes, along with supervising Master of Midwifery research. Prior to this, Karen has worked extensively throughout various aspects of midwifery practice both within the community and hospital, working as a midwife and in midwifery management/leadership roles.

Sally Baddock, Professor, Otago Polytechnic.
Professor Sally Baddock has been an educator for over 30 years. She has a strong research interest in midwifery education as well as the physiology of infant sleep which has led to many international presentations and publications in highly ranked journals. She also supervises master of midwifery research.

Midwives in Aotearoa/New Zealand work with women who experience complex health conditions that impact upon their pregnancy, whanau and social environments.

Aim:
To explore the use of photovoice as a mechanism to enhance understanding of a woman's experience of a pregnancy with complexity. Secondly, to develop the photovoice resources for use in postgraduate midwifery education to enhance students' understanding of the lived experience of women with complexities during pregnancy.

Method:
Photovoice is an innovative participatory action research method. There is considerable research published around the use of photovoice as a participatory action research method. However, there is no mention of the use of photovoice as an artistic pedagogical technology nor any studies of its application within a New Zealand or international midwifery educational context. This research study as part of a master's project will be using Photovoice in both approaches.

Implications:
By integrating images and voice segments into the postgraduate learning resources, it is envisaged that this will assist learners (registered midwives) to understand from the women themselves, how the particular health challenge is or was experienced, and what this meant for them and their families. Through the learners' greater understanding and empathy of the women's experience it is hoped this will this will lead to more empathetic care of women with complex health conditions during their pregnancy. The photovoice method also has the potential to be incorporated in other programmes of learning

A STUDY TO IDENTIFY THE EMOTIONAL INTELLIGENCE AMONG NZ DIPLOMA IN ENROLLED NURSING STUDENTS

Debbie Watson
Southern Institute of Technology

debbie.watson@sit.ac.nz

Bio:

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. She has experience in general medical/surgical and mental health. She is the paper coordinator for the Enrolled Nurse Mental Health and Addictions paper.

The aim of the research is to identify whether current nursing curricula increases the Emotional Intelligence (EI) of NZ Diploma in Enrolled Nursing (Dip EN) students by the end of their nursing training. Emotional Intelligence is the mental process involved in the recognition, use, understanding and management of one's own and others' emotional states to solve problems and regulate behaviour. Nursing curricula focus as much on the emotional as well as the practical skills through emphasis on self-awareness, compassionate person-centred care and the therapeutic relationship based on communication skills. (Salovey & Mayer, 1990).

This study is a quantitative, quasi-experimental study utilising an EI test based on the Schutte's Self Report Emotional Intelligence Test (SSEIT). Cohorts of the Dip EN students form a control and intervention group, with the research being concluded in 2021. Ethics approval was granted from SIT ethics committee in March 2019.

The current findings are that in the Control group pre-test: scores ranged from 113 to 151, with a mean of 126.5. The Intervention group pre-test was undertaken in October, and had scores ranging from 111 to 134, with a mean of 124.6. These means were comparable to other studies with university students.

Implications: Nurses can often experience situations of adversity and stress, and quality patient care is dependent on a nurse's capacity to effectively handle these issues with EI. This study is unique research on EI in Dip EN students.

STUDENT AFFECT IN CS1: INSIGHTS FROM AN EASY DATA COLLECTION TOOL

Krissi Wood & Dale Parsons
Otago Polytechnic

dale.parsons@op.ac.nz

Bios:

Krissi Wood
My research is based around computer programming education at secondary and tertiary levels, with a focus on exploring effective pedagogical techniques for introductory computer programming, methods for accurate assessment of programming skill, and approaches aimed at strengthening the teaching of computer science. I also develop and maintain relationships within the NZ IT community to help inform the direction of our research

Dale Parsons
My research area is focused action research that results in changes to classroom practice. I have been teaching in the IT field for the last 28 years.

Emotions (positive and negative) have been shown to impact on student academic performance. This is particularly true within computing education, where student confusion and frustration have been linked to disengagement and high attrition rates. Unfortunately collection of affect data usually requires a large investment of time and resources. This research describes the development of a simple self-reporting tool that allows teachers to quickly gain insights into students' affective state when they are working on programming tasks. Students rate their programming experience on a series of 2-dimensional grids, which offer the teacher 'emotional snapshots' of the class. We report on our experiments with the tool in several programming contexts (both introductory and intermediate), and discuss the potential of the tool: (1) for identifying at-risk students; and (2) as a diagnostic instrument for the curriculum. We conclude with directions for future research.


OTAGO
POLYTECHNIC
Te Kura Matatini ki Otago


SOUTHERN
INSTITUTE OF TECHNOLOGY