

PeCALE Virtual Symposium 2021 – Program

How research and practice inform each other – The multiple facets of pedagogy and curriculum

Symposium Venue: Virtually via MS TEAMS Symposium Date: Friday 10th December

Time	Session Title
10am – 10:15am	Welcome and Acknowledgement of Country Professor Claire McLachlan, Dean, School of Education, Federation University Australia Dr Hongming Ma, PeCALE convenor, Federation University Australia
10:15am – 11:15am	Keynote Presentation - How research and practice inform each other: Case examples of an educational experiment from the Conceptual PlayLab Laureate Professor Marilyn Fleer and Dr Prabhat Rai, Monash University Session chair: Dr Hongming Ma
Research Sharing Session 1 Session Chair: Josh Ambrosy	
11:15am – 11:35am	Literacy and numeracy support in vocational education: Perceptions from engineering apprentices in Victoria Dr Stuart Levy, Michelle Briede and Liam Frost-Camilleri Federation University, Australia
11:35am – 11:55am	The Data, Knowledge, Action research programme: Reflections on teachers' use of data-systems to enhance children's experiences of curriculum in New Zealand kindergartens. Professor Claire McLachlan, Federation University Australia Tara McLaughlin, Sue Cherrington, Karyn Aspden, Lynda Hunt and Vicki Gifkins
11:55am – 12:40pm	Lunch Break
Research Sharing Session 2 Session Chair: Dr Catherine Oxworth	
12:40pm – 13:00pm	General and Academic vocabulary knowledge at Federation University Australia Dr Clarence Green, Melania Pantelich, Mick Barrow, Dr Rachel Daniels, and Dr Daya Weerasinghe, Federation University Australia
13:00pm – 13:20pm	A methodology for examining applied spatial inferential reasoning: a keystone dimension for informing K-12 pedagogies aimed at fostering technological comprehension Assoc. Professor Kurt Seemann, Federation University Australia
13:20pm – 13:40pm	Hope during COVID-19: A poetic inquiry of early career academics Dr Cameron Van der Smeë, Josh Ambrosy and Alex Prins Federation University Australia
13:40pm – 14:00pm	Connecting theory and practice in place – Developing place-responsive science teaching pedagogy Dr Hongming Ma and Dr Monica Green, Federation University Australia
14:00pm – 14:15pm	Concluding comments Associate Professor Kurt Seemann, new PeCALE convenor from 2022

Session Introduction

Keynote Presentation

How research and practice inform each other: Case examples of an educational experiment from the Conceptual PlayLab

Laureate Professor Marilyn Flear
Dr Prabhat Rai
Monash University

The dialectical connections between practice and theory have been conceptualised and named in many different ways. Many scholars and teacher researchers in curriculum and pedagogy continue to debate and seek solutions for how best to meaningfully operationalise research into theory and practice. In our presentation we begin by introducing a cultural-historical conception of an educational experiment which is not just a problem of practice, but a theoretical problem which researchers and teachers seek to solve in collaboration. Through case examples from the Conceptual PlayLab, we then go beyond established cultural-historical models of research, such as the change laboratory, by bringing forward new mediating cultural tools and new methods and concepts for a new methodology that speaks dialectically to practice and theory. Our goal is to give snapshots of practice-theory relations shown through video segments, and to discuss through the lens of a common theoretical problem, other ways of researching curriculum and pedagogy.

Laureate Professor Marilyn Flear holds the Foundation Chair of Early Childhood Education and Development at Monash University, Australia. She was awarded the 2018 Kathleen Fitzpatrick Laureate Fellowship by the Australian Research Council and was a former President of the International Society of Cultural-historical Activity Research (ISCAR). Additionally, she holds the positions of an honorary Research Fellow in the Department of Education, University of Oxford, and a second professor position in the KINDKNOW Centre, Western Norway University of Applied Sciences, and has been bestowed the title of Honorary professor at the Danish School of Education, Aarhus University, Denmark. She was presented with *the 2019 Ashley Goldsworthy Award* for Outstanding leadership in university-business collaboration.

Dr Prabhat Rai works as a Senior Research Fellow at the Conceptual PlayLab, Monash University. He leads research on children's concept formation in family and community settings. A PhD from the University of Oxford, Prabhat has previously worked in academic and leadership positions in Indian, Bhutan and the UK. He has extensive experience in researching communities, early years settings and leading teacher education programmes.

Literacy and numeracy support in vocational education: Perceptions from engineering apprentices in Victoria

Dr Stuart Levy
Michelle Briede
Liam Frost-Camilleri
Federation University Australia

This research explored how engineering apprentices at an Australian TAFE institution perceive their supported acquisition of literacy and numeracy skills. Using a mixed-methods approach, 56 apprentices completed questionnaires with nine participating in subsequent interviews. The study identified apprentices' perceived ability levels in reading, writing and numeracy, learning strategies they employed, and literacy and numeracy support they found most helpful. Findings provide insight into apprentices' approaches to learning, many of whom struggled to articulate how they acquired the literacy and numeracy skills for their studies and employment. Participants primarily focused on navigation of coursework and reading demands and reported similar learning strategies. Literacy and numeracy support (LNS) teachers were considered helpful for others, with clear distinctions between the trade teacher/trainer and LNS teacher. Agitation with the self-paced nature of the classroom and a mismatch between study and workplace was also highlighted. This research suggests that greater awareness of how apprentices learn would support literacy and numeracy skills development without reinforcing a deficit discourse. New approaches to develop apprentices' learning strategies within the wider dialogue of literacy and numeracy acquisition is recommended.

Ms Michelle Briede is a lecturer in the School of Education at Federation University Australia and Program Coordinator of the University's Enabling Program and Diploma of University Studies. Her research interests include student transitions within education settings; education practices; the role of educators; and agentic behaviours of students.

Mr Liam Frost-Camilleri is a lecturer in the School of Education at Federation University Australia and assistant Program Coordinator for the University's Master of Teaching (Secondary) program. He is currently completing his PhD studies in TAFE education and student readiness to learn.

Dr Stuart Levy is a senior lecturer in the School of Education at Federation University and Discipline Leader of Pathways. His research interests include the efficacy of pathways to higher education; the transitions experienced by higher education students; and pathways that support students' aspirations for further study.

The Data, Knowledge, Action research programme: Reflections on teachers' use of data-systems to enhance children's experiences of curriculum in New Zealand kindergartens.

Professor Claire McLachlan, Federation University Australia
Tara McLaughlin
Sue Cherrington
Karyn Aspden
Lynda Hunt
Vicki Gifkins

The “Data, Knowledge, Action” research programme has investigated the development and use of innovative and authentic data systems to help New Zealand ECE teachers examine young children’s curriculum experiences and strengthen their teaching practice. To date the programme comprises a) a pilot study undertaken in 2017 to develop and pilot innovative and authentic data systems to investigate children’s experiences of curriculum, b) an 18-month project funded by the New Zealand government’s Teacher Led Innovation Fund (TLIF) involving teacher-led inquiry into data-informed teaching in ECE, and c) a Teaching and Learning Research Initiative (TLRI)-funded project exploring sustained shared thinking to deepen young children’s learning. The research programme is a partnership among a multi-university research team and a local kindergarten association. The research has been guided by the premise that effective data can lead to knowledge which can lead to action for improved curriculum implementation (cf. Earl & Timperley, 2008; Gunmer & Mandinach, 2015). This presentation will explore findings from the TLRI-funded project investigating the frequency and nature of sustained shared thinking episodes between teachers and children using a range of data system tools. The implications for practice and for further research are examined.

Professor Claire McLachlan has long standing interests in curriculum, pedagogy, assessment and evaluation in ECE settings, and is widely published in these areas. The “Data, Knowledge, Action” research reported here is part of a collaboration with colleagues from Massey University and Victoria University of Wellington in New Zealand on the use of data systems in ECE for assessment and curriculum planning.

Hope during COVID-19: A poetic inquiry of early career academics

Dr Cameron Van der Smee
Josh Ambrosy
Alex Prins
Federation University Australia

The emergence of the COVID-19 pandemic caused global upheaval. It had a particularly significant impact on the field of education, with multiple lockdowns changing the nature of teaching. This has been particularly challenging for Early Career Academics (ECA) who already experience heightened stresses in the field of academia. This article explores the impact of COVID-19 on three ECAs who are Health, Outdoor and Physical Education (HOPE) teacher educators. Using poetic self-inquiry, this article explores our experience of teaching traditionally hands-on experiential content in an online environment during an extend lockdown. Engaging in this process highlighted the personal and professional challenges we faced, including work-life balance, teaching online, and staying up to date with research and leadership commitments. It also highlighted significant opportunities, including affirming good pedagogy and building a sense of community. Ultimately, engaging in this process highlighted a sense of hope and provided an opportunity for the three authors to grow as academics and educators.

Dr. Cameron Van der Smee is a lecturer of Health and Physical Education in the School of Education. Cameron has worked in education for the last ten years. Cameron completed his undergraduate degree in Physical Education in 2009 and then worked for five years as a classroom/PE teacher in the United States. He transitioned to graduate research by completing a Master's degree in 2015. He recently finished his PhD and continues to use his research to inform his teaching practice, and vice-versa. Cameron has been teaching at the tertiary level since 2016.

Mr. Alex Prins - After a decade of teaching outdoor and physical education at secondary and tertiary level Alex's passion for teaching & learning, active lifestyles and being on the beach have begun to blur. He is particularly interested in outdoor education, the subjective experience of the learner and helping to guide future outdoor and physical educators into the profession.

Mr. Josh Ambrosy is a lecturer in the School of Education at Federation University, his teaching interests include outdoor education and professional practice. Josh's research focuses on alternative models of teaching and learning in middle years education. Josh uses the arts-based methodology of poetic inquiry within his research. Josh has worked in several P-12 school contexts across Government, Independent and Catholic sectors. Josh is also heavily involved in multiple professional associations related to his work in the outdoor and broader education sectors. His contributions to these groups involve: speaking, professional writing and advisory panel membership.

A methodology for examining applied spatial inferential reasoning: a keystone dimension for informing K-12 pedagogies aimed at fostering technological comprehension

Assoc. Professor Kurt Seemann
Federation University Australia

Surprisingly, there is very little contemporary literature that examines how children and teenagers develop their capacity for applied innovation within the broad curriculum domain of Technologies Education. Across almost all school curricula pedagogies that encourage the use of ‘manipulatives’, applied spatial reasoning skills have not been sufficiently supported in educational research regarding the milestones qualities that a teacher ought to observe and diagnose. This brings into question a teacher’s ability to plan responsive remediation, enrichment or extension strategies that are learner-centred. This paper examines a new educational research methodology designed to reveal a key dimension to applied ‘hands on’ child development as it relates to applied Science, Technologies, Engineering and or Mathematics education (STEM) with children K-12. Core to the methods used is the developmental outcome goal of fostering Technological Comprehension. The implications for classroom teachers and learning environments are discussed.

Dr Kurt Seemann is Associate Professor of STEM Education at Federation University (Gippsland and Berwick) and Adjunct Professor at Swinburne University of Technology. Kurt brings extensive leadership experience and a strong track record in fostering innovation capabilities in Technology Education. He has led national, state and university programs of research across three states and jurisdictions to the value of over \$6M in competitive grants. Kurt created the first remote Aboriginal Design and Technology curriculum in VET, winning a National Curriculum Innovation Award for its success. He created the first Technology Teacher degree at Southern Cross University as course director and went on to win and lead a national team for seven years of research in sustainable rural and remote settlements research that included the role of compulsory school years in fostering community resilience. Having won a CSIRO Post-Doctoral Fellowship, Kurt is dedicated to integrity and strategic innovation. He was the Foundation Director of the first Design Innovation Research Centre at Swinburne University. Kurt values creativity and community resilience as core qualities to foster among all learners K – 12 and for the professional development of teachers.

Kurt was recently appointed the new 2022+ PeCALE convenor for the School of Education at Federation University Australia.

General and Academic vocabulary knowledge at Federation University Australia

Dr Clarence Green
Melania Pantelich
Mick Barrow
Dr Rachel Daniels
Dr Daya Weerasinghe
Federation University Australia

It is recommended for reading comprehension students have a vocabulary of minimally 10,000 words with knowledge of academic vocabulary. A recent British study of three universities estimated undergraduates did not have this vocabulary size, so they required vocabulary support, whereas a New Zealand case study estimated students knew 16,000 words. Overall, few estimates of tertiary-level receptive vocabulary sizes exist, and none from Australia. This study investigates 433 tertiary students at an Australian university to determine possible vocabulary support needs. It contributes to the research record allowing comparisons of vocabulary sizes nationally, internationally, and over time. Using a survey methodology, and the Vocabulary Size Test and Academic Vocabulary Test, the results indicate an average vocabulary size of 16,117 words at Federation University, with academic vocabulary well-known. Variation in size is reported for variables such as age, language background, discipline, social media and reading preferences, etc., but no vocabulary sizes indicated groups of students below what has been recommended as minimal for reading comprehension.

Dr Clarence Green lectures in the School of Education of Federation University Australia. He holds a PhD in linguistics (University of Melbourne) and a Master of Applied Linguistics. He has taught and published widely in language acquisition, literacy, psycholinguistics, corpus linguistics and English grammar.

Ms Melania Pantelich is a PhD candidate and lecturer of the English Language Support Service and Master of Specialist Teaching (TESOL) at Federation University Australia. Her **areas of teaching and research interests include** TESOL and ELICOS, international student experiences and transition to study, acculturation and identity, second language acquisition, and adult language learning and literacy.

Mr Mick Barrow is a lecturer in EAP in the School of Education, Federation University Australia. He holds a Masters in Applied Linguistics (TESOL) (Hons) and has worked in Japan as a language and culture instructor. His research and teaching interests are focussed on language acquisition, childhood simultaneous bilingualism, and the development of listening and speaking in L2 learners.

Dr Daya Weerasinghe is a lecturer in mathematics and teacher educator in the School of Education Federation University Australia. He holds a PhD (Monash) and has published and presented on parents' perceptions and involvement in children's Mathematics education at the national and international level.

Dr Rachel Daniel coordinates the EAP program and teaches Academic Writing. She holds a PhD (Monash) and areas of expertise in TESOL, English language acquisition, Academic writing, literacy and numeracy in transition into higher education.

Connecting theory and practice in place – Developing place-responsive science teaching pedagogy

Dr Hongming Ma
Dr Monica Green,
Federation University Australia

Despite being increasingly popular within broader educational discourse, place-responsive pedagogy is less apparent in science teacher education. This presentation reports a study based on the perspectives of pre-service teachers in a science education course in a Bachelor of Education (Primary) program at an Australian regional university. The pre-service teachers were involved in teaching primary school students from Victorian rural and regional schools in Gippsland, in a wetland and school ground setting. The study examines how pre-service teachers view and understand the affordance of places for teaching science. The study employed a document analysis of coursework essays as well as follow-up semi-structured interviews with two pre-service teacher cohorts (wetland and school ground). Findings indicate that pre-service teachers' exposure to place-responsive frameworks helped to build their awareness about the affordance of place for science teaching. Challenges associated with taking science beyond the conventional classroom are also identified and discussed.

Dr Hongming Ma is currently a lecturer in the School of Education at Federation University Australia, Berwick campus. Her main research interests are: the nature of science/technology and its role in school science/technology curriculum at different levels; the learning environment and affective learning in science; science teacher education; and cross-cultural understanding of the aforementioned issues. Her recent research work explores the impact and implications of conducting science education through university-school partnerships and how learner emotional experience in learning science is influenced by the interplay of learner personal interest and the classroom learning environment.

Dr Monica Green is a Senior lecturer in the School of Education. Her teaching and research focus is on place-based sustainability, environmental and climate change education. She has developed effective collaborative partnerships with her peers, teachers and regional stakeholders across Gippsland. Monica is current Chair of the Regional Centre of Expertise in Education for Sustainable Development (RCE Gippsland) who are responsible for mobilising sustainability throughout Gippsland via the Sustainable Development Goals.