

PeCALE

Research Focus Area



Federation
University,
Berwick
Room
902-G68,
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SYMPOSIUM HANDBOOK

**Research Informed Practices:
Supporting thinking with different age groups**

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Welcome

As convenor of the PeCALE (Pedagogy, Curriculum, Assessment and Learner Engagement) Research Focus Area, and on behalf of the organising committee, it is my pleasure to welcome you to this PeCALE Symposium. This symposium is the second of the group's annual community events, which are intended to bring together representatives from formal and informal educational settings, organisations, and private industry partners with researchers from The School of Education at Federation University.

The PeCALE research group consists of approximately twenty researchers from the School of Education at Federation University. The group seeks to understand pedagogy, curriculum, assessment and learner engagement within a variety of diverse formal educational contexts, as well as informal and community contexts. PeCALE researchers employ a multitude of research approaches and methodologies to explore the complex interrelationships between broad and specific curriculum contexts and approaches, quality of learning and teaching, assessment of learning, and impact on learning.

The PeCALE group consists of the following academics:

<i>Based at the Gippsland campus:</i>	<i>Based at the Berwick campus:</i>	<i>Based at the Ballarat campus:</i>
Heather Ernst Dr Anna Fletcher Dr Monica Green Dr Stuart Levy A/Prof Margaret Plunkett Clare Williams	Carlie Nekrasov Dr Hongming Ma Dr Kathy Swinkels Dr Daya Weerasinghe	Michelle Briede Dr Barbara Chancellor A/Prof Dean Cooley Dr Sharon McDonough Prof Claire McLachlan Naomi Nelson Melania Pantelich Bruce Schmidt Dr Peter Sellings Chris Wines

The theme for the 2019 symposium is *Supporting thinking with different age groups*, which is a capability in the Victorian Curriculum. As described in the curriculum documents, this capability encompasses students' development of increasingly complex and sophisticated processes of thinking. As stressed in the Victorian curriculum, such thinking processes are fundamental to effective learning across all learning areas and should therefore be taught, learnt, developed and applied throughout the curriculum areas. While the symposium will only cover some areas, we look forward to a stimulating discussion with you about the practical applications and possibilities for practice.

We hope you find much of interest in the program, that you get us all thinking by contributing to our conversations (we're all here to learn!) and that you come away with new ideas and contacts for the future. We look forward to seeing you at the next PeCALE symposium!

Dr Anna Fletcher

PeCALE Convenor

Speaker Biographies

Paul Boys is the inaugural Director of the Gippsland Tech School and works closely with schools and industry to facilitate real-world STEM learning experiences for Latrobe Valley students. Paul is interested in strengthening student retention through innovative teaching practices and flexible learning structures

Heather Ernst is a lecturer in the School of Education, Federation University, and has been teaching mathematics education to both undergraduate and postgraduate students for the past five years. Previously she was a mathematics and science teacher for 25 years in local Gippsland schools. Heather recently completed a Masters in Numeracy with a research project on using Formative Assessment within a professional learning team in senior secondary mathematics classes and is currently working towards completing a PhD on thinking and student agency in senior secondary mathematics.

Dr Anna Fletcher is a senior lecturer at the Gippsland Campus, where she teaches in the Primary and Secondary BEd and Masters programs. Anna's research interests involve formative assessment with a particular interest in student voice, student agency and self-regulated learning. Her research tends to be framed by social cognitive theory, which combines students' intrapersonal factors, syllabus outcomes and the classroom context. Anna convenes the Research Focus Area for Pedagogy, Curriculum, Assessment and Learner Engagement (PeCALE). In addition, she represents FedUni on the National consortium of thirteen universities developing and implementing the Graduate Teaching Performance Assessment (GTPA).

Bronwyn Joyce is a teacher from Traralgon, Australia and founder of Education Elevators. She specialises in Curriculum Innovation and the delivery of training, linked to critical and creative thinking and bringing the world into classrooms. In addition to teaching and training, Bronwyn uses the connection of social media to mentor and globalise teachers and classrooms internationally. She has travelled the world speaking about the importance of preparing students to be future ready, and is an advocate for the United Nations Sustainable Goals. Bronwyn believes we live in a world where we should be learning together. Her Our Global Classroom mission statement is simple - One World, One Classroom.

Dr Hongming Ma is currently a lecturer in the School of Education at Federation University Australia. Before becoming affiliated with FedUni, she was a lecturer in the Faculty of Education at Monash University for five years. She completed her Masters and PhD study at Monash University, in the field of cross-cultural understanding of the nature of science. Her main research interests are: the nature

of science/technology and its role in school science/technology curriculum at different levels; affective learning in science and relevant teacher knowledge; cross-cultural understanding of 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.

Professor Claire McLachlan is the Dean of Education at Federation University Australia. She has dedicated a large part of her career to researching the education, health and wellbeing of young children and to teaching the next generation of teachers. In recent years she has held a number of leadership roles in New Zealand universities and now in Australia. Her primary research agenda is that children get equitable opportunities for education and that those who need the most support to gain life chances experience excellence in teaching and learning. She is deeply committed to research on young children's literacy, physical activity and nutrition and have long standing interests in early year's curriculum, assessment and evaluation. In recent years she has specialised in using mixed methods approaches to research to answer complex questions about teachers, children and educational settings.

Dr Kathy Swinkels is a lecturer in education at Federation with a strong interest in mathematics in early Childhood. Carlie Nekrasov is a University Librarian who works closely with lecturers to ensure students have access to effective teaching resources.

Dr Daya Weerasinghe is a lecturer (Mathematics) and teacher educator working in the School of Education at the Berwick Campus of Federation University Australia. He joined the University in 2018 after completing his PhD studies at Monash University. He has experience as a Mathematics/ICT teacher in a number of metropolitan and regional secondary schools in Victoria. Daya has a life-long interest in learning Mathematics and is committed to the development of future mathematicians and mathematics teachers. He has published and presented on parents' perceptions and their involvement in children's Mathematics education at national and international conferences.

Abstracts

Session 1

Thinking frameworks supporting communication of thinking

Heather Ernst, Federation University, Gippsland, Victoria

ABSTRACT:

A common framework and language are desirable for supporting thinking in educational settings. Higher order thinking is more likely to be supported if students, teachers and parents all use a common language and have a shared understanding of what is involved. In this presentation, two Victorian P-12 schools will be explored as case studies that highlight how a consistent whole school approach can be used to promote thinking. The frameworks of Bloom's and SOLO (Structure of Observed Learning Outcome) will be described and compared with examples from several content areas across all year levels. The popular Bloom's taxonomy is excellent for designing learning tasks for differing thinking skills, while the SOLO framework can be used to classify student's work according to the levels of thinking within individual tasks. Consistent use of a well-publicised framework across a school community can improve the learning and thinking of both students and teachers. Participants in this session will be challenged to think about how these frameworks can be used in their own settings.

Key words:

Thinking frameworks, higher order thinking, educational settings, whole school approach

Session 2

Self-assessment as a strategy for developing creativity and learning competence with different age groups

Anna Fletcher, Federation University, Gippsland, Victoria

ABSTRACT:

This paper brings together two considerations that are rarely combined: 1) the marking rubric for the NAPLAN writing test; and 2) the notion of creativity as a 'novel and appropriate, useful, correct, or valuable' response to a task, without a clear and readily identifiable path to solution. This paper presents findings from a writing project designed to scaffold and develop primary students' self-regulated learning skills. Teachers and students from years 2, 4 and 6 at an Australian primary school worked together in a three-phase writing project which accommodated: a forethought phase, a performance phase and a hindsight phase. This paper focuses on intrapersonal 'mini c' creativity, which is part of the learning process and students' development of competence as learners. Findings indicate that the three-phase Assessment as Learning (AaL) process has the potential to support teachers in scaffolding students to develop competence and success as learners.

Key words:

Creativity, learning competence, self-regulated learning, thinking process

Session 3

Pedagogical Inspirations for Practice

Kathy Swinkels, Federation University, Berwick, Victoria

Carlie Nekrasov, Federation University, Berwick, Victoria

ABSTRACT:

To build pre-service teachers' (PSTs) mathematical pedagogical content knowledge, opportunities for identifying mathematics in play-based experiences are regularly built-in to initial teacher education (ITE) courses. In my practice, I have used the Library Teaching Resource Collection and encouraged the PSTs to also draw on this collection for assignments. Through the use of a Community of Practice framework, we plan to explore the interrelated concepts of Learning, Meaning, and Identity (Wenger, 1998). It is proposed that small groups of ITE students will workshop ways to use resources in the teaching of mathematics. They will be encouraged to create cards, called "Inspirations for Practice", to be included with the resources and added to the Library catalogue. A qualitative analysis will explore the themes of Learning, Meaning and Identity. Data collection will include the observations of the workshops, the Inspirations for Practice cards, and photo-elicitation interviews with small groups of participants.

Key words:

Mathematics, initial teacher education, pre-service teachers, ITE teachers
library

Morning tea

Session 4

The affective environment that encourages engagement in science learning

Hongming Ma, Federation University, Berwick, Victoria

ABSTRACT:

This presentation focuses on the affective learning environment that supports student critical and creative thinking in science learning. Science education researchers have found that instructional design focusing more on learners' affective needs can be powerful in nurturing effective and exciting science learning. This presentation outlines findings from a study that examined how learners' affective needs interplay with classroom learning environments and how different types of interplay influence learners' affective learning experiences. Through in-depth interviews with nine pre-service teachers, six types of interplay were identified: Self-sustained, Beyond expectation, Resonant, Adversely Overpowered, Below expectation and Irresponsive. Although the reported study was based on secondary school science learning experiences, the principles could be applied to broader contexts including both primary and secondary science education.

Key words:

affective experiences, learning environment, science learning and teaching, interest in science

Session 5

Effects of parent-child relationships and goals of academic achievement in mathematics education

Daya Weerasinghe, Federation University, Berwick, Victoria

ABSTRACT:

Many parents expect the best for their children and want to be involved in their education. Parental involvement however, may result in both positive and negative outcomes depending on how children respond to such involvement. This presentation discusses findings from a Melbourne based study with secondary school students and their parents that focused on their views about parental involvement in mathematics education. After reading through the literature, a conceptual framework was developed to guide the study. Research methodology included a mixed methods approach with an explanatory sequential design in which quantitative data were integrated with qualitative data. This included an on-line survey and face-to-face interviews for purposefully selected parent/child dyads to collect detailed views on parental involvement in mathematics education. This presentation highlights the ways in which parental involvement can vary according to demographic factors such as cultural background, gender and year levels of students.

Key words:

Parents' perceptions, parental involvement, children's achievement, culture, gender, year level

Lunch

Session 6

The Data, Knowledge, Action research programme: Use of authentic data-systems to understand and enhance children's experiences of curriculum in New Zealand early childhood education settings

Claire McLachlan, Federation University Australia

Tara McLaughlin, Massey University

Sue Cherrington, Victoria University of Wellington

Karyn Aspden, Massey University

Lynda Hunt, Ruahine Kindergarten Association

ABSTRACT:

This presentation describes collaborative research investigating the development and use of innovative data systems to help New Zealand Early Childhood Education (ECE) teachers examine young children's curriculum experiences and strengthen their teaching practice. The research includes: a) a pilot study undertaken to pilot innovative and authentic data systems to investigate children's experiences of curriculum; b) a current project funded by the New Zealand Teacher Led Innovation Fund (TLIF) involving teacher-led inquiry into data-informed teaching in ECE; and c) a current Teaching and Learning Research Initiative (TLRI)- project exploring sustained shared thinking to deepen young children's learning. The research is 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). In this presentation, we discuss the feasibility of these data systems in ECE settings and highlight successes and challenges emerging from implementation with teachers.

Key words:

Early childhood, children's learning, teacher-led inquiry, data-informed teaching

Session 7

Approaches that support student engagement and retention

Paul Boys, Gippsland Tech School - TAFE Gippsland

ABSTRACT:

As year 12 retention rates continue to stagnate in Australian schools, educators need to look to new and innovative systems that will support student engagement and success. In November/December 2018, I travelled through the USA and Canada to research best practice models for retention. As part of this presentation, I am proposing to report the findings of the research, as part of my Churchill Fellowship. The observed outcomes and approaches including thinking skill development, to support student engagement and success within the eight visited States and Provinces varied significantly. A key observation for best practice models for retention in terms of their overall success were highlighted through effective links to industry and community co-design.

Key words:

VET, traineeships, opportunity, equality, completion

Session 8

Reasoning and global issues: presenting a critical, creative and globally-connected primary classroom

Bronwyn Joyce, Liddiard Road Primary School

ABSTRACT:

This presentation highlights the impact on student engagement when learning about, and reasoning through, global issues in a critical and creative manner. Bronwyn will share insights and experiences gained from implementing digital pedagogical approaches in her year 5/6 class, where students develop dispositions that support logical, strategic, flexible and adventurous thinking about a range of global issues. They gain a critical awareness of the United Nation's 17 'Sustainable Development Goals' and the creation of a 'call to action' to highlight particular global concerns. Students in Bronwyn's class share interactions with the technology tool 'Flipgrid'. Flipgrid is the leading video discussion platform for millions of PreK to PhD educators, students, and families in 180+ countries.

Bronwyn's class are also members of a free 'Our Global Classroom' International Education Network which Bronwyn Founded. This network is a conduit for students to collaborate and engage in critically and creatively thinking and learning about the world with the world.

Key words:

affective experiences, learning environment, science learning and teaching, interest in science

Symposium Participants

- Names and email addresses in hardcopy of the programme

Program at a glance

9:30	Arrival/registration
9:50	Welcome, Acknowledgement of Country Dr Monica Green
10:00	Thinking frameworks supporting communication of thinking <i>Heather Ernst, Federation University, Gippsland, Victoria</i>
10:15	<i>Follow-on discussion</i>
10:30	Self-assessment as a strategy for developing creativity and learning competence with different age groups <i>Anna Fletcher, Federation University, Gippsland, Victoria</i>
10:45	<i>Follow-on discussion</i>
11:00	Pedagogical Inspirations for Practice <i>Kathy Swinkels, Federation University, Berwick, Victoria</i> <i>Carlie Nekrasov, Federation University, Berwick, Victoria</i>
11:15	<i>Follow-on discussion</i>
11:30	Morning tea (provided)
11:45	The affective environment that encourages engagement in science learning <i>Hongming Ma, Federation University, Berwick, Victoria</i>
12:00	<i>Follow-on discussion</i>
12:15	Effects of parent-child relationships and goals of academic achievement in mathematics education <i>Daya Weerasinghe, Federation University, Berwick, Victoria</i>
12:30	<i>Follow-on discussion</i>
12:45	Lunch (provided)
1:15	The Data, Knowledge, Action research programme: Use of authentic data-systems to understand and enhance children's experiences of curriculum in New Zealand early childhood education settings <i>Claire McLachlan, Federation University Australia</i>
1:30	<i>Follow-on discussion</i>
1:45	Approaches that support student engagement and retention <i>Paul Boys, Gippsland Technology School – TAFE Gippsland</i>
2:00	<i>Follow-on discussion</i>
2:15	Our Global Classroom - Having a Critical, Creative and Globally Connected Classroom. <i>Bronwyn Joyce, Liddiard Road Primary School</i>
2:30	<i>Follow-on discussion</i>
2:45	Message from the Dean, Professor Claire McLachlan
3:00	End of Symposium

