The Mathematics Teaching and Learning Research Centre promotes quality research and a national perspective on mathematics teaching and learning. It has a commitment to access to quality learning for all. Using local, national and international linkages, members of the Centre are committed to addressing and raising the social and ethical dimensions of mathematics education, and providing advice to government, education systems and professional organisations on policy development.

The aims of the Mathematics Teaching and Learning Research Centre are to:

1. Promote and support a creative research agenda developed in partnership with key stakeholders in mathematics education at all levels, locally, nationally and internationally.
2. Conduct quality and high-impact research, research training and scholarship in mathematics education which is nationally and internationally recognised.
3. Disseminate key findings from the Centre’s research.
4. Contribute to research-based practice in mathematics education.

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Making a difference in mathematics education
This project aims to initiate a paradigm shift in the teaching and learning of numeracy by implementing, evaluating, and refining a rich model of numeracy across the curriculum. The project addresses three strategic areas: curriculum, teacher development, and student learning. Specifically, it aims to analyse the numeracy learning demands of all subjects in the F-10 Australian curriculum (currently mathematics, English, science, history); investigate the extent to which engagement with a rich model of numeracy leads to changes in teachers’ personal conceptions of numeracy and confidence in numeracy teaching in mathematics and other curriculum areas; identify and document changes in teachers’ curriculum planning and pedagogical approaches for developing numeracy within mathematics and other curriculum areas; and investigate the extent to which students’ numeracy learning is enhanced through engagement with the numeracy model. (Vince Geiger with Merrilyn Goos and Shelley Dole, University of Queensland, and Helen Forgasz, Monash University)


This research is investigating a major factor restricting student opportunities to learn mathematics. We are exploring what is needed to encourage students to embrace challenges and to persist even when tasks are difficult. We are also examining what is needed to support teachers in developing the strategies needed to pose challenging tasks and to encourage students to engage with those tasks. The outcome will be enhanced mathematics learning and improved self confidence in students. (Doug Clarke and Anne Roche with colleagues from Monash University)


This project aims to describe the mathematical development over one year of primary school children with Down syndrome. The project, is in the analysis and reporting phase. Mathematical development (apart from aspects of counting) is uncharted territory for children with Down syndrome. Methodological difficulties arise as this area has had little investigation by mathematics education researchers. The limited research available has been undertaken by psychologists who bring different methodologies and therefore, findings, to the literature. Methods to plot the development of learning for children with DS were developed and explored in this research where we explored the use of methodologies developed in the Early Numeracy Research Project. Faragher and Clarke (Monash University) are compiling an edited book titled Educating Learners with Down Syndrome: Research to Practice. (Rhonda Faragher with Barbara Clarke, Monash University)

Models of Leading Curriculum Change in Numeracy, Brisbane Catholic Education Office (2011-2012)

This study is investigating promoting and inhibiting practical actions and processes taken by leaders within different levels of schooling and school systems. The study is situated within three North Region schools of Brisbane Catholic Education that are in the process of implementing curriculum change in the teaching and learning of numeracy. This investigation draws its theoretical underpinnings from the BCE Leadership Framework and the Goos Numeracy Model. One of the anticipated outcomes of this research is the development of a new, rich model for leading curriculum change in numeracy to be used in a larger scale project on completion of this pilot study. (Janeen Lamb and Vince Geiger with Chris Branson, University of Waikato, NZ and Robyn Jorgensen (Griffith University))


The new Australian Curriculum initiative provides an important opportunity for improvement in the teaching of English and mathematics. This research is studying the impact of the Australian Curriculum (AC) initiative in English and mathematics. The immediate focus of the project is on the resources and professional learning opportunities needed to support teachers in the implementation of these new curriculums. More generally, the focus is on system and teacher learning and processes needed to support improvement in practice in the context of the new curriculum. (Doug Clarke and Anne Roche with colleagues from Monash University, Newcastle University, Sydney University, University of Melbourne, and University of Technology Sydney, the New South Wales Education Department, Catholic Education Office Melbourne, and Victorian Curriculum and Assessment Authority)

Professional Learning in Mathematics Through Action, Beachside Network (2010-2012)

The major aim of this project is to investigate how teacher change can be enhanced by participation in specifically targeted teacher professional learning projects. Teachers in the schools are involved in Professional Learning Teams who are undertaking action research projects as well as participating in professional learning days. The Project is funded through the Beachside Network and the Southern Region of the DEECD. (Mar Horne and Philip Clarkson)

Let’s Count Pilot, Smith Family (2011-2012)

This research investigates in the impact of a new early mathematics program designed by The Smith Family and the researchers to assist parents and other family members to help their young children aged 3-5 years play with, investigate and learn powerful mathematical ideas in ways that develop positive dispositions to learning as well as mathematical knowledge and skills. It includes professional learning for Early Childhood educators, who assist the parents and other family members in providing the opportunities for the children to engage with the mathematics in their everyday lives, talk about it, document it, and extend it in ways that are relevant to them. (Ann Gervasoni, with Bob Perry, CSU)

Mapping the Mathematics and Fraction and Decimals Online Interviews to Australian Curriculum: Mathematics, Victorian Department of Education and Early Childhood Development (2012)

In the period 1999 to 2005, The Mathematics Teaching and Learning Research Centre develop two one-to-one assessment interviews, which are now used widely in Australian states and territories and a number of other countries. This project developed a careful mapping of the content of each item of the interview against the relevant content descriptions of the new Australian Curriculum: Mathematics. (Ann Downton and Anne Roche)

Developing a Framework for Mental Computation, Australian Association of Mathematics Teachers (2012-2013)

The Australian Association of Mathematics Teachers (AAMT) is developing a range of research-based resource materials, targeting particular areas of mathematics content and pedagogy which are problematic for many teachers. The MTLC team have been invited to develop a framework and related resource materials for the area of mental computation of whole numbers in school years 2 to 6. (Vince Wright and Ann Downton)
University Partnerships for Teaching and Learning Mathematics (UPTLM) project (2010-2012)
This project was developed at the beginning of 2010 and it seeks to research ways that preservice teacher capacity can be developed for effective mathematics teaching. In particular, this capacity building is researched within school-university partnerships between ACU preservice teachers, ACU mathematics education lecturers and CTLM school communities. Recent findings reveal that preservice teachers engage in becoming teachers of mathematics by inquiring into their teaching practices whilst being inducted into the mathematics teaching profession. (Matt Sexton and Andrea McDonough)

Supporting the Learning of Professional Teaching Communities in Remote Regions with High Teacher Turnover (2011-2013)
The primary aim of this study is to investigate how groups of mathematics teachers can be supported to form lasting, collaborative professional teaching communities that focus on improvement of mathematics teaching and learning, and especially, how this can be accomplished in regions with high teacher turnover. Understanding the processes of induction of new members to an established professional teaching community and the means that support and hinder the newcomers’ learning is of key importance. Gaining insight into the institutional context of the teachers’ school is critical for understanding the teachers’ learning in the professional development program and in their classrooms. This pilot project is currently funded by the University of Queensland, Education Queensland and the Queensland Association of Mathematics Teachers. (Janeen Lamb in collaboration with Jana Visnovska, University of Queensland)

Interest and Recruitment in Science (IRIS) Study (2011-2012)
IRIS is a large-scale international study of student recruitment, retention and gender equity in university science, technology, engineering and mathematics (STEM) courses. The study addresses the challenge that too few young people, and few women in particular, are choosing STEM career paths. IRIS was developed by a consortium of European universities and initially funded by the European Commission 7th Framework Program. The national IRIS report will provide universities with important insights into the motivations of their STEM students, and the efficacy of recruitment initiatives and strategies for student retention. (Janeen Lamb in collaboration with ACU colleagues.

This project involved a design experiment regarding Year 1 and 2 children’s concepts of mass measurement. The methodology, including the collection of quantitative and qualitative data, allowed for the examination of the complexity of the classroom including the tasks and problems the children were asked to solve, the discourse, the participation in the classroom and the materials with which the children were engaged. (Andrea McDonough with Jill Cheeseman, Monash University and Sarah Ferguson, Clairvaux Primary School).

Learning Trajectories as a Feature of Pedagogical Content Knowledge (2011-2012)
The project focuses on establishing the extent to which a teacher accesses hypothetical learning trajectories to inform their instructional decisions. The data came from audio recordings of a classroom over a two-week period, interviews with ten individual students, recordings of planning meetings and reflections with the class teacher, and work samples. Analysis of the data is ongoing. (Vince Wright)
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CAREER OPPORTUNITIES
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