

The following is a listing of recent Competitive grants related to Mathematics Education in Australia for the period 2010-2012. These include ARC grants but are not exclusive to these. At this point it is incomplete but will be updated as further information is processed. If you find any errors in what is in this version please email to VP(Research) for correction in Version 2. If you have information on grants you would like added please send via email to VP(Research).

Area of Research	Number of Grants
Classroom culture – Student persistence	1
Curriculum alignment	1
Failure Factors	1
Mathematical & Scientific Reasoning	1
National Curriculum	1
Numeracy	2
Numeracy - NAPLAN	2
Participation rates	1
Proportional reasoning	1
Statistical Literacy	2

Investigator Characteristics	Number of Grants
Gender	
male	14
female	19
Number of Investigators	
1	2
2	3
3	3
4	4
Team Composition	
all Australian investigators	9
includes international investigators	3
inter-university	7
single university	5

CLASSROOM CULTURE - STUDENT PERSISTENCE

Grant: P. Sullivan (Monash), D M Clarke, J C Cheeseman, J A Middleton *Investigating the relationship between teacher expectations, student persistence and the learning of mathematics.* To examine the culture that exists in many classrooms in which teachers are encouraged by students to pose easy tasks. The project will explore what is needed to encourage students to embrace challenges and to persist even when tasks are difficult. The outcome will be enhanced mathematics learning and improved student confidence.

Funding Body: Australian Research Council

Funding Period: 2011 to 2013
Funding: \$274,000.

CURRICULUM ALIGNMENT – COMPARATIVE

Grant: DJ Clarke (University of Melbourne); FW Sahlström; Y Cao (Beijing Normal University); X Wu ***Learning outcomes in mathematics and science classrooms in Australia, Finland and China: Interrogating the alignment of curriculum, instruction and assessment*** Our capacity to promote effective instruction depends upon our ability to recognize and assess useful knowing and to identify the instructional practices through which such knowing is engendered. International achievement tests are impacting educational policy in Australia, with significant attention on top-performing Finland and the consistent success of Asian classrooms. Recent research has raised concerns about what forms of knowing (i) find their expression in student test performance, or (ii) remain unrevealed by most available forms of testing (particularly international testing). This project looks closely at classroom practices and learning outcomes in China, Finland and Australia to provide new guidance on these issues.

Funding Body: Australian Research Council
Funding Period: 2010-2013
Funding: \$367178

FAILURE FACTORS

Grant: R. Jorgensen (Griffith University), T. Lowrie ***Social and geographical location and its impact on mathematics teaching and learning*** Too many students from poor urban backgrounds or from rural communities are at risk of underperforming in school mathematics. This project identifies the critical factors that contribute to this failure and seeks to develop improved practices to enable greater access to school mathematics.

Funding Body: Australian Research Council
Funding Period: 2012-2014
Funding: \$280000

MATHEMATICAL & SCIENTIFIC REASONING

Grant: J. Mulligan (Macquarie), L. English (QUT), K. Hodge (Macquarie), M. Papic (Macquarie) ***Transforming children's mathematical and scientific development: A longitudinal study*** An innovative program promoting young children's mathematical and scientific reasoning will be evaluated from grades one to three This study will determine whether an intervention capitalising on children's natural capacity for learning impacts their general cognitive development and problem solving skills at an optimum age.

Funding Body: Australian Research Council
Funding Period: 2011-2013
Funding: \$165000

NUMERACY

Grant: M. Goos (UQ), S. Dole, (University of Queensland), V. Geiger (ACU) & H. Forgasz (Monash) ***Enhancing numeracy learning and teaching across the curriculum***

Numeracy is an important component of the Australian school curriculum - in all subjects, not only mathematics. Leaving school with poor numeracy has devastating social and economic consequences for young people, especially those from already disadvantaged backgrounds.

This project will use a rich model of numeracy to (1) identify the numeracy demands of all subjects in the new Australian Curriculum and (2) develop and refine teaching practices with a view to improving student performance on both standardized numeracy tests and more realistic, contextualised tasks. The outcomes will generate new theoretical and practical insights into effective numeracy education across the school curriculum.

Funding Body: Australian Research Council
Funding Period: 2012-2014
Funding: \$210,000

Grant: Brenda Hamlett (Edith Cowan University, WA) *Case Management and targeted Literacy and Numeracy Intervention for Students in low SES Schools to Support the Australian Government's Literacy and Numeracy Projects'*,

Funding Body: Dept of Education and Training WA,
Funding Period: 2010,
Funding Amount: \$90,909.

NUMERACY - NAPLAN

Grant: W. Conventry (University of New England), B. Byrne (UNE), R. Olson (U of Colorado) *A behaviour-genetic study of the National Assessment Program – Literacy and Numeracy*. The National Assessment Program – Literacy and Numeracy (NAPLAN) tests are designed by educational authorities, are objective, and have been administered Australia-wide since 2008 so are unquestionably the most valuable national database on school achievement available. This project's twin studies of this data will provide a more solid base for public policy debates on educational policy and practice.

Funding Body: Australian Research Council
Funding Period: 2012-2014
Funding: \$152751

Grant: J. J Cumming (Griffith U), C. M Wyatt-Smith (GU) *An investigation of school and teacher use of National Assessment Program Literacy and Numeracy (NAPLAN) for student learning improvement* This project will examine how schools and teachers use National Assessment Program Literacy and Numeracy (NAPLAN) outcomes to improve student learning, the main purpose of such testing programs. The project will include the first comprehensive and large-scale State and Territory survey of school practices.

Funding Body: Australian Research Council
Funding Period: 2011-2013
Funding: \$230000

PARTICIPATION RATES

Grant: Helen Watt (Monash) *Participation in mathematics and science careers: Longitudinal study of motivational and contextual predictors*. Australia faces escalating shortages of suitably qualified individuals in science, technology, engineering and mathematics, negatively impacting economic and national wellbeing. Why young people are losing interest and not pursuing these fields will be determined in three complementary longitudinal studies spanning ages 12 up to their early 30s.

Funding Body: Australian Research Council (ARF)
Funding Period: 2011-2015
Funding: \$564539

PROPORTIONAL REASONING

Grant: S. Dole (UQ), M. Goos (UQ), & M. O'Brien. (University of Queensland) *Enhancing proportional reasoning, a fundamental but elusive cornerstone of numeracy, through educational technology applications*

Numeracy is a core life skill. A key indicator of numeracy is proportional reasoning; a pervasive yet elusive concept, the development of which is critical in the middle years of schooling. Research repeatedly highlights students' (and teachers') difficulties with proportion and proportion-related tasks, a deficit identified in international assessments. We draw on and extend theories to enhance knowledge of proportional reasoning, collaborating with teachers to investigate the efficacy of cross-curricular learning activities targeting proportional reasoning and embedding technologies. Expected outcomes include a theorized instructional framework and measures of teacher and student proportional reasoning growth mediated by technologies.

Funding Bodies: Australian Research Council
Education Queensland
Department of Education and Children's Services South Australia
University Of Queensland

Funding Period: 2011-2014
Funding: \$ 643,832

STATISTICAL LITERACY - INFERENCE

Grant: L. English (QUT) & J. Watson (UTas) ***Statistical literacy in the primary school: Beginning inference.*** Australia is committed to building a stronger foundation for school mathematics and science. This project will introduce primary school students to beginning inference, a core component of statistical literacy and an increasingly important life skill. Foundations for secondary mathematics study and productive societal participation will be laid.

Funding Body: Australian Research Council
Funding Period: 2012-2014
Funding: \$468000

Grant: K. Makar (UQ), D. Ben-Zvi (U of Haifa) & A. Bakker Utrecht University) ***For the sake of the argument: Developing students' inferential arguments in statistics.*** Data adds power and persuasion to arguments in every aspect of life: work, citizenship or personal. This international collaboration will infuse argumentation skills into the learning of school statistics. New knowledge developed in this project will forge a citizenry, workforce and scientists savvy in creating and critiquing data-based arguments.

Funding Body: Australian Research Council
Funding Period: 2012-2014
Funding: \$177000

