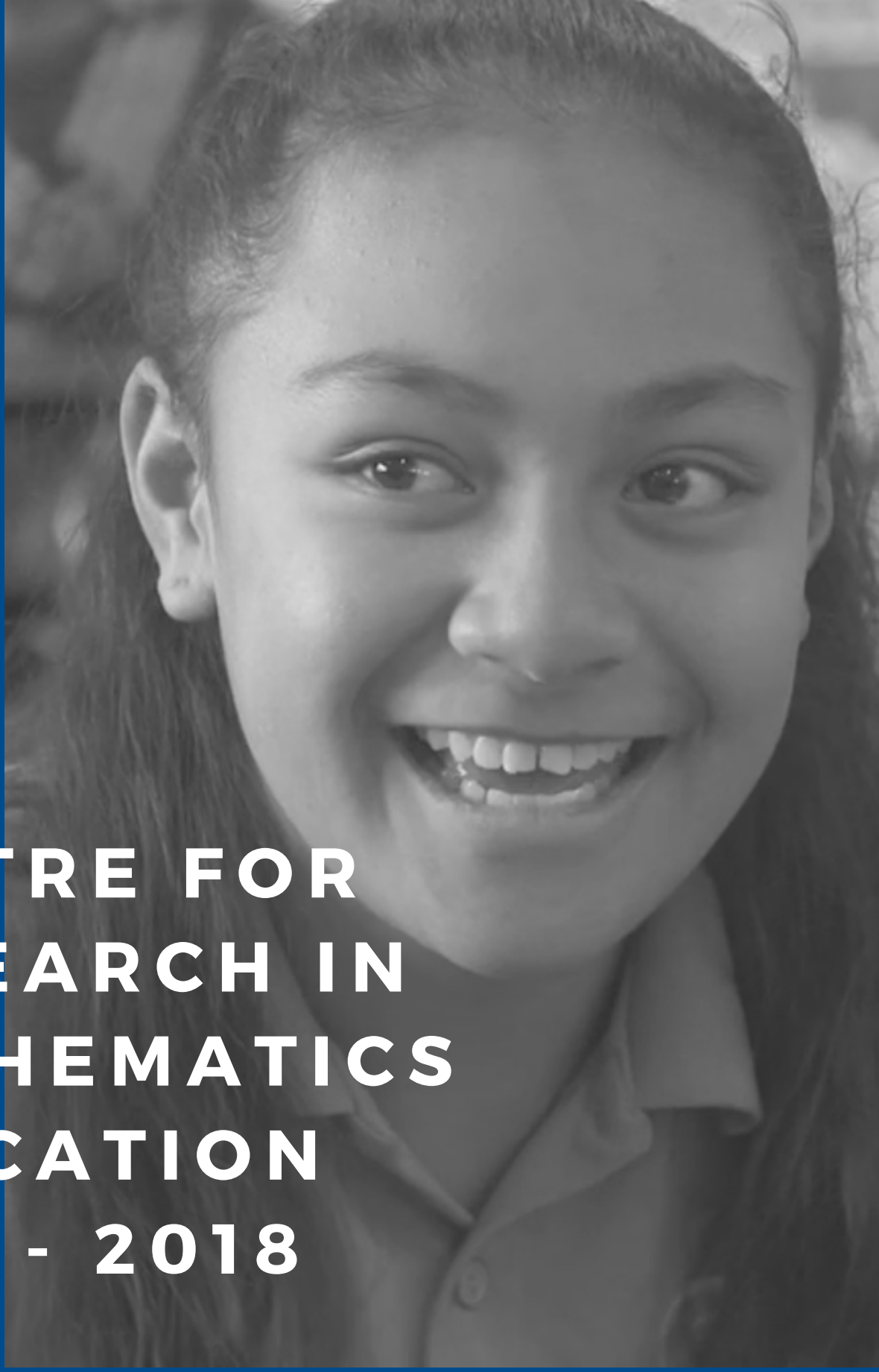


CENTRE FOR RESEARCH IN MATHEMATICS EDUCATION 2017 - 2018

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

MAKING A DIFFERENCE

CeRME is a dedicated research centre within Massey University's Institute of Education. Everything we do revolves around our commitment to making a difference in mathematics education.

Since our launch in September 2016, we have built a strong team of researchers, teacher educators, and national and international partners. In addition to our sizeable research output and our tertiary teaching contributions, we have worked hard at engaging directly with teachers, supporting the transformation of mathematics teaching practice in classrooms across Aotearoa New Zealand.

This report profiles and celebrates the work of CeRME in 2017 and the first half of 2018. We are proud of this work and pleased to share it in this way.

Looking ahead, we continue to see urgent needs for further improvement in mathematics education (and mathematics teacher education) in Aotearoa New Zealand and internationally. Teacher knowledge, cultural responsiveness, equity, ambitious teaching practice and improving outcomes for diverse learners are all areas we are committed to continuing to work in.

CONTENTS

Read more about CeRME and how our people and projects have made a difference and supported our key objectives in 2017-2018.

About CeRME 04

Objective 1: Research and scholarship 06

Objective 2: Knowledge creation and innovation 10

Objective 3: Developing capacity and leadership 14

Objective 4: Connections and partnerships 16

Celebrating impact 20

Next steps 22

Key research outputs 26

ABOUT CERME

CeRME brings together experts in mathematics education to work on a common theme: the place of mathematics education and its transformative potential in New Zealand, the Pacific region and the world. A focus on equity and cultural responsiveness underwrites our research projects and the developmental work we engage in with teachers, postgraduate students, and new researchers. Our strong tradition of collaboration with international and national researchers enables us to contribute to scholarly debates, in both the research and professional fields, in ways that are research-informed. Members of CeRME are engaged in a range of leadership roles at all levels and have received international recognition for their work.

OUR MISSION

To be recognised nationally and internationally as a leading centre for research that makes a difference in mathematics education

Ko te herenga waka,
he whakawhitiwhiti kōrero,
he whakawhitiwhiti whakaaro,
e ū ko te māramatanga.

Where canoes are tethered together, dialogue is exchanged, thoughts are provoked, and enlightenment comes forth.

Prof. Glenda Anthony
CO-DIRECTOR

Prof. Margaret Walshaw
CO-DIRECTOR

Prof. Bobbie Hunter
DMIC CO-LEADER

Dr Jodie Hunter
DMIC CO-LEADER

Dr Peter Rawlins
MEMBER

Ms Raewyn Eden
MEMBER

Dr Rachel Restani
MEMBER

Dr Katrina McChesney
MEMBER

Anne Lawrence
ASSOC. MEMBER

Dr Cami Sawyer
ASSOC. MEMBER

Dr Matt Wilkins
ASSOC. MEMBER

OBJECTIVE 1

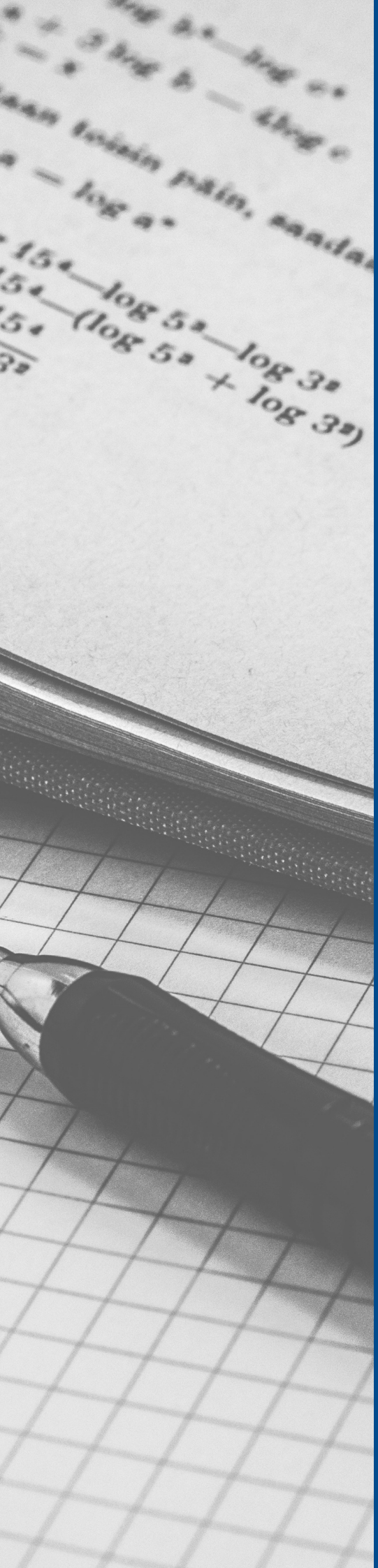
We will be recognised for the quality, leadership and innovation of **research and scholarship** within mathematics education.

CeRME members at all career stages continue to produce high-quality research and scholarship. Read about our work and its recognition in this section.

Our research outputs for 2017 and the first half of 2018 are summarised on the next page. CeRME members are research-active both nationally and internationally, publishing in high-impact journals, holding editorial positions in a range of journals, and participating in major scholarly communities and conferences. We also intentionally work to co-author research outputs with postgraduate students, supporting their development as emerging researchers.

PROFESSORIAL APPOINTMENT

DMIC co-leader Bobbie Hunter (left) was promoted to full professor in 2017 in recognition of her outstanding contribution to mathematics education in New Zealand and internationally.



11

PEER REVIEWED JOURNAL ARTICLES

9 international, 2 national

3 co-authored with postgraduate students

1

EDITED BOOK

"Mathematical discourse that breaks barriers"

Lead editor: CeRME's Prof Bobbie Hunter

22

CONFERENCE PRESENTATIONS AND KEYNOTE ADDRESSES

Both international and national

4 co-authored with post-graduate students

9

BOOK CHAPTERS

3 with international co-authors

1 co-authored with a postgraduate student

1 co-authored with a DMIC mentor

7

JOURNAL EDITORIAL LEADERSHIP

3 journal editors

4 editorial board members

1 edited special issue

POSTGRADUATE STUDY

Our cohort of postgraduate students is strong. Graduate summer schools in 2017 and 2018 (jointly hosted with The University of Auckland) foster student collaboration and support postgraduates to build capability in research.

We have a large cohort of Mathematics Support Teachers (sponsored by the Ministry of Education) who complete a Postgraduate Certificate of Education. Many of these teachers continue with further study to complete our Postgraduate Diploma in Education (Mathematics Education) or Master of Education (Mathematics Education).

Our Master of Education postgraduates complete professional inquiry projects or research theses—projects that are adding significant value to the community in terms of practice-based and academic knowledge.

Doctoral students plan and conduct independent and original research with relevance to mathematics education in New Zealand or international contexts.

MASTERS PROJECTS 2017

- Leadership and professional learning
- Primary school children's experiences of learning
- Cultural identity of Pāsifika students in mathematics classrooms
- Values in mathematics classrooms
- Mathematics anxiety

DOCTORAL STUDIES IN PROGRESS

- Communities of practice for teachers in Indonesia
- Preparedness of beginning teachers in Saudi Arabia
- Positioning and status of students in the mathematics classroom
- The impact of mathematics anxiety for teachers

MASTERS PROJECTS 2018

- Learning to learn
- Culturally responsive mathematics tasks and student engagement
- Supports for equitable learning and grouping practices within mathematical inquiry communities
- Learning in InnovatIve Learning Environments
- Teacher mathematical knowledge
- Financial literacy
- Factors supporting re-engagement in mathematics learning

> I had never considered the damage that ability grouping could have in terms of access to higher level thinking. It now makes perfect sense that gaps between children that excel and those that don't will increase when access to higher content is restricted.

MASTERS STUDENT 2018

OBJECTIVE 2

We will contribute effective **knowledge creation** by leading **innovative responses** to mathematics educational issues

CeRME research projects respond to pressing issues in the field and in Aotearoa New Zealand. We work to ensure our research reaches not only other academics but also teaching practitioners, so we can support changes in mathematics education for New Zealand's learners.

TEACHER KNOWLEDGE IN EARLY ALGEBRA

This British Academy-funded project involves a comparative study of primary teachers' knowledge related to the equals sign (an important element of early algebra) across NZ, England, the USA, Turkey, China and Singapore. This research could inform PLD and initial teacher education to improve the quality of mathematics teaching in primary schools.

UNDERSTANDING MATHEMATICS ANXIETY

For 20% of the population, mathematics triggers frustration, fear, and panic. This project uses classroom data to investigate the link between negative emotions and students' mathematical learning, Understanding why mathematics anxiety develops could help us identify and support students who are most likely to be at risk.

CO-TEACHING TO RAISE MATHEMATICS ACHIEVEMENT

This TLIF-funded project investigated how teacher collaboration can support teachers to promote the mathematics learning of students at risk of underachievement. Co-teaching of mathematics lessons was explored as a core component of collaborative teacher inquiry and as a potential lever for improving teaching practice in mathematics.

MATHEMATICS IN STUDENTS' HOME LIVES AND CULTURES

This MURF-funded project provides Niuean and NZ students and families with tools to explore the mathematics that occurs in their homes and communities. The project also seeks to develop teachers' knowledge and awareness of the rich mathematical backgrounds of diverse students, thus supporting culturally responsive mathematics teaching.

DMIC: DEVELOPING MATHEMATICAL INQUIRY COMMUNITIES

Our largest initiative, DMIC centres on ambitious, culturally sustaining mathematics teaching that enhances equity, cultural identity, mathematics achievement and other outcomes for diverse learners.

The impact and reach of DMIC continue to grow. We are proud to be actively engaged in transforming mathematics teaching in so many schools. The impact of this programme was acknowledged in 2018 with the production of a third Ministry of Education Best Evidence in Action video series profiling DMIC. The research programme that underpins and documents DMIC also remains strong, and to further support our research work, a postdoctoral research fellow and a research officer have joined the DMIC team in 2018.

89

NEW ZEALAND SCHOOLS RECEIVING DMIC PLD

including 7 secondary schools and 6 Kāhui Ako | Communities of Learning

17

TEACHER EDUCATORS

employed to support DMIC PLD across New Zealand

200+

PRACTISING TEACHERS

enrolled in the DMIC postgraduate short course and 22 in the Masters paper

6

FACE-TO-FACE TEACHING LOCATIONS

across New Zealand for the DMIC postgraduate short course and Masters paper

5

TEACHER EDUCATORS

engaged in postgraduate research sponsored by CeRME

OBJECTIVE 3

We will **develop necessary capacity** to become **research and teaching leaders** in the field of mathematics education.

CeRME has a firm commitment to capacity building, supporting our team members at all career stages to continually develop their teaching, research and leadership skills. We believe our influence is multiplied when we invest in the capacity of our team.

POSTGRADUATE SUMMER SCHOOL

In partnership with The University of Auckland, we run an annual summer school for postgraduate students in mathematics education. The 2018 summer school was attended by 14 postgraduates and covered:

- Academic writing strategies
- Writing and critiquing MERGA conference papers
- Using social media to support the postgraduate journey
- Managing roadblocks and forging pathways along the thesis journey
- Contributing to the research environment
- One-on-one discussions and reflections with supervisors

EXCELLENCE AWARDS

CeRME co-director Prof Margaret Walshaw (second left) received the Massey University 2017 Supervisor Award for Distinction in Research.

CeRME associate member Dr Cami Sawyer (second right) received a 2017 Massey University Vice-Chancellor's Teaching Excellence Award.

> Being a supervisor means working with some really amazing people, and being able to learn new and fascinating things from your students every day. I feel very privileged.

PROF MARGARET WALSHAW
SUPERVISOR AWARD
RECIPIENT

> Dr Sawyer's desire to give students the best learning experience is reflected in her sustained commitment to continued development.

PROF GISELLE BYRNES
ASST VICE-CHANCELLOR
RESEARCH, ACADEMIC AND
ENTERPRISE

OBJECTIVE 4

We will be connected to **tangata whenua** and a range of key **partners and stakeholders** nationally and internationally in order to gain mutually beneficial outcomes.

CeRME members are involved in a range of projects and partnerships both within Aotearoa NZ and internationally. As well as strengthening our work, these initiatives allow us to help make a difference in mathematics education and research in a range of contexts.

NATIONAL CONTRIBUTIONS

CeRME staff are regularly invited to contribute in national settings, highlighting the respect in which our work is held and the relevance of our research focuses. National contributions in 2017-18 have included:

- Royal Society | Te Apārangi 'Great Kiwi research' invited lecture
- NZEI 'Celebrating our Curricula' hui
- NZEI series of 6 'Growing from strong foundations' regional hui
- MoE #EdConvo18 Education Summit
- MoE Foundational Learning Steering Group
- SmartNet Education Leaders Forum
- Massey University Financial Educational and Resource Centre (board membership)

HANGAIA TE URUPOUNAMU PĀNGARAU MŌ TĀTOU

Through the James Stewart Loper Bequest established by Ngāi Tahu kaumātua Laurie Loper, Shirley Primary School in Christchurch was able to participate in the DMIC programme. This participation involved a partnership between Te Rūnanga o Ngāi Tahu, Massey University, Shirley Primary School, and the Ministry of Education.

> It's a revolution ... nothing short of a revolution.

LAURIE LOPER
NGĀI TAHU
EDUCATIONAL PSYCHOLOGIST

SCHOOL LEADERSHIP FOR IMPROVEMENT IN PRIMARY MATHEMATICS

In partnership with the Ministry of Education's Iterative Best Evidence Synthesis (BES) Programme | Hei Kete Raukura, a series of 10 videos was released in 2018 profiling the work of DMIC and highlighting critical success factors for DMIC implementation over the first two years of the change process at Russell School in Porirua East. Two other similar video series on DMIC were produced in 2016.

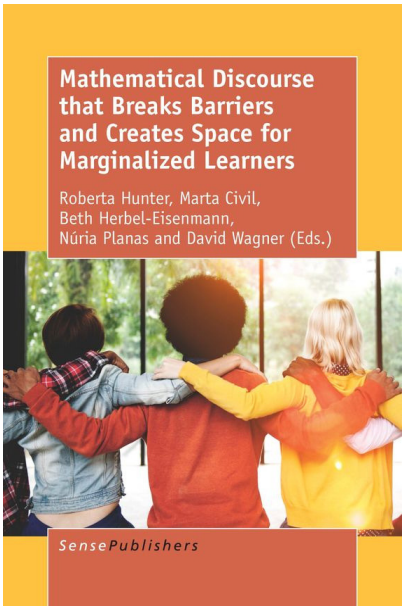
> The results that we've got now are absolutely fantastic.

JOYCE FUATAVAI
BOARD OF TRUSTEES CHAIR
RUSSELL SCHOOL

INTERNATIONAL LINKS

In addition to building national partnerships, building and supporting a range of international links is an important way for CeRME to widen our sphere of collaboration and to build new knowledge and capacity. International visitors to CeRME in 2017 and the first half of 2018 have included (from left) Dr Ian Jones (Loughborough University, UK), Prof Ruhama Even (Weizmann Institute of Science, Israel), Prof Guri Nortvedt (University of Oslo, Norway), Prof Anna Sfard (University of Haifa, Israel), and Dr Deborah Schifter (Education Development Center, USA).

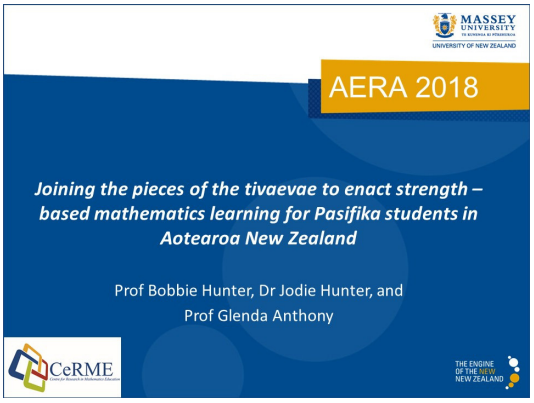
A new book with CeRME member Prof Roberta Hunter as lead editor was published in 2018. "Mathematical discourse that breaks barriers and creates space for marginalized learners" was edited by Roberta Hunter (CeRME), Marta Civil (USA), Beth Herbel-Eisenmann (USA), Núria Planas (Spain) and David Wagner (Canada). Sense Publishers, 2018.



CeRME members have also published work with international co-authors in 2017-2018 including David Burghes (UK). Marta Civil (USA), Wolff-Michael Roth (Canada) and David Stinson (USA).

REPRESENTING NZ AT THE AERA CONFERENCE

A symposium by Prof Bobbie Hunter (DMIC co-leader), Dr Jodie Hunter (DMIC co-leader) and Prof Glenda Anthony (CeRME co-director) was selected to represent the New Zealand Association for Research in Education at the 2018 American Educational Research Association conference in New York. The symposium reported research from the DMIC project and has since been published as a blog series to be accessible to teachers and school leaders.



MATHEMATICS EDUCATION RESEARCH GROUP OF AUSTRALASIA

CeRME member Dr Jodie Hunter is on the executive committee of MERGA and is convening the 41st MERGA conference at Massey University's Albany Campus in July 2018.

DEVELOPING MATHEMATICAL INQUIRY COMMUNITIES IN NIUE

Over 2017-2019, two Niuean schools are participating in the DMIC project. DMIC co-leaders Prof Bobbie Hunter and Dr Jodie Hunter have so far made 6 week-long visits to Niue to deliver professional development sessions and in-class teacher mentoring. They have also met with the Niuean Minister of Education and the New Zealand High Commissioner to Niue to discuss the DMIC project.

CELEBRATING IMPACT

Impressions of the difference we have made through CeRME activities in 2017 and the first half of 2018

7K

Views of our February 2018 blog post entitled "How should we group students in primary maths classrooms?"

400+

Citations of "Effective pedagogy in Pāngarau / Mathematics: Best evidence synthesis iteration (BES)" and its co-publication "Effective pedagogy in mathematics"

20K

Views of the three "Best Evidence in Action" video series profiling the DMIC project in New Zealand schools

> I had never really given much thought until now as to why I teach mathematics ... How wrong was I! My mathematics learning journey has been a huge learning curve that has had a massive impact on the way I teach mathematics.

CeRME POSTGRADUATE STUDENT

By the end of the year their engagement with mathematics had gone up. Their belief in themselves and that they could do mathematics went up. And they achieved better in standardised testing.

VICKI HARRISON
DMIC TEACHER
RUSSELL SCHOOL

All cohorts at [Russell School] improve their [PAT] scores over time, and by the end of 2016 all of the cohorts were above the national average scores for Decile 1 schools. ... The gap for Pāsifika students had closed by the end of 2016.

BRAD STRINGER, NZCER
Unpublished DMIC report

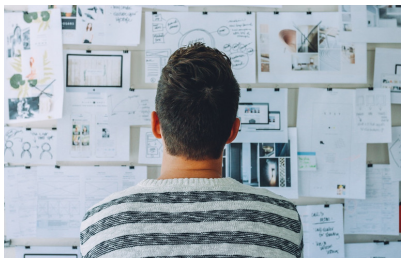
The issue (and with a sense of urgency) is not why we should teach mathematics but rather what mathematics should we teach, how are we going to teach it and then what should we arm our students with when they have it?

CeRME POSTGRADUATE STUDENT

NEXT STEPS

Opportunities and aspirations for CeRME's continued excellence, growth and development

We want to continue to grow the reach and impact of CeRME so that we can make more and more of a difference to more areas of mathematics education. These are some of our aspirations for the next two years.



Working with school partners, postdoctoral researchers and postgraduate students to expand our research efforts around the Developing Mathematical Inquiry Communities initiative

Working with school partners, teacher organisations, and governmental agencies to support curriculum reforms (for example, around assessment practices, grouping practices in secondary schools and financial wellbeing), PLD initiatives, and teacher education partnerships

Increasing our international collaborations through visitor exchanges and research partnerships, including expanding our partnerships with Pāsifika nations and South America

Continuing to produce high-impact scholarly publications (for example, a text entitled "Transnational influences over secondary school maths and science achievement" is currently in progress)

Continuing to contribute to the international community (for example, through editorial roles and through leadership roles in the 2020 International Congress on Mathematics Education).

KEY RESEARCH OUTPUTS

BOOKS / CHAPTERS

Anthony, G. (2018). Practice-based initial teacher education: Developing inquiring professionals. In G. Kaiser, H. Forgasz, M. Graven, A. Kuzniak, E. Simmt, & B. Xu (Eds.), *Invited Lectures from the 13th International Congress on Mathematics Education* (pp. 1-18): Springer.

Anthony, G., & Hunter, R. (2017). Developing student voice in the mathematics classroom. In B. Kaur & N. Lee (Eds.), *Empowering mathematics learners* (pp. 99-115). Singapore: World Scientific.

Hunter, J., Anthony, G., & Burghes, D. (2018). Scaffolding teacher practice to develop early algebraic reasoning. In C. Kieran (Ed.), *Teaching and learning algebraic thinking with 5- to 12-year-olds: The global evolution of an emerging field of research and practice* (pp. 379-401). Cham, Switzerland: Springer.

Hunter, R., Civil, M., Herbel-Eisenmann, B., Planas, N., & Wagner, D. (2018). *Mathematical discourse that breaks barriers and creates space for marginalized learners*. Rotterdam, The Netherlands: Sense.

Hunter, R., & Hunter, J. (2018). Maintaining a cultural identity while constructing a mathematical disposition as a Pāsifika learner. In E. A. McKinley, & L. T. Smith (Eds.) *Handbook of Indigenous Education* (pp. 1-19). Singapore: Springer.

Hunter, R. & Hunter, J. (2018). Opening the space for all students to engage in mathematical talk within collaborative inquiry and argumentation. In R. Hunter, M. Civil, B. Herbel-Eisenmann, N. Planas, & D. Wagner (Eds.), *Mathematical discourse that breaks barriers and creates space for marginalized learners*. Rotterdam, The Netherlands: Sense.

Hunter, R., Hunter, J. & Bills, T. (2018). Enacting culturally responsive or socially-response-able mathematics education. In C. Nicol, S. Dawson, J. Archibald & F. Glanfield (Eds.), *Living culturally responsive mathematics curriculum and pedagogy: Making a difference with/in indigenous communities*. Dordrecht, The Netherlands: Springer.

Roth, W-M., & **Walshaw, M.** (2017). On the irreducibility of acting, emoting, and thinking: A societal-historical approach to affect in mathematical activity. In U. Xolocotzin (Ed.), *Understanding emotions in mathematical thinking and learning* (pp. 410-432). London: Elsevier.

Stinson, D. W., & **Walshaw, M.** (2017). Exploring different theoretical frontiers for different (and uncertain) possibilities in mathematics education research. In J. Cai (Ed.), *Compendium for research in mathematics education* (pp. 128-155). Reston, VA: National Council of Teachers of Mathematics.

Walshaw, M. (2018). Epistemological questions about school mathematics. In P. Ernest (Ed.), *Philosophy of mathematics education today* (pp. 161-171). Singapore: Springer.

JOURNAL ARTICLES

Abidin, Z., Mathrani, A., **Hunter, R.**, & Parsons, D. (2017). Challenges of integrating mobile technology into mathematics instruction in secondary schools: An Indonesian context. *Computers in the Schools, 34*(3), 1-16.

Anthony, G. (2018). Setting the research agenda: Strategic, research, and impact values of large-scale funded projects in Australasia. *Mathematics Education Research Journal, 30*(1), 1-6.

Anthony, G., & Hunter, R. (2017). Grouping practices in New Zealand mathematics classrooms: Where are we at and where should we be? *New Zealand Journal of Educational Studies, 52*(1), 73-92.

Anthony, G., Hunter, R., & Hunter, J. (2017). Challenging teachers' perceptions of student capability through professional development: a telling case. *Professional Development in Education* (advance online publication). doi:10.1080/19415257.2017.1387868

Gasson, F., & **Anthony, G.** (2018). Enhancing communication and participation within mathematical inquiry communities through New Zealand Sign Language. *Kairaranga*.

Higgins, J., & **Eden, R.** (2017). Cogenerated understandings of mindfulness-based breathing in elementary mathematics classrooms. *Journal of Educational Research* (advance online publication). doi:10.1080/00220671.2017.1396438

Hunter, J. (2017). Developing interactive mathematical talk: Investigating student perceptions and accounts of mathematical reasoning in a changing classroom context. *Cambridge Journal of Education. 47*(4), 475-492.

Shore, K., & **Walshaw, M.** (2018). Assistant/deputy principals: What are their perceptions of their role? *International Journal of Leadership in Education, 21*(3), 310-326.

Walshaw, M. (2017). Leveraging the potential of research on classroom discourse for enhancing mathematics teaching and learning. *Educational Studies in Mathematics, 95*(3), 353-357. [book review]

Walshaw, M. (2017). Understanding mathematical development through Vygotsky. *Research in Mathematics Education, 19*(3), 293-309.

Walshaw, M. (2018). The potential of Spinoza's not-yet for educational theory. *Educational Philosophy and Theory*, Special 50th Anniversary Celebratory Issue.

THESES

Crowley, J. (2017). *Impact of collaborative planning for mathematics and anticipating student responses to problems on teacher beliefs, knowledge and practice*. (MEd thesis), Massey University, Auckland.

Curwen, R. (2017). *How does culturally responsive teaching shape Pāsifika students self-perceptions as mathematicians* (MEd thesis), Massey University, Auckland.

Hill, J. (2017). *What do culturally diverse middle school students value for their mathematics learning?* (MEd thesis), Massey University, Auckland.

Mann, L. (2017). *Unpacking mathematics anxiety in Year 9 students* (MEd thesis), Massey University, Palmerston North.

Restani, R. (2018). *Exploring student voice in a high school mathematics classroom: Empowering strategies for marginalized students* (PhD thesis), UCDavis School of Education, California.

TECHNICAL REPORT

Eden, R. (2017). *Co-teaching to support pedagogical shifts to raise achievement in mathematics.* TLIF report submitted to the New Zealand Ministry of Education.

Selected CONFERENCE PRESENTATIONS, SYMPOSIA AND KEYNOTES

Anthony, G., Hunter, R., & Hunter, J. (2017). Challenging teacher perceptions: "Those children will struggle no matter what you do to them". Paper presented at the Mathematics Educational Research Group of Australasia Conference, Melbourne.

Anthony, G., Hunter, R., & Hunter, J. (2017). Reframing teachers' views of students' mathematics capabilities. In B. Kaur, W. K. Ho, T. L. Toh, & B. H. Choy (Eds.), *Proceedings of the 41st annual conference of the International Group for the Psychology of Mathematics Education* (Vol. 2, pp. 105-112). Singapore: PME.

Hunter, J., & Miller, J. (2017). Using cultural tasks to develop growing pattern generalisations with young Pāsifika learners. In J. Novotna & H. Moraova (Eds.), *Proceedings of the International Symposium on Elementary Maths Teaching* (pp. 215-224). Prague, Czech Republic: SEMT.

Hunter, R. (2017). Mathematics and Pāsifika: Can one exist without informing the other? Public lecture given on behalf of the Royal Society Te Apārangi as part of their "Great Kiwi research: Celebrating women researchers" series, Auckland.

Hunter, R. (2017). Mathematics education in and with Indigenous communities. Symposium paper presentation at the National Council of Teachers of Mathematics Research Conference, San Antonio, U.S.A.

Hunter, R. (2017). Constructing a mathematical disposition and cultural identity. Keynote presentation at the Canberra Mathematical Association Conference, Canberra, Australia.

Hunter, R. (2017). Should research inform practice? Plenary panel debate at the Psychology of Mathematics Education Conference, Singapore.

Hunter, R. (2017). Developing equitable opportunities for Pāsifika and Māori students to participate and learn in mathematics. Keynote presentation given at Te Wero | The Challenge: Māori Education Leadership Conference Tairāwhiti, Gisborne.

Hunter, R. (2017). Equity, is that part of a dream for some learners? Keynote presentation at the Making a Difference symposium, AUT, Auckland.

Hunter, R., & Hunter, J. (2018). Opening the dialogue between teachers and teacher educators toward culturally appropriate interactions with Pāsifika learners. Symposium paper presented at the American Educational Research Association annual conference, New York, NY.

Hunter, R., Hunter, J., & Anthony, G. (2017). Joining the pieces of the tivaevae to enact strength based mathematics learning for Pāsifika students. Paper presented at the New Zealand Association of Research in Education annual conference, Hamilton.

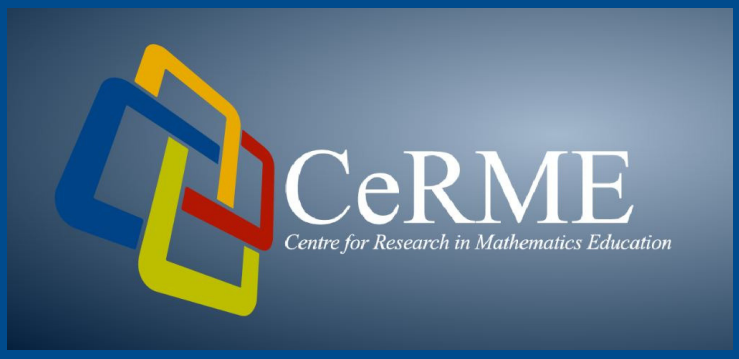
Hunter, R., Hunter, J., & Anthony, G. (2018). Joining the pieces of the tivaevae to enact strength based mathematics learning for Pāsifika students. Paper presented at the American Educational Research Association annual conference, New York, NY.

Miller, J. & **Hunter, J.** (2017). Young diverse students in New Zealand and their initial understandings of growing patterns. In B. Kaur, K. Ho, T. L. Toh, & B. H. Choy (Eds.), *Proceedings of the 41st annual conference on the International Group for the Psychology of Mathematics Education*. Singapore: PME.

Sawyer, C. (2017). Engaging distance student in an introductory maths course. Paper presented at the Delta Conference on the Teaching and Learning of Undergraduate Mathematics and Statistics, Gramado, Brazil.

Stinson, D. W., & **Walshaw, M.** (2017). "Theory at the crossroads": Mapping moments of mathematics education research onto paradigms of inquiry. In E. Galindo & J. Newton (Eds.), Proceedings of the 39th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (pp. 1407-1414). Indianapolis, IN: Hoosier Association of Mathematics Teachers Educators.

Stinson, D. W., & **Walshaw, M.** (2018). Exploring different theoretical frontiers for different (and uncertain) possibilities in mathematics education research. Symposium chapter presented at the NCTM Research Conference, Washington, DC.



CENTRE FOR RESEARCH IN MATHEMATICS EDUCATION
INSTITUTE OF EDUCATION
MASSEY UNIVERSITY
NEW ZEALAND
www.cerme.nz