

## Editorial

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# Mathematics Teachers' Beliefs and Practices in Relation to Professional Learning

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'Professional learning' is a focus of the papers in this volume of *Mathematics Teacher Education and Development*, with the various research reports arising from both pre-service and in-service teachers, and spanning primary as well as secondary schools. All the papers report to some degree research findings that highlight how engagement in professional learning can lead to changes in beliefs about mathematics learning and teaching, and changes in plans for or actual teaching practices.

Beswick's paper reports on a professional learning program in numeracy for K-8 teachers that aimed to influence their beliefs about children's mathematics capabilities, and in particular the capacities of children with mathematics learning difficulties. Although the study involved a relatively small number of participants, it provided evidence that professional learning experiences can change teachers' views about teaching goals and strategies that can support children's mathematical understandings alongside their mathematics basic skills.

Wilson and Thornton's paper also has a strong focus on beliefs about mathematics and mathematics learning, and how mathematics learning can be enhanced or inhibited by the nature of related learning experiences. In this case the research participants were pre-service primary teachers. Through a bibliotherapy process the teachers were supported in reconstructing their understandings of mathematics learning and teaching, thus enabling them to develop greater confidence and enthusiasm as future mathematics teachers.

The paper by Owens has an emphasis on pre-service teachers' identity as mathematics learners. Technology played a role in this study in that the professional learning context was a 'mathematics and technology' unit in the pre-service teachers' undergraduate program. The unit was based on problem solving and the research examined cognitive, affective, and social factors influencing identity formation. Through setting goals, planning, organising, recording and self-evaluating, the pre-service teachers developed their identities as self-regulating learners, while the social context of the tutorial groups played a role in building positive affects by developing resilience, confidence and ownership.

Leong Yew Hoong and Chick's paper examines the complexities of the practices of a classroom teacher, in this case in a Year 7 classroom in Singapore. This case study highlights how teachers often need to perform a 'balancing act'

as they make decisions regarding how they can fulfill multiple teaching goals that are not necessarily cohesive or complementary. In particular, goals related to mathematics content knowledge and skills that need to be learned within restricted time frames might conflict with goals related to teaching mathematics with understanding, in a meaningful, interconnected way. In this way the study highlights how observations of teaching do not adequately or validly provide a picture of the purposes of a teacher's work.

The remaining paper in this volume, by Pegg and Panizzon, is much broader in scope than the others in that it involved secondary mathematics teachers from a wide range of schools over an extended period of time (2 years). Mathematics assessment was the focus on the professional development program, with the SOLO Model used as the theoretical framework to explore students' mathematics learning. There was evidence that teachers changed their views of assessment, shifting from a perception that assessment is an activity for the end of a topic, to a view of assessment as a day-to-day activity to enhance student learning.

As this volume goes to print, we are already preparing the next volume. We encourage all readers to prepare and submit papers, and we thank all those who have submitted papers so far. Finally, we thank the Editorial Board members and other reviewers who have devoted much time and effort into providing the valuable feedback that is needed to produce quality papers.