

Editorial

The Centrality of the Teacher in Mathematics Education

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The strongest defining characteristic of this journal is the emphasis placed on the critical role played by the ‘teacher’ in mathematics education contexts ranging from early childhood to university, and in other broader socio-political contexts.

As Editors, we are often called upon to make judgements about the content-suitability of manuscripts submitted to the MTED journal. Also questioned is the distinction between this journal and our sister journal *Mathematics Education Research Journal*, which publishes research on the teaching and learning of mathematics. Admittedly, there are occasionally papers that challenge our ability to make clear a differentiation. Indeed, some educators and researchers may argue that it does not make sense to separate teachers, teaching and learning. Apparently in some languages the two concepts of ‘teaching’ and ‘learning’ are covered by the same expression, because they take place simultaneously. An interesting debate could be formed around the question as to whether one can exist without the other. Sometimes the analogy of ‘two sides of the same coin’ is used to model the relationship between teaching and learning, but this may not be accurate, as it assumes an equal and reciprocal relationship. Each side of a real coin is structurally dependent on the other, but the same ‘equal-and-opposite’ interdependence does not seem to be true of teaching and learning. Consider your own responses to the following questions: Can teaching take place without learning? Can learning take place without teaching? Now let’s shift the wording a little: Can teachers teach without learners? Can learners learn without teachers? If we continue to play with the wording some more interesting questions arise: Can teachers be learners? Can learners be teachers?

MTED is not focussed as much on ‘teaching’ as it is on ‘the teacher’. The research published in this journal addresses a myriad of diverse questions about how teachers ‘become’, how they evolve and how various policies and curricula interact with their development as practitioners. The term ‘teachers’ is used in the broad sense to encompass the varied roles of educators in early childhood settings, schools, colleges, universities and other situations where purposeful mathematics education takes place. As suggested by the series of questions above, the roles of teacher and learner are sometimes blurred, occur simultaneously or are even reversed. For example, pre-service teachers are predominantly in a learning mode, but are frequently required to position their thinking as teachers, as they work with mathematics educators in *their* role as teachers.

Teaching mathematics is different to teaching other curriculum areas. Teaching a specific piece of mathematics is often quite different from teaching

another piece of mathematics. And the teaching of mathematics will differ across contexts shaped by various curricula, cultural and social influences and physical environments. With such variation and complexity, we suspect we will never exhaust the research questions that need to be answered and phenomena that need to be theorised. Therefore this journal provides a useful medium for disseminating findings and contributing to the mathematics education community's understanding of the centrality of the teacher in mathematics education.

The journal has increasingly attracted researchers from around the world, highlighting both the similarities and differences of socio-political contexts. While the readership still appears to be predominately Australasian, it has become important for all authors, both Australasian and international, to clearly explain the context of their work and their conclusions. Feedback from reviewers also often calls on authors to be mindful of an international audience when connecting to previous research.

The contents of this issue of MTED illustrate well the variety of issues and perspectives that are relevant to the journal, while each sharing the central focus on understanding the 'teacher'. The first two articles, with authors from Canada, Israel and Australia, examine the issue of the mathematical knowledge acquired by pre-service teachers in their professional preparation for teaching children in primary schools, in two different countries. While both studies reveal concerning gaps in prospective teachers' mathematical understanding, the potential of teacher education courses to improve content knowledge alongside pedagogical content knowledge is suggested. Of note in these articles is the fine-grained data collection and analysis methods employed by the researchers to build convincing evidence for their interpretations and conclusions.

The third article, from the USA, provides some insights into the role of the facilitator in professional development activities. This under-researched role appears to have multifaceted influences on teacher development, with the potential to promote teacher motivation for learning and change, but, interestingly, also suggests that a single facilitator may not be able to fulfil all the required facets for the range of participant needs.

The fourth article, set in the UK, explores the responses of teachers to innovation in a mathematics curriculum and reveals the individualised and complex reactions of teachers as they seek to adjust their practice. This article, along with the other three articles, illustrates the value of 'theorising' in research dissemination, even when the steps towards theory building are only initial or tentative steps.

Prospective contributors to MTED would do well to recognise the efforts made by the authors featured in this issue to connect to the international research around their particular research topic. It is also worth noticing the attention the authors have given to explaining the cultural-political contexts of their studies, thus enabling readers from other contexts to better understand both the limitations and the applicability of the research findings to their own contexts.

The Editors look forward to receiving many more articles that will broaden, in the global sense, our understanding of teachers, their education and their continuing development.