Editorial

Sabre Rattling or Genuine Change

Mary Klein, Ian Putt and Gloria Stillman

In the history of mathematics education in Australia there have been two organisations which, over the years, have involved many mathematics educators from the tertiary sector. The Mathematics Education Research Group of Australasia [MERGA] which began in 1977 was representative of people from all over the country and, more recently, the south west Pacific and south east Asian regions. On the other hand the Mathematics Education Lecturers' Association [MELA] began as an organisation of lecturers in teachers' colleges in New South Wales in 1973 and then gradually expanded to include people from other states. The decision was made to amalgamate the two organisations in 1997. In order to maintain an avenue for the dissemination of innovative practices in mathematics education and discussion of issues which affected lecturers and their roles this publication – *Mathematics Teacher Education and Development* [MTED] – was proposed and has now become a reality with this first issue.

A decade ago Ellerton and Clements (1989) conducted an historical analysis of mathematics teaching and teacher education in Australia, and lamented the pervasiveness and tenacity of "the persistent stereotypical image of school mathematics as something that needs to be drilled into children" (p. 13). They advocated "constructivist" approaches to teaching in schools and Universities as a way of moving forward. This was reinforced in the report titled Discipline Review of Teacher Education in Mathematics and Science (Speedy, 1989). Learning and change were seen to be dependent on collaborative social engagements where learners solved problems together and investigated and communicated their findings on challenging issues. Thus, the new knowledge could more readily be seen to be "owned", and more readily applied in context, by the individual who had (re)constructed it.

As we embrace the year 2000, it may be a salutary experience to ponder where the future might take us in mathematics teacher education and research. Three articles which report on attempts at reform in teacher education are those by Merrilyn Goos, Sandy Schuck, and Shelley Dole, Steven Nisbet, Elizabeth Warren and Tom Cooper. Each of these articles focuses on learning communities, stressing the social and cultural aspects of knowledge growth.

Merrilyn Goos adopts a sociocultural perspective on learning as a theoretical rationale for classroom reform and reform in teacher education. Merrilyn examines how the zone of proximal development can be used to enhance learning in a secondary classroom community and in a teacher education program where a mentor scaffolds a preservice student's post lesson reflections.

Sandy Schuck argues that a learning community can be a powerful agent in helping students reflect on their own beliefs, and that computer-mediated

conferencing tools can be usefully employed in an electronic learning community. Shelley Dole, Steven Nisbet, Elizabeth Warren and Tom Cooper also set up a community of inquiry where they worked with primary teachers on a professional development program to improve assessment and teaching practices.

The meta-theoretical framing of each of these studies is that teachers and preservice teachers, seeing and knowing mathematics teaching and learning differently through their involvements in intellectual debate and discussion in learning communities, will also (re)construct their teaching practice to reflect greater learner participation and collaboration.

Mary Klein regards the learning community, and the interactions and participants within it, as problematic. She questions the adequacy of contemporary notions of teacher agency which are framed within humanistic understandings of the individual as freely able to act competently and autonomously. She also suggests that teacher education programs may actually position the students as almost totally reliant on help and approval from the lecturer and classroom superviser. Margaret Walshaw, too, directly challenges the assumptions and practices of contemporary teacher education. She suggests that what we have come to know as teaching is now seriously undermined by social theories of the postmodern.

Though much has been achieved in preservice teacher education and professional development programs, though many issues have been researched and papers written, there is still much to be done. As Fred Biddulph makes clear in his paper many preservice teachers themselves leave school with very poor understanding of relatively simple mathematics. Furthermore, they have deeply negative feelings and attitudes towards the subject of mathematics which are quite debilitating for potential teachers. Robyn Zevenbergen, in her practical paper attempts to redress both problems when she describes how preservice teachers engage in the construction and assessment of posters which visually represent mathematical concepts. In this instance, preservice teachers need to know the mathematics, and they need to know at least one way of representing what they know to others.

Julia Horring, Judy Paterson and Bill Barton address an issue that is highly relevant for most mathematics educators, namely, the determination of "future effectiveness" of preservice teachers when they are undertaking practice teaching experiences in schools. They address students' subject matter knowledge and their pedagogical knowledge in the context of being observed by lecturers using a classroom observation schedule and a holistic impression or 'gut feeling' for a small number of lessons. Their paper raises the question of whether or not the notion of 'effectiveness' will be manifested similarly in all school contexts in a variety of cultures and socio-cultural groups.

As founding editors it has been an exciting and challenging task to solicit articles from colleagues in Australasia and to piece together this first issue of the journal. We have appreciated the critical comments of many colleagues within the academic community who have acted as referees at short notice and the way that people have produced papers under extremely difficult time pressures.

References

Speedy, G. (1989). *Discipline review of teacher education in mathematics and science.* Canberra, ACT: Australian Government Publishing Service.

Ellerton, N., & Clements, M. A. (1989). Changing the image of primary mathematics teacher education in Australia. In *Mathematics educators in Australia: Imitators or initiators?* (Proceedings of the 8th biennial conference of the Mathematics Education Lecturers Association pp. 12-29). Bathurst, NSW: MELA.