

# Statement on Research In Mathematics Education

(REVISED 2002)

MERGA is a professional association for researchers in mathematics education. This statement on research has been developed as a stimulus for discussion among members and other researchers on the purposes and processes of conducting research in mathematics education. It will be reviewed by MERGA from time to time.

## **The Contribution of Mathematics Education Research**

Mathematical knowledge is important for all citizens of Australasia in helping them to manage their social and personal lives and participate in and contribute towards the cultural, social and economic achievements of our diverse nations. A strong mathematical sciences base plays a critical role in economic development and is essential to maintaining a place among leading scientific, and technological societies. We also believe that mathematical knowledge of all kinds is a significant form of cultural capital that should be recognised and valued in its own right.

The quality of initial preparation and professional development of teachers of mathematics is central to the development of culturally, technologically and scientifically literate citizens. Research in mathematics education must include the needs of prospective teachers of mathematics and ways of meeting their professional needs as practitioners.

MERGA believes that:

- research on the teaching and learning of mathematics is essential for the development of mathematically literate citizens who can participate fully in shaping and enjoying Australasia's future;
- teaching of mathematics at all levels should be informed by research on teaching and learning;
- initiatives of governments or other agencies in teaching, curriculum, and teacher development should be based on findings of quality research and that if relevant research cannot be identified then it should be commissioned;
- formal and professionally conducted research into the effectiveness of mathematics teaching, curriculum policies, and teacher development programs on a periodic basis will contribute to strong educational systems;
- there is a need for government funding of research in mathematics education particularly by state and federal governments and by school systems;
- since the whole community is served by an improvement in the quality of learning of mathematics, commerce and industry should sponsor research and development in mathematics teaching and learning.

## **Focus of Mathematics Education Research**

MERGA believes that the needs of mathematics learners are best served by mathematics education research which:

- informs and improves practices and policy in mathematics teaching and learning;
- builds on existing research and identifies key issues for future research;
- addresses community priorities and goals but is not constrained by them; and
- is sensitive to the needs of individuals, including attention to equity and social justice.

## **Conducting Research**

MERGA believes that mathematics education research must be done with sensitivity to the diverse cultural backgrounds within Australasia and in accordance with the highest ethical standards.

Researchers should be aware that their personal and cultural perspectives may shape the research processes in which they engage and that making these perspectives explicit in the dissemination of their work might enhance the quality of the findings. In cases of research commissioned by government, quasi-government and commercial agencies especially, researchers should explicitly acknowledge the source of funds used to conduct their research. Researchers should ensure that data are collected on the basis of the informed consent of all research participants and should ensure that all arrangements entered into with participants relating to the conduct and findings of the research are met. These, for instance, may include confidentiality of the data and processes for ensuring anonymity of participants. It is assumed that researchers have negotiated the ownership of data at the commencement of the research.

The cultural contexts of the research should be fully acknowledged and for cross cultural research genuine partnerships formed with relevant communities. Where appropriate, researchers should ensure that the focus, interpretation and ownership of research is determined jointly with members of the relevant community.

MERGA believes that mathematics education researchers maximise the potential usefulness of research when they:

- ensure that the research questions, the theoretical framework, the methodology, the analysis, and the reporting of a particular study are mutually compatible;
- have all research methods, tools and results open to scrutiny;
- appreciate the objectives of learning mathematics and are familiar with relevant education contexts, or work with researchers who do;
- have appropriate training or experience in the research tradition used, and understand the relevant research tools;
- follow procedures for approval of research, from sites, systems and institutions including addressing ethical issues.

## **Publishing Research**

MERGA believes the publication of reports of research are integral to the research process.

Intellectual property concerns are important and issues of joint authorship among contributors to the research should be resolved with due regard to the principles of equity and open discussion. Contributions to the research other than by authors should be appropriately acknowledged.

A high quality refereeing process is central to the publication of quality research and should contribute to the development of researchers. Such a process is characterised by confidentiality, integrity, and punctuality.

### **The role of MERGA in supporting research**

#### *Publications*

MERGA supports research through the publication of quality journals and a four yearly critical review of Australasian research conducted by members, through an annual conference, participation in peak industry bodies, and through other mechanisms such as seeding funding for publications by members.

The Mathematics Education Research Journal is an international journal for the publication of research on the teaching and learning of mathematics at all levels. Submission of high quality papers in any area of mathematics education research is invited. The Journal aims to promote exchange and dissemination of research across a wide range of approaches and methodologies. The journal editor(s) is/are appointed by the Executive. The Editorial Board members are invited by the editor(s) and endorsed by the Executive. A majority of the Editorial Board are MERGA members.

Mathematics Teacher Education and Development is an international journal that focuses on teacher education in the broader sense. Articles on a diverse range of pertinent topics are acceptable, including research reports and evaluations of research methods.

The four-yearly critical review of Australasian research, Research in Mathematics Education in Australasia, consists of chapters in which a comprehensive overview of mathematics education research and other research pertinent to mathematics education are critically reviewed. The editors are appointed by the MERGA Executive. The editors of the review and all chapter authors are MERGA members. The works reviewed include those that have been published or presented by Australasians in the relevant four year period, or that have particular relevance to Australasia. The cited research must be accessible, published in national or international journals, books or refereed conference proceedings, presented at major national and international conferences, or completed as masters or doctoral level theses. The four-yearly review is published by a recognised commercial press, has an ISBN, and is offered for sale.

#### *Annual conference*

The MERGA conference is held annually in various centres across Australasia. It offers a forum for the presentation of papers in which research, critical reviews of research or significant reviews of a body of literature are reported. The MERGA conference is also suitable for reports of components of larger studies, theoretical

papers, confirmatory studies that attempt to replicate projects conducted elsewhere, research in progress, research in which innovative methodologies are used or in which conventional methodologies are adopted in new ways. A forum may also be provided for members to discuss, plan, or develop research designs for newly conceived projects.

### *Informing policy*

MERGA seeks to contribute to policy formulation about mathematics education and education research through participation in peak bodies such as the Australian Mathematical Sciences Council, and through active collaboration with other associations such as the Australian Association of Mathematics Teachers.

### *Early researchers*

MERGA supports research and the training of researchers by:

- sponsoring special interest groups and symposia which allow researchers in similar areas to meet and communicate;
- supporting awards to recognise quality research, including the Practical Implications Award and the Early Career Award;
- supporting new and experienced researchers through initiatives such as, for example, research workshops on methodology, and other activities or facilities as may be determined by the membership from time to time.
- supporting doctoral students to travel to MERGA conferences.