



**Mathematical Association of Victoria
Submission
to the
Parliamentary Inquiry
into
Pre-Service Teacher Education
In Victoria**

**Submission prepared by
the President and Council
of the MAV
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1. Background

The Mathematical Association of Victoria (MAV) is the key professional association representing primary and secondary teachers of mathematics in Victoria. The MAV has over 1700 members (including over 1200 schools) and in 2006 celebrates 100 years.

The MAV Council has representatives from Primary, Secondary (Independent, Catholic and State) and Tertiary sectors. Through its membership the MAV Council has vast experience and knowledge in regard to mathematics education in Victorian schools. Its members are represented on most key decision making bodies regarding mathematics education in Victoria. The MAV has representation Nationally through its representatives on the Council and Executive of the Australian Association of Teachers of Mathematics. Some members of the MAV Council are directly involved in pre-service teacher education and all are vitally committed to and interested in improving mathematics education in our schools. The members of Council of the MAV are practising teachers, principals, heads of faculty, lecturers, researchers and/or mathematics consultants.

2. Australia's Teachers: Australia's Future.

The recent report of the Australian Government, Australia's Teachers: Australia's Future. Advancing Innovation, Science, Technology and Mathematics, stated

‘High quality teacher education, and the high quality teaching it enables, are directly and strongly linked to student achievement.’ p. 33

The Agenda for Action emanating from this report makes several useful and timely recommendations relevant to the terms of reference of the Parliamentary Inquiry.

This submission attempts to point to the Actions felt to be of value and indicate how they relate to the Terms of Reference. It also attempts to add additional recommendations that are felt to be important and not covered by the Agenda for Action.

3. Terms of Reference

To facilitate reading of this submission, the terms of reference have been numbered as follows

1. future requirements of such courses to train teachers appropriate for future schooling;
2. the particular training needs and arrangements for mature-age entrants from other professions - and, in conducting the inquiry, the Committee is to:
3. determine the range and nature of pre-service teacher training courses within Victoria and the variation among these courses in areas of contact and practicum time, and in course focus on content and pedagogy;
4. examine a range of pre-service teacher training courses across Australia and internationally, focussing on how these courses differ and how they meet the needs of teachers and education systems for the 21st century;
5. determine the skills and knowledge required of teachers, and therefore of pre-service teacher training courses, in response to reflect the changing nature of education in the 21st century;

6. examine issues related to attracting people from other professions to become qualified teachers in Victoria; and
7. make recommendations on specific requirements for pre-service teacher training courses, based on the skills and knowledge required of teachers in the 21st century and to support increased entry of mature-age entrants from other professions.

4. Declining numbers and standards.

While the numbers in teacher education have increased since 1995, there has been a decline in the proportion of science and mathematics teachers entering teacher education courses. This decline is most dramatic in regard to males entering teaching.

Lowering entry standards is not the solution. While the MAV appreciates that knowledge of subject is only one aspect of effective teaching, it is clear that current minimum standards for teaching mathematics in Victorian schools are inadequate or non-existent.

Furthermore, low completion rates (only about 30% of those enrolling are ultimately being employed in schools) suggest that more stringent entry standards and a better matching of entrants to the qualities required of a professional teacher would go some way to raising the rates of course completion and entry to the profession.

Recommendation 1:

The MAV believes that the qualifications to teach mathematics in Victorian (and Australian) schools should be steadily raised over a three-year period.

The following is illustrative rather than definitive.

	2006	2007	2008
Early years (P-4)	Unit 1/2 VCE any mathematics Plus pass in appropriate mathematics component of Pre-service Teaching Course	Unit 1/2 VCE any mathematics Plus pass in appropriate mathematics component of Pre-service Teaching Course	Unit 1/2 VCE any mathematics Plus pass in appropriate mathematics component of Pre-service Teaching Course
Middle years (5-8)	Unit 1/2 VCE Methods or equivalent Plus pass in appropriate mathematics component of Pre-service Teaching Course	Grade D or better Unit 3/4 VCE Methods or equivalent Plus pass in appropriate mathematics component of Pre-service Teaching Course	Grade C or better Unit 3/4 VCE Methods or equivalent Plus pass in appropriate mathematics component of Pre-service Teaching Course
Senior years (9-10, any Unit 1/2 and 3/4 Further Maths or equivalent)	Grade B or better Unit 3/4 VCE Methods or equivalent Plus pass in appropriate mathematics component of Pre-service Teaching	Pass First Year Tertiary Mathematics or equivalent Plus pass in appropriate mathematics component of Pre-service Teaching Course	Pass Second Year Tertiary Mathematics or equivalent Plus pass in appropriate mathematics component of Pre-service Teaching Course

	Course		
Senior years (Unit 3/4 Methods and 3/4 Specialist Mathematics or equivalent)	Pass First Year Tertiary Mathematics or equivalent Plus pass in appropriate mathematics component of Pre-service Teaching Course	Pass Second Year Tertiary Mathematics or equivalent Plus pass in appropriate mathematics component of Pre-service Teaching Course	Pass Third Year Tertiary Mathematics or equivalent Plus pass in appropriate mathematics component of Pre-service Teaching Course

5. Teacher Workforce Planning

More information and research is urgently required into building the long-term capacity of the teaching profession in general. For example, more needs to be known about the intentions and motivations of those likely to leave, and those likely to enter the profession.

Recommendation 2:

The MAV supports Action 11 of the Agenda for Action, Australia's Teachers: Australia's Future. Advancing Innovation, Science, Technology and Mathematics, page 17.

Action 11: Research be undertaken on the working lives of teachers (of mathematics), their professional aspirations and ways in which changed conditions of schooling and employment might enhance the attractiveness of careers in teaching.

Recommendation 3:

The MAV believes that making mathematics teaching more attractive by introducing a range of measures is imperative and urgent. While it is reasonable for beginning teachers to have provisional registration for the first year of service, it is not reasonable that, given satisfactory completion of registration, an on-going position with financial security (especially over the summer vacation) is not automatic.

The new measures should include

- financial incentives, including scholarships and HECS payment. (See Action 21: Agenda for Action, 2003 and Submission to the Higher Education Review by the National Committee for Mathematics.)*
- automatic access to on-going positions after satisfactory completion of beginning registration requirements*
- starting salaries and improved career paths that compare favourably with other careers accessible to graduates. For secondary teachers of mathematics in particular, salaries and career paths need to compare favourably with those available in careers accessible to mathematics graduates.*
- appropriate career pathways and financial incentives for accomplished teachers of mathematics assessed against the AAMT Standards for Excellence.*

The MAV believes that these improvements to conditions would encourage both course completion and entry to the profession. They would also go some way to attracting people from other professions to become qualified teachers in Victoria. (Terms of Reference numbers 2, 6 and 7).

6. Attracting more Indigenous teachers

Numerous studies show that indigenous students consistently underachieve in Australian classrooms but particularly in mathematics. Prospective Indigenous teachers need to be attracted to the profession in greater numbers.

Recommendation 4:

The MAV endorses Actions 17, 18 and 19 of Agenda for Action, Australia's Teachers: Australia's Future. Advancing Innovation, Science, Technology and Mathematics, page 21. In addition, the MAV recommends that all pre-service teacher training courses in Victoria include options for teachers who wish to specialise in, or improve their knowledge of, indigenous mathematics education. These options need to be developed in consultation with, and preferably offered by, key indigenous educators. (Term of Reference number 1, 3, 4 and 7)

7. The nature of pre-service teacher education in mathematics

The MAV commends the work of the mathematics educators currently teaching pre-service teaching courses in Victorian universities. Without exception, these educators are dedicated to their students but also actively involved in the professional development of all teachers, not just those beginning to teach. They are major contributors to the Professional Development programme offered by the MAV.

The MAV values teacher education programmes in mathematics that have a strong but flexible mathematics content component; that emphasise pedagogy based around collaborative and problem-based learning; and that encourage reflective and adaptive teaching practices fostering learning, success and enjoyment for all students.

It is unclear, however, how school principals, heads of mathematics departments or new graduates themselves regard pre-service mathematics education.

Recommendation 5:

The MAV recommends that a survey of Principals, Heads of mathematics and teachers in their first three years of service be conducted in regard to the quality of the pre-service mathematics education delivered. In particular, how did the pre-service education prepare beginning teachers in regard to knowledge of mathematical content, knowledge of pedagogy and other related issues such as technology, assessment, resources, class room management etc. A related but different survey should also be conducted of tertiary mathematics educators seeking suggestions for improvement.

On the basis of the findings from these surveys, further recommendations would be developed. (Term of Reference number 1, 3, 4 and 7)

Teacher education and development does not occur only during pre-service training. Most development and learning takes place at the school level and is ongoing. The MAV supports the strengthening of the relationships between schools and teacher education faculties. In this regard, the MAV wishes to highlight the need for the more time at the school level for induction, reflection and mentoring.

Recommendation 6:

The MAV supports Actions 33 to 37, Australia's Teachers: Australia's Future. Advancing Innovation, Science, Technology and Mathematics, pages 36 and 37. These actions are practical, take advantage of existing accomplished teacher knowledge in schools and impact directly on the nature, design, philosophy and scope of pre-service teacher education and training. (Term of Reference number 1, 3, 4 and 7)

The Mathematical Association of Victoria sincerely trusts that this submission is helpful to the inquiry and thanks the Parliament for the opportunity to respond.

Ray Peck

President on behalf of the Council of the Mathematical Association of Victoria

Dated 6 April 2004