# National Curriculum Development

## and initial reflections on the Mathematics Framing Paper

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The *National Mathematics Curriculum Framing Paper* has been released for consultation until 28 February 2009 (see www.ncb.org.au). Professional associations, teachers, teacher educators and others are taking this opportunity to organise meetings and forums to consider the views presented in the paper and to provide critical feedback and commentary on the proposed broad directions. The University of Sydney held a National Curriculum Symposium in December to bring together teachers, school system personnel, academics and representatives from the National Curriculum Board to have a "robust and broad ranging discussion" about the four framing papers released by the NCB: English, Mathematics, History and the Sciences.

The program for the symposium began with a presentation by Professor Kerry Kennedy about his reflections on national curriculum in Australia over the last 30 years. This was followed by brief presentations by each of the authors of the framing papers. Discussion groups for each of the disciplines considered key questions about the papers with feedback from each group. Finally Rob Randall, the acting Director of the NCB commented on the challenges identified by the discussion groups. In this paper, I summarise the comments and discussion about curriculum development in general and the *National Mathematics Curriculum Framing Paper* in particular. I hope the comments provide a catalyst for discussions at your school or workplace.

Professor Kerry Kennedy (Hong Kong Institute of Education), a Fellow of the Australian College of Education and a life member of the Australian Curriculum Studies Association, set the scene for the discussions by presenting his reflections on federal government responses and commitments to national curricula. With reference to Susan Ryan, John Dawkins and Julia Gillard, he noted concerns about educational standards and the nation's economic needs with the suggestion that a nation's curriculum is a reflection of its values and vision, which should not be concerned with deficits but needs to be visionary. The importance of community commitment and consultation was emphasised so that the curriculum is less

contested and supported — an approach adopted in Hong Kong with recent curriculum reforms involving several years of consultation. Kennedy's critical commentary noted that a national curriculum is not a panacea for the nation's problems; rather, it must be a collective enterprise concerned about social justice, equity and culture.

To provide a context for what follows, the summary points from the *National Mathematics Curriculum Framing Paper* are presented below (National Curriculum Board, 2008, p. 1, paragraph 15).

> In summary, this framing paper argues that:
> - mathematics is important for all citizens
> - some students are currently excluded from effective mathematics study, and the curriculum and school structure should seek to overcome this
> - a futures orientation should be evident in both the emphasis on thinking and creativity, and in the embedding of appropriate use of digital technological tools
> - numeracy should be both embedded and specifically identified within the mathematics curriculum
> - all aspects of the curriculum should be clearly and succinctly described
> - more important topics should be emphasised, with a goal of reducing the extent to which teachers feel the need to rush from topic to topic
> - advanced students can be extended appropriately using challenging problems within current topics.

In his brief comments about the *Mathematics Framing Paper*, Professor Peter Sullivan (Monash University and leader of the Advisory Group for the paper) mentioned many of the summary points made above. He noted the proposed structure of the curriculum, describing the three content strands (Number and Algebra, Measurement and Geometry, Statistics and Probability) and associated topics as "nouns" and the proficiency strands of Understanding, Fluency, Problem solving and Reasoning as "verbs." The mathematical actions associated with the verbs were emphasised as critical to developing citizens who are able to use mathematics in important ways. Sullivan noted that a key challenge for success is that all students should have access to all mathematics until the end of Year 9.

Discussion groups considered a set of questions about the political, organisational, professional, educational and structural agendas contained in the presentations and provided in the framing papers for each of the four disciplines. For mathematics, there was general agreement that the Framing Paper provided a good start for discussions, particularly with the recommendation to design the curriculum from the early years to upper secondary. The four proficiency strands were considered critical to developing deep understanding and facility with important mathematical ideas. We do want a curriculum that engages all students, respects the discipline of mathematics, and enables students to be well prepared for mathematics beyond the classroom. Having high expectations and providing enrichment opportunities at all levels of schooling were aspirational goals supported by participants at the symposium.

Concern was expressed about the development of the literacy and numeracy frameworks, the links to national assessment, time for further consultation before implementation, and the implementation time frame. To be successfully implemented across all disciplines, comments were made about the timeframe for the development of both the literacy and numeracy standards. A recommendation was made that these need to be developed before, and independent of, the writing of the English and mathematics curricula. This would ensure writers of all discipline papers would be in a

position to integrate the recommendations into their respective subject-specific curricula.

The amount of advice provided in any curriculum document, which is deemed necessary to support all teachers in all contexts, is always a difficult question to answer. We are well aware that some teachers of mathematics require more assistance and support than others. We must treat teachers as professionals and allow them the autonomy to make appropriate decisions to meet the needs of their students. However, we must also ensure we continue to have high expectations and that the curriculum emphasises what is important for all students to know. Less detail would help to emphasise the important mathematical ideas.

If all strands are to be implemented successfully, teachers need appropriate advice about teaching, learning and assessment. To support this, standards for the proficiency strands need to be clearly articulated. Assessment programs within classrooms as well as at the national level need to appropriately assess the proficiency strands (the verbs) as well as the content strands (the nouns). While reassurance was provided at the symposium that teachers would be consulted about the development of the curricula and support materials and that materials would be trialled in schools, meeting the projected timeline of implementation in 2011 seems ambitious if we are going to have the best curriculum for our students.

While Framing Papers are the technical elements of national curriculum reforms, it is imperative that we consider implementation and the needs of teachers and their students. National curriculum development must focus on what is best for all students and acknowledge that one size does not fit all. There will need to be a balance between consistency and equity. Teachers need resources and support with acknowledgement that they always try to do their best for their students. While government legislation will ensure the implementation of the curriculum, the work of teachers in schools throughout Australia will be what makes a difference to the lives of young Australians. It is imperative that all teachers consider the recommendations and provide feedback at every opportunity. Finally, professional associations like AAMT are able to play a key role in lobbying for more time for consultation and providing critical commentary based on teacher consultation. The AAMT position on national curriculum in Mathematics is available on the AAMT website at:
www.aamt.edu.au/Documentation/Statements/National-Curriculum.

From Helen Prochazka's SCRAPBOOK

At the age of 11, I began Euclid, with my brother as my tutor.
This was one of the great events of my life, as dazzling as first love.
I had not imagined that there was anything so delicious in the world.
Bertrand Russell, mathematician and philosopher
(1872–1970)