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Newsletter of The Australian Association of Mathematics Teachers Inc.
September 2016

From the President

The *AAMT 50: Directions* conference at Ayers House in Adelaide on 7–8 July was a huge success. The participants were taken on a journey into the past, looked at the present and started to plan for the future. The keynote speakers, Robert Randall (ACARA) and Merrilyn Goos (The University of Queensland), generated plenty of discussion.

The ICME conference, 24–31 July in Hamburg, was well attended by many Australian maths educators. Everyone experiences ICME in different ways. The working focus of the conference was in Topic Study Groups which people signed up for in advance. These covered many themes, ranging across the primary and secondary years, including teaching mathematics at university level.

For the first time, all the ICME plenary sessions have been uploaded on the web: https://lecture2go.uni-hamburg.de/veranstaltungen/-/v/19780. AAMT Life Member Max Stephens reported that several of the plenary sessions that might engage Australian teachers are: Günter Ziegler's lecture on "What is mathematics"; Bill Barton's "Mathematics, education and culture: A moral imperative"; and Deborah Ball's plenary on "Uncovering the special mathematical practices of teaching". But these are personal preferences. The others are also well worth a look.

The NAPLAN results were released in August. It is pleasing to see that the numeracy results for Year 5 saw significant gain compared to 2008; however, on a national level, the results have shown no significant improvement across the domains and year levels from 2015. The NAPLAN test will be trialled online next year using a tailored test design. This will provide teachers and schools with more targeted and detailed information on their students' performance. Pleasingly, the results will also be released more quickly.

Simon Pryor, the CEO of MAV, has retired after 13 years of service. He was awarded Life Membership in recognition of his great contribution to the MAV at a farewell celebration in Brunswick on Thursday 18 August. Peter Saffin will be the new CEO. He comes highly recommended from the Macmillan International Publishing company.

The AMSI Choose Maths Awards were presented in Melbourne at the Leonda Function Centre on Friday 26 August. Schools from remote, rural and metropolitan areas from around Australia were well represented. Congratulations to Janine McIntosh, the Choose Maths Program Director, and her team. You can read more about the five-year project, which was made possible through the support of the BHP Billiton Foundation, at http://choosemaths.org.au. More about the awards is included in this newsletter.

Members are aware that 2016 is the first year of the *reSolve: Mathematics by Inquiry* project. As a result, there is quite a lot happening, as reported later in this newsletter. In our partnership with the Australian Academy of Science, AAMT's main role is to engage the profession in the work of the project.

I would encourage you and your colleagues to link up with the project. Although the project will not conclude until mid-2018, it is designed to involve teachers and schools from its very earliest stages. Your ideas and feedback will help the development team produce materials and approaches that work in real classrooms—and staff rooms. The spin-off for you will be early access to some exciting work.

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From the CEO

I recently heard a talk from an internationally recognised mathematics education researcher. She began as a primary teacher who moved into academia, developing a significant reputation for her classroom research. I was pleased to have the chance to hear from someone famous for her insights into teaching mathematics.

There was no time for questions at the end of the one-hour address to a large audience. This was unfortunate, as by the end of the address I was feeling angry. Why? The talk centred on a relatively short video of a classroom that was pulled apart in great detail, in a way that presented teaching mathematics as extraordinarily complex, with teachers making decisions and taking actions that are seemingly life-changing for students every few seconds.

Teachers know that teaching mathematics is complex. I didn't find it at all helpful for that complexity to be analysed in such detail. I felt that many teachers in the audience would feel as though teaching mathematics well—what they aim to do—was presented as being beyond any mortal being.

As an aside, I sounded off to a colleague who was also at this presentation. His view was that the presenter spoke as though she was addressing a group of politicians to convince them that teaching mathematics is a complex task that therefore requires their support for it to be done well (certainly true) and not an audience that included teachers. It is a different and more charitable take than mine, but one that has helped me see a different possibility and get over being angry.

What this talk lacked was any sense of how teachers can work with the complexity as best they can without being the 'super-teacher' from the presentation.

I don't have the presenter's reputation, but I want to make a few contributions based on my experience. I hope they are useful.

I am probably oversimplifying, but something I learned from John Mason is that, as a teacher, it is worthwhile to pause for a moment, at the very least, to think, and not necessarily say the first thing that comes into your head.

Consciously saying or doing nothing in a teaching situation might then actually be the best choice. I vividly recall a time when a couple of boys asked me a 'killer' question—in the moment I couldn't work out what to say without giving things away. I wanted them to struggle some more. So I looked out the window, said, "There's a basketball on the gym roof," and walked away—to give myself time to think.

But perhaps my most important message is one that was completely absent from the presentation that prompted these thoughts. It is that in busy mathematics classrooms we frequently miss things or get them wrong. That is normal and to be expected. Being alert and reflective, and prepared to revisit teaching decisions or try something different is central to the professional practice of teaching mathematics.

In summary, the complexities of teaching mathematics are real and extensive. Teachers need to be alert to the complex factors that can have an impact on students' learning of mathematics, and be professionally supported with access to options and strategies. Navigating the complexity as best they can is what teachers should expect of themselves, and all that anyone can ask.

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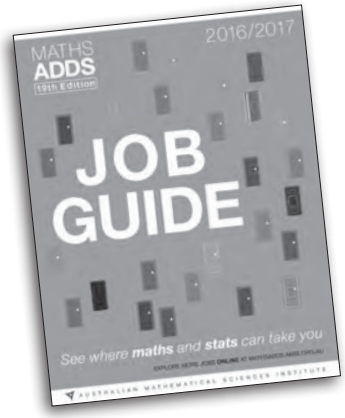
Maths Adds

Maths Adds is a career publication which features job advertisements that have recently appeared online. In addition to the newly-released 19th edition (available as PDF or hard copy), there is now the Maths Adds website which features over 100 job ads illustrating mathematical and statistical career pathways, as well as profiles of students and employees, links to industry graduate programs and more. Go to http://mathsadds.amsi.org.au.



ACARA STEM Connections Project Report

Last year, AAMT partnered with ACARA to investigate an integrated approach to the teaching of science, technology, engineering and mathematics (STEM) in secondary schools.

Thirteen schools around the country were supported to develop projects which brought together the STEM subjects within a context of future work and/or learning opportunities. The report outlines the projects that were undertaken and the different ways that teaching teams placed this learning into their schools. It describes the benefits and the challenges of the integrated STEM approach for students, teachers and their industry partners.

You can read the report, watch videos of some of the schools in action, and view annotated student work samples on the ACARA website at http://resources.australiancurriculum.edu.au/stem.

Choose Maths Awards

The Australian Mathematical Science Institute's Choose Maths Awards were presented on Friday 26 August at a ceremony in Melbourne. Supported by the BHP Billiton Foundation, over $69 500 was distributed in awards, with over 180 students, teachers and parents present for the ceremony.

The top teacher prizes for Mentoring Girls in Mathematics were presented to Stacey King from Mabel Park High School (Qld) and Peter Chandler from Penrhos College (WA) who each received $10 000 for personal development as well as $10 000 grants for their schools. An additional eight $1000 General Excellence Awards were presented to teachers and schools across the country.

There were also awards presented to 10 student teams for their creative short videos interpreting the theme 'maths is more than just numbers'. Danebank Anglican School for Girls's video considered how maths is necessary to address environmental issues (see https://youtu.be/eXb_9N5aGW4), while Toorak College had fun looking at geometry around the world (see https://youtu.be/nz1LUhHP41g). You can search YouTube for #CHOOSEMATHSAWARDS to see all the student entries. All the finalists were very proud of their achievements.

For more information about the project and awards, go to http://choosemaths.org.au.

National Literacy and Numeracy Week

National Literacy and Numeracy Week was held 29 August – 4 September. AAMT was again involved in the development of various numeracy activities. Even if you did not participate during the week, you might like to check out the activities at Go to www.literacyandnumeracy.gov.au for later use:

Who Won It? uses statistics in sport as a means of exploring data analysis. The activity centres on a contest between students to discover the final winner of a fictitious championship in NRL or AFL.

Which Way? comprises four spatial activities focusing on directional language. Students are encouraged to think logically, utilising a variety of tools to find their way and to guide others.

Thinkers are Winners is a series of strategy games designed to focus on the development of logical thought, mathematical reasoning and the ability to explain your thought processes.

Catch-an-Idea is your chance to catch a maths moment! Whether you're indoors or outside, looking at patterns or playing sports, in the kitchen or in outer space; maths helps make sense of the world! Students photograph a mathematics moment, caption it and share it (digitally or as a poster around the school). For example, take a photo of someone measuring ingredients, tiling a roof or a football player kicking a goal.

AAMT would love to highlight your 'Catch-an-Idea' on the AAMT website. Send a link, graphic, text or video to nlnw@aamt.edu.au. It is hoped that these ideas will continue over time and be built into a useful and inspiring online resource!

Trial materials from reSolve: Maths by Inquiry

Teachers and schools are invited to register their interest in trialling materials (F–10) in their classroom. Materials for Years 5–8 will be available from Term 3, with those for other year levels available in Term 4 and early next year.

The purpose of the trial is to offer feedback to the writing team about the lesson materials and the documentation. Tapping into the 'collective wisdom' of classroom teachers will significantly strengthen the resources. Trialling can be of two forms:

- 'Light' trialling where a lesson sequence is taught, and feedback is offered via an online form.
- Intensive or 'heavy' trialling, where an Outreach Officer will observe part or all of a lesson sequence. They will de-brief with the teacher after the lesson and record more comprehensive feedback, complete an online form, and collect photos of students' work.

Feedback is also being sought about the professional learning modules as they become available. These modules might be attractive to schools participating in whole-school or team professional learning. Schools who register their interest in the modules will be contacted separately.

Once your expression of interest has been received, you will be sent details to access the draft lesson sequences. Lesson sequences are housed in DropBox and Google Drive folders, and entire lesson sequences can be downloaded as a zipped folder or in PDF format.

For more information and to register your interest, go to http://tiny.cc/mbi-eoi-trialling or contact Matt Skoss, Manager of Maths by Inquiry (Engagement) at the AAMT office on 08 8363 0288 or email mskoss@aamt.edu.au.

AAMT50: Directions

The *AAMT50: Directions* conference was in Adelaide, 7–8 July, as part of AAMT's 50th birthday celebrations. The conference was attended by the AAMT Council, former Councillors, former Presidents, Life Members, staff, representatives of affiliates, and others with an interest in the history and future of the association—about 100 people.

The first day involved not just a lot of catching up among colleagues, but a look at the history of the association and how it and its activities have evolved since its inception in 1966. This historical view led to the second day, when delegates considered AAMT's future. After keynotes by Rob Randall (ACARA) and Merrilyn Goos (University of Queensland), delegates worked in discussion groups to consider issues in curriculum, assessment, as well as teachers and teaching—and what roles the association might have in such.

The ideas from the conference are being synthesised into a document that will be made available to members but that will be of particular consideration by the Council in its revision of the Strategic Plan.

1. Conference attendees. 2. AAMT President Allason McNamara. 3. AAMT CEO Will Morony. 4. Life Member Jeff Baxter. 5. AAMT staffers Toby Spencer, Renee Hoareau, Kate Manuel & former staffer Ann Belperio. 6. Mingling in the historic Ayers House venue. 7. Life Members Andrew Fergusson, Barry Kissane, Denise Neal, John Mack & Jeff Baxter.

At the AAMT50 conference dinner, MANSW President John Meng presented AAMT President Allason McNamara with a gift of a set of 50-sided dice to mark AAMT's 50th anniversary.

The Australian Association of Mathematics Teachers (AAMT) Inc. is a federation of:

Canberra Mathematical Association (CMA)
Mathematical Association of New South Wales (MANSW)
Mathematical Association of South Australia (MASA)
Mathematical Association of Tasmania (MAT)
Mathematical Association of Western Australia (MAWA)
Mathematical Association of Victoria (MAV)
Mathematics Teachers Association of the Northern Territory (MTANT)
Queensland Association of Mathematics Teachers (QAMT)