Annual Report: Education Committee of NZ Statistical Association: August 2011 to November 2012

Mike Camden; for AGM of Thursday 29 Nov 2012.

Statistical education in NZ schools

At conferences during the year, several people acknowledged NZ's world leadership role in Statistical education, with comments like:

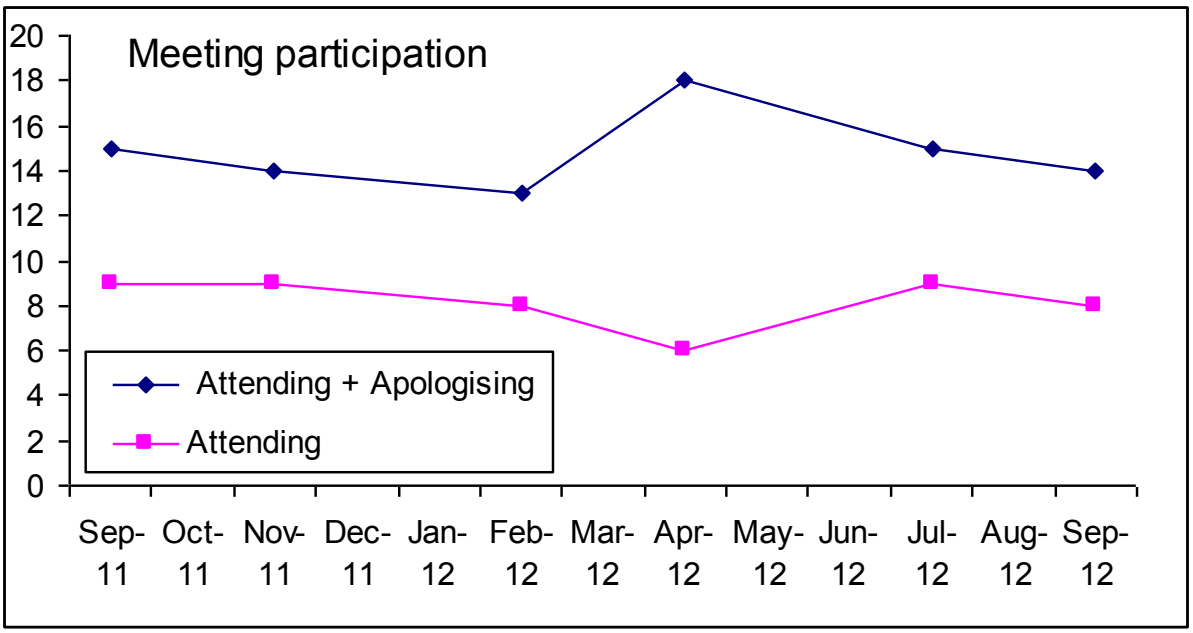
> *If you want to leap-frog into 21st century, use the Mathematics and Statistics part of the NZ Curriculum.*

Being out in front puts quite a burden on NZ teachers. Our central aim is to support them whenever possible, and to work for quality in all the resources they encounter along the way. These resources include assessment documents from the Ministry of Education and the NZ Qualifications Authority, new software, datasets, CensusAtSchool, the results of the Informal Inference project, and professional development opportunities for teachers. We've taken an interest in all of those.

We have developed very good relations with staff in the Ministry of Education and the NZ Qualifications Authority. They have actioned our recommendations on several Achievement Standards and Scholarship issues.

Meetings

Since the last conference (August 2011), we have met six times, for about 2 hours each time: in September and November 2011, and February, April, July, and September 2012. We communicated by courtesy of Stats NZ's video system and the phone systems of outlying members.



The team

The team has members in Auckland, Palmerston North, Wellington, Christchurch, Lincoln, and Dunedin. One of the committee's strengths is that it includes people with most of the

possible forms of involvement in statistical education:

Alasdair Noble (Plant and Food Research, Lincoln) (link with NZSA Executive)
Alex Neill (NZ Council for Education Research) (chair)
Matt Regan (University of Auckland)
Mike Camden (Statistics NZ)
Derek Smith (Te Aho o Te Kura Pounamu, and Otago University)
Maxine Pfannkuch (University of Auckland)
Tim Burgess (Massey University)
Pip Arnold (Cognition Education)
Lindsay Smith (University of Auckland)
John Harraway (Otago University))
Anne Lawrence (Massey University)
Sashi Sharma (Waikato University)
Chris Wild (University of Auckland)
Michelle Dalrymple (Cashmere High School, Christchurch)
Emma Mawby (Statistics NZ)
Alan Keegan (Statistics NZ)
Andrew Tideswell (Statistics NZ)
Anna-Marie Martin (Avondale College)
Marion Steele (University of Auckland)
James Curran (NZSA President) (University of Auckland)

If we need to contact the outside world formally, we do this via the president and executive.

The new NCEA standards in statistics and probability

This year, again, most of our time has gone into NCEA standards and assessment materials for them. They have been aligned with the new (2007) *NZ Curriculum*. The level 2 standards are in action for the first time this year, and the level 3 standards are finished and ready for 2013.

For the Level 3 Achievement Standards, we suggested changes, and they have been made.

For the Level 2 Achievement Standards, we arranged for improvements to the exemplar exam on probability and risk, and sought to clarify the intent of the standard on experiments.

We've worked to make time series more in line with professional practice.

Now that there are more Maths and Stats standards available, we're concerned with the choices that students need to make, in Year 13 and now in Year 12.

Scholarship

NZQA adopted all our suggestions for the Explanatory Notes and Outcome Description. For 2013, NZ will have a new Scholarship 'Performance Standard' and exam in statistics. This will assume that students have studied all the *Curriculum*'s learning outcomes in statistics.

New freely available statistical software for schools

Thanks to efforts by John Harraway, Chris Wild, and their colleagues, NZ teachers and students now have access to two state of the art analysis systems: Genstat for Teaching and Learning, and iNZight. We hope that these systems enable students to shift their energy away from the complexities of processing, to statistical thinking about the stories in the data. This liberating step is implied by the *Curriculum*'s learning outcomes.

iNZight now has a new time series item. This liberates students from the intricacies of time series processing, and enables them to think about what smoothing, seasonal analysis, and forecasting can reveal. GTL also has time series features.

We're also interested in the related issue of datasets, from Statistics NZ and other NZ sources.

Other issues

We have taken an active interest in the following issues.

2013

It is World Stats Year, and it contains major conferences: the joint IASE/IAOS Satellite in Macau, the World statistics Congress in Hong Kong; and ICOTS9 in Flagstaff Arizona is in 2014.

NZAMT13

The 13th conference of NZ Association of Maths Teachers is in Wellington, in October 2013. NZSA will help to sponsor statistical speakers. Three keynote speakers of special interest to us are: Chris Wild (NZ), Allan Rossman (USA), and Ian Stewart (UK; author of *Does God Play Dice*?).

Statistics in the primary sector

The MoE have commissioned a "consistency framework" to assist teachers make overall teacher judgements for National Standards.

CensusAtSchool

This ran successfully in 2011, and will run again in 2013. It will provide resources for all the standards.

Science Fairs

We plan to encourage better statistical work here, by getting students to be deal with variation more visibly.

Resources from Stats NZ

We see Stats NZ as well placed to provide: time series data (tons of it), reports and technical details for the learning of statistical literacy, information about questionnaire and survey design, etc.

ISLP

We contributed to the ISLP report on increasing statistical literacy in schools by describing the current state of activities to support statistical literacy at school in New Zealand: some of our best practices, and some suggestions for new activities to increase statistical literacy.

More positives to end this year with

The award-winning cross-University Honours course in Official Stats has now run for its second year. It is a great example of collaboration and fresh thinking.

John Harraway is now the president of the International Association for Statistical Education. We are honoured to have him on our committee.