

## Parliamentary Inquiry into Assessment in Maths Physics and Chemistry

The Chairperson  
Education and Innovation Committee

I have taught Mathematics for 36 years in a number of schools in Queensland as well as interstate (NSW and SA) and overseas (New Zealand, Fiji, Tonga). I have taught in both State and Private schools, and am currently a Mathematics Head of Department in a Private school in Brisbane. I have also served on the Mathematics B Panel on both the south and north sides of Brisbane. I also have completed a Master of Education with Honours in the area of Curriculum.

Since I began my teaching in the mid-70s I have seen many systems of teaching Mathematics come and go in cycles. I must say that in all my exposures to the teaching of Mathematics, I have never come across a more cumbersome and inappropriate way of assessing mathematical ability than what currently exists in the Queensland Senior Mathematics program.

The current system of criteria based assessment is confusing to me and to my students. I have tried numerous times to explain it to parents with very few comprehending it. All parents just want to know is whether their child is passing Mathematics and has an A, B or C. Some ask for a percentage, which, of course, I can't give them. I can at least do this for our Year 7 to 10 students and parents since I refuse to carry this same Senior system of criteria based assessment down into the Junior High School.

Despite my many years as a Mathematics teacher, when setting a Senior Mathematics assignment or exam, I am usually perplexed as to how to appropriately allocate the criteria to each of the questions. When it comes time to mark, I often find myself re-reading each criteria over many times to see what grade to allocate every answer a student supplies. So preparing assessments takes me at least twice as long as it used to, and marking assessments can take up to four times as long as the old system of "marks".

Another problem of criteria based assessment in Mathematics relates to interpretation of the criteria. I find that generally no two teachers agree on how to allocate the criteria to start with or how to match a student's worked solution to the criteria allocated to that question. Conversations between Mathematics teachers generally reduce down to "Based upon your experience, does it look like a B paper?" as they can't nail down the complex intricacies of the criteria. That is, they can't interpret them. I must say that I often have great difficulty in doing so myself.

Since every question gets a grade ranging from A+ to E- for every criteria that applies to that question, it then becomes the task of the Mathematics teacher to decide subjectively what to average all the grades to in order to give a grade for each criteria, and then overall. This is very, very confusing, cumbersome and subjective. One again, it reduces to "Is this a B paper?". Now if every question had a mark, like it used to be, marking would be more

meaningful and an overall percentage can be arrived at easily and quickly. Then a grade can be given.

With the current system, if a student doesn't get an A on the A questions (usually one or two) they don't get an A, no matter how well they may have done on the rest of the paper. Related to this is that a number of criteria don't emphasise that a problem has to be successfully answered. So a student can make an error or two and still be given the top grade for that question. With a numerical marking system, this student would receive a small reduction in marks.

I am hearing the problems I have already outlined from most Mathematics teachers I talk to. I have even had one of my experienced staff members refuse to teach Senior Mathematics under the current system of assessment.

In summary, I have no problem with assigning grades to the three areas of Knowledge and Procedures, Modelling and Problem Solving and Communication and Justification. However, how much easier would it be, as in many years gone by, to use a numeric scoring system for a Mathematics assessment.

Communication is necessary, but with just enough verbosity to supplement a language of mathematical symbols.

Thanking you.

**Ray Minns**  
**HOD Mathematics**