

Submission to Review of Queensland Senior assessment, reporting and Overall Position (OP) tertiary entrance processes.

To Dr. Gabrielle Matters,

Dear Gabrielle,

I have long been concerned at the poor system of assessment, and its consequent effects on teaching and learning, in Mathematics and Sciences in Queensland schools. The oldest of my six grandchildren will be in high school in 2016 and I want these and all other Queensland children to experience an improved education system.

Please, it is imperative that you and your colleagues consider these urgent requirements and recommend them for immediate adoption in Queensland. Implementing these changes would move Queensland toward a more thoroughgoing education, and provide genuine comparability of results and standards across all schools.

Focus questions 1 and 2 – school-based assessment and external examinations.

a) We need to have external examinations, at least in the Mathematics and Science subjects, just as they do in the other Australian states and in overseas countries including England, New Zealand, Hong Kong, India, Indonesia, Germany, Finland, Lithuania, Bulgaria, Estonia, Brazil, China, South Africa, Malaysia, and Singapore. (Some of these can be verified at:-

http://en.wikipedia.org/wiki/University_and_college_admissions

<http://en.wikipedia.org/wiki/Abitur#Finland>).

b) These exams should consist of questions requiring written responses showing students' full range of skills in the particular subject. They should not consist only of multiple choice items, because such a practice would lead to a style of teaching and learning which depends less on logical and clear communication and more on "educated guesswork" and "trial and error" aimed only at choosing the correct alternative.

c) External examinations where all Queensland students do the same questions on the same day, marked centrally using a common marking scheme, will produce much more ***reliable and comparable results*** than the present haphazard system which we have endured for four decades and which is greatly distrusted by teachers, students, and parents. At present, all schools are setting assessment questions of widely variable quality and standard, and there are many moderation panels throughout the state with the impossible task of guaranteeing that a result such as "*High Achievement – Rung 5*" will mean the same thing at all schools across the state. We are deluding ourselves if we think this works: we've been doing it for too long, and no other education system has thought enough of our system to copy us.

d) The external examinations should be set by people with genuine expertise in the particular subject, and whose academic qualifications in the subject area are at least as high as any education theory qualification they may hold. It is not hard to find suitable people.

e) I have seen evidence that the cost of external exams such as I am asking for, *does not exceed* the total cost of Queensland's present QCS tests together with our school-based and socially moderated assessments. Again, no other states or countries are saying that the cost of their external exams is prohibitive, otherwise they would be changing to a system like ours. But that's not happening!

f) Hopefully all states will be doing the Australian national curriculum at Senior secondary level within a couple of years. It makes perfect sense for a very similar assessment system to apply in all states – that would therefore be a set of external public examinations, as currently used in all or most other Australian states and territories.

Focus question 3 – moderation of school-based assessment.

For as long as Queensland has adhered to this process, it has been unwieldy and fraught with difficulty in securing comparability of standards across the state. Panellists often express dissatisfaction with the outcome of the moderation meetings, claiming that different schools have emerged from the moderation process with non-matching standards. It seems like a waste of time and money.

Would we still need it in Mathematics and Science subjects if we adopt external examinations as the other states and countries do? The school-based assessments, if they are to contribute at all and certainly no more than 50% of the total assessment, should be scaled according to the external examination scores obtained. If a student were to miss the external examination due to genuine illness, he/she could be ranked by the process of scaling school-based marks in line with the state-wide marks distribution. But there'd still be no need to continue trying to make the current moderation idea work.

Focus question 4 – finer scale for school assessments.

The five-point scale (Very High to Very Limited Achievement) is too broad to be of any use, and should be replaced by a much finer scale of assessment. **Percentage** is widely understood and accepted by the public. This would naturally require the use of numerical marking and the summation of the marks, precisely as is done in our Universities. I *know* that, because I have recently marked students' exams and assignments for first-year tertiary Maths and after adding up the numerical marks, I was required to record the percentage on each student's exam booklet.

Is there any sanity in schools having to avoid numerical marking in favour of ticking boxes of paragraphs of verbal descriptors and "standards", as QSA encourages schools to do in Queensland, when as soon as the students commence tertiary studies,

they are immediately assessed more simply, using marks? This contrast would be comical if it were not for the fact that it's our Queensland children being put through this silly process, which has been levied on them by the think tanks of educational theorists who've influenced QSA's policies. It must be realised that Mathematics and the Sciences are *fundamentally different subjects* from the Humanities and English, and hence they should be able to use an assessment system *more appropriate* to their intrinsic requirements.

Focus question 5 – cross-curriculum capabilities testing.

This objective doesn't seem to me to merit its adoption as a new initiative, because I believe that such capabilities are normally built into the study of Mathematics and Sciences. These subjects are often studied in social contexts – applications in society are valued by teachers and students, and are often reflected in the assessment tasks used.

Examples include:-

- the *precise use of language* in stating a problem to be solved, and in describing a mathematical solution and the circumstances of its applicability
- the *interconnections between subjects, and their applications in the real world*, such as describing the variation in the number of hours of daylight, predicting tidal motion, finding optimum costs for a project, understanding and explaining what happens in nuclear medicine, explaining genetic mutations, understanding why carbon dating of fossils gives an estimate of their age, and the use of number theory in encryption of private information such as PINs.

Focus question 6 –8.

Teams of experts in each subject, drawn from tertiary and secondary teachers, and retired teachers, should be tasked with setting and marking the external examinations. When the school-based assessments are scaled according to the external state-wide examinations, ranking for tertiary entrance should be easy to achieve in an objective way. Isn't this what's done in NSW? It's working well there, so let's move to that.

If QCAA is to play a role in setting and marking the external examinations, then it is necessary that the personnel involved are all experts in the particular subject area, and not people whose main qualification lies in education theory. They would be university mathematicians, retired but well-experienced teachers, and practising teachers who do not have students doing the examination at the time. Let us try to regain the prestigious position that Queensland's standards once held.

Experienced Queensland Mathematics teacher (name supplied but withheld).

23/4/14