

Submission

to

**The Parliamentary Inquiry into Senior Mathematics,  
Physics and Chemistry Assessment**

by

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Bachelor of Education (Mathematics)

[REDACTED]

( [REDACTED] )

2013

Dear Committee Members,

I have been teaching senior mathematics in Queensland since 1982. During this time I have seen a gradual decline in the mathematics ability of the students I have taught, particularly since the introduction of assignments in maths and the competition between schools relating to QCS results.

There are major problems with many aspects of our current education system in Queensland, but since the enquiry is only addressing three points at this stage, I will endeavour to cover these points.

### **1. Ensuring assessment processes are supported by teachers.**

I am gravely concerned about the QSA's approach to assessment. The workload is horrendous and the effect of this on my preparation and student contact time is damaging to both my health and the health of the students I teach, so much so I have considered leaving the profession. This mere contemplation is disappointing to me because I believe teaching mathematics is my calling in life. Unlike some teachers, I love teaching. Unfortunately, due to the QSA's pathetic approach to assessment and other aspects of teaching, teachers are hindered from getting on with the job of doing what they do best, teaching. We have less classroom contact time with our students due to QCS preparation, creating unnecessary pressure on teachers to complete the required content.

I know that most of my colleagues, those who have the expertise and experience to teach senior maths, also feel the same. So, it has become clear to me that the teaching profession will lose its most valued and experienced maths teachers, and I can tell you, from my own personal experience mentoring student maths teachers, the true depth of mathematical knowledge which needs to be passed on to our future students will be lost, if this is the case.

You may wish to contact [REDACTED] School and ask whether I have the credentials and reputation to make these judgements.

### **2. Student Participation levels.**

Perhaps, more importantly, is the damaging effect these assignments and QCS preparations have on the students and hence, the decline in the number of students continuing with the more challenging subjects such as maths B, maths C, chemistry and physics.

Assignment based assessment places constant stress on year 12 students. They are often working on four to six different assignments at any one time, so they don't have time to do their day to day homework in each of their subjects, thus they don't have time to learn the required content required to pass an exam. This presents two potential problems:-

- a) Students pass maths due to their assignment result and not their exam result, and quite often the assignment was not their own (i.e. done by past students/tutors, etc), hence they may pass maths by default, entering University under false pretences.
- b) Students are under constant stress, potentially causing failure and depression. Science today has proven that the human body performs better with occasional stressful periods, such as what may be experienced during exams, instead of prolonged stress, such as what is experienced under the current senior assessment system!

The pressure placed on students due to the QCS exam adds to the stress on students. Many of my senior students have expressed their disapproval of having to participate in an unjust system. One of my students was in tears last year because she was **forced** to miss an important career pathway interview due to her expected participation in one of the many QCS **practice** tests midway through the term, which interrupt the normal course of studies.

### **3. The ability of assessment processes to support valid and reliable judgements of student outcomes.**

Assessing mathematics through long written assignments is not valid for many reasons:

- a) The issue of who actually does the assignments. Last year I had a maths A student hand in an assignment that appeared to be an actual photocopy of someone else's, probably from a different class. The student probably hoped it wouldn't be detected since different teachers were marking the assignments. This is common in a large school where there are multiple classes with multiple teachers.
- b) Students don't actually learn much maths by doing the assignments. I have direct evidence of this:- last year we gave our maths B students at [REDACTED] a short, separate exam to test the students on an aspect of their assignment which they had only just completed, due to suspicions of cheating on the assignment. The results were dismal, indicating that the students hadn't really learnt much from the assignment. Even the top students performed badly!
- c) Assignments use up too much class and homework time, preventing students from learning the required maths and then practicing it at home, as required to gain a deep understanding of the complex concepts studied. Empirical evidence shows that students generally do well in assignments, but dismally in exams.
- d) The developmental stages of the human brain are now well known. So everyone who works with adolescents should know that their brains are going through a total metamorphosis and are incapable of thinking of consequences or thinking laterally like an adult. So why are we expecting adolescents to think like adults before they are capable of this brain function? Asking them to provide complicated solutions to open ended questions designed to challenge adults is ridiculous, and defies what we know about the capabilities of the adolescent brain.

The OP system is not valid or reliable. It is unfair and encourages corruption because student results are determined by **school based exams** and **assignments**, and an external **QCS** test which is **not subject specific**, as in other states. This is illustrated by the fact that:-

- a) Some teachers teach the exams (because they can, since the exams are school based) giving their own students an unfair advantage over other students.
- b) Some students cheat by copying assignments or paying someone to do the assignments for them, thus, giving themselves an unfair advantage.

- c) The marking of assignments is extremely subjective because one teacher's interpretation of an A standard can be very different from that of another teacher within the one school. Can you imagine the discrepancies which no doubt exist due to different teachers assessing different assignments and exams in the hundreds of schools in Queensland, not to mention the waste of man power due to hundreds of teachers trying to set similar assessments?
- d) The outcomes of the QCS exam have become a competition amongst schools, resulting in schools insisting students spend huge amounts of time practicing for the QCS exam. Some schools, such as where I teach, pay thousands of dollars for private companies to prepare students throughout Year 12 for the QCS exam by providing numerous practice tests during class time (For eg, <http://www.mightyminds.com.au/index.php?s=4&p=17>). This interrupts normal lessons in the subjects students have actually chosen to study, hence less content is being taught and students are less prepared for University.

Criteria based assessment must go and marks must return. Subjectivity in assessment must be replaced with objectivity. Maths is supposed to be right or wrong and marks are the best way to judge this.

Open ended assignments with no correct answer must go. 'Near enough is not good enough'. What would happen if the Scientists responsible for calculating the re-entry of the Space Shuttle into the earth's atmosphere took on the 'near enough is good enough' approach, or if a surgeon thought this during an operation?

The workload of teachers and students is excessive and must be reduced and redirected into more productive results-based areas.

**The Solution** – Having gone through HSC exams in Victoria myself, I firmly believe that this is the only equitable option.

Why have we adopted a system which has failed in other countries and is failing here? **It's just plain stupid** to do so.

We need to adopt an education and assessment system which has been proven to be successful in other countries. Doesn't this make logical sense? Why recreate the wheel, when we can imitate other successful systems? At the very least, something similar to NSW or Victoria where students sit a combination of external and internal exams.

Assignments were originally introduced to take the pressure off students who perform badly under exam conditions, but they have become so wordy, open ended and arduous, that they now create more stress rather than reducing it, with less learning achieved. **This flawed school-based approach has already been found defective and replaced with proper central exams in the UK.** (<http://www.guardian.co.uk/education/2010/may/27/school-curriculum-quango-abolished>)

Please help us to correct the current unjust system which is not producing the exceptional maths and science students of the past.

I would welcome the opportunity to have more input into creating a better education system for the benefit of our children. Please contact me if you require further insight into my wealth of experience of teaching maths in Queensland.

Sincerely,

A solid black rectangular box used to redact the signature of the sender.