

## Education and Innovation Committee

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**Sent:** Wednesday, 17 April 2013 7:08 PM  
**To:** Education and Innovation Committee  
**Subject:** Senior School Submission

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Education and Innovation Parliamentary Committee Inquiry into Assessment Methods for Senior Chemistry, Physics and Maths

**Term of Reference ONE - student participation**

- believe the Queensland assessment system is highly **unfair** and **unattractive** to students, especially applied to maths and science.
- There was a STEM inquiry (Science, Technology, Engineering and Science) a couple of years ago because there is a **decline in uptake** in such school subjects in Queensland.
- I have heard and read that Senior students in maths, chemistry or physics have a lot of trouble and **dropping out**.
- I am shocked by the data provided by the QSA in tabled information that shows that up to a massive **30% of Chemistry and Maths B students drop out between Years 11 and 12**. <http://www.parliament.qld.gov.au/documents/committees/EIC/2013/QldAssessment/tp-7Mar2013.pdf> Starting on page 7 (it is a very poor quality document with no numbering or contents to explain these important facts) shows the total numbers over Grades 11 and 12
- I notice the sudden up-take of easier subjects between Years 11 and 12 goes up by about 30%. No wonder there is a maths and science skills shortage.
- Obviously, if students are made to write English essays in maths or hard-core maths-based subjects like physics and chemistry, it is going to put off those students from **enrolling** that are better at quantitative skills than English or history, for example.
- The way that teachers are forced to mark correct, black-and-white answers in maths and science calculations is totally wrong, intuitively and evidently it is incorrect in the real world. I can read the marking system in the slides that the QSA tabled in parliament. Anyone can see on p 14 & 15 that the marking is very unacceptable and would **deter** students from wanting to do well. <http://www.parliament.qld.gov.au/documents/committees/EIC/2013/QldAssessment/bp-20Mar2013.pdf>
- Maths and the hard sciences have their own language. I want doctors, scientists and engineers who are good at these subjects. Thus, as a citizen I want schools to encourage students to **participate** in subjects they are good at, not good at finding a parent or tutor to write such extreme essays.
- I am shocked to hear that about 50% of Senior high school students **decide to not do OP-scoring subjects** subjects now. They apparently want nothing to do with such an unfair system. Certainly, many students **will not enrol** in advanced maths or physics or chemistry because of the strange 'inquiry-based' approach. This is the main method of assessment, according to the QSA at their briefing, which can be read at the parliamentary website. Children should be taught the facts, not expected to find out such difficult subjects for themselves.
- If I was a student now, I would feel completely **demoralised** by the current system. I have heard and seen that children get Ds and Cs on their answers - even if they are completely correct. Marking to these silly 'standards' or 'criteria' will obviously put off students.
- The example of an assignment that was done by a student at the QSA briefing, <http://www.parliament.qld.gov.au/documents/committees/EIC/2013/QldAssessment/tp-20Mar2013-Assignment.pdf> indeed shows how out of touch with reality they are as a curriculum board. The introduction and discussion are simply not the language of the majority of 15 or 16 year olds. They would **not be capable** of such mature writing. Yes, a few might but the majority of them would not

without major help. Most parents could not provide this help. it is evident that this type of assessment would be completely off-putting to most students in Queensland who could otherwise be very capable and needed doctors, engineers, scientists, pharmacists and so on.

- o Knowing what is ahead in Senior subjects of Years 11 and 12, I do not want my young children, nephew, niece, friends' children, grandchildren **going through this system**. I would prefer the solution that they have the same external (statewide common) exams that exist in NSW, for example, with normal marking and no assignments (just the usual short lab reports that used to be done). [http://www.boardofstudies.nsw.edu.au/hsc\\_exams/hsc2011exams/](http://www.boardofstudies.nsw.edu.au/hsc_exams/hsc2011exams/)

## Term of Reference TWO - Teacher support

- o There are deeply frustrated teachers and lecturers as evidenced by the teacher and student support page I read at [platoqld.com](http://platoqld.com). It is apparent that the QSA has not fixed problems with a broken system.
- o I know personally a teacher (and there are more) who want to give up teaching or have done so because they are forced to use ridiculous marking schemes (A, B, C, D, E ) letters matched to silly paragraphs to mark tests. It is so hard to believe but it can be seen on the slides presented to your parliament, as tabled on your website. That is: <http://www.parliament.qld.gov.au/documents/committees/EIC/2013/QldAssessment/bp-20Mar2013.pdf>
- o This is a very disturbing system that would make the teachers feel terrible. Who wants to mark students' perfectly correct answers with Ds or even Cs. They should be marked with full-marks. Or like, they were before, if the child got the answer right but a mistake in the workings or vice versa, then they should get part-marks. Numerical marks can be added up.
- o I have heard that a AEU (teachers' union) survey found out that about 70% of teachers in Queensland state high schools are not fully qualified to teach maths, science or technology. This is appalling and obviously proof that what teachers say on [platoqld.com](http://platoqld.com) is true. They are quitting in frustration.
- o I am quite aghast at the assignments that are expected of our young people. They are at school, not university. The example given by the QSA for a physics assignment was extremely focused on one topic. The teacher would rather the students were learning a lot of homework in readiness for testing a lot of topics so necessary to physics. I want my future engineers to know all their physics, not waste time completing a fancy assignments. The marking was worse than I expected even after reading the maths example of marking. The assignment is not marked on whether the calculations are correct or not! Instead the paragraphs inside the marking grid ask if the student presented their information in a fancy way.
- o The link to the assignment instructions shows that this assignment, chosen by the QSA, obviously goes over more than 4 weeks. How frustrating for both students and teachers who have to do draft checking , the final type up and even a laborious hand-written log-book in an effort to 'prove' their authenticity. This would not be necessary if there was a proper statewide exam. The teachers and students would be suffering unnecessarily, each trying to reinvent the wheel.
- o <http://www.parliament.qld.gov.au/documents/committees/EIC/2013/QldAssessment/tp-20Mar2013-Task.pdf>
- o In Queensland, the teachers are told by the QSA, quite mischievously that they are allowed to use normal marks to check the student results but they are also forced to match the tedious huge marking grids as given in the links to your briefings.
- o The marking that teachers in Queensland are forced to do is irrelevant unless the calculations are checked perfectly first. Teachers would have to check all the maths and then check the silly paragraphs inside the boxes as well. That is too much of course.
- o "A range of tables and graphs has been used innovatively" I can read in the link that gives the marking grid to the student after the assignment instructions.
- o <http://www.parliament.qld.gov.au/documents/committees/EIC/2013/QldAssessment/tp-20Mar2013-Task.pdf> What nonsense. No wonder teachers say that marking is impossibly long and also irrelevant.

- As a solution that needs immediate action to stop good teachers bleeding out of the system, they must be allowed to mark the subject on the 'content' inside the subjects. The content is the calculations, formulas, etc.
- The content forms the very standards that the QSA falsely claims it is testing. It is evident by the criteria or 'standards' they provide on page 12 of the slides they tabled to you in parliament that they are not testing the real standards of the subject. It is evident on page 5, that the very topics of the subject - real standards - are not checked off by the ambiguous paragraphs in marking grids forced on teachers <http://www.parliament.qld.gov.au/documents/committees/EIC/2013/QldAssessment/bp-20Mar2013.pdf>
- Looking at page 12 of the link provided to you by the QSA on your parliamentary website, with so-called 'standards' in many baffling boxes, is very revealing. <http://www.parliament.qld.gov.au/documents/committees/EIC/2013/QldAssessment/bp-20Mar2013.pdf>
- I would recommend that teachers be immediately told to mark papers with numerical scores and be able to mark the direct topics of the subject without having to cross-check such onerous grids of paragraphs.
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**Term of Reference THREE - There is no validity and reliability in QSA assessment of these subjects.**

- It is clear from reading over the evidence presented by the QSA itself that this curriculum board is out of touch with reality. <http://www.parliament.qld.gov.au/work-of-committees/committees/EIC/inquiries/current-inquiries/QldAssessment>
- The methods of assessment are completely different from other states around Australia and other countries. For example, see NSW [http://www.boardofstudies.nsw.edu.au/hsc\\_exams/hsc2011exams/](http://www.boardofstudies.nsw.edu.au/hsc_exams/hsc2011exams/)

(See also WA for their 'WACE brochure'

The WA curriculum body gives clear advice on page 4 in their brochure as to how students in WA get their marks.)

[https://doc-00-94-docsviewer.googleusercontent.com/viewer/securedownload/dsn1aovipa7l846lscf94nedj8q2p4u/bd043pfsj7gao93ktmj1sn122092f2q1/1366127100000/Ymw-/AGZShq8BgbJY1gwaOYx83cPOdNw6QURHRUVTaWtGU043SnVvRUFJUDITG1ra3pWJDadG40b1BsODNjZ1gzUUYyc2VHM19yZEdDVHNdKj3d2V3yUE8tVHdRLWFR1FmdVNOYnE2a1hFREITLS1MWWZs0pzOzFicGhoakd3NjBGRzFjdUj6RkRBM111STRkRVZRVZVFYm2hETWRYeINLdnc=/docid=733f4e285fca1526ffca4f16de2d8528&chan=EgAAA\\_NL\\_VvZaNAAnFeTDs\\_QN14jilqMs1mBXCh30aMVJYDcIVk&sec=AHsQidaGU0jm7pb5wLhMS8t\\_vfWGdt2EyJwgdmvdoKnML\\_JX0pfgBPVdZQvNpOdvmNm2jamdlV&a=gp&filename=WACE+brochure+2011\\_communications\\_web+version.pdf&nonce=mg1iseu471hf2&user=AGZShq8BgbJY1gwaOYx83cPOdNw6&hash=qr1e1142ueg36oce3fs0586ukc8nhkq](https://doc-00-94-docsviewer.googleusercontent.com/viewer/securedownload/dsn1aovipa7l846lscf94nedj8q2p4u/bd043pfsj7gao93ktmj1sn122092f2q1/1366127100000/Ymw-/AGZShq8BgbJY1gwaOYx83cPOdNw6QURHRUVTaWtGU043SnVvRUFJUDITG1ra3pWJDadG40b1BsODNjZ1gzUUYyc2VHM19yZEdDVHNdKj3d2V3yUE8tVHdRLWFR1FmdVNOYnE2a1hFREITLS1MWWZs0pzOzFicGhoakd3NjBGRzFjdUj6RkRBM111STRkRVZRVZVFYm2hETWRYeINLdnc=/docid=733f4e285fca1526ffca4f16de2d8528&chan=EgAAA_NL_VvZaNAAnFeTDs_QN14jilqMs1mBXCh30aMVJYDcIVk&sec=AHsQidaGU0jm7pb5wLhMS8t_vfWGdt2EyJwgdmvdoKnML_JX0pfgBPVdZQvNpOdvmNm2jamdlV&a=gp&filename=WACE+brochure+2011_communications_web+version.pdf&nonce=mg1iseu471hf2&user=AGZShq8BgbJY1gwaOYx83cPOdNw6&hash=qr1e1142ueg36oce3fs0586ukc8nhkq)

On Page 2 of the Western Australia Certificate of Education brochure :

"The WACE course score combines the **marks from school** with the **examination marks**. " (the latter being taken by all students under the same conditions). In addition, The WA curriculum body also "uses students' results in their examinations for a course **to adjust school marks so they are comparable**."

**Queensland has neither of these - zero numerical marking and zero recalibrating of school-set assessment by subject -specific exams.**

NOTE also on p 4 the statistical marks of WA can therefore be use to scale or compare work.

Compare again with the messy, childlike patchwork of slides provided by the QSA as their method and explanation for the high-stakes assessment of Queensland students. There is not one document that could be provided to parliament to explain the system in a nutshell like other states. It has sunk this low. It is more than shocking. It should not be permitted at all. The QSA approach:

<http://www.parliament.qld.gov.au/documents/committees/EIC/2013/QldAssessment/bp-20Mar2013.pdf>

- The QSA was given several hours over 7th March and 20th March to explain the **validity** and **reliability** of their system. <http://www.parliament.qld.gov.au/documents/committees/EIC/2013/QldAssessment/trns-pb7Mar2013.pdf>
- QSA could not justify validity or reliability according to the transcript: It is **impossible** to know if the student work being measured is **valid**. The student was being marked on false 'standards' in little boxes, according to page 12 in their demo powerpoint: <http://www.parliament.qld.gov.au/documents/committees/EIC/2013/QldAssessment/bp-20Mar2013.pdf>
- Assignments should not be used in high-stakes tests of students' knowledge because they are **not valid** measures. This is so well-known that it requires no references. Any test of importance, for example, a driving test, cannot be done at home via an assignment. The student must be tested under supervised conditions.
- Additionally, it is not fair to test students on what they have to find out for themselves. Is it fair or sensible to do a driving test without any lessons? Yet, the curriculum board, the QSA, defends the basis of their continuous and assignment -based assessment as being inquiry-based. Assessment is not proven valid if it is based on assignments and should not be used at all (ACER 2006).

- We do not pay taxes for our future citizens to sit googling on computers, trying desperately to find out information before being quizzed on it. That is not **valid** measurement of knowledge that they should be taught. They should be taught **valid** knowledge in class and tested on this knowledge after having time to study for it. I believe that the other subjects are relevant to this inquiry because long assignments in every subject take away the time to do basic maths homework and certainly the challenging homework of physics and chemistry. These are subjects that are vertically structured, so the students cannot afford to miss out on homework time.
- This is high-stakes for them because the assignments and the ridiculously-marked calculations are used to rank students before they leave school. It affects the rest of their lives potentially. Therefore this **invalid** system should be stopped.
- What is extremely disturbing is that the QSA even admits that they mark fully correct maths answers with letters. This is childish and **unreliable**.
- Alphabet letters instead of normal marking can neither be added up nor averaged out. All students want to know what they got right and got wrong with full or part-marks. The link shows the silly **unreliable** letters forced on poor students in Queensland.
- <http://www.parliament.qld.gov.au/documents/committees/EIC/2013/QldAssessment/bp-20Mar2013.pdf> The above link shows on page 14 (under the heading "The objective example") and page 15, that the student got every line or most answers fully correct (ticked). Yet, the student was awarded nonsense letters. That does not reward them for getting most correct and it is not **reliable**. The students should have been told 90% or 40 out of 60 marks. The letters are not reliable at all. The measure of **reliability** is 'would another teacher give the same results **reliably**?' Of course not using this QSA method.
- The transcript to the briefing that the QSA gave to you says that the teacher just 'knows' what the final letter-grade will be just by looking at the paper. This is, of course, completely **unreliable** and unacceptable.
- Most importantly, I am extremely shocked that students are not given exams from a common bank of statewide exams on the same day (so they cannot cheat). It may be tough to have exams but it is far more demoralising and **unreliable** to test kids in different tests made up by teachers in different schools. It is even more **unreliable** that there is not even just ONE subject-specific exam for each of maths, chemistry, physics or any other exam with proper, reliable marking when they have such external exams in every other state.
- The solution is based on evidence of what works. Here is an example of the excellent range of external exams in NSW . NOTE, when you click on each subject, there is a fixed solution guide for every subject. [http://www.boardofstudies.nsw.edu.au/hsc\\_exams/hsc2011exams/](http://www.boardofstudies.nsw.edu.au/hsc_exams/hsc2011exams/)

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