

Education and Innovation Committee

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To: Education and Innovation Committee
Subject: Submission to the Education and Innovation Committee

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To: The Education and Innovation Committee

Submission regarding -

Assignments and Teaching of Physics, Chemistry and Maths in Grades 11 & 12 and Academic Ranking Determination

Dear Committee Members,

As an engineer with 30 years international experience and having studied all 3 subjects at school and university, I can clearly remember that even though I went to the best academic school in Queensland there were deficiencies that even the Grammar School was guilty of. 90 minute tutoring sessions at Hubbard's Academy raised my marks substantially due to teaching style with attention to teaching and focused teacher communication with the students. Rote learning and teaching by example really do work! They show various situations and ways of deriving answers to questions. You cannot learn it from the internet. Explanation teaches the mind how to think scientifically. You cannot learn it yourself unless your name is Einstein, Edison or Baird.

Teachers Workloads Excessive:

I currently have children in years 9 and 10 in a private school who are being given "assignments" to do at home for mathematics. I find these of little use to the children and nothing more than a burden to the parents. The problem with the (science) teachers complying with the Education Dept requirements is ultimately distracting both the students of homework time and the teachers from direct contact or preparation time due to marking assignments. This has a twofold detrimental effect on students results as they are spending less time actually being taught. Many teachers either take time off from teaching to mark assignments, or mark assignments in junior classes and just instruct children to work from their books. So they are not being taught, they are being "child minded". In the middle schools, the students do not receive their marks back from exams because the teachers are busy grading assignments for the seniors. So there is

both an economic effect on the school and an effective contact hour reduction which has a flow-on effect to the remainder of the students.

Maths and the sciences are only taught as building blocks at school level. Focussing on one specific area takes up important time and effort which can result in missing other key fundamental building blocks in the child's education. A house built without all the pillars is usually the house that falls down eventually - and Queensland is already there! Sciences are a concept and analytical method which must be explained and fully understood. There is only one answer to a question. Science is not a debate over economic theories or philosophy. There is no room for re-interpretation of what is right and what is wrong like in history or literature. There is only right or wrong! Assignments are for applying knowledge to a problem. Without the building block knowledge, the assignment cannot be done. Assignments are the format of assessment for university level not high school level. In the sciences, there is a lot of building block knowledge required before any real research can be undertaken. I have found this with my children's science assignments. They have insufficient building blocks in their repertoire to barely start to understand the assignment. So it is up to the parents to bridge the gap. So what is the purpose of the teacher and the school curriculum if not to teach the material that is required for a set standard (exam)?

It is no secret that over 80% of the teachers in government schools teaching maths are not qualified to do so, then it is no wonder why the standards are dropping so fast. We are a long way behind NSW (personal associate who hires apprentices from NSW because they can pass an exam to become an apprentice – QLD students couldn't pass it). It is probably not much better for Chemistry and Physics.

Corruption in Assignment Generation

I have been shown a Senior Chemistry model assignment Graded "A" from QAS that was forwarded to me. In all my years of experience, I find it impossible to believe that the assignment was written by anyone with less than an Honours Degree or a Masters in Chemistry. The document was 30 typed pages! The standard was coming close to an undergraduate engineering thesis standard. Therefore I can only conclude that someone was paid to write the assignment, the child's parent's did the assignment or it was plagiarized from the internet. There are no other explanations. There have been reports of these practices in the press for around a decade now. **When will this corruption be eliminated?** When will rural and regional schoolchildren be on an equal footing where their own efforts are measured against a standard set of exams on an equal playing field – which it currently is not! Where is a student (or their parent) in Roma or Longreach going to find someone with an Honours or Masters Degree in Chemistry write their assignments for them?

The only way that we can have a level playing field is state-wide exams like in NSW. They need to be at the end of both Grades 11 and 12. There is no point in studying for 2 years to fail without having some benchmark along the way to gauge the students progress.

Moderation and the Howell / Radcliffe Theory of Education: Flawed

Queensland has a unique education system of individual school derived exams and inter-school moderation devised by two educationalists. In the 20 countries in which I have worked and lived I have never found an education system the same. Nor have I found one so ridiculous! The theory of moderation and individual schools writing their own exams is both naïve at best and socialist philosophical folly at worst. The theory was explained to us at BGS by the headmaster, Max Howell when I was at school. Academic ranking was to be distributed on a Bell Distribution Curve (or made to fit a Bell Curve) because of an educationalist theory. The problem that both Messers Howell and Radcliffe both ran into is that both BGS and Churchie (where they respectively were employed, Radcliffe was a maths teacher) had bi-modal academic results in maths and the sciences. So the theory upon which the entire ranking of results of the QLD High School System is flawed. Howell could never explain it despite the fact that the evidence existed that it (his baby) was flawed. **It is also open to manipulation and has been for 30 years or more.**

The moderation process is also a waste of time as there are no standards and there is a lot of corruption. In 1978, it was evident across the sciences and maths departments at the University of Queensland that [REDACTED] had significantly higher failure rates than other schools (personal conversations with maths and physics lecturers at the time) exposing the flaws in the moderation and ASAT tests as they were known at the time. Analysis of current first year university exam results data will undoubtedly confirm this does happen. It was common knowledge in my day and no doubt still is at the university level.

Excess Humanities Teachers:

There are currently 16,000 more teachers coming out of universities in this country than can be employed (The Australian, March 2013). According to The Australian, 4000 of them are here in Queensland – every year! This is a waste of financial resources and the number of teacher entrants should be reduced dramatically in total but increased in the science and mathematics fields – with reduced tuition fees if not free or subsidized by non-maths/science teaching students.

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