Re: Inquiry into Senior Mathematics, Chemistry and Physics in Queensland schools

I currently teach science part time and I have taught science and mathematics in Queensland state schools since 1989. Prior to this I worked as a medical scientist in various laboratories, both public and private, in various states and territories of approximately 10 years.

I wish to take this opportunity to put my views to your enquiry.

Ensuring assessment processes are supported by teachers

I did my senior schooling in Cairns completing year 12 two years after external exams were abolished. In the early stages of my first year at QIT (where I completed a B.App.Sc. in medical laboratory science) I began to realise the disadvantage I had by missing out on the necessity of consolidating two years of learning in preparation for an external exam. Short tests every six weeks or so, did not necessitate the integration of different topics, or the commitment of knowledge to long term memory. This presented added challenges to consolidate and effectively re-learn during post secondary studies.

In my early years of teaching, as I learnt more about the OP system I became increasingly aware of its short comings.

To me, student rakings seem open to manipulation by schools tweaking SAI's, but more importantly they can easily disadvantage higher performing students in a cohort of lower performers if the school fails to set assessment items that allow sufficient differentiation. Despite these concerns, I enjoyed teaching senior chemistry and biology, as I was happy that the curriculum more than adequately prepared students for post secondary studies in science. I also have concerns regarding the reliability of judgements on school submissions in the time allocated to panellists, and with no knowledge of the level of pre-test scaffolding, targeted revision sheets, draft readings etc that the students have received.

With the development and implementation of the current syllabi, I requested not to teach these subjects for the following reasons.

- I do not believe that students at this stage of schooling should be required to spend so much time on EEI's and ERT's at the expense of covering basic and fundamental knowledge and skills and reducing the breadth of the curriculum.
- I believe that many of the capable students we have traditionally attracted to academic science subjects, especially chemistry and physics, are not necessarily good at extended writing tasks and may well be put off by them. This certainly would have applied to me as a young person struggling with dyslexia, but capable at maths and science.
- The emphasis on long writing tasks is not as effective in teaching scientific writing skills as short laboratory reports. By it nature scientific writing is concise and analytical. In the 10 years I worked as a medical scientist I wrote multiple reports for medical practitioners every day. These were all short and concise. I do not hold the opinion of some contributors to this enquiry that all scientists need write long reports and to prepare for presentations at conferences. In fact, this would generally be restricted to a relative few and most would have post graduate qualifications.

- The increased workload on students and teachers is not rewarded by increased knowledge and understand of fundamental principles by students. The submission by Ian Pink more than adequately demonstrates this. Indeed, I know one experienced chemistry teacher who has requested not to have two year 12 chemistry classes in the same year as the marking of assignments would be impossible given time constraints for reporting.

Student participation levels

I reiterate my belief that we are alienating and disadvantaging students (of both sexes) who are capable at mathematics and science but less so at subjects that necessitate extended writing tasks. Student time devoted to QCS practice could be redirected if the OP system is overhauled.

The ability of assessment processes to support valid and reliable judgments of student outcomes.

I endorse many of the comments made in other submissions including

- Dr Matthew Dean's analysis of standards and the assertion made by him and many other participants that the QSA descriptors are subjective.
- Trying to apply the standards is confusing and unnecessarily time consuming.
- Problems with ownership of out of school assignments. I have frequently had well educated people tell me of the extensive help they have given their children in completing assignments, and reports of tutor assistance. This also raises equity issues.
- Concerns regarding the extent such assignments transfer to student knowledge and skills as opposed to more traditional assessment techniques.

Regards

Gordon Upham

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