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SMC&PA Submission 6
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Personal submission to parliamentary committee inquiry into Assessment Methods for Senior Maths, Chemistry and Physics

Background

I have taught Chemistry in Queensland for 27 years. I have been a Head of Department of Science in large high schools for 23 years and I have been a district panel chair (DPC) for Chemistry for the Queensland Studies Authority for 20 years. I have written text books for senior Chemistry in Queensland and was a member of the syllabus sub-committee that produced the current Queensland Chemistry syllabus in 2007. My long involvement in teaching Chemistry, supervising teachers of Chemistry and Physics and my writing of materials for the teaching of Chemistry has enabled me to observe the changes from previous (including mark based and earlier criteria based) assessment processes to the current (criteria based) system from a personal perspective, from the perspective of other teachers and as a manager of the assessment system and decisions in large schools.
I listened to Professor Peter Ridd's submission to the committee and the QSA submission.

Submission

Summary statement: I support the current system of school based, criteria based decision making as the primary process for assessment currently in place in Queensland, as the best system to make decisions about student standards because it has been shown to make the fairest judgement of what students know and can do. I would not like to use a completely mark based or exam based system as it gives poorer decision making data and is more likely to result in unfair decisions about individual student performance.

From a teacher and curriculum manager's perspective, the assessment processes in current use by the QSA for Physics and Chemistry are not only viable and doable but are preferred by myself and the teachers I have worked with over the years. The primary reason for this statement is that <u>these assessment processes have been shown to be more fair to students than a purely mark based system</u>. Teachers regularly examine the validity of their decisions wrt student assessment against their anecdotal observations and have overwhelmingly stated that criteria based assessment leads to better decisions. In internal moderation processes, decisions have been shown to be valid and reasonably consistent. These decisions have been overwhelmingly accepted by panels of teachers examining the consistency of decisions across a number of schools over the last 5 years.

As a district panel chair in charge of 15 – 20 teachers from a range of schools tasked to examine the validity of school decisions in Chemistry, there has been remarkable consistency over the years. Similarly, most of the teachers involved in these panels have supported and valued the current system.

In response to Professor Peter Ridd's submission:

I took particular umbrage against Peter Ridd's description of marking an exam to criteria as fundamentally '*a guess*'. This is an opinion, unsupported by observations in schools. He chose to describe the worst case scenario for the process. Teachers use much more systematic and intelligent versions of the process to come to a meaningful decision. He made the point that marks are banned in Queensland, which is not true. Marks can be used and are used, where their use is valid with respect to criteria. Teachers are remarkably consistent in their decisions. This does not mean that improvements cannot be made to the system, mostly with respect to professional development of strategies to be employed.

Professor Ridd also commented on the amount of writing required in the Physics syllabus in particular with respect to keeping boys out of university. While there may be some truth that some boys are mitigated against because they cannot write extensively, this either can be dealt with in more sophisticated ways than he proposes or is actually not the problem he really believes it to be. My son is a post doctoral researcher in

Chemistry, Physics and Maths at Griffith university. He has to write extended reports, very regularly. If he wasn't taught to write well at high school in Physics he would have had more difficulty at university. If Prof Ridd's ideas were accepted, then the other extreme would become the issue, that students, including many boys would be mitigated against by a system based on examinations. One immediate solution that comes to mind to solve this specific problem would be to offer the choice of extended writing or exam to demonstrate their standard. This would allow those boys who don't like to write to choose the method that suits their style.

Professor Ridd also commented about the time spent on Extended Experimental Investigations (EEI) and Extended Responses (ERT). He stated that as much as a term could be spent on a single investigation. This indicates a lack of understanding of what really happens in these tasks. It is true that a whole term (10 weeks) is often spent on the task, however 5 to 7 weeks of that time is actually spent teaching the range of concepts required. The 3 to 4 weeks remaining gives time for students to research and develop the understandings in a more specific manner that they demonstrate in the performance of the task. This process gives students a very rounded and complete approach to what science is all about; understanding concepts then researching and testing ideas related to those concepts.

Regarding workload of teachers: It is true that teachers spend more time marking extended writing than marking exams to a simplistic mark based system. My observation of myself and the teachers for whom I am responsible, is that they gladly give this time because the result is more fair to their students. For teachers, a decision that is unfair to any particular student is anathema, something to be avoided at all costs. In this respect, the only benefit of an external examination system is that any unfairness is usually hidden from the teachers and so they do not have to be responsible for the problem.

Peter Ridd's desire to return to the 'good old days' for the purpose of getting more boys into university engineering is not a valid option, but this does not mean that research related to his point is not useful. The QSA could be tasked and funded to do more research into the problems he describes to search for sophisticated, valid and above all, fair responses.

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