



Public submission made to the Review to Achieve Educational Excellence in Australian Schools

Submitter: Mr Laurence McGinness
Submitting as a: Teacher
State: NSW

Summary

My main concerns involve my teaching area of Science. These include the high level of content demanded by present syllabuses, the poor quality of existing textbooks and resources, as well as the lack of genuine leadership from, in my case, the NSW DET. I am also concerned about sport. In NSW high schools sport is almost universally timetabled to begin immediately after lunch. Students then are expected to be physically active at true noon, in the maximum heat of the day, immediately after eating. As the majority of activities are outdoors, they are also exposed to peak UV levels. The result of this is an enormous waste of time. I would also like to see educators making it clear and specific that the greatest limitations on progress exist outside schools and are beyond their control.

Main submission

My main concerns involve my teaching area of Science. These include the high level of content demanded by present syllabuses, the poor quality of existing textbooks and resources, as well as the lack of genuine leadership from, in my case, the NSW DET. Taken together these significantly reduce the effectiveness of Science teaching in schools. I have some concerns about whole school issues and initially I will address one of the greatest examples of institutional stupidity outside a totalitarian regime.

SPORT

In NSW high schools sport is almost universally timetabled to begin immediately after lunch. Students then are expected to be physically active at true noon, in the maximum heat of the day, immediately after eating. As the majority of activities are outdoors, they are also exposed to peak UV levels. The result of this is an enormous waste of time. Some students participate enthusiastically but many, quite reasonably in my view, do the absolute minimum. The opportunity to encourage activity and develop life-long skills is further degraded by the lack of specialist teachers. While some teachers from other subject areas are competent and enthusiastic, a majority,

in my experience, are neither. The solution to this is to integrate sport into the timetable and have it taught by PDHPE trained teachers. This should be mandatory to prevent Principals using their sport allocation to boost staffing in other areas.

Science Syllabuses

The focus on content in Science syllabuses almost inevitably reduces the ability of teachers to adequately develop the skills fundamental to effective understanding of “scientific” material. This is commonly presented as advertising, through mass media or through social media. These skills should be one of the highest priorities in Science education. Advertisers deliberately distort, mass media often represent the interests of their owners, while social media is inherently unreliable. The trend line in all these is to even lower ethical standards than have previously prevailed. With the present syllabuses students, even those who study a Science at senior level, often leave school with very little idea of how to verify the “scientific” information with which they are presented. If we wish to have a society in which citizens can fairly assess the claims made by corporations, political parties and others with vested interests, Science syllabuses need to emphasise these skills.

The focus on content also reduces opportunities for real investigation. Given the quantity of material to be covered, in practice “investigations” are often nothing more than a demonstration of a principle or concept. The fact that syllabuses require investigations does not compensate for the compression of the time available for them by excessive content. Many students, even very capable ones, come away from their Science studies with little more than a body of knowledge, most of it of dubious value. In contrast, their investigative and research skills, which are of potentially great value to them, remain poorly developed.

Existing syllabuses also have far too little quantitative material. Science is almost always quantitative, and is constantly becoming more so, as greater computing power enables us to make sense of ever larger amounts of data. Syllabuses, even at the junior level, need to reflect this by sequentially developing skills of calculation and data analysis. To facilitate this, there should be substantial co-ordination between Mathematics and Science syllabuses to ensure that the necessary mathematical concepts are in place before they are used in Science.

Resources

Existing textbooks contain numerous errors. This is of serious concern when they are used by senior students. There should be greater external supervision of textbooks claiming to cover a particular course. In NSW it is not unusual to find “HSC” textbooks which, in addition to the errors they contain, simply do not cover the entire course. The various authorities conducting external exams should have copyright over the name of the exam and use it to prevent the publication of sub-standard textbooks.

Other issues arise when considering the digital resources made available by the DET or purchased from publishers. These are not coherently organised. Resources covering the same topic often differ in their terminology and sometimes even in their content. Students faced, as they are in Science, with mastering a large volume of new vocabulary, do not need to be further confused. Teaching standards would be significantly improved by the availability of teaching packages, allowing for individual modification, which present material sequentially and coherently, using the same vocabulary throughout. The Science By Doing project is a welcome improvement but more needs to be done to support it.

There are also systemic problems with IT systems in most schools. Access to useful sites is often blocked and computers in different locations, within the same school, perform differently. Internet outages and delays occur much more frequently within schools than in other locations. These issues cause a significant loss of teaching and learning time as teachers, having planned a lesson, find that they cannot deliver it and students are unable to access the resources needed to complete set tasks. Returning to Science, in NSW many schools are still using labs whose design, and often the structures themselves, date back to the 1960s. With their fixed benches they lack the flexibility necessary for modern teaching methods. Old plumbing also creates frequent problems and those holding maintenance contracts are always slow to respond. The existing gas lines are of particular concern since there is no instant shut off and the main gas tap is inconveniently located. One damaged gas tap can mean a whole lab cannot use gas.

Much of the equipment available through the DET approved suppliers is sub-standard. This includes such basic items as glassware. More importantly, there has been a complete lack of leadership in updating to digital sensors, data loggers and other modern scientific systems. It is ridiculous that in 2017 much of the equipment in day to day use is the same as it was when I started teaching in 1974. The fact that superior systems are available is not sufficient. Teachers cannot try, compare and assess the usefulness of the various items on the market. Nor can they be sure that they will be compatible with the existing IT systems in the school. This specialist work should be carried out at the departmental scale.

Leadership

This leads into the general lack of leadership in this area. While teachers within the same school cooperate by sharing ideas and resources, there is no significant effort to coordinate this across the whole department. Great learning activities and innovations developed in one school usually do not progress much further. There is a need for some system, such as previously existed with inspectors and consultants, to ensure that good ideas spread and that schools are supported in developing effective teaching programs and accessing the best available resources to support them.

Leadership at school level is also lacking in many cases. An effective head teacher of science must have deep, detailed knowledge across a variety of sciences as well as skills in curriculum, and student and staff management. Most importantly, they need to be exemplars of effective teaching. Current policies do not provide effective training for this position. The available professional learning activities may help develop some of these skills but there is no systematic assessment of them before promotion into the role. Before applying for such positions applicants should be rigorously inspected and be required to successfully complete a training course. Inadequate leadership at head teacher level results in diminished performance across the whole faculty. It is not a criticism of the individuals who have taken such positions to observe that the standard of competency has declined since the end of formal inspections.

Whole School

The current school system resembles an assembly line. It is often argued that the main purpose of this type of schooling was to produce compliant employees, willing to work in highly structured environments. It must be obvious to everyone by now that this is no longer the world we live in. Employers do not want compliant employees performing repetitive tasks. They want flexible employees who can think for themselves, problem solve and work independently. If we really want to develop those qualities, then schools need to undergo profound change.

We are constantly told that we should develop collaboration and creativity. These do not happen in an environment in which a student, absolutely in the creative zone on a task, is supposed to drop it and move to another subject at the sound of a bell. Schools need to move towards giving students more responsibility for the use of their time and move away from the child minding role of having all students on site for fixed hours every day. By the age of 14 or 15 students should be capable of taking care of themselves without direct adult supervision and so should be able to cope with irregular school hours, largely of their own design. The development of senior high schools for the final three years of schooling would help in this process.

Teacher Morale

Teacher morale has a powerful influence on the performance of the whole school. In many schools it is undermined by the impact of external factors. Teachers cannot compensate for inter-generational poverty or other social failings. Nor should they be expected to tolerate continual expressions of contempt and disrespect directed at them by their pupils. To pretend that this is simply a matter of appropriate school and classroom management is to participate in a fraud and merely assists governments in covering up their neglect. While social factors might be beyond the remit, I see no reason why it should not be stated clearly and publicly, that the

strongest limiting factors on improvements in educational outcomes are beyond the control of schools.