

As a teacher with 25 years of experience I have become more and more disappointed by the:

a) attacks by the media on science and maths teachers and teachers in general when in fact the PISA and TIMSS data still ranks us as highly as Germany for example and

b) attacks by educational theorists on "traditional" teaching methods that don't work and cause students to be turned off science and that by magically changing the curriculum delivery method and assessment regimes students will flock back to science in droves.

Both attacks are wrong, ill informed and a burden to teachers.

These attacks drive statutory bodies like the QSA in QLD to enact policies that severely impact on staff and students. A classic example is the open ended investigation. In QLD the dreaded EEI.

I have just finished reading the report, "The Status and Quality of Year 11 and 12 Science in Australia." Here are a few paragraphs from the report by Denis Goodrum.

p21

"Teachers are concerned by the requirements to conduct open ended investigations in every senior science subject in some jurisdictions. The time demands on students is preventing many of them from choosing more than one senior science subject at a time."

p23

"They would like the issue of compulsory extended investigations to be revisited in those states where it has been mandated."

The time taken at school is enormous. Setting up and testing the equipment for each of their experiments is a LARGE job WHEN you have access to a highly dedicated LAB TECHNICIAN like I have BUT what about a small rural High School without a LAB TECH? Then there is the topic of inequalities between private and public for access to the latest high tech resources or even BASIC RESOURCES. Can you appreciate the time demands?

p23

"The amount of assessment and marking puts good teachers off teaching senior science."

My teaching colleagues are actively seeking junior classes! This is a first in my 25 years of teaching. It was always a struggle to get a senior science or maths as EVERYONE wanted one of these classes. Now teachers are "running" away as fast as they can! The educational theorists tell us that open ended or extended investigations promote interest and fun and excitement. NO THEY DO NOT. They cause students and teachers a great deal of stress and worry.

p25

"A close look at establishing appropriate teacher workloads and a revisitation of the requirement to conduct large investigations in senior subjects is advised."

I look forward to the day! The large investigations like an EEI MUST NOT BE COMPULSORY.

p30

"The most common responses teachers gave when asked what limits their teaching of science were related to time.."

That is because we are battling the assessment and curriculum requirements.

An example is the supposed benefit of writing assessment specific criteria marking sheets. These sheets go out to students with the EEI. The final EEI assignment gets marked according to these criteria and the student's EEI is annotated by me to show where the student should improve. Remember this takes over one hour per student. In 4 years of assessing this way only one girl has taken up the offer to sit down and thoroughly analyse my comments as to where she could improve. Every other student looks at their assignment's final result only. The two or three hours writing the criteria sheet and the 25 hours of marking for what benefit? The educationalists will give many researched reasons as to WHY criteria sheets matter. Try telling that to 16 year old. Try explaining any of this to "an average parent." Impossible.

p50

"Besides the obvious importance of having relevant equipment for an inquiry based science curriculum, teachers of science also require support staff to assist in the preparation and organisation of materials for science activity."

There are 1000 students at my school. One LAB TECHNICIAN. He WORKS HARD. He is knowledgeable and helpful. He learns how to operate the new equipment better than the teachers. BUT WHY ONLY ONE for 12 teachers and many classes? Funding. Please find me some so as to relieve some pressure off my LAB TECH.

p52

"The content laden curriculum encourages science in Year 11 and 12 to be taught in a traditional way using the transmission model.

Help clear up some of the content from the new National Curriculum. From what I have seen students and teachers will be flat out trying to cover the content let alone any experiments.

p53

"In some states there are assessable open ended student investigations. From the focus group discussion with teachers there was a concern about these investigations. The investigations were placing significant demands on both students and teachers."

I agree wholeheartedly! Ask the students and ask the parents.

p53

"Hackling also indicated that the technician support in Australian schools was lower than the support provided in secondary schools in the UK."

Please make Lab Tech money allocation be made outside of a school's Teacher Aide budget. These people can have their positions reassigned to other school areas. That is the case here in QLD anyway.

A good Lab Tech is worth EVERY DOLLAR they get paid!

p56

ALL OF 7.6! But in particular "There was sufficient anxiety to question whether the investigation activity is accomplishing the outcomes that were intended."

I have tried. I really have. But the outcomes portrayed by the educational theorists DO NOT match reality. EEIs have been a feature of Victorian science for many years. Has this FACT led to an increase in the numbers doing science? NO. Perception DOES NOT meet reality.

I have tried:

a) allowing students to investigate a topic of their choosing.

Outcome: lots of initial interest but when the data was hard to get and then when it didn't match their expectations effort waned. A lot of effort to get equipment and an experiment that was safe!

b) allowing students to investigate a topic of their choosing with scaffolding by me.

Outcome: Some good data but little in depth in analysis by the student. Students always looking for guidance.

c) topic chosen by me.

Outcome: Undertaken but little thought by students from start to finish. Equipment easy to get.

Open ended investigations are a burden and so are the criteria marking sheets that go with them and every other piece of assessment. I agree that the curriculum is overburdened. I agree that "Chalk and talk" CANNOT be how we teach day in and day out in this day and age but I do question the cost benefit analysis of open ended investigations or EEs to teaching and learning.

The points raised in the "The Status and Quality of Year 11 and 12 Science in Australia" report about the EEs are BEING IGNORED because it overturns the common wisdom of the educationalists. As scientists we need to question the conventional wisdom and I and many QLD science teachers do. Go to <http://www.platoqld.com/?cat=4>

