

Appendix 6

Physics Students Year 12 Focus Group Initial Reactions by interviewer Jean Grosse

Introduction

In order to study the perceptions of a particular set of students who had completed Physics in Year 12 in 1998, the class was invited to participate in a focused discussion about their views of physics. Five students attended.

The discussion was focused around the following issues:

- Why do you need a T shirt for a physics class?
- What do you mean when you say on your T-shirt that you 'don't give a rat's arse' ?
- What do you actually do in physics?
- Is it hard to understand?
- How much work does it take to get through?
- Are you allowed to help each other?
- Do you ever get to follow up ideas or questions of your own in physics?
- How important is maths to physics? If you were weaker at maths would you understand the concepts?
- Do you get to experiment with many materials?
- How important are the subject criteria?
- How is the white board used in your physics class?
- What sort of notes do you take?
- What sort of jobs are out there for physics people?
- Who do you talk to when you have a problem with the work or ideas in physics?
- Do your parents know what you do in physics?

Probes were applied to responses as each question was raised (usually of the form of a reiterating 'Why?', "How?" or "In what way?"). The focus group was conducted after the students had sat their final physics examination. It was held in their College at 9.15 am on Wednesday 2nd December and the session was videotaped to allow for later analysis. There were 3 males and 2 females in the group.

Some Initial Reactions:

1. There was a strong collective identity to this group that seemed to centre around their learning of physics. They had enjoyed helping each other and taking responsibility for the achievement of the group. There was a tension between their sense of individual achievement in the subject and the satisfaction of participating in a learning team.
2. For this group, physics was fun and at the same time it had been a really hard and demanding subject. There was tension between the enjoyment of the learning and the rigours of the discipline.
3. Their experience of physics this year had been very different from any previous Science class. Although they all had successfully completed science subjects in previous years, their most common description of those subjects was 'boring' and 'not much fun'. There was tension here between the strategies needed to be successful in a routinised closed exam system and strategies needed to be successful in this 'open-ended' learning system.
4. The team-bonding sessions at the beginning of the year had been unfamiliar to the students and did not seem like 'physics' to them. In retrospect they described those activities as really valuable in changing their views about physics having to be boring. There was tension here between the apparent waste of time on personal development activities and the drive to get on with the serious business of covering all the required criteria in physics. The dilemma they were confronting now was that that apparent wasted time had actually developed their capacity to learn smarter and faster by engaging with their own curiosity in the process.
5. All of these students were surprised at how much time they could take to really grasp a concept and once they did, how much time it saved later. (because they 'really' understood) . Their ownership of their learning was apparent in the way they explained the concepts to the researcher. (and helped each other to do so)

Physics Focus Group - the issue questions and brief response summary

Why do you need a T shirt for a physics class?

To identify them as a group, strong collective identity , centred around the task of mastering physics as an HSC subject .

What do you mean when you say you don't give a rat's arse?

Symbol of the fun aspect , the capacity of the group to challenge accepted 'certainties'.

What do you actually do in physics?

Have fun, ask questions , raise uncertainties, try to understand and engage with physical concepts, use formulae to test theories., and learn to live with uncertainties .

Is it hard to understand?

There was a common acceptance that the concepts were complex and took hard work to work through. There were many times when the task appeared too hard and it was the help from the group that carried individuals through.

There was also a relief evident that there were some 'things' that you might never be able to fully understand. (eg - what is light ?)

How much work does it take to get through?

The quantity of the work was seen as huge - it was necessary to get through basic concepts before others could be built on those initial ideas. The criteria and syllabus was the driving force here. Not all of the students acknowledged they had put in enough effort - one was expecting to fail yet he spoke of the pleasure he had in learning about physics as part of this class.

Are you allowed to help each other?

Encouraged to do so - it was important to this group that if possible everyone succeeded - there was collective responsibility for achievement. They said they really enjoyed sharing their information and expertise.

Do you ever get to follow up ideas or questions of your own in physics?

In this class there was a strong feeling of ownership of the learning.

How important is maths to physics ? If you were weaker at maths would you understand the concepts?

Consensus that it was important but not critical - they indicated that it was possible to follow up curiosity and grasp concepts of physics without

having really top maths skills , but said the problems would arise when you had to know and use formulae.

Do you get to experiment with many materials?

Several experiments were referred to and mostly described in terms of discovering the concepts through the experimentation.

How important are the subject criteria?

These were seen as important only in terms of accreditation - they had to be completed as a routine and then learned 'by rote' or recalled at exam time only.

How is the white board used in your physics class?

This was seen as an interactive alternative to the text book, with the advantage that the teacher 'writing up' could be interrupted by queries and puzzles from the class.

What sort of notes do you take?

A taken-for-granted part of the white board work and not referred to as a chore.

What sort of jobs are out there for physics people?

Engineering was the only real suggestion - they saw physics principles being applied in many places but were unaware of any wider market value of physics.

Who do you talk to when you have a problem with the work or ideas in physics?

The collective learning style was evident here - they talked to each other , or to the teacher or let it become a class problem to solve.

Do your parents know what you do in physics?

Parents were kept aware how demanding the course was but not of the content.

J. Grosse , SPIRT Project , Dec 98