

Choosing Science

By Sara Barila

The most prominent issue in Australian science education over the last twenty years is the significant decline in the number of high school students enrolling in senior physics, chemistry and biology.

The 'Choosing Science' report was conducted in two phases. In the first, 589 secondary school science teachers identified their perceptions about why enrolments were declining. Those findings informed Phase Two, in which 3,759 Year 10 students who had recently selected their Year 11 subjects were surveyed.

50% of students did not enrol in a Year 11 science subject because they feel they are not good at science; while 63% reported not choosing it because they do not need it for their career. 67% of teachers considered the decline to be strongly influenced by students' tendencies to choose less academically demanding courses.

The report makes 10 recommendations aimed at engaging students with science, including:

- That the ACARA and education authorities ensure the new National Science Curriculum reflects teachers' and students' recommendations by making school science more interesting, practical and personally relevant.

This is supported by the finding that 55% of students choosing no science subject in Year 11 did so because they found junior high school science uninteresting. Around a third of Year 10 students reported finding science lessons boring.

- That education authorities, teacher associations and science organisations work together to develop adequately funded, sustainable and coordinated strategies to improve links between school science and scientists in university and industry settings.

Around two thirds of Year 10 students choosing no senior science did so because they could not picture themselves as scientists. Only 35% said school science had made them aware of "new and exciting jobs".

- That science teachers encourage girls to have greater confidence in their science learning and ability to achieve.

'Choosing Science' reveals that girls tend to have lower levels of self efficacy than boys; and are more likely to believe they will experience difficulty in tasks. Girls are also less likely than boys to be able to picture themselves being a scientist, and less inclined than their male counterparts to name science as one of their most enjoyable subjects.

- That professional science teacher associations ensure their members are aware of the strong influence teachers have on students' subject choice.

Despite science teachers considering themselves to have less influence on students' decisions than peers and parents, Year 10 students elected their teachers as the most influential agents on their subject choice. Surveyed teachers also believe that career advisers have the least influence on students' decisions.

- That education authorities investigate why rural students have less positive attitudes to school science than their city peers.

The study found that students in rural areas had significantly less positive attitudes towards science than those in metropolitan areas. They were also less inclined than city students to enjoy science more than other subjects.

The report confirms that the following factors are unlikely to have a significant contribution to dwindling enrolments:

- A declining interest of science in modern youths
- Students' perception that scientists receive low pay
- Students' perception that it is difficult to maintain a scientific career.

Intriguingly, the study reports that the attitudes of today's students is not significantly different to that of students in the 1970s. The report finds that the decline in participation in physics, chemistry and biology is "part of a broader phenomenon", which sees decline mirrored in other traditional subjects such as geography, history and advanced maths, and is most likely due to a greater range of subject choice. ■

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