

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)  
Lift Off - Secondary Space Education (2)

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SHAPING AUSTRALIAN SECONDARY STUDENTS ATTITUDES TO STEM

**Abstract**

Science, Technology, Engineering and Mathematics are generally recognised as being central to a country's economic prosperity. Ensuring that there is an adequate supply of STEM professionals in the future is an issue which must be addressed in the secondary school system. However, a significant challenge exists in Australia where students have been withdrawing from the Sciences in the penultimate year of their secondary education.

This paper presents The King David School's approach of providing extended programs in robotics and space science, in partnership with university and industry mentors. Through relevant and realistic engineering challenges the students have become inspired to take on increasingly more difficult challenges. From building a simple arduino-based robotic explorer, students have then worked alongside university mentors to design, construct and launch a functioning satellite (CanSat). The addition of industry mentors has added a new dimension to The King David School's suite of programs, with students developing considerable skills in CAD, LabView and Mechanical Engineering that have allowed them to build ever more complicated robotic systems.

The university and industry mentors provided not only important skills and knowledge to the students. They were powerful role models, who provided a unique window into the world of engineering. Since these programs first started in 2010, student attitudes towards the STEM disciplines have been profoundly and positively influenced by the presence of the mentors. Students who had never considered engineering as a potential career were increasingly including engineering in their top three choices for university entry. The handful of students that originally commenced with the program has grown considerably, with a number of these students joining the programs whilst attending other secondary schools. The impact of these programs, including feedback from students, mentors, teachers and parents will be presented.