SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
New Worlds - Innovative Space Education And Outreach (5)

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# PATHWAYS TO SPACE: A MISSION TO FOSTER THE NEXT GENERATION OF SCIENTISTS AND ENGINEERS

**Abstract**

The first education project funded under the Australian Government's Australian Space Research Program (ASRP), Pathways to Space is a unique project that combines education, science communication research and research in astrobiology and robotics. It draws upon the challenges of space exploration to inspire students to consider study and careers in science and engineering.

Pathways to Space is a multi-faceted program that provides hands-on opportunities for high school and university students to participate in realistic simulations of a robotic Mars exploration mission for astrobiology. Its development is a collaboration between the Australian Centre for Astrobiology (University of NSW), the Australian Centre for Field Robotics (University of Sydney), the Powerhouse Museum and industry partner, Cisco Systems Australia.

Within the program, students in Years 10-12 have the opportunity to engage directly (via telepresence or in person)with space engineers and astrobiologistswhile carrying outsimulated Mars missions using the digital learning facilities available at the Powerhouse Museum. There are separate missions for Year 10 and senior high school students, each specifically designed for, and keyed into, topics in the respective school science curricula. As they undertake these education programs, the students simultaneously become participants in a longitudinal study for science communication research aimed at improving our understanding of the most effective ways to engage student interest in science and engineering.

As part of their program, the high school students operate mini-rovers in the Powerhouse Museum's 'Mars Yard', a highly accurate simulation of the Martian surface, where university students will also be carrying out the development and testing of experimental Mars roving vehicles. This aspect of the program brings real science and engineering research into a public space.

This paper, which is intended to be the first of two, will outline the development of the Pathways to Space project from its inception to the commencement of operation in 2011. It will look at the goals of the project, the rationale behind the education and science communications research, the reasons why Pathways was selected for funding under the competitive ASRP grant program and the challenges of developing such a multi-faceted education project in a collaboration with several partners. A future paper, proposed for 2012, will present an analysis of the program's first year of operation.