

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

Author: Mr. Mark Gargano
St Joseph's School, Australia, gargano.mark@cathednet.wa.edu.au

Prof. Marjan Zadnik
Curtin University of Technology, Australia, m.zadnik@curtin.edu.au

Mr. Chris McKay
National Aeronautics and Space Administration (NASA), Ames Research Center, United States,
cmckay@mail.arc.nasa.gov

FROM THE CLASSROOM TO THE FIELD AND BEYOND: AUTHENTIC RESEARCH
EXPERIENCES FOR EDUCATORS

Abstract

Ongoing Professional Learning is a concern for educators in every setting, investigating opportunities to maximise the learning opportunity and to be involved in a fulfilling, meaningful and impressionable experiences that has lasting impact for them and their students. With the many demands beyond the classroom, teachers are highly selective when examining professional learning opportunities.

In recent times, development of intensive experiences, going beyond a workshop session or a conference, immersing the educator in scientific research and with researchers have been established. Opportunities for educators to be in the field, working alongside scientists and engineers, conducting authentic research, while under instruction. With a research immersion experience, teachers collect and assist with data analysis, utilising apparatus in the field or a research site, often handling resources that are not found in school laboratories and interacting and engaging in dialogue with scientists and engineers in real-world science, being a part of a science team, working on real-time solutions, involving everyone.

One of these opportunities is NASA Spaceward Bound. The mission of Spaceward Bound is to train the next generation of space explorers by having students and teachers participate in the exploration of scientifically interesting but remote and extreme environments on Earth as analogues for human exploration of the Moon and Mars, with expeditions to the Atacama Desert, Mojave Desert, Namib Desert, Australia and India.

Teachers involved go through various nomination and selection procedures to secure a place on an expedition team. Over the last ten years, numerous field programs have occurred and with six expeditions, data has been collected from participating teachers, which have identified and monitored various factors; measuring teacher's attitudes, enthusiasm and self-confidence with creating, developing and explaining cutting edge science research that links with and compliments the curriculum.

Data was conducted through surveys and interviews prior to the commencement of an expedition, immediately at the end, approximately one-month later and then around one-year after returning from a field experience, identifying features such as classroom strategies and curriculum implementation in addition to motivation and interest leading to self-efficacy of their secondary classroom practice.

The aim of this research is to identify a process of effective practice in developing professional learning. The research data generated has identified clear goals to maximise impact and long-term meaningfulness and relevance of the experience. This research not only impacts the structure for agencies offering these experiences, but also to teacher associations and the teachers themselves.