

## SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)

## Ignition - Primary Space Education (1)

Author: Mrs. Margot Solberg  
Ecuadorian Civilian Space Agency (EXA), Ecuador

CAN THE IMPLEMENTATION OF AEROSPACE SCIENCE IN ELEMENTARY SCHOOL HELP  
GIRLS MAINTAIN THEIR CONFIDENCE AND ENGAGEMENT IN SCIENCE AS THEY  
TRANSITION TO MIDDLE SCHOOL?

**Abstract**

There is a global crisis due to a lack of qualified applicants entering STEM careers, especially in science. Add the fact that women are greatly underrepresented in science, and the solution becomes obvious. Go to the source, and find out why girls as young as 12 years old are losing an interest in scientific endeavors that they once found to be captivating. This action research project sought to find out if the implementation of aerospace science, embedded both in the classroom and in an after school Space Club, could assist girls in maintaining their confidence and engagement in science overall as they transition to middle school. Furthermore, girls in fifth through seventh grade, who had previously been the teacher researcher's students, were included in the study in order to discover if their previous participation in a variety of authentic and ongoing aerospace activities had any impact upon their engagement in science as they entered the notable years of declined interest. The research took place at an international American school, Academia Cotopaxi, in Quito, Ecuador from September 2015 through April 2016. Data was collected through both qualitative and quantitative sources, and included attitude surveys, parent questionnaires, a writing prompt, photos, video, interviews and observations. Additionally, a control group was utilized in grades five to seven for purposes of comparison. Innovative activities included engaging and first-hand experiences with the Ecuadorian Civilian Space Agency (EXA), the National Aeronautics Space Administration (NASA), Space X and the Canadian Space Agency (CSA). Inquiry-based activities included, but were not limited to, experiences with: speaking live with both astronauts and cosmonauts on the International Space Station, robotics, rocketry, Skype chats with aerospace professionals, utilizing the Design Process, online resources and more. Findings suggested that embedding aerospace science in grade four, both during and after school hours, not only increased girls' interest and confidence in science, but also served to maintain and foster an interest in STEM as they transitioned to middle school.