

Transcending Societal Issues for Space Exploration (12)
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THE AEROSPACE AND INNOVATION ACADEMY: EMPLOYING BLUE-SKY LEARNING AS A
DISRUPTIVE EDUCATIONAL MODEL

Abstract

STEM education programs in America are ubiquitous; however, they rarely engage students in real, hands-on experiential learning. In a time when the workforce is in great need of filling a large amount of high-paying STEM careers, students who might otherwise fill this pipeline grow bored with traditional teaching methods and find themselves losing interest in pursuing STEM as a career. Even those that go on to pursue STEM education after high school often change course prior to graduating because of lack of relatable mentors as well as lack of industry connection and relevance to their learning. This is especially true for disadvantaged student populations, primarily women, lower socioeconomic status, and students of color.

This, however, need not be the case. When students are presented with unique opportunities to engage in the “real work” of aerospace, for example, they are more likely to identify with those STEM professionals. They are more likely to form relationships with industry that may benefit them in the form of apprenticeships and internships, and frankly, may lead to a fast-track of future employment. Creating these opportunities is exactly what the Aerospace and Innovation Academy (AIA) does for middle-high school students and this model might be implemented in a larger scale in schools around the country to see if the experiential approach to STEM significantly has an impact on recruitment and retention in STEM careers.

The Aerospace and Innovation Academy (AIA) began as a way to retain the avid middle school students the authors coached in Palm Beach Gardens, Fl. The program initially was born when two distinct programs, the CubeSat and Debate teams, combined to create the “techies and the talkies” as students were being asked to present at conferences, banquets, and to legislators about their participation in NASA’s CubeSat Launch Initiative. Since 2017, students have been selected to build, launch, and fly their CubeSats: the WeissSat-1 and the CapSat-1. The unique blend of “talkies and techies” allows students to share complex aerospace content in a variety of venues, dispelling the myth that engineers cannot also be engaging speakers.

Although faced with Covid restrictions, the AIA continues to flourish as it has undertaken its newest venture: inclusion of students from different backgrounds from around the country meeting in a virtual environment. SPACE club was launched this January as a pilot to see if the BLUESKY learning philosophy embodied by the authors can replicate the success as an innovative educational model. Additionally, a new iteration of the CubeSat Team has evolved as the Wolfpack, where former students along with new faces from around the country have worked together to propose a tri-state Cube Sat initiative that, if selected, will incorporate the research from a university, a high school, and a middle school.