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LESSONS LEARNED FROM SGAC'S ACHIEVED MISSION DESIGN PROJECT, ADAPTING PROJECTS BASED ON CURIOSITY AND NEEDS OF THE NEXT GENERATION.

Abstract

Space exploration is entering a new exciting era thanks to multiple planned space missions that aim to increase our knowledge of the solar system and inspire future generations. Therefore, it is no surprise that an ambitious global community of students and young professionals interested in the space sector looks at these future missions with great interest and passion, seeking opportunities to contribute to their planning and realization. Unfortunately, Space Mission Design requires significant knowledge and skills that not everyone can obtain through education. Even at the best universities, students rely on research assignments and extracurricular projects to provide a working environment that allows them to apply what they have learned in classes, develop essential soft skills, and learn how to be proactive and autodidactic. Also, it is important to mention that the amount and quality of research and extracurricular activities offered at a university depend highly on funding and the voluntary collaboration between professors and students, two rarely consistent factors. In this context, early in 2022, the Space Exploration Project Group (SEPG) within the Space Generation Advisory Council (SGAC) launched the ACHIEVE Initiative, which stands for Assembly for Concepts in Human Interplanetary Exploration with Various Extraterrestrial Designations. This initiative will allow students and young professionals from various countries and technical backgrounds to work and collaborate on a space mission design project. Divided into two teams and led by experienced professionals, the people involved have the opportunity to develop their technical and organizational skills to work in mission design projects efficiently and competently. This initiative is an effort of SGAC to prepare the young generation according to the needs of the Space Sector. Nonetheless, both research teams will develop original and innovative mission design concepts to provide valuable options to the space sector to meet the challenges ahead and advance our technological and scientific knowledge. The paper will describe the coordination, management, and outreach efforts done this year and their effect on all participants' performance, including coordinators, team leaders, and members. The results should allow the SEPG and other groups to understand better how to build and

manage young, diverse, and multidisciplinary teams. Also, this work can provide educators and trainers efficient methods for teaching and applying technical skills concerning mission design for people with no experience on the subject. This information could be particularly beneficial for emerging countries lacking such guidelines and experience.