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Title: Access to Introductory Planetary Science & Robotics Lessons for Latinx, Native American & BIPOC 4th -8th Grade Students

Abstract:

Numerous barriers impede students, K-12 teachers, and faculty of color from meaningfully engaging in STEM disciplines (McGee & Robinson, 2020). With few role models or mentors of color, it is difficult for underrepresented students to see themselves involved in STEM careers. McGee and Robinson (2020) and Roncoroni, Hernandez-Julian and Whitaker (2021) argue that exposure to STEM role models bolsters students' self-concept, identity, and self-efficacy, producing positive attitudes toward STEM. Parental engagement and support also encourage students' STEM involvement (Ruff, 2017). This project proposes to engage underrepresented 4th – 8th grade students in planetary science and robotics lessons, updated and mapped to standards, providing them with authentic learning experiences. Coordinators will make curriculum updates, including a literacy component, incorporating trade books about BIPOC figures in planetary science (and literacy instruction to comprehend these texts) to provide students with STEM role models. 4th-8th grade students will be recruited through their current participation in FIRST LEGO League (FLL) teams, Wolf Pack Bots, and LEGO Native. The students will enrich their work with Dr. Rachel Salas, a bilingual Latinx and FFL coach in Reno, and Tina Bossingham, FLL coach, literacy educator and math tutor in a rural area of Nevada. Undergraduate students from the University of Nevada, Reno, will be brought onto the team to train with Salas and Bossingham in curriculum delivery and student mentoring. Students will engage family members and the community in a culminating showcase of science and robotics skills, a Planetary Science and Robotics Workshop. The resulting lesson plans will be disseminated in an open access repository available to preservice and in-service teachers at the end of the project, May 2023.