Ingenieros Ingeniosos (Ingenious Engineers): Connecting Latinx Youths' Workplace Practices with Engineering via Informal Education | 2115472

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Project Description

This program primarily aims to broaden participation by creating a localizable, transferable, and sustainable model for an out-of-school time (OST) program. It includes resources to enhance the engineering-related knowledge and skills that Latine youth acquire in their workplaces. Moreover, it leverages these skills and knowledge to support transformative, youth-driven visions and applications of engineering.

Key Achievements

What have you **accomplished** to date?

Community Accomplishments

- Iterated scaffolded curriculum.

- Served approximately 400 students

- Trained 24 mentors and 7 teachers

Scholarly Accomplishments

- Improved engineering identity (Hansen et al, under review)

- Data collected on 289 students, 24 mentors, 7 teachers

- Developed scaffolded teacher PD module.

- Developed scaffolded mentor PD module.

What have you **learned** (including learnings about what *didn't* work)?

- Understanding the nuances of LIA and MESA programs is essential to meeting the AISL mission.

- Teachers' self concept of themselves as engineers plays into their comfort in leading the program.

- Getting LIA and MESA educators to move the program to OST spaces is challenging.

- Youth are excited for engineering tasks of their own imagination but struggle to engage in the planning of them. Iterating a curriculum with them on a weekly cycle was rich, but presented logistical challenges.

- Specific scaffolds may support different constructs of identity as laid out by Johnson & Carlone (2007).

Audience & Settings

Audience: Teachers, undergraduate mentors and Latine youth; as well as Other stakeholders dedicated to advancing STEM involvement for Latine students.

Disciplinary area: Engineering

Learning environment: After-school informal learning spaces and classrooms in high schools across Utah.

Access and Inclusion

The entire project is centered around the access and inclusion of Latine youth into engineering. The project leverages the existing engineering-related funds of knowledge of Latine youth gained from their workplace experiences as assets in an informal STEM learning space. Thus, we are building access and inclusion through centering students' existing cultural, linguistic, and experiential assets to help them to connect to engineering.

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