"Developing a culturally responsive pedagogical framework for STEM self-efficacy and career interest in the middle grades" (Project Co-STEM)

Jeffrey Hovermill, Emily Evans, Ashish Amresh

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Project type: Exploratory

Project Overview: Project Co-STEM is focused on supporting community and culturally relevant Science, Technology, Engineering and Mathematics (STEM) education among the rural communities and tribal nations in Northern Arizona.

Access to regional-level data sets increases teacher engagement in the process of developing and implementing community & culturally relevant projects.

Lessons Learned & Insights Gained *Through the first cycle of design-based research, the project team gained insights on the relative importance and need for structuring specific components of the professional development course. The opportunity for teacher and student choice in creating guiding questions for their project was critical. It was equally important for teachers to have access to regionally*

Equity

The project follows a participatory approach to the design and development of course sessions and student lessons/projects. Teacher participants work alongside course instructors, with feedback from community and project advisors, to craft learning experiences that are contextualized within students life in their communities.

New Challenges & Next Steps

Challenge The interdisciplinary nature of projects (and teaching contexts of project participants) requires more and varied opportunities to engage with data analysis technologies in ways that are a fit for each individual classroom teacher and disciplinary context.

Revision & Next Step: The project team identified the need for simultaneously narrowing and broadening across the PD model and structures. The narrowing of the project to focus on air quality supported interdisciplinary planning, with each content area teacher focusing on a different aspect of air quality (science, mathematics, social studies, SPED, etc). The team also identified a need to expand the opportunities to engage with different types of technology that best supported each of the disciplinary contexts.