Synthesis: Impact of integrating innovative technologies in STEM classrooms on K-12 students' STEM career outcomes

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Project type: Synthesis

Project Overview: This synthesis project examines the effects of integrating innovative technologies and technology-based learning experiences in STEM education on PreK-12 students' STEM career outcomes through two concurrent, interrelated studies – a quantitative meta-analysis and a qualitative synthesis.

This study examines how magnitudes and variations of effects of innovative technology-related interventions are different for students underrepresented in STEM, and what, how, and why intervention features and educational settings lead to different outcomes for students.

Lessons Learned & Insights Gained

1) Study findings will provide specific knowledge about what types of interventions work best for students from underrepresented populations, in what educational settings and community contexts, to inform targeted interventions to develop students' STEM career interests and outcomes. 2) Preliminary meta-analysis results were presented at 2022 AERA with lively discussion of the synthesis topic and results. 3) Joint displays and other mixed-methods analysis techniques are useful tools to draw meta-inferences.

Equity

To address equity in student career development, we examined how and why interventions that explicitly served underrepresented student subpopulations (e.g., female African American students) had different impacts than did interventions which did not serve a specific subpopulation.

New Challenges & Next Steps

1) Finalize quantitative coding and analyses. 2) Focus qualitative synthesis on examining how/why interventions worked in different contexts. 3) Conduct topical crosswalks between quantitative and qualitative analyses after quantitative codebook and qualitative coding scheme are completed. 4) Explore creative ways to disseminate findings.