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4:30p.m. - 6:00 p.m.

Via Zoom

Please Register



Building a Sustainable Maker-based STEM Teaching and Learning Ecosystem in North County San Diego through University-Community Partnership

In this presentation, I will share the research findings and lessons learned in the last four years from the iTeachSTEM program that brings together teaching, learning, research, and community engagement. Early Science, Technology, Engineering, and Math (STEM) experiences in elementary and middle school lay the foundation for the development of STEM interests and skills that are necessary for STEM learning in high school and beyond. Unfortunately, research suggests that students of color and those from underserved communities are less likely to have access to quality STEM learning experiences. At the same time, while K-8 teachers must be prepared to incorporate STEM teaching strategies and practices into their classrooms across different content areas, they consistently report a lack of confidence and low self-efficacy in their ability to teach STEM. To address these problems, I have redesigned the EDUC422 Teaching, Learning, and Technology course to include service-learning where undergraduate students (mostly teacher candidates) learn and implement maker-based STEM activities that foreground technology and engineering with children at school sites. Over the last four years, I scaled the impact of the program from serving 6 schools to 24 schools per semester (approximately 420 children) while supporting undergraduate students in developing their skills and confidence in teaching STEM (120 undergraduate students per semester). In Fall 2020 due to the COVID-19 pandemic, the course and afterschool programming moved online. In my presentation, I will share the theoretical and pedagogical frameworks that guide the design of the course and STEM activities, the findings from data collected from children and undergraduate students over the years, as well as how moving the program online introduced challenges and provided new opportunities for teaching and learning. Implications for broadening participation in STEM, community outreach, and service-learning will be discussed.