



Integrating Computational Science with Environmental Sciences Associated with Habitat Restoration and Education in New York Harbor, CCERS Phase III

Dr. Lauren Birney, Principal Investigator Pace University New York City, lbirney@pace.edu

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Project Type: STEM +C/ITEST Research

Project URL: [Click here to access the Digital Platform](#)

Project Overview: This project aims to advance science-based STEM+C education and teacher training models with the addition of location-based curriculum for teachers and students in computer science topics and STEM+C career exploration.

CCERS respondents, on average, reported higher levels of confidence in their technological abilities compared to respondents in the comparison group. Additionally, URG respondents, on average, reported higher confidence in their technological abilities compared to respondents in the comparison group.

Lessons Learned & Insights Gained

Key lessons learned from further analysis revealed significantly higher reported levels of engagement, career interest and scientific identity for CCERS respondents compared to non-CCERS respondents. URG female students in 9th grade who participated in CCERS had the highest STEM career interest than any other female participants across condition or grade. This provides valuable insight for future programming, suggesting that participating in programs like CCERS, may be particularly impactful for 9th grade URG females that have STEM career interest. participation in CCERS activities is significantly related to higher reported scientific identity, a key predictor in STEM motivation and retention, further analysis revealed that the impact was even more significant for 11th grade students in the treatment condition.

Equity

A large focus of this project is on the educators' experience with our programming and content, and thus a diverse assemblage of teachers was needed to carry out multiple pilot programs. Teachers from Title 1 schools in the NYCDOE (and other underrepresented groups) were sought out to ensure URM students were being exposed to our curriculum and teachers who serve these students had the chance to pedagogically review how their students may interact with CCERS curricular resources during professional learning workshops. The resources created and refined through the CCERS teacher pilot programs are also accessible to everyone through the CCERS Digital Platform, putting equitable access to all students at the forefront of the CCERS Environmental Science curricula.

New Challenges & Next Steps

Adapting to new educational environments and student access necessities, the project team will continue to increase the hybrid learning options and instructional modalities. Additionally, the team will continue to provide multiple in-person activities, events, forums, trainings and colloquia so students have a variety of options to participate in the project learning activities based upon the changing landscape. **The BOP-CCERS Model** begins with the vision that public school curriculum, particularly in the STEM fields, is enhanced by explicitly linking teaching and learning to a localized, large-scale environmental restoration endeavor that demands authentic research, data collection, and experimentation. In New York City, there are numerous local environmental problems that merit inquiry-based science research by students; however, none is more fundamental than the question of human impact on our waterways. BOP CCERS will seek to finalize this research in Phase IV of the project.