

# The Engineer in Me

*Njeri Bennett, Christine Schnittka*

This project was aimed at investigating the impact of science, technology, engineering, and math (STEM) curricula centered on spatial thinking skills, science content knowledge, and attitudes towards science and engineering in low socioeconomic (SES) areas. This research topic is important because students of color from lower SES areas may be less likely to get exposed to STEM before they step foot into a college classroom. In this project, 47 students of color, ranging from kindergarten to twelfth grade, were exposed to an interactive and fun way to experience science and engineering activities. My goal was to help them translate their experience as a student of color to subjects that they find challenging, like math and science. As a major in Industrial and Systems Engineering with a minor in Africana Studies, I wanted to link the unique identity of Black inventors to science to show the direct impact that racial representation has in STEM fields.

In the first task, each student was asked to “Draw a Scientist/Engineer” and given a form to fill out with supporting information about their character. This form asked for the character’s personal information, work setting, job description, and a description of what the engineer/scientist doing in the drawing. Each student also received a brown engineering journal that they used each week to draw project designs, parts, materials, spatial thinking tools, and people. For the first few weeks, I introduced spatial thinking activities that challenged each student’s orthographic skills.

The next phase of the project focused on introducing scientists and engineers from marginalized groups like women or African Americans. In this exercise, I read a description of a scientist or engineer and each student would draw the person that I was describing. Afterwards, I would do an activity related to the scientist or engineer that we focused on for that day. For the last two weeks of the project, I exposed the students to more spatial thinking games and activities.

Although the initial reason for this project was to expose students of color to curriculum centered on spatial thinking skills and science content knowledge, I wish to examine the participants’ attitudes towards

math, science and engineering in future work. In addition, I feel that my identity as a Black, female engineering student at Auburn University served as a catalyst to my research project. From this experience, I plan to create a STEM curriculum that will expose students from underrepresented groups to the intersecting identities of Black and Brown people in the engineering community. My hope is that this curriculum will increase the interest in engineering as well as love for math and science during primary and secondary education.

## Statement of Research Advisor:

My research is on engineering design-based curriculum development for youth, with a particular emphasis on developing spatial thinking skills. Njeri was key to my work during the fall of 2017, as she participated in curriculum development, curriculum implementation, and data collection and analysis. Her assistance was invaluable.

— *Christine Schnittka, Curriculum and Teaching*