Fostering STEM Interest in Middle School for Female Students of Color through STEM Integration at a Developing STEM School
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Research Question
What elements of community-embedded STEM integration help to foster STEM interest in middle school girls of color at a developing STEM school?

Background
Middle school – a critical time when students begin to form their ideas about careers
Many begin to lose interest in STEM topics; in particular, girls of color
Women & people of color underrepresented in STEM -- dominated by White men
Increasing interest and opportunities in STEM careers for women and people of color may ameliorate the predicted future employee shortages in STEM
To ensure that all students have the opportunity to pursue STEM careers, educators need to find ways to increase and maintain high levels of interest for a broader audience of students

Context of Larger Study
Goal: to research the process of developing STEM programming at four secondary schools within an urban public schools district in the Midwestern United States
Each school: STEM team, University STEM fellow, Professional Development

Context of this Study
Falconer Middle School – urban community school with a STEM focus; 98% students of color; 88% students free/reduced lunch
7.8% of students proficient in science

Methodology
Single embedded case study contextualized in two integrated STEM units with multiple units of analysis (Yin, 2014)
Case – STEM interest in girls of color
Units of analysis – 7 girls of color at Falconer

Analysis
Audio recordings of focus groups, presentations, & interviews transcribed, inductively coded

Findings

Connections to Helping People in the Community
"people [who live near MidWest Metal] would...be affected by [lead]...if...underground it’s going to stay there for...thousands of years... Lead in the ground can affect the air, plants, & animals that live around it...when lead gets into blood vessels, it hurts [young children] more because...they’re still developing, and lead can still cause a lot of problems like how the blood flows...it can be fatal.” - Aaliyah

Personal Connections
Danita wrote about how she suffers from asthma and how this relates to the dangers of air pollution in her community
Kira’s little brother suffered from lead poisoning; she spoke to the entire seventh grade
She collected soil samples from her yard and tested the samples for lead
Making connections to real-world problems
One of the main tenets of quality STEM integration (Moore, et al., 2014)
When students are able to connect what they learn to their own lives and to helping others, they are more interested in what they are learning and doing
SciGirls Strategy #2: Girls are motivated by projects they find personally relevant and meaningful

Conclusions/Implications
This study illuminated five main elements of community-embedded STEM integration that helped to foster STEM interest in girls of color.
Through STEM integration, they were able to make meaning of what they were learning and doing in school and connect it to their own lives. They learned how they could make a difference and help others within their community through application of their STEM knowledge.

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