Living, Learning, and Leveraging Engineering Skills Learned in Socio-cultural Settings
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**Background**
- Diverse pathways and experiences lead to engineering careers
- Youth from different ethnic and socio-economic backgrounds have differing access to out-of-school program and activities
- Need to understand the intersection between a Black youth's lived experiences and their journey along engineering pathways
- Black males face, educational, racial and professional identity challenges along STEM pathways

**Objectives**
1. To find relationships between specific activities and specific engineering attributes
2. To identify evidence of socio-cultural experiences and access to Community Cultural Wealth for African-American youth & men

**Research Questions**
- (RQa) How do Black middle-school aged adolescents and their parents describe their out-of-school-time engineering learning experiences?
- (RQb) In what ways do Black male undergraduate engineering students' descriptions of their pre-college cultural practices and experiences align with aspects of Community Cultural Wealth and Engineer of 2020 Attributes?

**Methods**
- **Methodology:** Concurrent Cross Sectional Qualitative Study
- **Participants:** Adolescents & parent pairs (n = 8), College men (n = 13)
- **Data Collection:** Individual and Focus group interviews
- **Theoretical Frameworks:** Community Cultural Wealth, The Attributes of the Engineer of 2020
- **Analysis Methods:** Inductive and a priori coding

**Findings**
- Learning experiences developed skills and provided access to capital
- Adolescent engagement with DBC varied and served different purposes
- Parents played active and passive roles in the experiences
- Adolescents did not always recognize value of activities or experiences but parents tried to strategically align activities with interest
- Experiences occurred in physical and virtual locations and in their imaginations

**Conclusions**
- The impact of race, class and gender and knowing history
- The influence of parental support
- Need more accessible engineering programs
- Identify and apply knowledge learned from socio-cultural settings to engineering practice
- Black youth and men access and contribute to community cultural wealth

**References**

**Acknowledgements**
This material is based upon work supported by the National Science Foundation under Grant No. 1129842. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation. This work could not have been completed without the research participants and the support of members from the Informal Pathways to Engineering research team