Innovations in Examining Pathways of Youth Who Stay in Science

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Focus of the Study
This study investigates the pathways of approximately 460 high-potential urban youth participants across 20 sites in NYC with the goal of documenting the potential opportunities and barriers to persistence in STEM.

Overarching Research Questions:
• How do youths’ social networks develop through their participation in communities of practice (CoPs)?
• What are the relationships between CoP features and youths’ social networks, academic achievement, and pursuit of STEM?
• What are the variations in pathways as related to learner characteristics, social network composition, and CoP features?

Guiding Program Principles Across All Sites
• Minimum of 70 hours of prep coursework
• Student immersion in authentic science research alongside a scientist for 100 hours
• A culminating project allowing students to communicate their research
• Professional development for scientist mentors

Social Network Pilot Data

Social Networks Map Key

Emerging Questions
• In what ways do teachers and mentors interact with one another to collaboratively support student persistence and growth?
• How much new or unique support is provided through non-science research mentoring connections? Does this complement or reinforce what youth are provided through the mentorship program?
• Have youth’s relationships with scientists or adults more generally changed since their mentorship experience? If so, in what ways?

Ecosystem Approach Looks Across Formal & Informal Contexts
By collecting data from in-school and out-of-school contexts for over 300 youth per year, across three years, we hope to advance methodology in how to more easily collect and match these two traditionally separate spheres of influence and experience and to advance theory on the impact on youth STEM career pathways of participation across multiple settings and broader exposure to STEM social capital. The study involves:

Social Network Analysis:
• Uncover relational features of persistence that may be particularly critical for underrepresented youth
• Understand how STEM role models and cultural brokers foster a sense of belonging and identity in STEM

Analysis of Large Public School Data Set:
• Data set contains biographical and demographic variables, secondary and postsecondary course enrollment and grades, and persistence/graduation indicators
• Matched comparison of program participants and non-participant peers

Incorporates Youth as Co-Researchers:
• Select program alumni will work alongside education researchers on data analysis and dissemination

Engaging Youth as Co-Researchers
Program alumni develop research skills and expertise in education research in order to empower participant voices in data analysis and to lead engagement around the research findings among audiences important to youth.

Involving Youth in Dissemination & Leveraging Social Media
• Seek input from youth on how best to share findings; empower youth to contribute
• Engage youth-facing organizations to help share what we have learned
• Utilize existing social networks (program alumni, current participants, co-researchers)
• Capitalize on existing communications assets, focusing on social media (YouTube; Facebook; Twitter; LinkedIn)

For more information: www.studentresearchnyc.org

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