Urban Youth: Social Justice Driven Science

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Structure and Nature of our Work

- Work with low-income schools and students
  - In-school and out-of-school
- Out-of-school program
  - Recruit as 9th graders keep in program till 12th grade
  - Do not focus on students who are interested in science
  - 15% enter with a marginal interest in science, 75% leave with a strong interest
    - 3 Gates scholars over the past three years

- Using science to solve social justice challenges
  - Food desserts
  - Air quality in their neighborhoods
- Youth design and build hydroponics systems… sell produce
- Build air quality sensors and analysis rea-time data using geospatial tools

Access to Full Service SuperMarkets Compared to Convenient Stores
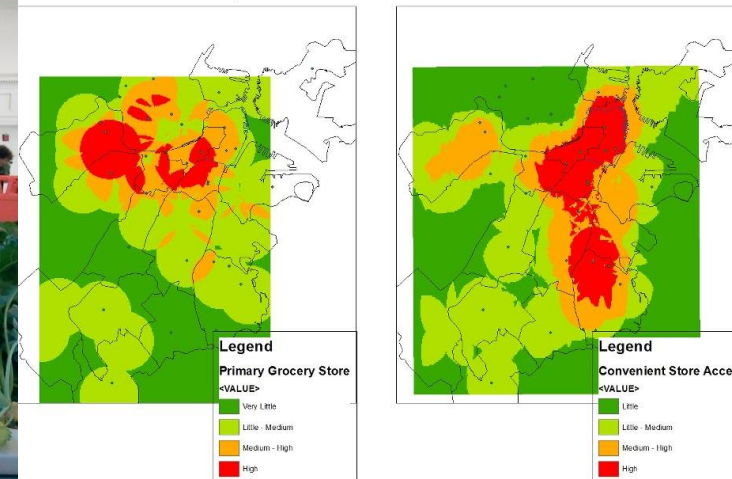
Pathway to STEM career complicated…
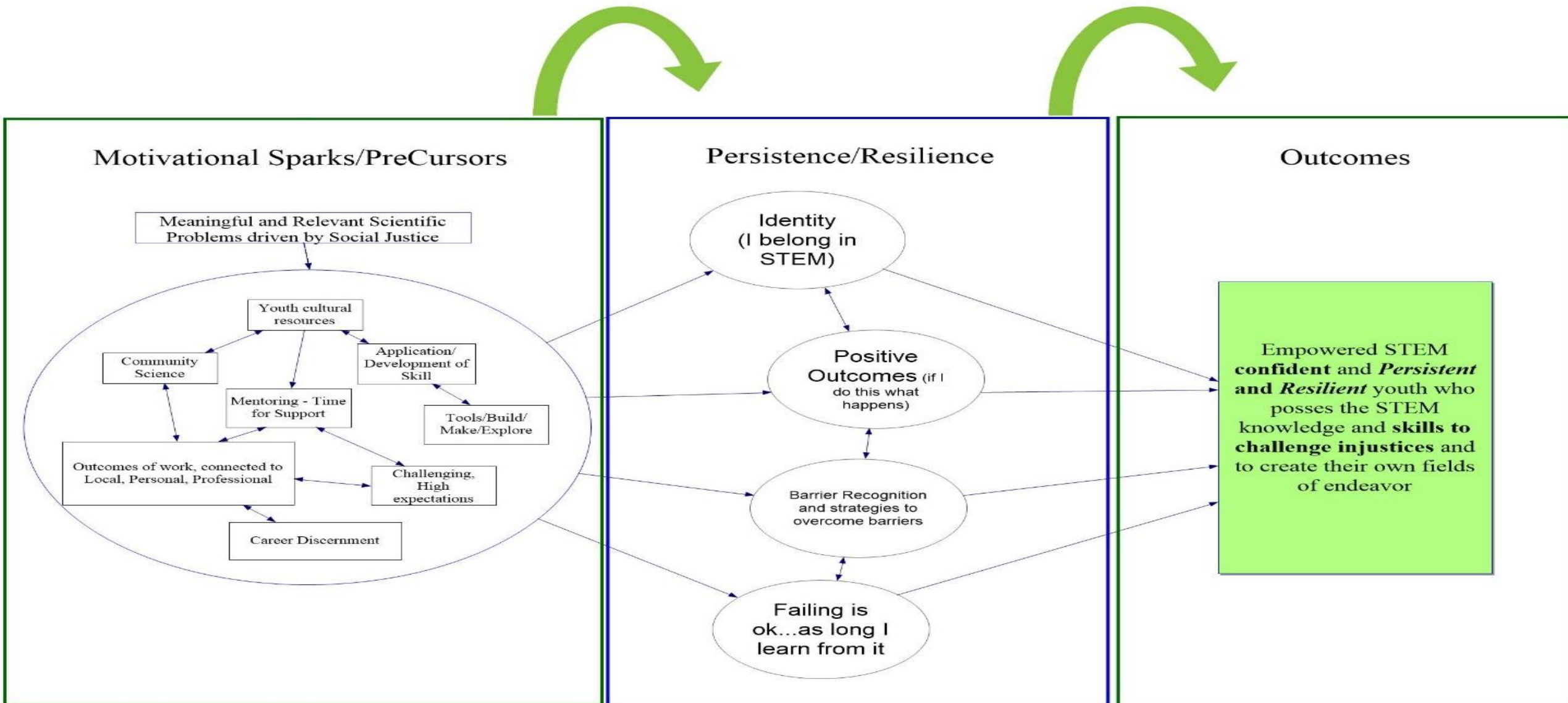
Takes time and lots of bumps along the way

- A residue effect that grows over time… in bits and starts
- Long time to develop the mindsets to study STEM
- Motivate ->Interest -> Confidence ->Resilience
  - persist in STEM and overcome barriers/challenges
    - Low-income youth (particularly minorities) face a myriad of challenges

Retained Student Science Interest
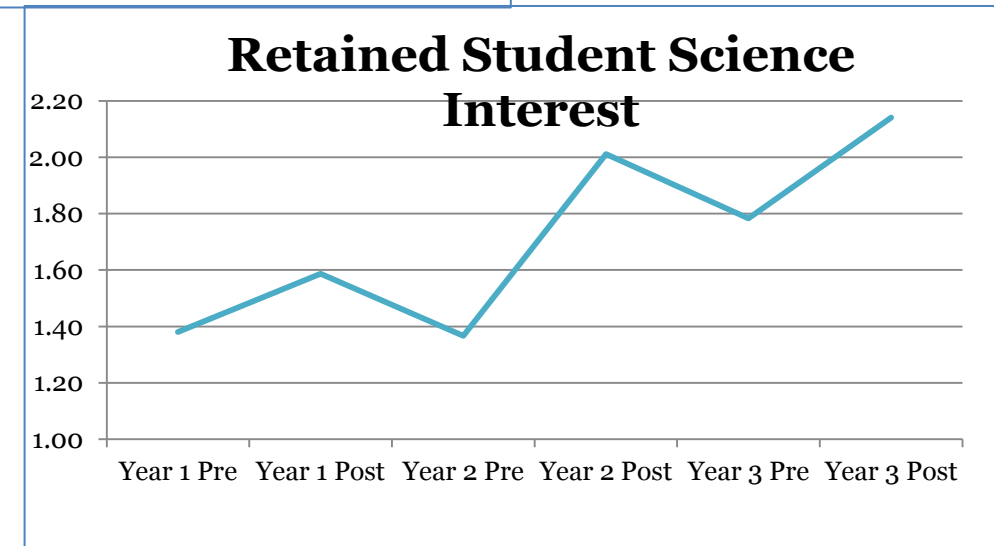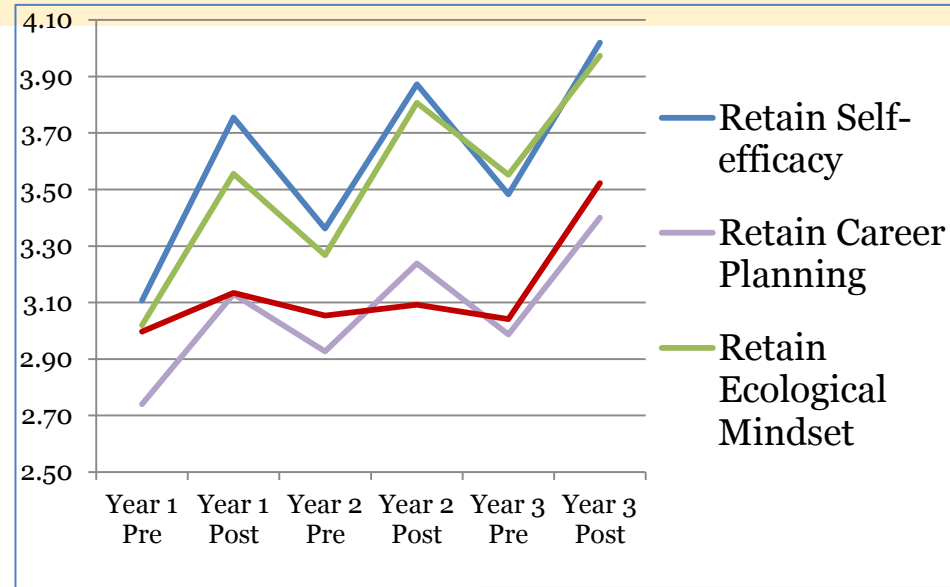
$$(\hat{\beta}_{Time} = .15, \ t = 11.73, \ p = .98).$$

More than just motivation...need to build resilience

- **More than just motivate and inspire**
  - **Resilience to persist in STEM and overcome barriers/challenges**
- What I think was the most valuable experience of the program was the fact that I was forced out of being comfortable and that college science will be challenging and hard. Not hard in being able to do it...but hard in terms of knowing it but feeling like I... being a woman [minority] from Dorchester.....can do it and be successful... being a facing that early was important....
  - Gates scholar – graduating this May with a degree in Mechanical Engineering