WOMEN of COLOR in COMPUTING Collaborative

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# **Counter-stereotypical beliefs** about scientists strong predictor of STEM intentions for Black and Latinx adolescents

## SUMMARY

Racial and gender underrepresentation in STEM majors and careers continues to persist despite several initiatives designed to increase minority participation in the sciences. Much of the research to understand the lack of diversity in STEM has traditionally focused on the negative impact of stereotypes about one's academic abilities or the negative perceptions one holds about the physical and social attributes of scientists. However, a new study from researchers at University of Texas at Austin found that old tropes about who scientists are did not resonate with about half (>500) of the Black and Latinx adolescents surveyed. Girls of color held the most counter-stereotypical views about scientists. As these students transitioned from middle school to high school, holding non-stereotypical views about scientists were shown to be significant predictors of a student's intention to major in STEM. Encouraging educators to provide images of scientists engaged in real work and ensuring those images reflect the ethnic, racial, and gender diversity present in public school classrooms while also attending to structural barriers, may help promote STEM interest among minoritized students.

## **Black female students** held the most **counter-stereotypical** views of scientists.

Middle school is a critical time for identity formation and the development of future career plans for many adolescents. Schools play a significant role in exposing and preparing youth for vast opportunities across many fields. Yet too often, Black and Latinx students are dissuaded from pursing STEM majors and careers. To shift the underrepresentation of Black and Latinx participation in STEM majors and occupations, a shift in our understanding of the dynamics attributed to Black and Latinx youth perceptions about scientists and their intentions to pursue specific STEM majors is necessary. To that end, this longitudinal study of about 1,100 Black and Latinx students in an urban Southwest school district found:

- **Counter-stereotypical views** about who scientists are, the work they do, and how they spend their time outside of work were strong predictors of a student's intentions to pursue STEM majors.
- Specifically, these views were shown to **predict intentions to major in computer science**, a field in which Black and Latinx students are severely underrepresented, and engineering.
- **Gender is a distinguishing factor** in a student's preferred STEM discipline, as girls are much more likely to want to major in biology than boys. This tracks with data that shows 60% of bachelor's degrees in biology are awarded to females. Holding counter-stereotypical views of scientists were not related to girls' intentions to major in biology but were related to boys' intentions to major in biology
- **Broader views of scientists** were not strong predictors of Black or Latinx males or females intentions to major in math or physical sciences.

### What does this mean for educators?

As educators in urban districts continue to fight for resource equity to deliver high quality instruction and to eliminate structural barriers long known to exacerbate disparities, it is imperative to also consider how policies, curriculum, and classroom practices shape the STEM identities and intentions of minoritized students. Specifically, educators should:

- **Provide images** of scientists engaged in real work
- **Invest in STEM curriculum** and materials that reflect the gender, racial, and ethnic diversity of public school students
- **Shift resources** to attract and retain highly qualified STEM teachers
- **Offer advanced courses** in STEM across multiple disciplines

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