

# Growing the STEM Teacher Workforce: A Focus Group Study of the Career Considerations of High-Achieving, Underrepresented, High School Students

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## Introduction

The low number of STEM teachers from underrepresented minority groups is a national concern that has major implications for the STEM performance of underrepresented minority students. In fact, the low number of underrepresented minority teachers across all disciplines and all grade levels is a well-documented problem facing the nation. For example, a report by the Center for American Progress shows that while 44% of the nation's students are non-white, only 18% of the nation's teachers are non-white (Boser, 2014).

These disparities become even more pronounced when examining the STEM teaching workforce. According to a report produced by Horizon Research, Inc. (Banilower et al., 2013) only 8% of high school science teachers and 8% of high school mathematics teachers characterize themselves as non-white.

Despite the pervasive shortage of STEM teachers from underrepresented minority groups, and educational detriment realized in the absence of underrepresented minority teachers, the recruitment of STEM teachers is a subject of study that receives very little attention from mathematics and science education researchers.

## Purpose

The objective of this study is to generate an empirically grounded understanding of three aspects of the career considerations of high-achieving, underrepresented minority students. These are (a) their career interests and barriers, (b) the people and organizations that influence career decisions, and (c) the fit between STEM teaching and students' life goals.



## Methodology

- Qualitative Study
  - 20 Focus Group Interviews
  - Interview Length: 1.5 to 2 hours
- Research Participants
  - High achieving minority students (N=50)
  - Parents of participating students (N=38)

Figure 1. Race/Ethnicity of Student Participants

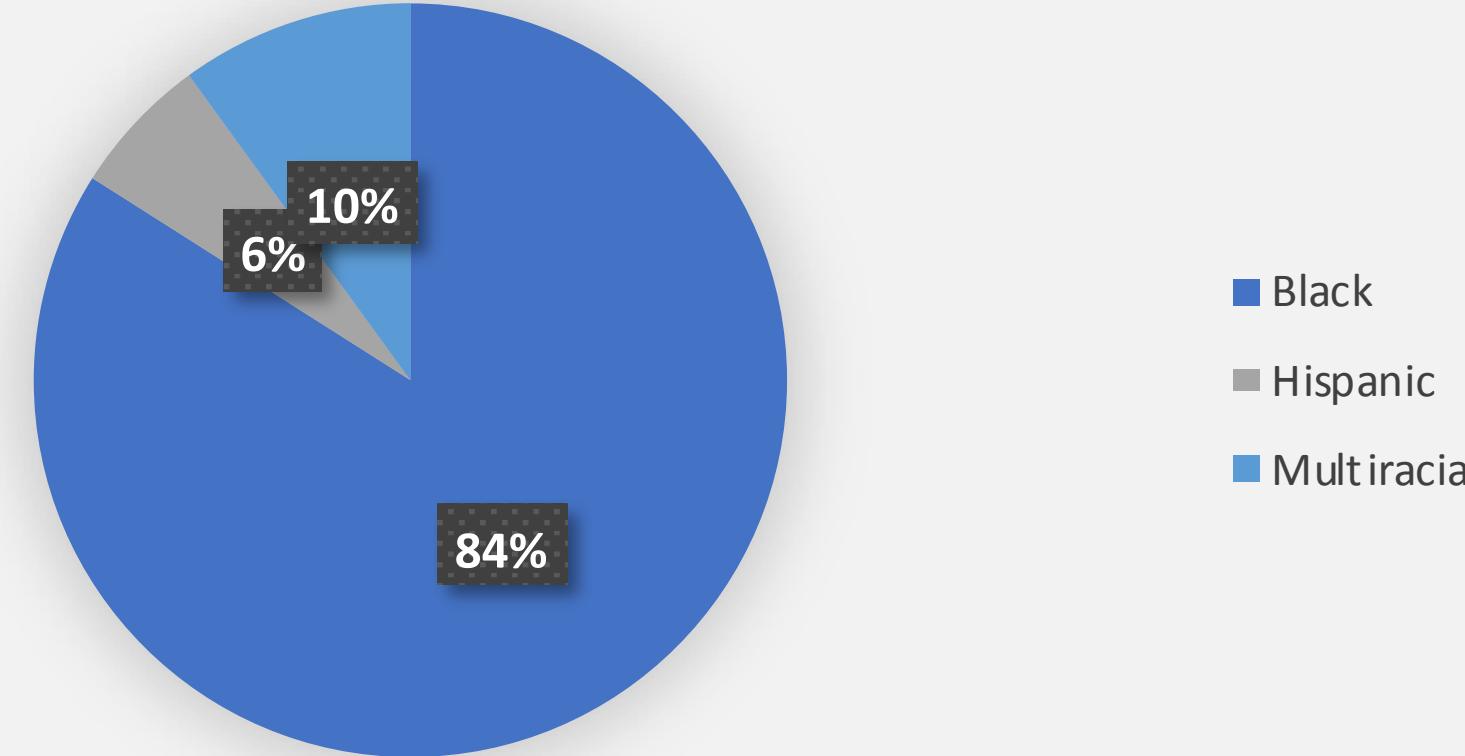
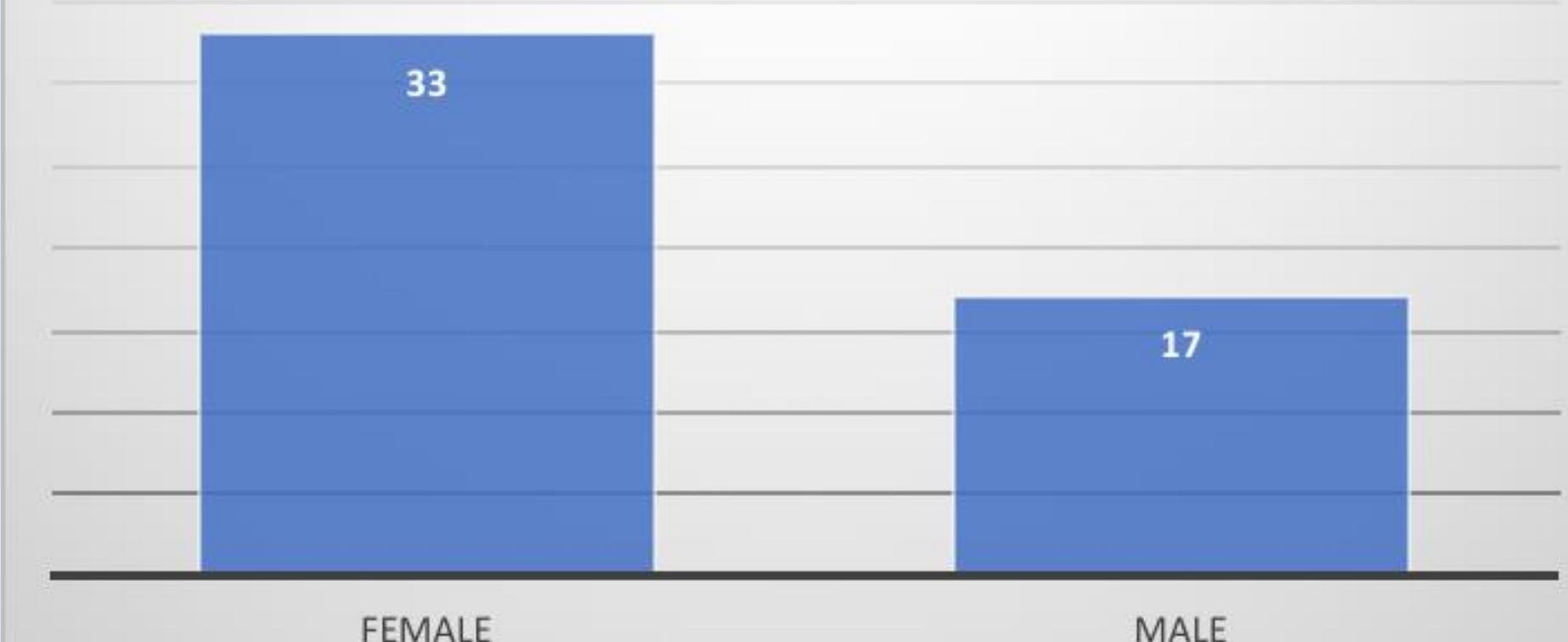


Figure 2. Gender of Student Research Participants



- Data Collection
  - Registration survey
    - Demographic information
    - (Grade level, race, school, GPA, household income, etc.)
  - Video and audio-recorded focus group interviews
    - Note-taking
- Data Analysis
  - Transcription of interviews
  - Coding for patterns/themes

### Focus Group Discussion Topics

- ✓ What college majors are you considering?
- ✓ Where have you gotten information about the majors you are considering?
- ✓ Imagine your life 20 years from now. What do you want your life to look like?
- ✓ Have you considered a major in science or mathematics education? (Revised: What are the benefits and detriments of mathematics and science teaching?)

## Preliminary Findings

1. Students' career decisions are most heavily supported by extracurricular experiences (e.g. internships, summer camps, mentors, career pathways & informal arrangements). Parents actively seek out informal experiences for their children.
2. Schools are the primary institution on which parents rely to provide career preparation information. Some schools fill this role well. Others do not.
3. Students and parents often (about 90%) report that they had never considered teaching careers, especially science and mathematics teaching. Discouragement from practicing teachers, lack of confidence in mathematics and science, and lack of patience necessary to manage a classroom were cited as the primary reasons.
4. While most students were not interested in a STEM teaching career, students found that their life goals aligned with life goals that could be realized with a teaching career. (Giving back to their communities, supporting youth, serving as a role model).

## References

- Banilower, E. R., Smith, S. P., Weiss, I. R., Malzahn, K. A., Campbell, K. M., & Weis, A. M. (2013). *Report of the 2012 National Survey of Science and Mathematics Education*. Retrieved from: <http://www.horizon-research.com/2012nssme/wp-content/uploads/2013/02/2012-NSSME-Full-Report1.pdf>

- Boser, U. (2014). *Teacher diversity revisited: A new state-by-state analysis*. Retrieved from <https://cdn.americanprogress.org/wp-content/uploads/2014/05/TeacherDiversity.pdf>

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