BHEF BUSINESS-HIGHER EDUCATION FORUM®

BHEF Research Brief

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Meeting the STEM Workforce Demand: Accelerating Math Learning Among Students Interested in STEM

Efforts by federal and state governments to increase the STEM workforce in support of innovation and competitiveness are frustrated by a shortage of adequately prepared and interested students. Less than half of 12th graders meet the math proficiency benchmark that indicates college readiness.[i] Further, only 17 percent of 12th graders are math proficient and interested in STEM careers.[ii] African American, Hispanic, and Native American students are substantially underrepresented within this group, with less than 6 percent of all African American 12th graders interested in STEM careers and college ready in math.

Notably, the group of students interested in a STEM career but not math proficient is nearly as large as the proficient and interested group (see Figure 1 on reverse). These students represent an untapped pool of talent that might be marshaled to address our country's workforce needs. In particular, over half of the students in this group are within 4 points of the math benchmark score that would allow them to enter college-level STEM coursework without requiring remediation. This migration into STEM education could have a significant impact on diversity (see Figure 2 on reverse). Analysis indicates that:

1. **Many students are interested in STEM but not math proficient:** Fourteen percent of 12th grade students indicate interest in STEM careers but fail to meet the math proficiency benchmark indicating college readiness.

2. **Many STEM-interested, but not math proficient students, are within reach of the benchmark:** Nearly a quarter of STEM-interested but not proficient students are within two points of the math proficiency benchmark score; almost half are within four points.

3. **Systematically improving math proficiency would significantly improve diversity in STEM education and the workforce:** Thirty two percent of STEM-interested African American 12th graders, and 43 percent of STEM-interested Hispanic/Latino 12th graders, are within four points of the math proficiency benchmark.

STEM-interested, but not math proficient students represent some of the low-hanging fruit of the STEM education pipeline. In particular, using new learning tools to accelerate math achievement during the latter part of high school could move considerable numbers of students into STEM education and the STEM workforce, increasing the diversity of both.

The Business-Higher Education Forum (BHEF) is the nation's oldest organization of senior business and higher education executives dedicated to advancing innovative solutions to U.S. education and workforce challenges. Composed of Fortune 500 CEOs, prominent college and university presidents, and other leaders, BHEF addresses issues fundamental to our global competitiveness. These analyses are derived from a 2008 longitudinal data set provided to BHEF by ACT, that provides student interest and proficiency scores on 10th grade (Plan) and 12th grade (ACT) exams (part of what is known as the EPAS system), along with demographic data (n=575,132). Only students with scores from both exams are included in this dataset. There are observations from all 50 states, though states with higher ACT participation rates are over-represented. The scores reported in this brief are based on 12th grade math proficiency and interest in a STEM major. Learn more at www.bhef.com.

Figure 1: STEM-interested 12th grade students, by math proficiency

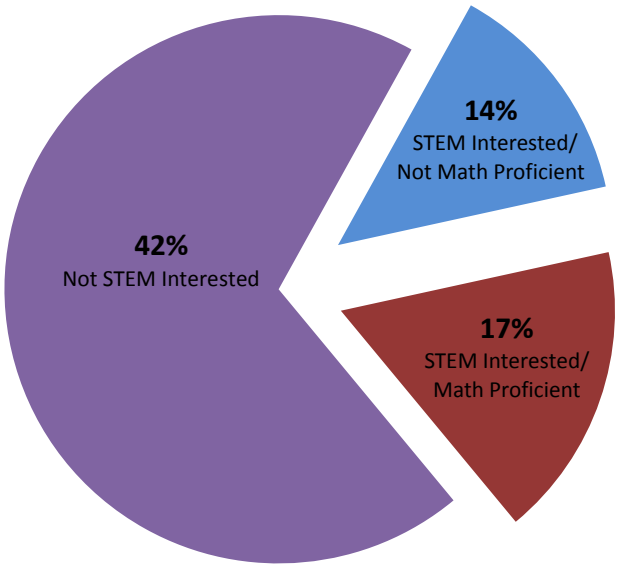
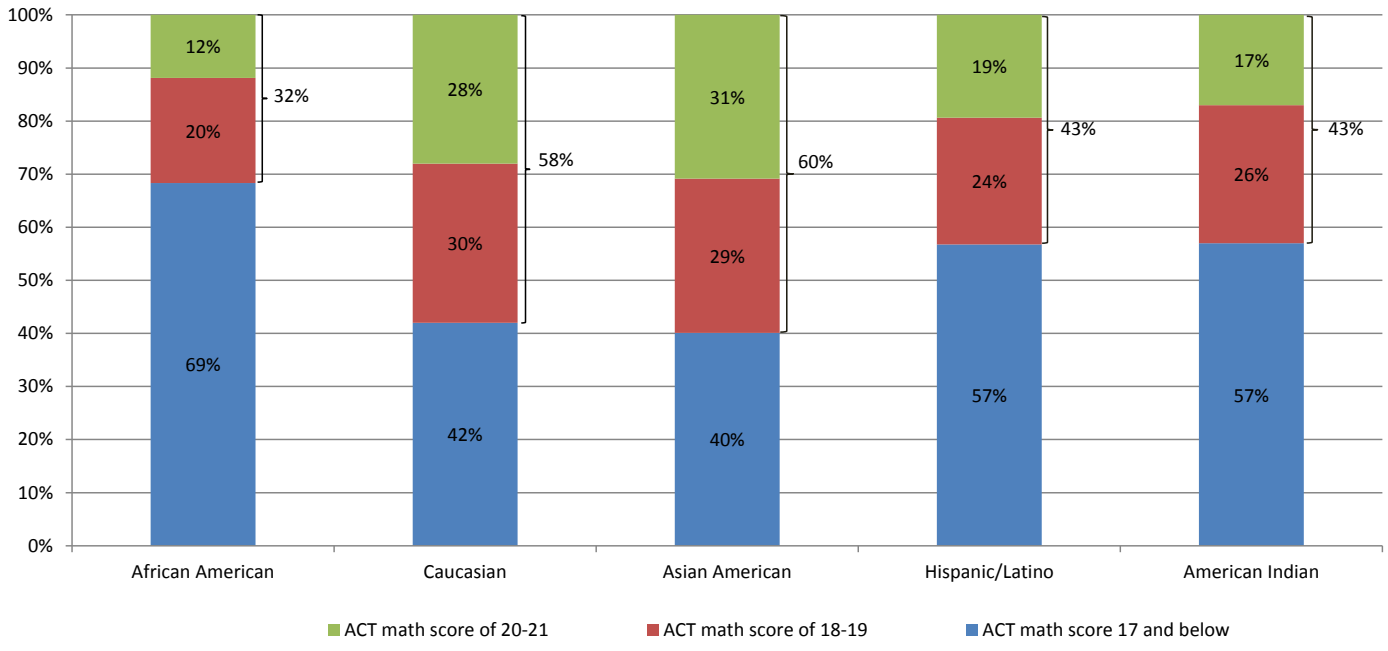


Figure 2: 12th grade students who are STEM-interested and not math proficient, by race/ethnicity



Totals may not sum due to rounding

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i ACT. (2011). *The condition of college and career readiness, 2011.*
Note: Students who score a 22 or higher on the mathematics portion of the ACT exam are math proficient and have a high probability of college success.

ii Business-Higher Education Forum. (2011). *The STEM interest and proficiency challenge: Creating the workforce of the future.* Washington, DC: Author.