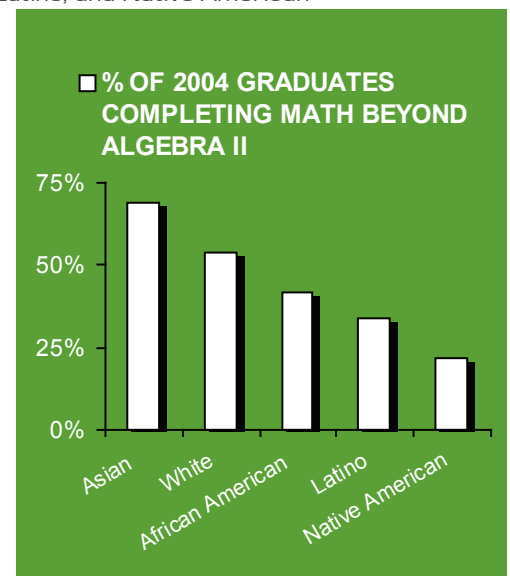


Advanced Math: Closing the Equity Gap

Minority and low-income students are less likely to have access to, enroll in, and succeed in higher-level math courses in high school than their more advantaged peers. Under these circumstances, higher-level math courses function not as the intellectual and practical boost they should be, but as a filter that screens students out of the pathway to success.


Education doesn't add up for too many low-income and minority students.

- There are big inequities by race. Fewer than half of African American, Latino, and Native American graduates take math beyond Algebra II, compared with 69 percent of Asian and 54 percent of white graduates.¹
- There are even bigger inequities by wealth. Only 33 percent of students from disadvantaged families take math beyond Algebra II, compared with 72 percent of affluent students.²
- Some inequities are getting worse: In 1982 the gap in taking pre-calculus or calculus between students from the most and the least disadvantaged families was 18 percentage points, but by 2004 that gap had nearly doubled to 35 points.³



The problem is a lack of opportunity, not ambition.

- In a national survey, minority students expressed just as much interest in taking advanced math courses as white students, with *minority girls* expressing the most interest.⁴
- Yet for minority students, interest far exceeds availability. Among white boys, the gap between those interested in taking advanced math and those saying such courses are available to them was just 8 percentage points, while among minority girls that gap was 30 points—nearly *four times* as great.⁵
- Too often it is believed that peer pressure discourages minority students from taking advanced math courses. But minority students are less likely to say their friends discourage them from taking advanced math and twice as likely to say their teachers do than their non-minority peers.⁶


$$[X_i - \bar{X}]^2 \partial^2 \Omega$$

Advanced math advances equity.

- **In college access:** Among students whose parents lack higher education, taking advanced math courses in high school more than doubles their own chances of attending college.⁷
- **In college success:** Taking advanced math has a greater influence on whether students will graduate from college than any other factor—including family background. For those who go straight to college, taking advanced math in high school boosts college completion rates from 36 to 59 percent among low-income students and from 45 to 69 percent among Latino students.⁹
- **In economic opportunity:** Taking advanced math has a direct impact on future earnings. All else being equal, inequities in advanced math courses account for one-quarter of the income gap between students from low-income and middle-class families ten years after graduation from high school.⁹

ENDNOTES

1 National Center for Education Statistics. (2007, June). *High School Coursetaking: Findings from The Condition of Education 2007*. Washington, DC: U.S. Department of Education. [p. 24, Table SA-8]

2 National Center for Education Statistics. (2007, August). *Advanced Mathematics and Science Coursetaking in the Spring High School Senior Classes of 1982, 1992, and 2004*. Washington, DC: U.S. Department of Education. [p. 22, Figure 6] Comparison is between students from the top and bottom SES quartiles defined by parents' income and occupational status.

3 National Center for Education Statistics. (2007, August). *Advanced Mathematics and Science Coursetaking in the Spring High School Senior Classes of 1982, 1992, and 2004*. Washington, DC: U.S. Department of Education. [p. vii] Comparison is between students from the top and bottom SES quartiles defined by parents' income and occupational status.

4 Markow, D. & Moore, K. (2001, October). Progress toward power: A follow-up survey of children's and parents' attitudes about math and science. *NACME Research Letter*, 9(1). New York: National Action Council for Minorities in Engineering. [p. 4, Figure 6]

5 Markow, D. & Moore, K. (2001, October). Progress toward power: A follow-up survey of children's and parents' attitudes about math and science. *NACME Research Letter*, 9(1). New York: National Action Council for Minorities in Engineering. Survey was conducted by Harris Interactive, 1999. [p. 4, Figure 6]

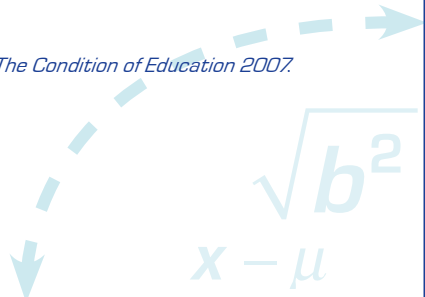
6 Markow, D. & Moore, K. (2001, October). Progress toward power: A follow-up survey of children's and parents' attitudes about math and science. *NACME Research Letter*, 9(1). New York: National Action Council for Minorities in Engineering. Survey was conducted by Harris Interactive, 1999. [p. 4-5, Figures 7 and 8]

7 Horn, L. & Nuñez, A. M. (2000). *Mapping the Road to College: First-generation Students' Math Track, Planning strategies, and Context of Support*. Washington, DC: U.S. Department of Education, National Center for Education Statistics.

8 Adelman, C. (2006, February). *The Toolbox Revisited: Paths to Degree Completion from High School through College*. Washington, DC: U.S. Department of Education. [p. xxvi]

9 Rose, H. & Betts, J. R. (2004, May). The effect of high school courses on earnings. *The Review of Economics and Statistics*, 86(2), 497-513. [p. 510]

10 National Center for Education Statistics. (2007, June). *High School Coursetaking: Findings from The Condition of Education 2007*. Washington, DC: U.S. Department of Education. [p. 24, Table SA-8]


$$\sqrt{b^2} (x - \mu)$$