NACME

NATIONAL ACTION COUNCIL FOR MINORITIES IN ENGINEERING

Research & Policy Brief

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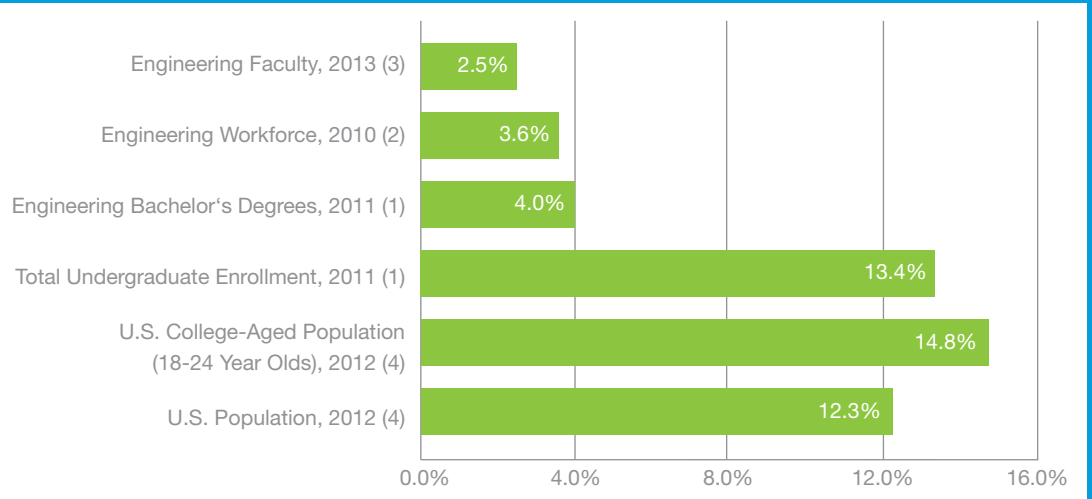
AFRICAN AMERICANS IN ENGINEERING

African Americans are underrepresented in engineering and their participation in this field has stagnated over time. In 1997, there were 62,356 engineering bachelor's degrees awarded in the United States and 3,077 (or 4.9 percent) were earned by African Americans[1]. In 2011, there were 78,099 engineering bachelor's degrees awarded and 3,097 (or 4.0 percent) were earned by African Americans. In addition, African Americans represented 3.6 percent of employed engineers in 2010[2] and 2.5 percent of engineering faculty in 2011[3].

Figure 1.
African Americans in Engineering



The underrepresentation of African Americans in engineering starts at the elementary and secondary levels of education. On the National Assessment of Educational Progress (NAEP), which is the largest nationally representative and continuing assessment of American students' knowledge in various subject areas, African American public school students rate lower than their peers in science at 4th, 8th, and 12th grades, as seen in Figure 2.

In addition, African Americans, on average, earn the lowest ACT math and science scores of any group, scoring 3.8 points below average in math, and 3.7 points below average in science, as seen in Figure 3.

The ACT has College Readiness Benchmarks which are the minimum scores required for students to have a high probability of success in credit-bearing college courses. These benchmarks are 22 for Mathematics, 24 for Science, 18 for English, and 21 for Reading. Only 5 percent of African American test-takers reach these benchmarks in each subject area compared to 25 percent of all test-takers (Figure 4).

The National Action Council for Minorities in Engineering, Inc. (NACME) employs a multilayered strategy that aims to facilitate a pathway for underrepresented minorities (URMs) to engineering careers from middle school. NACME provides scholarships to students in the form of block grants to partner institutions across the country, and in return asks those institutions to promote a campus environment that embraces diversity and inclusiveness, and provides encouragement and support for URMs engineering students. Since 1974, 56 percent (13,101) of students supported by NACME have identified as African American. Table 1 displays the schools that graduated the most African Americans in Engineering in 2011 (NACME Partner Institutions are highlighted).

Table 1.
Degrees/Awards Conferred to African Americans, 2011[1]

North Carolina Agricultural & Tech State University	138
Georgia Institute of Technology	105
North Carolina State University at Raleigh	84
Prairie View A&M University	63
Southern University A&M College at Baton Rouge	62

The **National Action Council for Minorities in Engineering**, Inc. (NACME) was founded in 1974 to ensure American competitiveness in a flat world by leading and supporting the national effort to expand U.S. capability through increasing the number of successful African American, American Indian, and Latino young women and men in science, technology, engineering, and mathematics (STEM) education and careers. NACME Alumni hold leadership positions in industry, medicine, law, education, and government. With funding from corporate and individual donors, NACME has supported over 23,000 students with more than $124 million in scholarships and other support. Currently NACME provides scholarship support to more than 1,200 college of engineering students through a national network of 51 partner institutions. NACME's STEM education strategy incorporates a continuum of programs and activities from middle school through workforce entry. Visit us at **nacme.org**.

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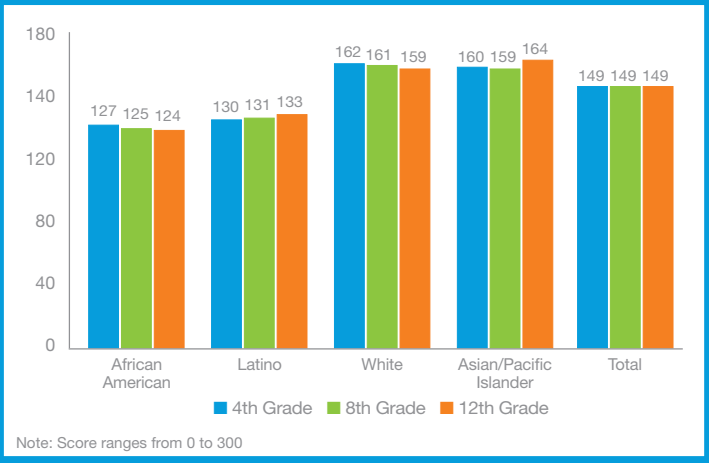
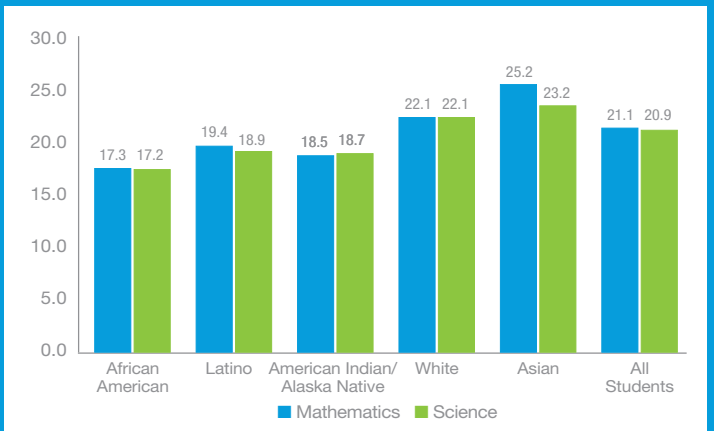
AFRICAN AMERICANS IN ENGINEERING (continued)

Figure 2.
Average Science Scale Scores of 4th, 8th, and 12th Grade Public School Students, 2009[5]



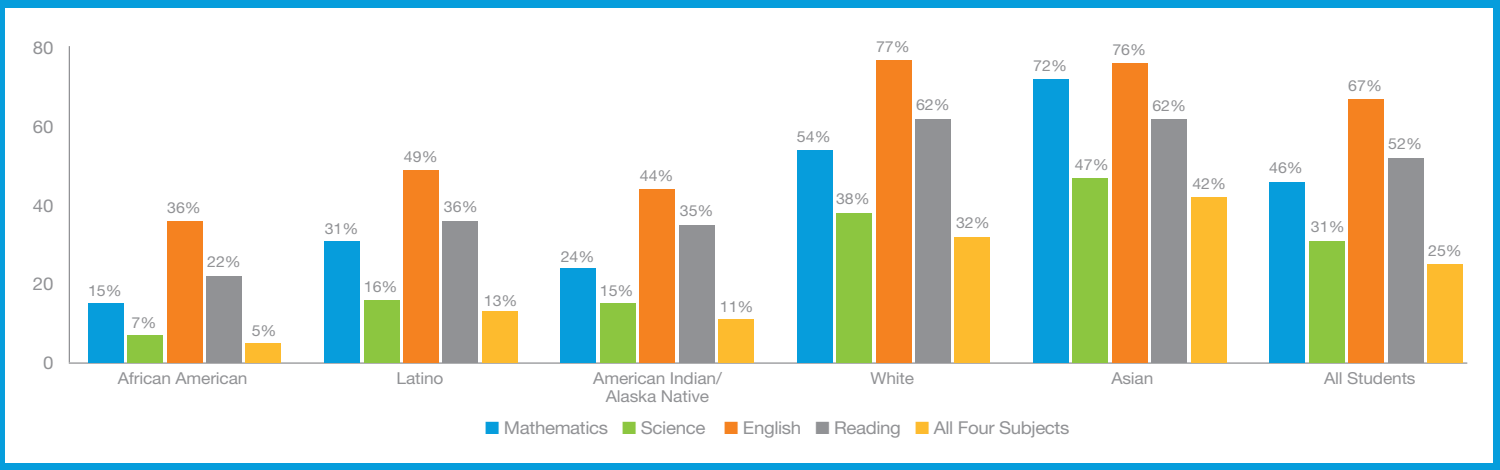
Note: Score ranges from 0 to 300

Figure 3.
Mean ACT Scores in STEM Subjects, 2012[6]



Note: Scale ranges from 1 to 36

Figure 4.
Percentage of Students Meeting ACT College Readiness Benchmark Scores, 2012[7]



Policy Considerations

Federal policies are needed to help advance the cause of African Americans and other underrepresented groups in engineering. Senator Kirsten Gillibrand [D-NY] introduced S. 1178: Educating Tomorrow's Engineers Act in 2013 to promote engineering for all students in kindergarten through 12th grade education. This bill calls for states to incorporate engineering design skills and practice into their academic content standards and academic achievement standards and assessments in science by the 2016-2017 school year, and requires states to reserve 10 percent of the grant they receive under the Teacher and Principal Training and Recruiting Fund program to award competitive grants to entities with expertise in STEM fields to develop and provide professional development and instructional materials for STEM education in their state[8]. For more information on how to support this bill, go to https://www.govtrack.us/congress/bills/113/s1178#overview.

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Endnotes

1. NACME analysis of Integrated Postsecondary Education Data System (IPEDS) accessed via National Science Foundation's WebCASPAR database system, October, 2013.
2. Source: Finamore, J., Foley, D.J., Lan, F., Milan, L.M., Proudfoot, S.L., Rivers, E.B., & Selfa, L. (2013). Employment and Educational Characteristics of Scientists and Engineers. National Center for Science and Engineering Statistics, NSF 13-311.
3. Source: Yoder, B.L. (2011). Engineering by the Numbers. Accessed online at www.asee.org in August, 2013.
4. NACME analysis of population projections from U.S. Census, 2012.
5. National Center for Education Statistics, 2012. *Digest of Education Statistics, 2011*.
6. ACT Profile Report, National (Graduating Class 2012). Accessed online at www.act.org.
7. College Board, 2012. 2012 College-Bound Seniors: Total Group Profile Report. New York, NY: The College Board.
8. S. 1178--113th Congress: Educating Tomorrow's Engineers Act. (2013). In www.GovTrack.us. Retrieved February 24, 2014, from http://www.govtrack.us/congress/bills/113/s1178.