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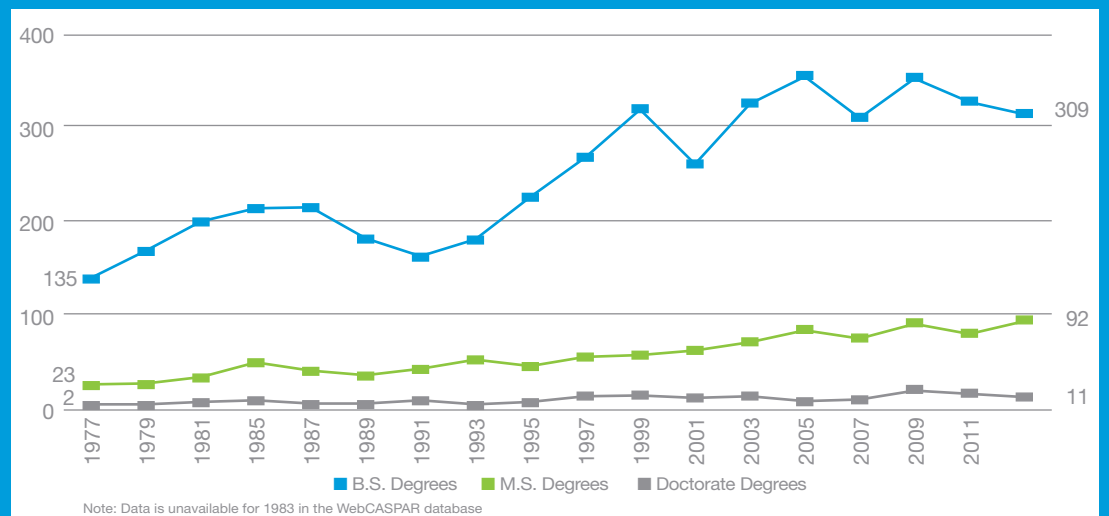
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AMERICAN INDIAN/ALASKA NATIVES IN ENGINEERING

American Indian and Alaska Natives currently constitute 0.7 percent of the overall population, and 0.9 percent of both school-aged (nine-to-17-year-old) and college-aged (18-to-24-year-old) individuals. They are projected to comprise a similar percentage of the population through 2050, though the total number of individuals who identify themselves as such is expected to grow by 23.9 percent in that time period¹. Overall, there are 566 federally recognized American Indian/Alaska Native (AI/AN) tribes and villages in the United States².

Figure 1.
Engineering Degrees Awarded to American Indian/Alaska Native Students, 1977-2012⁹



Unfortunately, American Indian/Alaska Natives face great challenges in the classroom. American Indian/Alaska Native students are 117 percent more likely to drop out of school than their White peers, and only seven of 100 AI/AN kindergarten students will eventually earn a bachelor's degree, compared with 34 of every 100 White kindergarten students³. In kindergarten, AI/AN students score significantly lower, on average, on their reading and mathematics scale scores than their White and Asian peers⁴. In fourth and eighth grades, there are significantly more AI/AN students with disabilities and who are eligible for the National School Lunch Program than non-AI/AN students. In addition, there are significantly less AI/AN students who report having more than 25 books at home, who report having a computer in their home, and who had no days absent from school compared to their peers⁵. While numerous factors surely contribute to this achievement gap, one important issue is the lack of culturally based education available at many schools. The National Indian Education Study, which is administered as part of the National Assessment of Educational Progress (NAEP), reveals that 60 percent of

Table 1.
Institutions that Awarded the Most Engineering Bachelor's Degrees to American Indian/Alaska Natives, 2012⁹

Oklahoma State University, All Campuses	13
Arizona State University, Main Campus	12
University of Oklahoma, Norman Campus	11
New Mexico State University, All Campuses	8
North Carolina State University at Raleigh	7
Northern Arizona University	6
Purdue University, Main Campus	6
University of Texas at Austin	6
Washington State University	6
California State Polytechnic U-San Luis Obispo	5
South Dakota School of Mines & Technology	5
Texas A&M University, Main Campus	5
University of Alabama in Huntsville	5
Missouri University of Science and Technology	5
Florida State University	4
Massachusetts Institute of Technology	4
University of Central Florida	4
University of New Mexico, All Campuses	4
University of Wisconsin-Madison	4

AMERICAN INDIAN/ALASKA NATIVES IN ENGINEERING (continued)

Figure 2.
Percentage of Engineering Degrees earned by American Indian/Alaska Natives, 1977-2012⁹

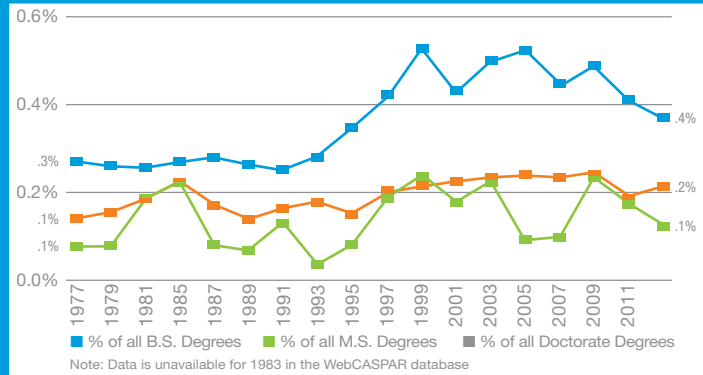
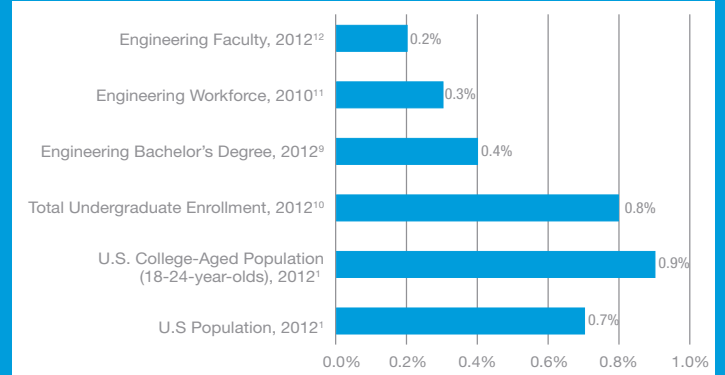


Figure 3.
American Indian/Alaska Natives in Engineering



AI/AN 8th grade students reported that their teachers never had them solve math problems that reflect situations in their community. Only 33 percent reported that their teachers integrated AI/AN culture into reading and language arts at least once a month. Finally, 63 percent of AI/AN students reported never talking to a school counselor about classes for high school or their future plans⁵.

The deficits seen in elementary and middle school translate to the secondary and post-secondary levels. American Indian/Alaska Native students have the lowest percentage of public and private high school graduates of any race/ethnicity who took Algebra II, Analysis/Pre-Calculus, or Statistics/Probability in high school⁶. Only 24 percent of AI/AN students meet the ACT college readiness benchmark for math, and 15 percent meet the benchmark in science, compared to national averages of 46 and 31 percent, respectively⁷. While nearly 75 percent

of all U.S. public school students graduated from high school with a regular diploma in the class of 2010, only 51.1 percent of American Indian students earned their diploma, which was the lowest percentage for any group⁸. Similarly, while the six-year postsecondary graduation rate of all full-time students who started in the 2004 cohort was 58.3 percent, the rate for AI/AN students was 39.4, which was also the lowest percentage for any group⁶.

While the total number of bachelor's, master's, and doctorate engineering degrees earned by American Indian/Alaska Natives has increased over time (see Figure 1), the percentage of engineering degrees earned by this group has remained steady (see Figure 2). The institutions that awarded the most engineering bachelor's degrees to American Indian/Alaska Natives in 2012 are listed in Table 1 (NACME Partner Institutions are highlighted in blue).

Policy Recommendations

American Indian and Alaska Natives face unique challenges as the most underrepresented group in education. The National Caucus of Native American State Legislators offers several important policy recommendations to close the achievement gap for AI/AN students. These include supporting state dropout prevention research and programs developed with community and tribal collaboration, including AI/AN representation on education boards, departments, and committees at the state and federal levels, and developing culturally based curricula, with buy-in from American Indian and Alaska Natives, that includes language, history, and

culturally appropriate standards⁹. In addition, the American Indian Science and Engineering Society (AISES) employs a "full circle of support" model to increase AI/AN representation in science, technology, engineering, and mathematics (STEM), which involves conducting outreach on STEM awareness and retention with pre-college students, developing programs for STEM access and success at post-secondary institutions, and creating initiatives centered around STEM leadership and change with STEM professionals¹³. Funding is needed to support these initiatives and to support the development of culturally based curricula, specifically for K-12 students.

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Endnotes

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