

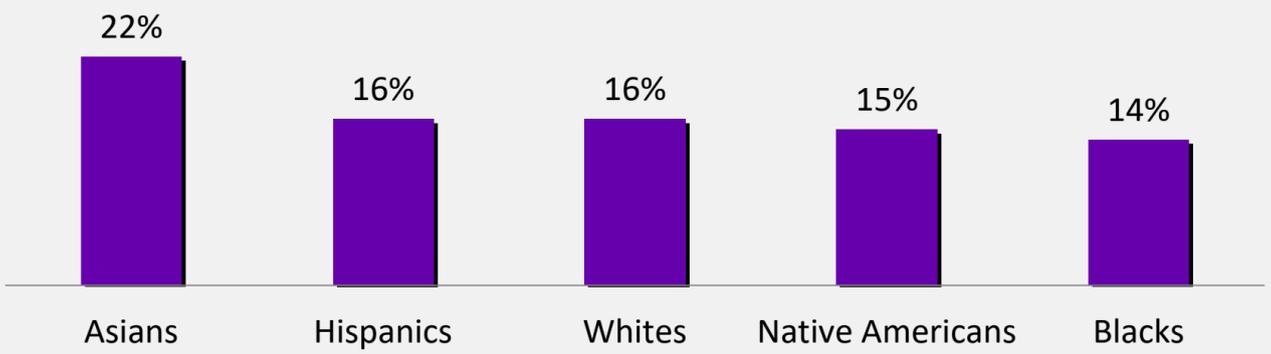
ENGINEERING: Demand and Aspirations

Demand for engineers is strong and expected to grow.

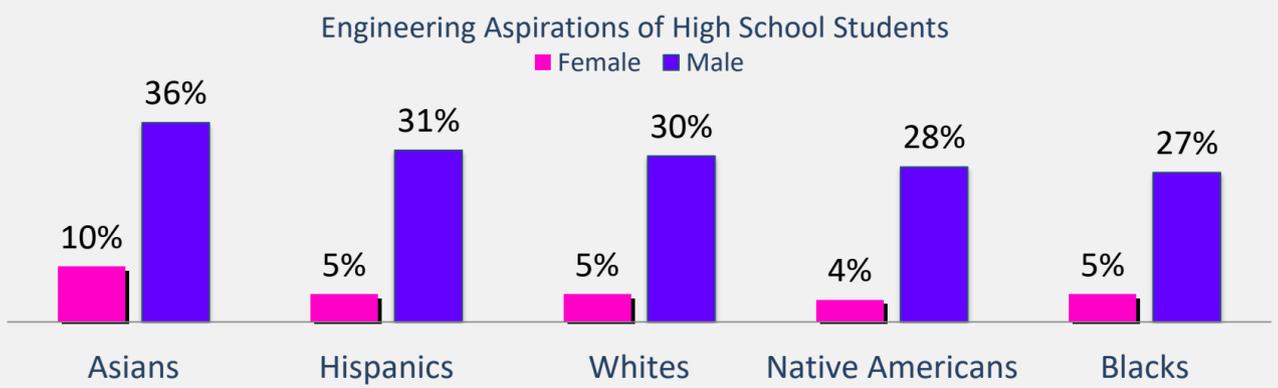
- Demand for engineers grew 7% between 2010 and 2014.^[1]
- New jobs are forecast to be created at a rapid clip.^[2]
- Retirements of the aging engineer workforce will further fuel demand.^[3]

The voice of students shows where the pipeline leaks.^[4] They can inspire ideas to boost the supply of talent aiming for engineering careers.

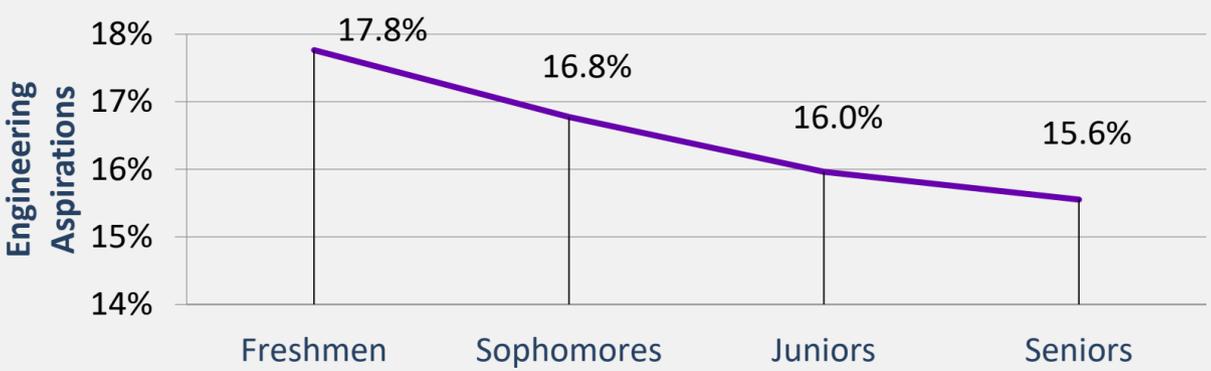
Black and Native American High School Students Least Often Aspire to Engineering Careers



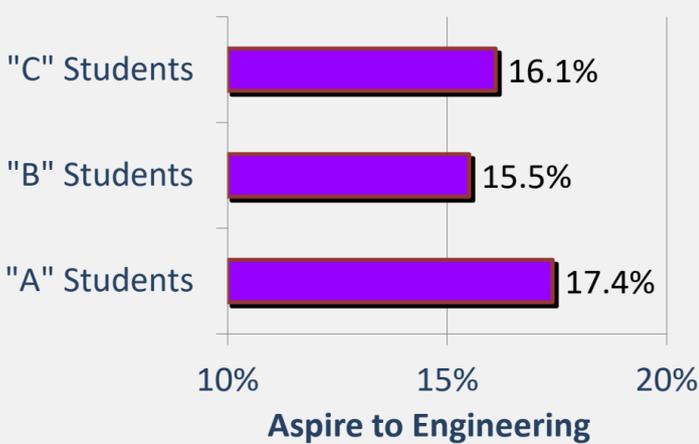
Boosting Interest of Female Students Would Fuel the Pipeline



Engineering Aspirations Edge Downward Throughout High School

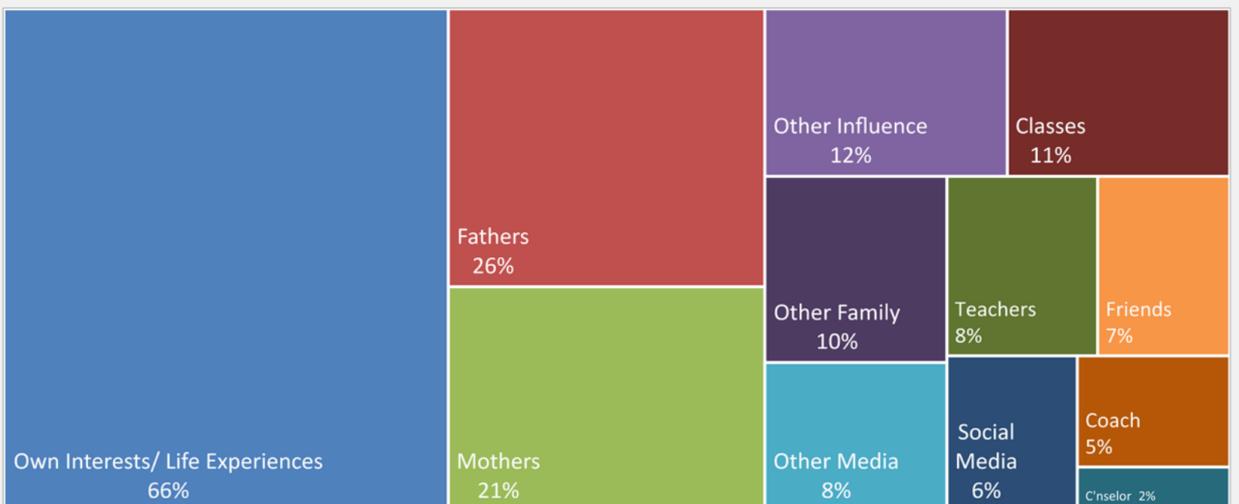


Engineering Aspirations are Most Common Among "A" Students, but Many Others Have Engineering Aspirations as Well



Could a growth mindset – belief that talents can be developed through hard work, good strategies, and input from others – help the US fill growing demand for engineers?^[5]

Own Interests/Experiences & Parents Are the Most Powerful Influences on Aspiring Engineers' Career Choices^[6]



Implications for Meeting Future Demand for Engineers

- Develop more effective strategies to interest girls in engineering.
- Close the racial/ethnic gaps in engineering interest.
- Increase interest in engineering throughout high school.
- Provide positive experiences to nurture engineering interest.
- Identify strategies to maximize impact of parents and educators.

[1] <http://www.forbes.com/sites/ems/2014/09/12/the-most-in-demand-and-oldest-engineering-jobs/#31c7ccc54b4a>
 [2] For example, the Bureau of Labor Statistics expects demand between 2014 and 2024 to grow 23% for Biomedical Engineers, 12% for Environmental Engineers, and 5% for Mechanical Engineers. See <http://www.bls.gov/ooh/architecture-and-engineering/biomedical-engineers.htm>, <http://www.bls.gov/ooh/architecture-and-engineering/environmental-engineers.htm>, and <http://www.bls.gov/ooh/architecture-and-engineering/mechanical-engineers.htm>.
 [3] <http://www.forbes.com/sites/ems/2014/09/12/the-most-in-demand-and-oldest-engineering-jobs/#31c7ccc54b4a>
 [4] A national sample of high school students surveyed between August and December 2015 included thousands aspiring to engineering careers (i.e., App / Mobile Technician, Computer Science, Engineering, Biomedical Engineering Tech, Computer & Info Science & Engineering (CISE), Robotics, Small Engine Technology, Telecommunications. The Educational Research Center of American (ERCA) managed surveys of students during the 2015-16 academic year for several Research Consortia. The data were collected in-class with paper surveys. The students represent a cross-section of college bound students. The margin of error is +/- 1% at the 95% confidence interval. ERCA appreciates the support of its partners involved in these consortia: [Destination Imagination](#), [Manufacturing Institute](#), [National Alliance for Partnerships in Equity](#), [National Association of Biology Teachers](#), [National Girls Collaborative Project](#), and [SkillsUSA](#). The [Student Research Foundation](#) and ERCA partner to provide the most relevant research about students' career and educational pathways.
 [5] <https://hbr.org/2016/01/what-having-a-growth-mindset-actually-means>
 [6] This question was asked only of the subset of students who completed the survey in health/science classes. Students could pick up to two career influences. The percentages displayed represent the proportion of students who chose the career influence. The area assigned to each career influence in the graph represents the proportion of responses for a given category as a percentage of all responses.

