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.

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Black</th>
<th>Native American</th>
<th>White</th>
<th>Hispanic</th>
<th>Asian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspire to Career</td>
<td>22%</td>
<td>16%</td>
<td>16%</td>
<td>15%</td>
<td>14%</td>
</tr>
</tbody>
</table>

Boosting Interest of Female Students Would Fuel the Pipeline

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspire to Career</td>
<td>36%</td>
<td>10%</td>
</tr>
</tbody>
</table>

Engineering Aspirations Edge Downward Throughout High School

Aspire to Career

- Freshmen: 17.8%
- Sophomores: 16.8%
- Juniors: 16.0%
- Seniors: 15.6%

Student Interests/Experiences & Parents Are the Most Powerful Influences on Aspiring Engineers’ Career Choices

Aspire to Career

- A Students: 16.1%
- B Students: 15.5%
- C Students: 17.4%

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.

[4] The question was asked of a 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.
[5] 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]
[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.

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.