



# Perception problem dogs engineering

**L**URING COLLEGE-BOUND STUDENTS into engineering has never been more difficult. From an attractiveness standpoint, engineering enjoyed brief life during Internet's early years, but has since returned to the more conservative realm that encourages only math and science

geeks. Since 1990, the number of bachelor's degrees in engineering has dropped 8%. More disturbing is a 20% decline in math degrees ([Link 1](#)). The reason for these declines is twofold, according to Geoffrey Orsak, School of Engineering dean at SMU (Southern Methodist University): One is that high-school students often shun science and math; most avoid taking them in college if they can. The other problem is image, and we can do something to improve it, contends Orsak, who is the antithesis of the engineering stereotype that, fairly or unfairly, has long tarnished the profession's image.

"Most believe it's one of the toughest majors, and so we are competing over a very small group of kids. But clearly engineering has an image problem even more than the perception that it's a challenging discipline," he says. That salaries for new engineers are among the highest compared with other professions doesn't seem to matter. "People see it as a bridge career from lower working class to a middle-class career. Once you reach that level, you want to go beyond it into law, medicine, and business leadership," he says.

That idea surprises me. I always admired people with a strong aptitude for math and science, probably because the two were not my strong suits. My civil-engineer uncle built interstates for 39 years, and I admire him. As a 19-year-old, his formidable math skills and intestinal fortitude landed him in the navigator's seat of a B-24 during World War II

and in an Rensselaer Polytechnic Institute classroom after that on the GI Bill. My 17-year-old son just aced the SAT II test in math. What does he want to be? A lawyer.

The decline in US engineers has become more noticeable because developing economies in countries such as China are cranking out new ones at four to six times the rate in the United States. And strong

Jack Welch is a chemical engineer. Jimmy Carter is a nuclear engineer. Yasir Arafat was a civil engineer ([Link 2](#)). "If a doctor develops a new surgical technique, we celebrate it. We don't do that in engineering. I could name 10 famous doctors, but I could not name 10 famous engineers," says Orsak. That's why SMU has partnered with Texas Instruments to develop the Infinity Program, which attempts to dispel the myths and stereotypes that plague engineering in high-school classrooms ([Link 3](#)). The program trains high-school math and science teachers to make engineering fun, cool, interesting, and accessible to broader range of prospects.

That the numbers of new engineers hasn't changed for decades in-

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growth in retirements as the engineering workforce ages will compound the problem. More than half of the engineers in the United States are older than 40, says the NSB report.

What can the United States do about this problem? Clearly, we can't lower the academic bar, so we have to instead spruce up engineering's image. "We have to celebrate our people. As long as we continue to view engineering as about widgets and not about people, we will have a perception problem," says Orsak. Engineering needs highly visible heroes, just as the business world has Michael Dell and Bill Gates. Such heroes motivate students to take a similar path. But engineering has plenty of Dells and Gates. The problem is that they generally don't seek recognition, except, perhaps, from peers. There are plenty of successful engineers, but they either labored in obscurity or took another path. Former General Electric Chief Executive Officer

indicates the magnitude of the problem. And what we do now to convince more high-school students to choose engineering won't pay off in national competitiveness for a decade. Currently, approximately 65,000 engineers a year graduate from US schools, says Orsak. "It's never been over 100,000 and never below 50,000 for the past 30 years. But many more kids go to college today, and we thought a rising tide would lift all boats." □

*Do you have an engineering hero? Write me at [john.dodge@reedbusiness.com](mailto:john.dodge@reedbusiness.com).*

### LINKS

1. "Science and Engineering Indicators 2004," National Science Board, [www.nsf.gov/sbe/srs/seind04/c0/c0s1.htm](http://www.nsf.gov/sbe/srs/seind04/c0/c0s1.htm).
2. *The Encyclopedia Britannica*, [www.britannica.com/nobel/micro/30\\_1.html](http://www.britannica.com/nobel/micro/30_1.html).
3. [www.infinity-project.org/join/join\\_video.html](http://www.infinity-project.org/join/join_video.html).