

Engineers are Terribly Misunderstood

by: Andrea Kay

Engineers are terribly misunderstood. Which might be one reason 85 percent of kids say "no way" to an engineering career.

"The stereotype of the engineer is just wrong," says Warren Miller, a retired Florida engineer who e-mailed me after I wrote about the short supply of workers in science and technology.

They think it's "someone who is half-robot super genius" and "way more interested in machinery or circuitry than people." He adds: "Sure, I like hardware. I also like to sail, I was church choir director for 10 years and enjoy singing bass."

Young people just don't know much about engineering, according to a survey conducted by Harris Interactive for American Society for Quality. Thirty percent prefer a "more exciting" career. And 21 percent don't feel confident enough in their math or science skills.

What, though, could be more exciting than trying to figure out how to improve things? Which is what engineers do, applying what Miller describes as an engineer's biggest tool: logic.

As the joke goes, to the optimist, the glass is half full; to the pessimist, it's half empty. To the engineer, the glass is twice as big as it needs to be.

Part of the misunderstanding starts with adults who influence future workers. The survey found that only 20 percent of parents have encouraged or will encourage their children to consider an engineering career. More girls say their parents are likely to encourage them to become an actress than an engineer.

Ninety-seven percent of parents said they think knowledge of math and science will help their children have a successful career. But many teachers have a strong aversion to math and science, says Miller.

Teachers "tell me they and their students 'love science,' " meaning they "love to learn about the birds and the fish and the plants and how they fit into the ecology. That is of little use in shaping a child to learn how to design a better car or TV."

The attitude is, "Look how perfectly the bird adapted to its environment. It would be impossible to improve on." The same goes for technical products. "Like the bird, iPods are made in the big factory in the sky and as mere humans, we can't be expected to understand them."

Then there's physics, "only taught as one course in junior or senior years and only taken by the nerds" because the rest of the world feels it "can't possibly hope to understand it."

We're never told why we should learn math, he adds. "Nothing can be accomplished in technology without math. Using math, I can predict whether my designs will work or not and can see how to improve them before I ever build them. If only kids knew how magical it is to use math to predict the future, classes would be bursting."

Miller points to a society that's discouraged millions of people with a natural inclination — they build hot rods, ham radios or write software — telling them it was too hard to be an engineer or scientist.

Parents and teachers can change that.

ASQ members suggest taking kids on tours of manufacturers that help them see how things they're familiar with get made: Jelly Belly Factory (jellybelly.com), Louisville Slugger Museum Factory (sluggermuseum.com) and Harley-Davidson Museum (harley-davidson.com/museum).

Take vacations that include geological or science-related attractions such as the Computer History Museum (<http://computerhistory.org>). Learn more about science careers on Web sites like sciencecareers.sciencemag.org.

The National Science Foundation estimates a shortage of 70,000 engineers by 2010. To reverse the trend, we need to apply the engineer's biggest tool: logic.

Reach Andrea Kay at andrea@andreakay.com.

Andrea Kay is the author of "Work's a Bitch and Then You Make It Work: 6 Steps to Go From Pissed Off to Powerful." Send questions to her at 2692 Madison Rd., No. 133, Cincinnati, OH 45208; www.andreakay.com or www.lifesabitchchange careers.com. She can be e-mailed at: andrea@andreakay.com.