

Schools failing to guide young women into careers in science, math and technology

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By Joyce Gannon, Pittsburgh Post-Gazette



Stacy Innerst/Post-Gazette

Stephanie Rosenthal's elementary school teachers in Potomac, Md., gave her plenty of encouragement to pursue her interests in math and science but when she developed a passion for robotics early in high school, she had to chart her own course.

"There was no real discussion of it in school and I couldn't pursue something technical because my high school didn't have a lot of those opportunities," said Ms. Rosenthal, 24, who is studying for her doctorate degree in computer science at Carnegie Mellon University.

By searching the Internet for summer robotics camps and landing a high school internship at the U.S. Naval Research Laboratory in Washington, D.C., Ms. Rosenthal connected with the professionals she needed to steer her toward CMU, where in 2007 she earned a bachelor's degree with a double major of computer science and human computer interaction.

"I really needed to be proactive. ... Not a single person at my high school including guidance counselors knew a single thing about this area," she said.

Her experience could serve as a case in point for a new study in which women and minorities gave low marks to the U.S. education system for not adequately nurturing girls and minorities who want careers in science, math, engineering and technology fields.

The study, commissioned by Bayer Corp. and released Monday, also found many women and minorities were actively discouraged from entering those professions, often times by college professors.

It is one in a series of reports undertaken by Bayer, a German-based chemicals company with U.S. headquarters in Robinson, to determine why women and minorities are under-represented in science, technology, engineering and math -- known collectively as the STEM fields.

The survey, conducted by Pittsburgh market research firm Campos Inc., polled 1,226 chemists and chemical engineers including white and Asian females; and men and women who were African-American, Hispanic and American Indian.

Of those surveyed, 40 percent said they had been discouraged at some point in their education and 44 percent said they were discouraged by college professors from entering science, math or technical careers.

The respondents gave low marks to the U.S. education system for how it engages girls and minorities in science.

While 59 percent of those polled said they were interested in science before age 11, 68 percent said science is not emphasized as strongly as reading, writing and math. On average, those surveyed gave U.S. schools a grade of "D+" or "D" for how they nurture girls and minorities to pursue science, engineering and math careers.

"It's a disappointment to me; this is the type of stuff we were talking about in the early 1970s," said Lenore Blum, a distinguished career professor of computer science at CMU who is active in efforts to attract more young women to math and science fields.

Another CMU graduate student, Gabriela Marcu, 22, who grew up in Vancouver, British Columbia, and near San Francisco,

found a niche in computer science when her mother encouraged her to register for an advanced placement computer science class at her high school.

"I had the perception that computer scientists were computer nerds. We're still fighting stereotypes," said Ms. Marcu, who earned a bachelor's degree in informatics at the University of California, Irvine.

"Kids in high school and college have really good role models in other fields. But in computer science, there's nothing in pop culture that even hints at what the job might be," she said. "I didn't know what I wanted to do until my mom, who is an engineer, said, 'You're good at math. You should try it.'"

During a teleconference Monday to discuss the findings, Bayer officials said the study will be shared with the Obama administration to help advance its "Educate to Innovate" initiative.

"We went straight to the source -- women and minority engineers and scientists themselves," said Greg Babe, chief executive of Bayer. "Women and minorities are two-thirds of the work force but 25 percent or less of the STEM work force. That's simply unacceptable."

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