College Mentors Key to Prospective Female STEM Majors

Female participation in math and science is lacking, but college students can motivate high schoolers.

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Despite a rosy outlook for jobs in science, technology, engineering, and mathematics (STEM) fields, many students are still hesitant to pursue those majors. Females, for instance, account for only a quarter of STEM workers in a sector already hungry for experts and expected to expand another 20 percent by 2020, according to an April study released by the White House Council on Women and Girls.

"The big challenge is women have only 14 percent of the engineering jobs in the U.S. and currently make up only 15 percent of all engineering students—and a lot of you are very familiar with the shortage in America in [STEM] graduates," former President Bill Clinton said in a media telephone briefing in March for the Clinton Global Initiative, which tackles worldwide issues including education and healthcare.

"If there were no differences in graduation rates and employment rates in STEM areas between women and men, and between African Americans and Hispanics and males of European, Japanese, and Middle Eastern heritage, the whole STEM gap would disappear in just a few years."

[Read about the persistent gap of women and minorities in STEM.]

One key for increased participation, at least among females in high school, may lie in current college students already pursuing STEM fields.

"Probably one of the biggest motivating factors ... is the use of role models and what role modeling can do for these women in terms of actually being able to visualize themselves in those types of careers," says Suzanne Sontgerath, assistant director of admissions at Worcester Polytechnic Institute, an engineering-focused school in Massachusetts where females account for about a third of students. "Watching other girls who are cool and still interested in these areas is really valuable."

[Read about one famous STEM proponent, Mia Hamm.]

A mentor would have made Duke University student Christine Schindler even more sure she wanted to pursue biomedical engineering in college, the sophomore hypothesizes. Now fully enthralled in her studies, which she says are constantly exciting and clue her into new career possibilities frequently, Schindler hopes to provide support to young women that she once lacked.

To inspire high school women to consider STEM majors and careers, Schindler created Girls Make Change Through Engineering, one of hundreds of student commitments supported by the Clinton Global Initiative. In what's still a pilot program, 9th and 10th graders from North Carolina will create medical devices to be sent to third world countries through the Engineering World Health program, which aids hospitals and clinics around the world.

Schindler hopes her program will show teen girls that studying engineering is a feasible way to help improve the world, she says.

"When I've been talking to girls who are in high school about what I'm doing, I don't pretend to know exactly where I'm going or the things I want to do, but I want them to tell them about the classes I'm taking [and] the opportunities I have already as an engineering student," she says. "The college student portion of it is crucial—that's who the girls are going to look up to; that's the next step they're going to take."

[See which colleges are the best for undergraduate engineering.]

It's an effort that could spread across disciplines, former President Clinton said in the March telephone briefing. "The reason I mention this initiative is I think it has an almost infinite capacity to grow," Clinton said. "You could do it not just in engineering; you could do it in the sciences. You could do it in mathematics. You could do it in other technology-related areas. That's what I'm hoping will happen with this commitment."

Existing programs at other colleges aim to inspire future STEM students as well, both virtually and in person. Freshmen at Lehigh University in Pennsylvania maintain a Facebook page to give prospective students a peek into life as an engineering student and to answer high schoolers' questions. At Worcester Polytechnic Institute, current STEM majors volunteer their time during science-focused summer camps for high school students, such as the Frontiers program.

[Read about other STEM summer camps.]

Though it's open to both male and female participants, men typically account for at least two thirds of the attendees at WPI's summer program, says Julie Chapman, senior associate director of admissions at WPI. To attract more high school females this summer, Chapman says WPI beefed up its academic offerings in fields girls may find appealing, including biomedical engineering, global sustainability, and environmental sustainability studies.

www.usnews.com/education/high-schools/articles/2012/05/31/college-mentors-key-to-prospective-female-stem-majors_print.html
"They know what they know in high school," she notes. "We often hear that folks don't know about programs like biomedical engineering, or that there's a major out there that might allow them to do something like global sustainability... I don't think they realize the full umbrella of what all these science, technology, engineering, and math programs can provide for them."

Many other outreach programs target students in middle school, a pivotal time to pique female interest in STEM and to begin the necessary tracks of math and science courses, WPI's Sontgerath says. But high school is not too late for girls to whet their academic appetites, notes Duke student Schindler, adding that college students who were once considering the fields shouldn't hesitate to reach out.

"I would say that anything that [college students] do to reach out to high school students can mostly just be a positive impact," Schindler says. "Just going out and starting this conversation, even if we don't have everything together as university students, could still be a propelling step."

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