SPSSI on the Hill: Improving Women and Racial/Ethnic Minorities’ Participation in STEM Fields

SPSSI’s Congressional Seminar Series continued on September 23, 2014, with an examination of the bottlenecks limiting the participation of women and racial/ethnic minorities in STEM fields, and provided recommendations for improvement.

“Our mental image of the quintessential scientist or engineer is still of a man, usually white but sometimes Asian,” said Nilanjana Dasgupta, at the third of four seminars to be held on Capitol Hill this year by the Society for the Psychological Study of Social Issues (SPSSI). The series, titled “Psychological Insights into Legislative Issues,” is sponsored by Congressman Jim McGovern (D-Mass). Its aim: to inform some of today’s most important policy issues with the latest psychological research.

Dasgupta, Professor of Psychology at the University of Massachusetts Amherst, spoke to an audience of more than 50 Hill staffers and interested outsiders, including many women and professionals of color employed in science, technology, engineering, and math—the so-called STEM fields. Dasgupta prefaced her presentation by noting that ability doesn’t limit underrepresented group’s participation in STEM, so much as implicit stereotypes and structural barriers that signal that women and minorities don’t belong in STEM. These barriers, some subtle and others less so, make girls, women, and students of color less interested in pursuing science and technology oriented activities and careers—even if they are good at them.

Dasgupta began her talk by discussing the challenges women and minorities face at each stage of their life cycle as they decide whether or not to continue pursuing science and math. As early as age six or seven, children pick up the notion that science is primarily a “boys’ thing.” By 10, girls have internalized gender-math stereotypes. If a girl happens to do well at math, her parents tend to attribute it to hard work whereas if a boy happens to do well, his parents attribute it to his talent.

These difficulties only intensify through high school, when peer pressure magnifies. Girls generally pick the same classes as their female friends, and the “geeky” sub-culture of science and technology can be off-putting to many of them. It’s also at this age that boys and girls start
valuing different qualities: boys tend to prefer the competitive and status-oriented, whereas girls are raised to prefer more social, affiliative activities.

These tendencies can be counteracted with evidence-based programs that bring science and technology closer to the lived experience of all students, male and female, said Dasgupta. Simple activities like visits to science and technology museums can help, provided the visits are tied to the curriculum and emphasize how science and technology help people, solve real world problems, and advance communal goals. Forging relationships with colleges and universities and introducing students to scientists and engineers of diverse backgrounds can also help. So can enrichment activities, after-school programs and summer camps that leverage kids’ existing interests and hobbies. A number of legislative proposals before Congress could help promote these programs, including the Women and Minorities in STEM Booster Act (H.R. 4833, S. 288).

As young women and students of color advance into college and beyond, their feelings of alienation can increase in STEM-focused environments. Women are typically outnumbered 3-1 in college science classes and are unlikely to experience more than handful of female STEM professors during their undergraduate careers. The experience of being outnumbered is even more stark for racial/ethnic minority students. Networking with similar students and young professionals can help foster a sense of belonging in the field, through such organizations as the Society of Women in Engineering and the National Society of Black Engineers. And just as high schools should forge relationships with nearby colleges, so too colleges should make an effort to bring in female and minority role models from academia and industry so that students can meet and connect with experts who share their group membership.

SPSSI is an association of approximately 3,000 psychologists and allied scientists interested in the application of psychological research to important public policy issues.
Women breaking into STEM fields confront a final set of hurdles as they enter the job market and face the challenge of balancing work and family life. Implicit bias can work against women at this stage. In a telling demonstration of the problem, researchers sent identical CVs, to many STEM professors at research universities nationwide. The only difference was that some received a CV with a male name while others received the same CV with a female name. Women candidates were viewed as less hireable and less competent by the evaluators; if they were to be hired, the recommended salary was 12 percent less than for their male peers. (Perhaps surprisingly, these findings held whether the evaluator was a woman or a man.) It’s unlikely that evaluators were aware of their bias. Implicit stereotypes subtly distorted the way they evaluated the candidate’s qualifications depending on whether he or she fit the “ideal scientist” stereotype or not. Another significant barrier in early professional life is that women are often establishing their careers during the years they are most likely to think of starting families. Work/family is a difficult balancing act for all women; it is particularly problematic for women in fast-moving science- and technology-oriented fields.

Dasgupta concluded her talk by emphasizing four key points:

- No single factor creates the leaky pipeline of girls, women, and underrepresented minorities from STEM. And no single magic bullet will solve the problem.
- Rather, at each of four life stages, different psychological and structural factors create different leaks in the pipeline.
- To solve the problem we need to target all four of these life stages with evidence-based interventions.
- These multiple interventions working together promise to erode gender- and race-based barriers and broaden participation of all Americans in STEM.