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Moving Beyond Bias

Recent reports find gender bias is a challenge in academia around the world, but institutions are working for change.

By Beth Huetter

The U.S. National Academy of Sciences (NAS) released the report "[Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering](#)" in September 2006, concluding that gender bias plays the most significant role in women not receiving tenured and administrative positions in the science, technology, engineering, and mathematics, or STEM, disciplines. "The excuses?e.g. biological differences, small pipeline, women's lack of interest in STEM?that we've been using for decades just don't hold up to careful scrutiny," says Ana Mari Cauce, executive vice provost at the University of Washington (Seattle, WA) and report committee member.

The report found that "women are very likely to face discrimination in all fields of science and engineering," and that minority women are "almost nonexistent in science and engineering departments." So far response from the public has been mainly positive.

"Most of the negative response has come to the belief, by some, that the report concludes that there are no biological differences between the sexes," says Cauce. "The report did nothing of the kind."

Gender bias and the lack of women in science are widespread issues the world over. A report by the InterAcademy Council in the Netherlands found that research institutions don't encourage women or try to eliminate barriers they face when rising to top leadership positions.

Eurostat, the statistical office of the European Commission, found in 2004 that only 29% of scientists and engineers were female. The gender gap widened with seniority, with women accounting for just 16% of professors in the sciences. Only in Estonia, Latvia, and Lithuania did women account for more than half of these professionals.

Currently in Australia women make up 20% of the information and communications technology sector. Only six out of 108 senior researchers at the Chinese Academy of Science Institute of Physics in Beijing are women. In India, women make up just 16.3% of faculty at the India Institute of Science, Bangalore, and 13% on the Council of Scientific and Industrial Research.



Time for Change

Most women in U.S. academia have been pleased but certainly not surprised by the NAS report's findings that bias is a significant barrier to women.

"It's really helpful when the Academies come out with a report that makes clear to the world what we all already know in our institutions to be the case," says

Leslie Tolbert, vice president for research, University of Arizona (UA; Tucson, AZ).

"Reports are good, but now for the hard part?action," says Claudia Morrell, executive director of the Center for Women and Information Technology at the

University of Maryland, Baltimore County.

Many schools have already acknowledged the issue of bias and developed or become involved with programs that help promote women in science and engineering. UA is one of 13 institutions in 2006 that received the National Science Foundation ADVANCE five-year institutional transformation research grant, designed to improve the hiring and promotion of female faculty members in science and engineering.

The UA distributed the grant among three focuses: working to bring mentoring, career workshops, and other networking opportunities to women faculty; educating the hiring and promotion committees about bias; and initiating a computer program that will measure the impact of every promotion, pay raise, or hire on the university's gender equity.

"We feel that what we're doing should nicely address the very issues that are raised in that [NAS] study," says Tolbert.

Rice University (Houston, TX) used its ADVANCE funding to put on a career workshop explaining how women can obtain faculty positions.

"Many of these women were already familiar with the academic hiring process, but they had many, many questions about how to approach it," says Jan Rinehart, executive director of the ADVANCE program at Rice.

Working Toward Equality

Similar to the U.S. ADVANCE program, the Science Foundation Ireland recently funded the Initiative for Women in Science, Engineering, and Technology (WiSET), to provide seed money, networking, and career development opportunities, and to provide management and research support for women during maternity leave. The three WiSET pilot schools were the University College Cork, Trinity College Dublin, and the University of Limerick.

At the Universitat Autònoma de Barcelona (UAB; Barcelona, Spain), the board of the university has established the Observatory for Equality program to improve gender equality.

"Things are improving slowly, like with policies allowing women to stop the PhD grant in case of pregnancy and motherhood and [be able] to go back to research afterwards," says María Yzuel, SPIE Fellow and professor of physics at UAB.

Outside the Classroom

Of course, gender bias, and work to combat it, isn't only an issue in academia. Networking programs such as Mentornet (see sidebar) are addressing this fact by helping foster women's role in the sciences.

Ultimately it will take the efforts of many people in all areas of science and engineering to make a difference. "All of us can play a role in encouraging young women's talents and interests in the sciences," says Cauce.

European Women in Optics

SPIE members recently participated in a European study that aims to understand the under representation of women in optics. The Network of Excellence on Micro-Optics conducted two surveys: one consisted of focus groups and individual in-depth interviews, and the second surveyed SPIE members about their experiences.

Results are available on the SPIE Women in Optics section of the SPIE website at spie.org/Membership/WiO. The SPIE Women in Optics group is open to all and works to promote personal and professional growth for women through community building, networking opportunities, and encouraging young women to choose optics as a career.

Mentor Network

Academia isn't the only sector dealing with gender bias, and programs addressing these issues aren't limited to universities either.

Mentornet, founded by Carol B. Muller, was originally designed to provide an international e-mentoring network for women in the STEM disciplines and has since expanded to bring in more diversity, pairing more than 17,000 mentors and protégés in matching fields of interest. The mentor population is about 60% to 70% women, while the protégé population is closer to 75% women.

Muller says of the NAS report, "I think what's important is that the National Academy has now taken note of some of this research, some of the problem, some of the opportunities, and I think it will be particularly interesting to see what happens as a result."

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[Return to SPIE Professional Magazine](#)