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BALANCING ACT

Role Models and Mentors

Don't underestimate the importance to female graduate students of seeing successful female professors with children

By [MARY ANN MASON](#)

"Hey guys, now I know I'm not the only geek," said a junior from a small California college as she set down her lunch tray at a table of women who were all undergraduate physics majors on the West Coast. I observed that lunchroom scene when I was recently at the University of Southern California to speak at the Fourth Annual Conference for Undergraduate Women in Physics.

On that same January weekend, similar conferences were held at the University of Illinois and Yale University. The young women in attendance, nearly 100 of them at USC and more than 350 at the other two meetings, were looking for role models. They came to hear the dazzling research talks of distinguished female physicists from places like the NASA Jet Propulsion Laboratory, the University of California at Berkeley, and the University of California at Irvine.

Mostly, however, they were thrilled that it was women who were performing such high-level research. Many of the students came from colleges where there are *no* women on the physics department's faculty, and even large research universities like USC have less than a handful.

Physics has a particularly bad reputation for gender equity, but in many ways it is no different from other academic disciplines; the numbers are simply smaller. Nationally, women earn about 22 percent of the bachelor's degrees awarded in physics but only about 18 percent of the Ph.D.'s. The biggest leak in the pipeline, however, occurs — as it does for all disciplines — between the number of Ph.D.'s awarded to women and the number of them who land faculty positions in physics. Only 10 percent of faculty members in physics at doctoral institutions are women, the American Institute of Physics found in 2005.

Similar patterns are found in the social sciences and the humanities, which often produce more women than men with bachelor's degrees, but see an increasingly smaller proportion of those women continuing through the academic career track to professor.

Role models, particularly ones with children, can make the difference in whether a female graduate student takes the next big step along the tenure track. While undergraduates are influenced simply by seeing a female faculty member, graduate students need to see that she is able to have children as well as a career.

At the University of California, we surveyed 8,000 doctoral students across all disciplines and found that the fewer female professors they see with children, the less likely they are to view tenure-track faculty careers at research universities as family friendly. Only 12 percent of the students viewed research universities as family friendly if they were in departments in which few of the female professors had children, compared with 46 percent of students in departments where female professors commonly had children.

As a graduate student in linguistics commented: "I can't think of an example of a successful female faculty member at our (or any other) top research university who has a 'normal' family situation. The only time these women appear successful both personally and professionally is if a spouse dedicates his career to helping his wife succeed."

Female role models are important for what they stand for — the possibility of success — whether or not they have a personal relationship with a particular student or young faculty member. Mentors, however, are people who take a personal interest in a young woman's future and provide much-needed help and advice at critical times along the career track — and they are often men.

Armand R. Tanguay, Jr., for example, was the faculty adviser for this year's Conference for Undergraduate Women in Physics (CUWiP) at USC. He is a physicist by training, but is not actually in the physics department; he is a professor of electrical engineering, biomedical engineering, and materials science at USC, and a member of its neuroscience graduate program. He is the kind of faculty member who will go out of his way to help young students, even when they are not his own, because he knows how critical the mentoring role is.

"When I was a graduate student at Yale University, I was very fortunate to have outstanding faculty mentors," he said. "When one of my undergraduate research assistants invited me to attend an earlier CUWiP conference, I was struck by many powerful and deeply felt comments both from her and from young woman scientists from all over the country. Those in attendance at this year's conference found new role models not only among the women scientists presenting superb research, but also in new relationships formed with their peers nationwide."

Graduate students in all fields encounter similar barriers and are forced to make the same hard choices. For all of them, role models and mentors play a critical role. The mentor suggests future career directions, directs the student's research, evaluates the student's

work, sometimes offers research opportunities, and serves as a role model. A student's first job, the steppingstone to success, is usually facilitated by a glowing reference from a professor, or a good word between colleagues that raises one candidate above others in the competition for a coveted postdoctoral fellowship or a beginning teaching position.

In most fields, to reach the top of the profession, students must begin their training by working with the best professors in that field. In the sciences, the most distinguished professors work on the "hottest" topics — areas that are expected to break significant new ground rather than refine current knowledge. When a topic is hot, several groups of scientists often compete to solve it, and enormous prestige is attached to getting there first. A student who is chosen to work with that cutting-edge group will advance quickly.

Advisers, who should serve as mentors, can both help and hurt students' careers, and women can be at a disadvantage if they get stuck with a faculty mentor who has deep-seated gender biases. For my book, *Mothers on the Fast Track*, I interviewed "Maura," who had just received her Ph.D. in chemical engineering from a prestigious university in four years (nearly record speed for a science or engineering Ph.D.). She told me that her adviser not only failed to offer her help with securing her first job, he didn't even ask about her career plans. Maura was known on the campus as the extremely effective and articulate president of the Graduate Student Assembly, the representative government for all graduate and professional students. To the campus world she seemed self-assured and focused, but her adviser's lack of interest had eroded her confidence. His undermining treatment began early on.

"I took my qualifying exams early, and his only remark was 'I'm surprised you passed!' I wasn't sure if he was surprised because I am a woman, or because I am black."

In the lab, Maura says her adviser picked clear favorites and marginalized female graduate students.

Role models are not always aware of their influence, but a mentor's actions are intentional. Many universities have set up formal mentor programs for women in science, for minority students, and for young faculty members. Those are all important, but not enough. Each of us — as graduate students working with undergraduates, or as faculty members guiding doctoral students and young faculty members — can become a mentor. If we do not do so, we will reinforce the stereotype that the university is a cold and competitive work environment where family life is unimportant.

Some faculty members have taken that sense of responsibility a step further. Alice Agogino, a distinguished professor of mechanical engineering, is both a role model as a successful mother of two, and a creative mentor. She has worked with student groups to raise money for female graduate students in engineering. But even small, symbolic gestures can make a difference, she says, such as when she finally convinced her department to remove several dozen photos of male professors that were prominently displayed.

"I fought for 15 years to take down the photographs of 50 men that were on the walls of the department," she says. "I did not make a stink the first year, but those photos really did get to me." To some critics that may seem silly or petty, but to Alice, those photos sent the wrong message and getting them removed was about creating "an environment and a climate appropriate for women."

Mary Ann Mason is a professor and co-director of the Berkeley Law Center on Health, Economic & Family Security and the author (with her daughter, Eve Ekman), of Mothers on the Fast Track. She writes regularly on work and family issues for our Balancing Act column, and invites readers to send in questions or personal concerns about those issues. She will answer your questions in a future column. E-mail your comments to mamason@law.berkeley.edu. To read previous Balancing Act columns, see careers@chronicle.com or to http://chronicle.com/jobs/news/archives/columns/balancing_act.

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