

Courtesy of Ursula Keller



Retaining Talented Women Scientists: Time to Try Harder

Ursula Keller

When I began my career 30 years ago, I was convinced that all I had to do in order to become a successful scientist was to be very good at my job and to excel in my scientific expertise. I believed that there was no longer discrimination against women in science, and I was positive that I wanted to build a career and, if I chose to, have a family. Now, as a tenured female professor with a spouse and children, I look back on my career and find that the issue of women in science is much more complicated than I had initially thought.

Don't get me wrong: I have an exciting, exhilarating and fulfilling job. Yet I still find myself hesitating to characterize the experience as wholly positive. While I've engaged in many wonderful research collaborations with my colleagues, I have also experienced a number of incidents that have led me to conclude that there is something systematic going on in science. Women and some men are experiencing discouraging behavior and attitudes that provide disincentives for them to remain in academic science.

In my early career at Stanford University and Bell Laboratories, one of the most motivating pieces of advice I received from a scientific colleague and mentor was: "No one said it would be easy; just try harder." That powerful statement became a mantra for me. I kept it in mind as I built up a large research group, raised two children, and established a scientific track record. I have now been a tenured professor for 17 years, and I currently serve as the director of a multi-collaborative Swiss National Science Foundation project. I became a successful science professor. However, my adviser was right. It has not been easy.

My experience as a woman scientist has been much more complicated

than the scientific reputation I have established. I have had to deal with challenging issues and attitudes related to starting a family, organizing my laboratory space, and building up my research group. To gain a wider perspective on my experience, I turned to numerous research reports on the absence of women in science, and the evidence is there, cited again and again: Within the scientific culture, women face discriminatory attitudes that often lead them to be excluded, along with minorities. An article about subtle discrimination published in the *Washington Post* by physics professor Meg Urry highlighted experiences that were analogous to mine (see link in the references).

There are many special programs geared toward encouraging women scientists to remain in academia. They advise women on how to fit better within the academic environment. You will succeed if you are excellent in your work, if you find a mentor, if you choose a supportive life partner, if you improve your confidence, and if you make sure that you speak out so that you do not seem invisible. These tips are surely helpful, but why is the responsibility for change always put on these talented people? My experience shows

that this is too simple a solution. The scientific community must make greater efforts within individual disciplines to identify and change the factors prohibiting women and others from staying in science.

The 2009 gender statistics for the physics department at ETH Zurich in Switzerland show the representation of women as follows: 16.5 percent of undergraduates are women; 17.7 percent of Ph.D. students are women; and 13.3 percent of post-docs are female. I am one of two tenured women professors; overall, women comprise 9.5 percent of the faculty.

I feel very positively about my life choices, but I am aware that retaining

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women in science is more complicated than presenting myself as a perfect role model and mentor. Talented young women physicists are leaving the academic environment. They opt out of academia as it is now defined. To retain these women in physics research and teaching, we need to make changes to the present working culture; we need to identify the specific barriers in our disciplines; and we need to become advocates of a new scientific environment that will retain women.

“Nobody said it would be easy; just try harder” was a driving force in my career. Now it is time for us turn this advice on ourselves—the senior scientists in the optics community. We all need to try harder. Senior male and female scientists must speak out on these issues. We need to mold the scientific environment into one that enables us to retain a wider range of talented women and men who want to have a scientific career. We all agree that having a diversity of talented people working in science enriches scientific knowledge and leads to unexpected discoveries. So let’s make real changes. We can begin by examining our own working practices and attitudes.

At this point in my career, I have earned the respect of my colleagues. I’ve put in the work to establish a long

career. If I, as a senior female science professor, cannot speak up strongly for change...who can? ▲

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