

# Harvard's women four years later

Laurie H Glimcher & Judy Lieberman

**How have women fared at Harvard since the events of four years ago? Here, Judy Lieberman and Laurie Glimcher reflect on progress made and barriers still to be breached.**

It has been four years since Lawrence Summers, then president of Harvard (and now director of the National Economic Council), in a speech to the National Bureau of Economic Research on women scientists unleashed a maelstrom that eventually led to his resignation. In his talk, which followed a year in which only 4 of 32 tenure-track offers in the university were made to women, he speculated on the reasons for the underrepresentation of women in science and, in particular, in the upper ranks of science faculty. He suggested that the most important factor is that women, especially those with children, were reluctant to put in the necessary work hours. Summers proposed as the second most important factor—the one that provoked the outrage—a difference in natural ability between boys and girls that is caused by innate disparities rather than by differences in socialization or environment. According to Summers, this factor leads to fewer girls than boys in the ‘tails’ of bell-shaped curves depicting measures of native abilities, which are the presumed source of elite science faculty. Discrimination against women was ranked as a distant third among the postulated contributing factors. Essentially, Summers said what many others presumably think privately. Although we do not think that intellectual discourse in academia should be ruled by political correctness, the pronouncements of

a major university president carry substantial weight and need to be carefully thought out. That said, we supported Summers’ clearly articulated goal as president to advance and expand the basic sciences at Harvard, and we now hope that his remarkable talents will help mitigate the devastating course of the economic crisis.

Women scientists have come a long way since the authors of this article entered college at Harvard in the late 1960s. At that time there were only two women professors in the entire university, and very few women science students. Like us, they mostly came out of unusual family constellations and subcultures that valued science and were ahead of their times in thinking that women could do anything that men could. Both of us are from families that had no sons, which might also have played a role in family expectations and opportunities. The rise of the women’s movement in the 1970s changed the landscape of what was possible for young women as more women entered graduate medicine and science programs and began to be hired onto the faculty at Harvard and elsewhere. By the time we enrolled in medical school at Harvard, about a quarter of the students were women. However, occasional lectures contained inappropriate sexual slurs, faculty sometimes made inappropriate sexual advances and some hospital physicians were still prejudiced against women. The attending surgeon supervising one of us (J.L.) remarked that there was nothing he disliked more than “a left-handed woman”. The Harvard Medical School (HMS) area, with its thousands of students, faculty and staff, contained no day care facility or other accommodations to the needs of women and families. Parental leave was unheard of; when one of us (J.L.) became pregnant as a medical intern in 1981 and asked for a leave of absence as a

way of coping with motherhood in the context of an every-third-night call schedule that amounted to approximately 110-hour work weeks, she was told that if she took a leave, she would not have a position to return to. In that context, the women of our generation who did stick with it, and succeeded in earning faculty positions, were unusually capable, hardworking and dedicated.

Fortunately for today’s women students, the climate for women in science and medical research has vastly improved in the past 25 years. Although HMS was historically more hostile to women students than most medical schools and did not admit women until 1945, for some time now the graduate and medical school classes have been about equally divided between men and women students. When one of us was teaching a small group of medical students recently and mentioned discrimination against women at the medical school, the students looked quizzical; they did not feel that the terrain is in any way unequal. Overt discrimination, at least in its grossest manifestations, is largely a matter of history.

However, women are still substantially under-represented among the highest faculty ranks at Harvard and other medical research institutions. At HMS, 12.6% of full professors, 24.6% of associate professors, 35.5% of assistant professors and 47.5% of instructors are women. Statistics at other American research universities are not that different. This inadequate representation of women at the top of the profession is partly historical, as the oldest full professors were hired when few women were in the pipeline. Immunology has always attracted more women than other biomedical research areas, and in the Harvard immunology program, women have fared relatively well; 20% of full professors are women, and several of these women have secured membership in

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Although the situation for women scientists has not changed dramatically at Harvard, there are reasons to be optimistic.

prestigious organizations such as the Institute of Medicine and the National Academy of Sciences. Using public databases, we compared the productivity of the women immunology full professors at HMS relative to that of their male colleagues. Both men and women in this elite group were incredibly successful. We found no significant differences in National Institutes of Health grant support (median total funding in 2008: \$1.32 million for the men versus \$1.79 million for the women) or in citations (median for the past five years: 4,166 for the men versus 3,842 for the women). The men had significantly more total publications over their entire career ( $263 \pm 170$  for the men versus  $156 \pm 86$  for the women,  $P < 0.04$ ), perhaps reflecting their older age distribution. However, in the past five years, the women had published proportionately more articles than the men in each of a panel of high-impact science, medicine and immunology journals (*Cell*, *Science*, *Nature*, *New England Journal of Medicine*, *Nature Medicine*, *Nature Immunology* and *Immunity*). Therefore, the women immunologists who have been promoted to full professor at HMS are certainly in the upper tail of the bell-shaped curve of the profession.

A more sophisticated analysis than we did would be required to understand why the promotion of women has lagged behind that of men at HMS and elsewhere. There is no convincing evidence that women are inherently less able to be scientists. Differences in performance on standardized mathematics tests can likely be

attributed to differences in socialization and expectations for girls and boys. At the same time, although the overt discrimination we and other women experienced during the early stages of our careers has largely disappeared, the more subtle discriminatory attitude voiced by Summers—that women do not really ‘match up’ to the most elite criteria—is probably still not that uncommon. In highly competitive arenas, even a slight bias on the part of a minority of reviewers can lead to a grant not being funded or a paper not getting into a high-profile journal. As academic success is a measure of the integrated outcomes of multiple such events, even a minuscule disadvantage at each step can lead to a significant overall outcome. In addition, a lifetime of even subtle discrimination can add up to lower self-esteem and discouragement for young women seeking to enter the profession. Lower self-esteem interferes with effective performance, not only in selling one’s self and one’s work, but also in seeking effective help and advice to troubleshoot and overcome the inevitable hurdles of day-to-day scientific research and career development. The effect of subtle discrimination is then amplified by the fact that women are under-represented in the choicest positions in the profession, including the editorial boards of elite journals, the national academies, elite research communities (such as the Howard Hughes Medical Institute) and scientific advisory boards. It is natural for people in these positions to promote colleagues in their own social networks; as women are

under-represented in these networks, the patterns of discrimination are perpetuated at the highest levels.

These problems occur in a culture in which women are viewed (and view themselves) as the primary caretakers of children. Fortunately, this viewpoint is rapidly changing as more young men become full partners in child rearing. However, the need, and desire, to juggle family responsibilities with the intense focus and long hours required to be successful in research still discourage many young women from following their dreams. These obstacles are amplified by the meager income and ever-increasing length of training of young scientists. Thus, the issue is not so much that young women scientists are unwilling to work hard (as Summers suggested) as that the demands of integrating a successful scientific career with the nurturing of young children require almost herculean endurance, in addition to a well-oiled and organized family and work structure, backup support, and a high level of commitment. A young parent who devotes himself or herself to family may be less productive at research than he or she would be without children, although in many cases the pleasures of a fulfilling family life and the increased efficiency and streamlined focus that working parents bring to the table can more than compensate for reduced work time. In a recent survey of 8,400 PhD students at University of California campuses, carried out by researchers at the Berkeley Law Center of Health, Economic and Family Security, only 29% of women and 46% of men viewed research-oriented universities as family friendly. Given the demands of research and family, 31% of the women who started graduate school with the intention of becoming a research professor abandoned that goal (as did 20% of the male students).

It is difficult to judge the relative importance of subtle discrimination versus the structural, financial and productivity issues associated with juggling family and career demands in the under-representation of women scientists in the most prestigious academic positions. However, unlike alleged differences in genetic ability, these problems can be ameliorated by societal and institutional changes. The positive outcome of the Summers’ storm was the creation of a Task Force on Women in Science and Engineering to address the problems of women in these fields at Harvard.

What has happened at Harvard in the four years since the Task Force was formed? After much deliberation, in 2005 members of the Task Force (disclosure: L.H.G. was a member) generated recommendations for initiatives and programs to address institutional deficiencies that penalize female scientists

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at Harvard University. This document can be accessed at [http://www.hno.harvard.edu/gazette/daily/2005/05/16-wtaskforce\\_release.html](http://www.hno.harvard.edu/gazette/daily/2005/05/16-wtaskforce_release.html). The Office of Faculty Development and Diversity was established to implement these recommendations and was given a budget of \$50 million to be spent over ten years.

Some of the new or modified programs put in place since 2005 include the Advancing and Empowering Scholars Conference (an annual three-day course in leadership), a Visiting Lecture Series that features prominent and/or promising minority scientists, and the Leadership and Faculty Program that is designed to address issues related to professional and career advancement of junior faculty in academic medicine, specifically in the HMS community. These programs offer intellectual and emotional career support but cannot take the place of monetary support.

To that end, some new programs attempt to increase the accessibility and affordability of child care at Harvard. There had been some programs in place before 2005, including a dependent-care flexible spending account that decreases tax on child-care expenses and child-care scholarship programs (a pilot child-care fellowship program and faculty awards available to income-eligible parents of children under the age of 6). However, in June 2006, Harvard announced \$7.5 million in additional child-care assistance, including several pilot programs to expand backup child-care options, increase financial support toward the cost of primary child care and increase the capacity of the campus child-care system. HMS also implemented a new paid parental leave policy, which subsequently influenced the University-wide policy. This consists of 8 weeks of paid maternity leave and an addi-

tional four weeks of paid parental leave for both mother and father.

Two additional pilot programs launched by the Harvard Office of Faculty Development and Diversity provide other financial support to scientists with child-care or adult dependent care obligations. The first—the Dependent Care Fund for Short-Term Professional Travel—provides grants of up to \$1,000 per scholar per academic year for junior faculty and postdoctoral fellows with dependent care responsibilities to defray the additional costs of care associated with travel to a professional event that will advance their academic careers. The second—Research Enabling Grants (REG)—provides one-year grants of approximately \$50,000 to extremely talented junior faculty and postdoctoral fellows who have the potential to become tenured faculty. These funds can be used to hire additional staff, purchase equipment or take dependents on extended field work. Reflecting the highly competitive nature of this program, in 2008 there were far more applicants for the REG awards than were funded. REG awards are extraordinarily important, as they provide funds during perhaps the most vulnerable time in a young female scientist's career. It is disappointing that this program provides only one year of funding and has not yet been significantly expanded to include larger numbers of individuals.

Each year, HMS also offers two Faculty Fellowships of \$50,000 per year for two years that enable HMS junior faculty to pursue activities that will enhance their professional development as researchers, clinicians and/or teachers and that will lead to their advancement within the Harvard system. This very important initiative also deserves expansion.

Finally, the Eleanor and Miles Shore 50th Anniversary Fellowship Program for Scholars awards one-year \$25,000–30,000 grants to junior faculty and research fellows. Although this program was established in 1995 in celebration of the 50th anniversary of the admission of women to HMS—well before the formation of the Task Force in 2005—the number of fellowships it has awarded has grown considerably, with about 90 fellowships awarded in 2008.

Given the relatively limited funds designated by Harvard in response to the Task Force recommendations, it is no surprise that the situation for female scientists at Harvard has not changed dramatically in the last four years. Nevertheless, these are serious, good-faith commitments that have resulted in some progress. It is to be hoped that more will follow upon expansion of these programs in the future.

The institutional and personal attitudes that have historically kept women from achieving what they are capable of in immunology research are certainly changing. However, for those of us who have had to overcome hurdles that seem unjust and unfair, the pace of change can sometimes seem unacceptably slow. In addition, the problem of under-representation is even greater for minorities than for women in general (shamefully, there are no minority full professors of immunology at HMS, male or female). Making progress in opening up the profession to women and minorities will be even more difficult during the current economic crisis because money—now particularly tight—is needed for interventions that will eradicate barriers. However, in a university that can appoint a female president, and in a country that can elect an African American president, we are optimistic.