Institutions Hinder Female Academics, Panel Says

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Women in science and engineering are hindered not by lack of ability but by bias and “outmoded institutional structures” in academia, an expert panel reported today.

The panel, convened by the National Academy of Sciences, said that in an era of global competition the nation could not afford “such underuse of precious human capital.” Among other steps, the report recommends that universities alter procedures for hiring and evaluation, change typical timetables for tenure and promotion, and provide more support for working parents.

“Unless a deeper talent pool is tapped, it will be difficult for our country to maintain our competitiveness in science and engineering,” the panel’s chairwoman, Donna E. Shalala, said at a news conference at which the report, "Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering," was made public.

Dr. Shalala, a former secretary of health and human services who is now president of the University of Miami, said part of the problem was insufficient effort on the part of college and university administrators. “Many of us spend more energy enforcing the law on our sports teams than we have in our academic halls,” she said.

The panel dismissed the idea, notably advanced last year by Lawrence H. Summers, then the president of Harvard, that the relative dearth of women in the upper ranks of science might be the result of “innate” intellectual deficiencies, particularly in mathematics.

If there are any cognitive differences, the report says, they are small and irrelevant. In any event, the much-studied gender gap in math performance has all but disappeared as more and more girls enroll in demanding classes. Even among very high achievers, the gap is narrowing, the panelists said.

A spokesman for Mr. Summers said he was out of the country and could not be reached for comment.

Nor is the problem a lack of women in the academic pipeline, the report says. Though women leave science and engineering more often than men “at every educational transition” from high school through college professorships, the number of women studying science and engineering has sharply increased at all levels.

For 30 years, the report says, women have earned at least 30 percent of the nation’s doctorates in social and behavioral sciences, and at least 20 percent of the doctorates in life sciences. Yet they appear among full professors in those fields at less than half those levels. Women from minorities are “virtually absent,” it adds.

The report also dismissed other commonly held beliefs — that women are uncompetitive or less productive, that they take too much time off for their families, and so on. Their real
problems, it says, are unconscious but pervasive bias, "arbitrary and subjective" evaluation processes, and a work environment in which “anyone lacking the work and family support traditionally provided by a ‘wife’ is at a serious disadvantage.”

Along with Dr. Shalala, the panel included Elizabeth Spelke, a professor of psychology at Harvard who has long challenged the “innate differences” view, and Ruth Simmons, the president of Brown University, who established a widely praised program for aspiring engineers when she was president of the all-female Smith College.

The report was dedicated to another panelist, Denice Denton, an electrical engineer who until her suicide this summer was chancellor of the University of California, Santa Cruz, and a forceful advocate for women, gays and minority members in science and engineering.

The 18-member panel had only one man: Robert J. Birgeneau, chancellor of the University of California, Berkeley. But Dr. Shalala noted that the National Academy of Sciences committee that reviewed the report had 10 men.

“Nothing was a foregone conclusion,” she said, adding that the committee was surprised at the strength of evidence supporting the report’s conclusions. In an interview, Dr. Simmons of Brown said: “The data don’t lie. There are lots of arguments one could have mounted 30 years ago, but 30 years later we have incontrovertible data that women do have the ability to do science and engineering at a very high level.”

She said the more relevant question is, “Why aren’t they electing these fields when the national need and the opportunities in the fields are so great?”

Leveling the playing field does not mean giving women an unfair advantage, another panelist, Maria Zuber said. Dr. Zuber, a geophysicist at M.I.T., said for example that scholarly journals might eliminate the identify of authors when they send manuscripts out for pre-publication review. That way, she said, work would be judged on its merits, rather than by the prominence of its authors.

Ana Maria Cauce, a psychologist at the University of Washington and another panelist, said at the news conference, “This is about more excellence, this is not about changing the bar or lowering the bar.”

Ben A. Barres, a neuroscientist at Stanford who was not connected to the effort, but who published a commentary on women in science last summer in the journal Nature, said echoed the report’s assertion that small administrative changes could produce big differences for women in science.

He pointed to the Pioneer award program for young researchers run by the National Institutes of Health. Dr. Barres, who has been a judge for the awards, said even making it known that scientists could nominate themselves helped make the pool of winners more diverse.

Dr. Shalala began the report’s preface by recalling that when she was in graduate school in political science the 1960’s and as a young professor she was told that fellowships or tenure would never be hers because she was a woman.

Overt discrimination like that is now rare, she wrote, but progress has been too slow. “We need overarching reform now,” she said.
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