

Women in physics: Why and why not?

I read Evalyn Gates's Opinion piece "A Scientific Point of View" (PHYSICS TODAY, April 2006, page 64) with great interest. I have read several articles that offered a similar presentation and reached a similar conclusion. However, no one, in my opinion, has ever truly explained one point: Why is it important to increase the number of women in physics? Why does that matter? Will it improve the quality of physics?

I am not suggesting that physics needs more men than women—or more women than men. In the research center where I work, about 25% of the postgraduate researchers are women, and I believe my colleagues care about the quality of the science produced, not about the gender of the person producing it.

I do not understand why it is important to have more women as physicists—or as firefighters, bullfighters, divers, or any other profession. I believe that regardless of gender, individuals should be able to do what best suits their abilities.

I realize that my point of view may seem naive, but I would appreciate a clear and logical argument.

Vicente Aboites

(aboites@cio.mx)

Center for Research in Optics
Leon, Mexico

"A Scientific Point of View" by Evalyn Gates appears to be more about the physics community being a politically correct cross section of society than about the quality of its science or its usefulness to society. Gates's comments raise two questions for us.

Our first question is a basic one: Are there gender inequalities in physics? Gates implies that the answer is yes.

Letters and opinions are encouraged and should be sent to Letters, PHYSICS TODAY, American Center for Physics, One Physics Ellipse, College Park, MD 20740-3842 or by e-mail to ptletter@aip.org (using your surname as "Subject"). Please include your affiliation, mailing address, and daytime phone number. We reserve the right to edit submissions.

According to data from the American Institute of Physics, Gates says, the number of female full professorships nearly doubled from 3% to 5% in only four years, while the female new-faculty hiring rate remained "commensurate with the available candidate pool." Furthermore, the number of women in full professorships nearly doubled in the time it takes to earn a BS in physics. Gates did not laud that achievement but described it as "embarrassingly low." Indirectly, she is proposing an affirmative action program for female physicists when she says we should "achieve parity at the faculty level." However, she later contradicts herself by stating that "women as a group do not need special treatment, [only] equal treatment."

Gates also notes that 46% of high-school physics students are female but only 23% of the physics undergraduate degree recipients are female. She points out, as do Rachel Ivie and Kim N. Ray,¹ that cultural influences "may" play a role in the decision of women not to pursue a physics degree, but Gates neglects to account for a significant skewing aspect: Many high schools require that college-bound students take additional science credits—physics, for example. So the data regarding numbers of female physics students at the high-school level may reflect only a preference for attending college, not a preference for physics.

The second question we have is this: Must technical communities be cross-sectional representations of their greater societies? Gates suggests that they should be. Unfortunately, the question immediately leaves the realm of facts and statistics and lands squarely in a domain where physicists have little experience or qualification—the emotional and political arena of social engineering. Will the social engineering of physics stop once that "parity" is achieved? Probably not. Will the next step be to lower physics graduation requirements simply to attract students from other career fields in the hope of meeting some artificial parity requirement? That outcome is not as far-fetched as some may think.

How are women faring in other career fields? It is well observed that female engineering students tend to favor such specialties as biomedical or materials engineering over the traditional mechanical, civil, and electrical domains. This phenomenon is dominated by sociological and psychological factors. The nerdy reputation that attaches to traditional engineering does not help cultivate the social connections and relationships that our society stresses for young women. Alternatively, the newer engineering fields, particularly biomedical, can be viewed as exciting, and as more people-oriented and compassionate—qualities that our society emphasizes in young women.

Is the lack of male nurses viewed as a crisis in medicine? Considering that females currently dominate the nursing and medical aid communities, and the doctor community approaches parity, is society concerned at the prospect of a female-dominated medical community? Of course not. So why should we be concerned that males may be more socially inclined to physics?

To achieve social similitude, the physics community must either change society or abandon the meritocracy that yielded the great founders of our field. Let's allow students to choose their own careers in line with their interests and dreams. We risk losing professional integrity if we cast aside the meritocracy of physics for cross-sectional similitude with society merely for the sake of political correctness. And rather than acting as sociologists, we should remain focused on our expertise and true to our goal: good physics that is good for society. Once society has fixed its problems, the optimal solution will percolate throughout the physics community so long as we maintain our unbiased meritocracy.

Reference

1. R. Ivie, K. N. Ray, *Women in Physics and Astronomy 2005*, American Institute of Physics, College Park, MD (2005).

Jerry Smith

(jr_smith@vt.edu)

Wei Smith

(wehuang5@vt.edu)

Arlington, Virginia