

Gender Disparity in Physics: A Multifaceted Challenge

In their article “What Works for Women in Undergraduate Physics?” (PHYSICS TODAY, September 2003, page 46), authors Barbara Whitten, Suzanne Foster, and Margaret Duncombe mention that university administrators are at a loss to explain the continuing gender discrepancy in physics and engineering.

Although many signs indicate that gender equity is by no means a reality in even the most advanced societies, past progress in that area seems almost indisputable. Women have begun to occupy positions of significant influence in corporate and government circles—and, yes, even in physics. That trend will most likely continue unabated in the near future, much to the betterment of humanity. In light of that progress, the discouraging figures observed for participation of women in the so-called hard sciences remain anomalous, even troubling to some.

When contrasted with statistics from the life sciences, law, and other professions, physicists end up looking like a rather stodgy lot, with much work remaining to bring their discipline in line with other respected career paths. Confounding the problem is a drastic need to balance undergraduate university curricula in a way that improves students’ quantitative reasoning through the use of mathematical arguments. It may well be that administrators in other disciplines tend to offer better family and all-around support to their female students than the average physics department. If that is the case, physicists would seem to be truly out of step.

Social scientist Patti Hausman wrote in a sidebar to a 2000 story in *Science*,

The question of why more women don’t choose careers in engineering has a rather obvious answer: Because they don’t want to.

Wherever you go, you will find females far less likely than males to see what is so fascinating about ohms, carburetors, or quarks. . . . Reinventing the curriculum will not make me more interested in learning how my dishwasher works.¹

Such dissenting voices on gender equity in mathematical sciences have generally been greeted with scorn. Is

it wrong to think that the brains of men and women might not be identical in every respect? Educators need to demonstrate to all students, regardless of gender, that sound scientific reasoning is important to success in modern society. Promoting women’s participation in advanced study in mathematical sciences is also important. The challenge for educational

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policymakers is to balance the two.

How will we know when gender barriers in physics undergraduate curricula have been entirely removed? Will that only occur when participation has reached the 50% level for women? Such questions are certainly worth our careful consideration.

Reference

1. C. Holden, *Science* **289**, 380 (2000).

Chris Paulse

(chrispaulse@hotmail.com)

Buffalo, New York

Barbara Whitten and coauthors point out in their article that family issues play a significant role in career decisions and suggest several steps departments can take to be more family friendly. However, they don't mention the tenure process and its effect on career choices. Although conflicts between family and career occur in nearly all professions, the problem is greatly exacerbated in academia.

To obtain tenure, young professors are often forced to work extremely long hours. Therefore, they have the least time for child rearing during precisely the same years—their late twenties to mid-thirties—when they want to start families. Undergradu-

ate women who perceive that the tenure process will force them to choose between career and family may shy away from academic careers.

Surely part of the problem arises from an overwhelmingly male academic culture that discourages women professors from having children. In my experience, many female science students, both undergraduate and graduate, are acutely aware of the disparity. They see that women professors who start families are labeled as less dedicated than their male counterparts and as having priorities incommensurate with the tenure process. I know a tenure-track female faculty member (not at my university) who worked from home after having a child and was chided by male faculty for “not spending enough time in the office.” Conversely, another female faculty member, who often brought her young child to the office, was described by the same faculty as being “distracted from her work.”

Such punitive attitudes encourage women to delay starting families until after they get tenure—often in their late thirties—even though fertility rates drop and rates of pregnancy complications rise.

I feel little progress will be made in attracting women to science until the tenure process is greatly modified and attitudes about women professors with children change.

John McNabb

(jmcnabb@phy.syr.edu)

Syracuse University

Syracuse, New York

As a woman who has been in atmospheric science for the past 20 years, I was amazed and irritated that the article “What Works for Women in Undergraduate Physics?” concentrated on family-friendly policies and child care. Surely such topics are of concern to all parents, regardless of gender. What happened to equal pay as an issue? It seems that progress in pay equity is as dismal in academia as elsewhere.

Rebecca Barthelmie

(r.barthelmie@risoe.dk)

Risø National Laboratory

Roskilde, Denmark

Whitten replies: Our article is a report on the results of a specific project, not a discussion of all issues associated with women in physics. I agree that pay equity and the tenure system are important