

We need to identify the reasons why young women view physics as a less appealing, less welcoming, or less viable option for them, as opposed to math or chemistry, for example. We can then act on Hazaveh's suggestion to make a career in physics more attractive to incoming students. This is not, of course, a recommendation that we change the subject matter or lower standards of success in physics courses. But if we find, for example, that a major factor in choosing a career path is the belief that physics is an essentially masculine avocation, it is our responsibility to counteract that view. We need to make it clear that physics is an exciting and rewarding field that will offer equal support, encouragement, and opportunities to students of any race or gender. And then we need to work to make sure that statement is true. At the same time, we also must determine if a failure to retain already interested and talented female students is a factor.

Such attitudes as those expressed by Smith and Smith and by Spicatum are not just unsupported, they are damaging. Work by Claude Steele and others on stereotype threat,⁴ for example, demonstrates the negative impact that expectations based on stereotypes of

race and gender have on performance. A belief that women are less able or less interested in physics will be transmitted to students and potential students and will affect their performance and their decisions. Physics is a challenging subject, and even subtle discouragement—or lack of encouragement—will help to perpetuate the problem.

The National Academies report concludes that "it is not lack of talent, but unintentional biases and outmoded institutional structures that are hindering the access and advancement of women." E. O. LaCasce and Robert Adair identify some of the structural impediments. (Although I have to admit that Adair's focus on reproductive biology was somewhat disconcerting.) They note that traditional physics tracks may pose problems for married physicists and those with children. That issue affects young physicists of both genders, as child-rearing responsibilities become more equally shared and dual-career couples become more common. Creative solutions—in the form of flexible tenure clocks, reasonable maternity/paternity leave policies, active mentoring programs, and dual-career-partner hiring initiatives—are already being implemented at some institutions. Such

programs can improve the academic climate for all scientists.

References

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3. C. Weinberger, <http://www.econ.ucsb.edu/~weinberg/upptail.pdf>.
4. See, for example, S. J. Spencer, C. M. Steele, D. M. Quinn, *J. Exp. Soc. Psychol.* **35**, 4 (1999).

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students who are aiming for a career in science and technology. When I was placed in New York City's public Stuyvesant High School for academically gifted students, I was shocked and awakened by the challenge facing me. Without that challenge, which came mainly from a critical mass of bright, intensely curious students, I would never have become an engineer and a PhD physicist.

I propose that the US government fund and build 435 new free public high schools of science, like my Stuyvesant and the Bronx High School of Science, that would be locally controlled. The schools could be built over seven years at the rate of 63 per year, 1 in each congressional district, plus 6 for the District of Columbia, Guam, and Puerto Rico. High-tech industries would help in many ways.

The cost would be roughly \$4 billion per year for seven years. We can afford it. There are bright, creative minds inside youngsters of every skin color, ethnicity, and religion imaginable. Instead of Congress reluctantly granting up to 120 000 special visas each year for talented foreigners to work in our high-tech industries, why not harvest the best minds from among young people born in America? China and India, with a combined population of 2.4 billion, are doing this now.

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Fixing the record on Descartes' rules for impact

My article "The *Vis Viva* Dispute: A Controversy at the Dawn of Dynamics" (PHYSICS TODAY, October 2006, page 31) included an unfortunate historical error: René Descartes' rules for impact all first appeared in the 1644 Latin edition of his *Principia* and not in the 1647 French edition, as remarked in the article. The French edition merely expanded his explanation of the rules. Although this error is irrelevant to the article's overall argument, it is nevertheless important to correct, for such careless expository flourishes have a way of turning into accepted fact when not corrected.

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