Op-Ed: The still-tolerated gender bias in science

Posted by: Sarah M. Demers  March 29, 2013 at 11:00 am EDT

I just might have the best job in the world. As a particle physicist and professor at...
Yale, I am a happy cog on the wheel of humanity, trying to understand the universe. I collaborate with brilliant people, young and old, from all over the globe. But while I love my job, the truth is I am part of a system that is rigged.

We have come a long way since the day in 1900 that suffragist Susan B. Anthony pledged her life insurance policy to the University of Rochester on a fundraising deadline. This desperate move clinched a deal with trustees that allowed women to enroll. I was admitted there as a graduate student in physics almost a century later.

I remember reading the orientation materials with excitement. I looked over the roster of my classmates and my enthusiasm dimmed a bit as I counted only six women out of thirty. (And when I finally met one of the six, Marion, “she” turned out to be a man from Romania.) How, in 1999, could I be joining a club that was so small?

First, for the good news. The club may be small, but at least it exists. Pioneers like Anthony, Marie Curie and Bernice Sandler (the “Godmother of Title IX”) have opened institutional doors, modeled scientific brilliance and changed the climate. Women can now build up their credentials and compete for the same careers in science as men. Reports from my younger colleagues of being steered away from the labs because some misogynist says, “Women shouldn’t do science” are still coming in, but less often.

Even claims about men having more innate scientific ability are becoming rarer. It just doesn’t fit the evidence. Girls outperform boys in science exams sometimes, and sometimes it’s vice versa, depending on the country in question. From Columbia, where boys scored 4% higher on average, to Jordan, where girls scored 9% higher on average, the data do not jibe with a gender explanation, as this New York Times infographic shows. (Intrigued? This country-by-country data comes from Andreas Schleicher’s PISA test; watch his TED Talk to learn more.)

And yet, despite this progress, this data, women still only account for about one in ten physics professors in the U.S. As much as scientists talk about eradicating bias from our experiments, we sure haven’t done a great job eradicating it from our profession.
A framework to produce good scientists on an equal playing field requires objectivity. Students take tests, receive grades and apply for the next phase of school. Researchers submit papers and grant proposals that are returned with the feedback of peer review. We apply for jobs, and if we get them, funding. Only the highest rated work is funded and published.

Susan B. Anthony made an unusual deal to get women admitted to the University of Rochester. About 100 years later, gender bias in university science departments continues.

In this environment, even a small bias will have a huge ripple effect on the quality of scientific results that emerge and the make-up of the researchers left employed and standing at the end of the day. Unfortunately, we have a growing body of evidence that subconscious bias is alive and well. A few of my colleagues at Yale conducted a study published in the *Proceedings of the National Academy of Science* that shows gender bias among science faculty members. They sent an application for a lab manager position to hundreds of science professors at six leading research institutions. Half of the applications were labeled as coming from John. The other half, in all other ways identical, came from Jennifer. The
professors were asked to rate the application they received and suggest a starting salary.

The results? Jennifer was rated as less competent than John, though she was viewed as more likable. Jennifer was less likely to be recommended for hire and less likely to be considered worth mentoring. Her average suggested starting salary was lower ($26,508 compared to $30,238). The bias against Jennifer showed in both male and female faculty members, both younger and older professors, across the fields of physics, biology and chemistry.

I have been around the block and back on the topic of women in science. I would much rather be writing about the Higgs boson, the physics of music, or what we know about effective science education. But subconscious bias against women in science is real, it is damaging and while the studies we see suggest that it is almost universally practiced, it is far from universally acknowledged.

In a recent *Time Magazine* article about a prominent woman in physics, the reporter wrote, “Physics is a male-dominated field, and the assumption is that a woman has to overcome hurdles and face down biases that men don’t. But that just isn’t so. Women in physics are familiar with this misconception and acknowledge it mostly with jokes.”

It is difficult to solve a problem that we won’t admit we have, but good science demands that we stamp out subconscious bias. Luckily, raising awareness and continuing the conversation is much less of a sacrifice than signing over a life insurance policy. A century from now I hope that identical work from Jennifer and John will receive, on average, identical marks. I hope that our great-grandchildren will not be scratching their heads asking, “Why so little progress?” And I hope that an article by a physicist will be about her latest discovery, not gender.

Sarah Demers is an assistant professor of physics at Yale University. She wrote this piece through The OpEd Project’s Public Voices Fellowship Program.

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By Emilie Soffe on Feb 5, 2014

“Using a powerful particle gun, we would shoot small pieces of matter through the force field and into the antimatter to make small, controlled bursts of energy — which we could then harness and put into batteries.” This quote reads like a line of dialogue from a science fiction movie. But the (exponentially more exciting) truth […]

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By Thu-Huong Ha on Feb 21, 2014

Ed Boyden is the head of the Synthetic Neurobiology group at the MIT Media Lab, where he works on tools to map, control, record — and maybe even someday build — the brain. Boyden has worked on optogenetics, a technique which deploys light-sensitive molecules to the brain and then applies light to them to “turn […]

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Anyone who has taken the MIT implicit Associations Test (https://implicit.harvard.edu/implicit/) or studied the subject of implicit bias knows that bias is pervasive in our society whether we recognize it or not. Perhaps your colleagues in biology could start there because the science is irrefutable.

What I believe happens in many instances is that sexism is so ingrained in our culture that women accommodate or tolerate it either unconsciously or consciously. Tolerating sexism is not the price we have to pay to stay in the game. Period. Full stop. We need to make sure women coming into STEM fields understand this EXPLICITLY.

While subtle bias is pervasive, overt bias in the form of consistent professional slights, exclusion from professional development and leadership opportunities, and expectations that women play a more passive role rather than having more agency in the workplace also exist, though things are slowly improving.

I am the Co-Chair of the Women Professionals Sub-Committee of the American Association of Physicians in Medicine and owner of the Women Medical Physicists LinkedIn Group with a membership of almost 800 women medical physicists spread throughout the world, many of whom are working in regions where greater challenges exist.

We have a unique opportunity as women scientists to exploit the power of social media to create networks for women in physics and all STEM fields in order to ensure they have the guidance and support they need to reach their highest potential, notwithstanding the challenges and obstacles that exist as a result of overt or subtle gender bias.

“This country-by-country data comes from Andreas Schleicher’s PISA test”

Look up his bio on wikipedia. Connect it with Christina Hoff Sommers’ War on Boys or the more recent The Boys at the Back. The real gender discrimination starts in elementary school. And not against girls.
“hundreds of science professors at six leading research institutions.”

of which 30%=127 came back,

“Her average suggested starting salary was lower ($26,508 compared to $30,238). ”

look at the SD of the salaries.

Apparently the largest number of profs in their study were from biology dept. and the lab managers in that field are majority female. It quite possibly can be diversity going the other way, that’s if the paper is that good to begin with(would it have been published if the effect was other way round and pasted all across the media, and replicability)


commented on Apr 1 2013

Reblogged this on AMP.

Ádám Morva commented on Mar 31 2013

Sarah,
Any scientist worth her salt knows that you do not make arguments from authority. You go on about studies, well, go on and give citations so we can check how the study was conducted and what were its exact findings.

You haven’t made a single acceptable argument to support your case.

The study links are in the body of the text. Enjoy!

commented on Mar 31 2013
Reblogged this on Wise Grrl and commented:
I thought it would be good to re-blog this article from TED Blog about women in science, since I am a woman getting into science. Enjoy.

commented on Mar 30 2013

Reblogged this on Well-behaved women rarely make history.

Pingback: Leaning in... | foxonthego

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Maria Teigeiro commented on Mar 29 2013

I ran the science fair at my daughter’s school, one of 5 elementary schools in the district. Just by using pink paper for the flyers, we got over 50% girls participating. We can make simple changes to attract girls early on.

Fatima Abdullah commented on Mar 25 2014

That is such a great idea! It’s pretty cute too! I’ll be passing this idea along to my mom since she is a teacher :D

commented on Mar 29 2013

I’m a college student studying biotech and there is a 2:1 guy to girl ratio in my class. Still even now the people entering into the world of science are moreso lads than
One of our TEDxBloomington speakers last week, Laurie Burns McRobbie, spoke to precisely this issue in Informatics. She outlined a program she helped create that is helping our School of Informatics attract great women into the program, transforming the practice of information technology as a whole, and simultaneously benefits small non-profits. Our event was just a week ago, and so our talks are still in post-production, but if anyone is interested, contact me and I'll let you know when the talk is up or put you in contact with ServeIT and Laurie.

And what of the other minorities – Black, Latino, Indigenous, etc. – who are underrepresented in STEM fields?