The Status of Women in Academic Science

By-
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Women in academia – especially in certain mathematical-intensive fields – tend to be underrepresented. It is commonly argued that this is due to differences in the quantitative skills of both sexes, with males being given the advantage. However, this reasoning is specious, and several other factors are found to be in play.

Using data from the National Assessment of Educational Progress (NAEP), it was found that only a slight male advantage existed in solving complex math problems till the 90's, which was eliminated by the early 00's. A greater amount of girls taking mathematics course was the primary reason for this. This shows that underrepresentation of women in mathematical fields is more due to environmental influences than due to an inherent lack of quantitative abilities.

Despite the equal performance in high school curriculum, when it came to math & science AP courses, the results were quite different. Even though the number of girls taking AP courses is more than the number of boys, they majorly take courses in two fields – biology and environmental science. As seen in Figure 1, girls are greatly outnumbered by boys in the fields of Computer Science, Physics and Calculus.

It is here that we can see the beginnings of how external forces work in changing the outlook of girls towards their career. In a recent study, it was found that male high school students are more than four times as likely as female students to have listed only STEM occupations in their plans.

While the majority of male science and engineering majors entered college already in those areas, female science and engineering majors were more likely to choose them during college. This seems to support the argument that what women lack is not interest or ability for those areas but encouragement to pursue it.

Interestingly, although women are underrepresented in math intensive fields such as engineering, in math itself around 40% of the graduates are women. This contradicts another possible argument: that women are less interested in math than men. A better

explanation might be the belief that some careers are considered “male jobs”, not suited for women, although more research is needed to prove this claim.

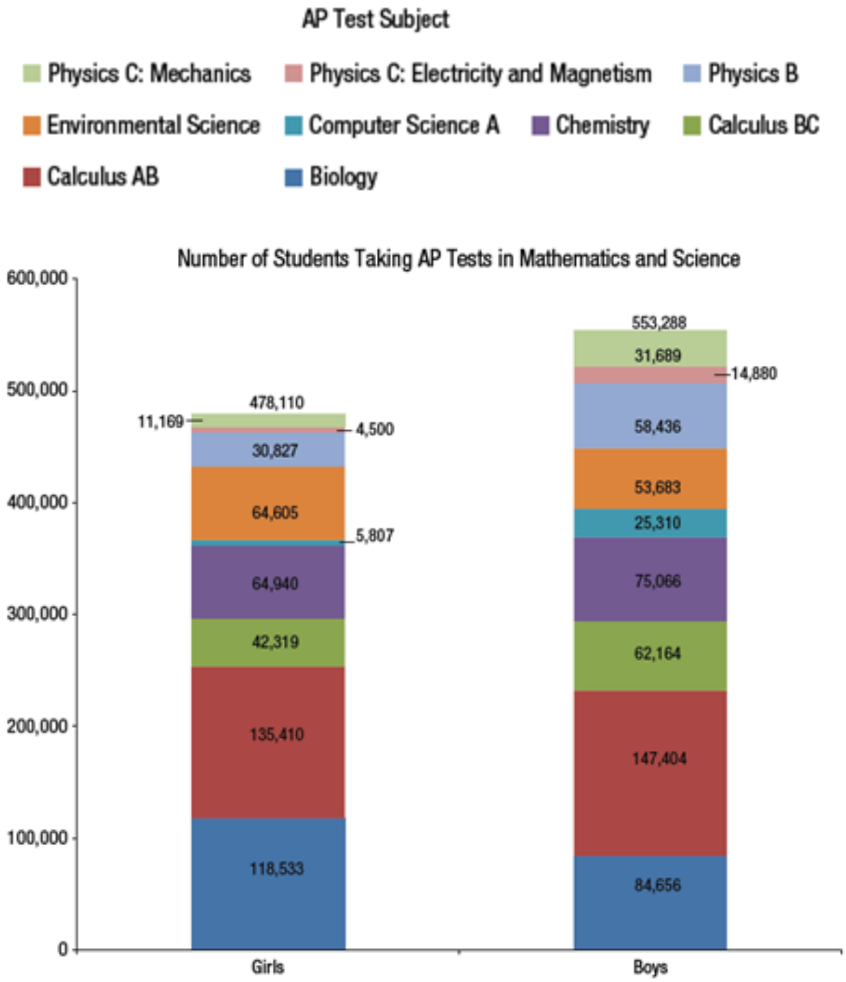

Figure 1: Number of students taking AP tests in mathematics and science subjects in 2013 as a function of student gender and test subject. Data shown here are from the College Board.

Research so far contradicts the deceptive argument that women are underrepresented in math intensive areas because of lack of interest or abilities. A more probable cause is a lack of exposure and encouragement to experiment and pursue a career in those fields. If society wants to reduce this disparity, it should encourage girls from a young age to experiment with math and science and remind them that women can be psychologists and nurses, yes, but they can also be scientists, engineers and astronauts too.

There are already some promising initiatives taking this path, such as Girls Who Code, an organization that provides computer science education and exposure for girls and Goldie Blox, a toy company for girls whose slogan is “building toys aren’t just for boys”.