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Too Few Women -- Figure It Out

If their numbers in math and science don't add up, blame schools, not brainpower.

By Leonard Sax (January 23, 2005)

Leonard Sax is the author of "Why Gender Matters: What Parents and Teachers Need to Know About the Emerging Science of Sex Differences," to be published by Doubleday next month.

True story: A distinguished Harvard professor suggests that women may be innately less capable of scholarship at the highest levels and asserts that the pursuit of an academic career will cause a woman's body to shunt blood away from the uterus toward the brain, rendering that woman "irritable and infertile." A flurry of press coverage ensues.

The professor in question is Edward Clarke, who in 1873 published "Sex in Education: or, a Fair Chance for the Girls." The subtitle was misleading because Clarke believed that all higher education for girls was unhealthy and "unnatural."

On Jan. 14, Lawrence H. Summers, who is (at least for now) the president of Harvard University, followed in Clarke's footsteps when he attempted to explain why there are so very few women holding senior academic positions in math, physics, engineering and technology.

He began by observing that women with children may be less willing to put in the long hours required to achieve top positions in those fields. But he went on to question whether, perhaps, women just aren't cut out for the hardest of hard sciences, that maybe there are "innate differences" between male and female brains that render most women incapable of doing really tough math.

"Intellectual tsunami" is one description for what's happened in the days since Summers' remarks became public. The left protested vociferously. The right defended him, citing tidbits of research. Thus conservative columnist Linda Chavez placed great weight on a Johns Hopkins study that showed that among gifted pre-adolescent children, boys outperformed girls in math 13 to 1. In an effort to stem the waves of anger, Summers apologized in person to a group of women professors Thursday.

In fact, the evidence does not support the idea that innate differences are at fault. Among adults, cognitive sex differences — differences in how adult

women and men think — have turned out to be much smaller than previously believed. According to recent studies, there's a lot of variation within each sex and lots of overlap between the sexes.

The most important breakthrough has been the discovery that the various regions of the brain develop in a different sequence in girls. Researchers at Virginia Tech used sophisticated electrophysiologic imaging to examine brain development in 508 normal children — 224 girls and 284 boys — ranging from 2 months to 16 years.

These researchers found that while the areas of the brain involved in language and fine motor skills (such as handwriting) mature about six years earlier in girls, the areas involved in math and geometry mature about four years earlier in boys.

This finding puts much of the previous work on gender disparities in math and science in a different light. Chavez cited a study showing that among young children there are many more boys who are math geniuses than girls. But if girls had the opportunity to learn math at their own pace, the odds are good that we would have many more teenage math geniuses who are girls. Just as many boys are late bloomers with regard to literature and foreign languages, many girls are — or could be — late bloomers with regard to math and science.

The real problem is not with the different mental capacities of boys and girls but with the way they are taught.

Most girls attend coed schools in which girls and boys study the same subjects in the same sequence. Too often, the result of that kind of gender-blind education is that by age 12 the girls think they're no good at math and never will be. The irony is that many of those girls might be math prodigies, if only they were taught in schools whose curriculum was tailored to the individual.

All-girls schools hold great promise for eliminating the gender imbalance in math and science. A study of graduates of girls' high schools in the United States found that 13% went on to major in hard sciences and math, compared with only 2% of girls who attended coed schools. In other words, girls who attend all-girls schools are more than six times as likely to earn degrees in the very subjects about which Summers professes concern.

Brain science can and should inform the debate about gender equity and education policy. But the first requirement is that the "brain science" should be science rather than stereotype.

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