Is Culture Behind Men's Better Spatial Reasoning?

By Joseph Castro | August 30, 2011 4:12 pm

What’s the News: In the long-running debate over the differences between men and women, one mental skill has emerged as being perhaps more biologically rooted than any other: the ability to solve problems involving physical spaces, shapes, or forms. Many studies have concluded that men simply seem to have an inherent advantage in this area. But a new study of two tribes in Northern India is suggesting that the gender gap we see in spatial skills may be partially due to culture rather than raw biology. This finding may affect the way researchers look at gender differences, but it will surely not settle the question, considering that it’s one study of a small group of people living in one limited environment.

How the Heck:

- Economist Moshe Hoffman and his colleagues recruited 1,279 participants from two neighboring tribes in northern India, the Karbi and the Khasi. The two tribes are similar in many ways: they only separated a few hundred years ago and they are both made up of subsistence farmers mainly living on rice. But the tribes’ cultures are quite distinct. The Karbi are patrilineal—only men are supposed to own land, which is passed on to the oldest son. By contrast, in the Khasi tribe men are forbidden from owning land, property is passed down to the youngest daughter, and men are supposed to turn their earnings over to their wives or sisters.
- The researchers timed how long their participants took to complete a simple four-piece puzzle of a horse. They found that in the Karbi tribe, men completed the block puzzle 36 percent faster than the women; the times were roughly equal across genders for the Khasi. On average, people from both tribes and genders took 40 seconds to complete the puzzle.
- The team attributed about a third of the overall difference to education, as men in the patrilineal tribe receive about 3.5 years more education than women, while men and women in the matrilineal tribe are equally educated.
- They also suggest that who owns a household—and how people are treated within that
A household—could have an impact on spatial abilities. In the Karbi tribe, some women own land and control the finances when there are no sons in the family; the researchers saw a decrease in the gender gap when they compared the scores of the people living in these households with those living in the male-owned households.

What’s the Context:

- Research shows that fewer than 16 percent of tenure-track positions in many math-intensive fields are held by women (pdf). Some people have argued that this discrepancy is due, in part, to men’s better spatial abilities, which are important for solving certain math problems.
- A 2009 study found that countries with low gender equality have a greater gender gap in math. This gap occurs in the U.S., too: recent research showed that even though boys and girls in the U.S. start out on equal footing in math, boys eventually outpace girls.
- Last year, a study showed that special training programs may be able to reduce the gender gap in spatial reasoning; more research is needed to see if this will eliminate the gap in math and science achievement.

Not So Fast:

- Some scientists are not convinced that the study really tested spatial reasoning—the puzzle didn’t assess the participants’ accuracy at mentally rotating 3D figures, which traditional spatial-reasoning tests measure (via ScienceNews).
- It’s unclear how universal the study’s results are, as the researchers only looked at two cultures.


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