

Men vs. Women: Spatial ability differences due to nurture?

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Men are generally better at spatial awareness than women. But is this gender difference a result of nature or nurture? A recent study suggests nurture...

Identifying the contributions of nature and nurture in cognition is difficult - only rare cases exist where one is held constant and the other varied. Two tribes in Northeast India, however, provide one such example.

The Khasi and Karbi tribes are very close relatives. They diverged only a few hundred years ago, and inter-marrying still continues enough to prevent isolated gene pools. The culture of each tribe is very different. Whilst the Khasi are a matrilineal society - where women inherit and own the land - the Karbi are a patrilineal society - where men inherit and own the land.

In the study of spatial ability, 1,600 participants in 8 villages were asked to solve a four-piece jigsaw puzzle. The pieces were 3D blocks with four sides; one side of each had a quarter of the image they had to assemble. The task was incentivised by the offer of 20 rupees for completion in under 30 seconds, an amount of money equivalent to a quarter of a day's wages. Moshe Hoffman, from the University of California San Diego worked on the study. He explained, "To you and I this is a relatively easy task, largely because we've been solving puzzles since we were 3 years old, but none of our subjects were familiar with puzzles".

The results showed a stark difference between the Khasi and the Karbi tribes. For the Khasi tribe there was no gender difference in ability to solve the problem - men and women performed equally well on the spacial ability test. In contrast, the Karbi tribe saw a gender difference. Karbi men solved the problem, on average, 1.5 times quicker than Karbi women.

There appeared no significant effect of whether the participant was firstborn, lastborn, or likely to inherit property or not, although level of education was found to be one cause of the gender discrepancy in the patrilineal society. However, education statistically accounted for only one third of the gender difference, leaving an unaccounted difference of two thirds.

Moshe Hoffman and his team conclude that the difference must therefore be due to cultural differences. Suggestions as to what cultural differences result in this unbalance are speculative, "We can guess. Based on the existing literature we know things like... training, and relevant experience matter", also, "In the patrilineal society the women might believe they're worse at playing games, or doing simple tasks that require thinking, and that can certainly hinder their abilities. It's also possible [that] they have less experience doing things that exercise spatial abilities, such as playing sport."

In regards to our own society, women make up 50% of the population, but represent only 19% of the science and engineering workforce. Some have argued that spatial ability differences are the cause. So is our culture, rather than biology, causing this? "Where men and women are in many regards equal, while holding biology constant, the way people are treated plays a role, and that I would think would generalise to other societies just as well. Even here, by influencing the way people are treated, that could matter."