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Does experience with spatial school subjects favour girls' mental rotation performance?

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Summary: Most men outperform women in mental rotation and this can explain their overrepresentation in STEM fields where spatial abilities are required. Beyond genetics, a wide range of often interacting factors can account for the gender gap in mental rotation: experiential, strategic, cultural, and motivational. This study considered type of school and explanations about gender differences. A sample of 221 adolescent students (mean age 14.86, 162 girls) attending either a Low Spatial Thinking (LST, $n = 120$) or a High Spatial Thinking (HST, $n = 101$) type of school performed a mental rotation task, and received instructions suggesting three different explanations (genetic, common-held stereotype, women anxiety) for boys outscoring. Girls' mental rotation scores were higher in the HST than in the LST type of school. Boys scored higher than girls in the LST but not in the HST type of school. The common-held stereotype instructions, suggesting a controllable attribution for gender differences, increased performance only for girls in the HST type of school. Results are discussed within a bio-psycho-social view of gender individual differences in mental rotation.

Classification: G23 C33 C63 D33 C23

Keywords: mental rotation; STEM; stereotyped attitudes; gender; type of school

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