



Gender Stereotypes About Intellectual Ability Emerge Early and Influence Children's Interests

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Previous research has demonstrated that cultural stereotypes can affect individuals' career aspirations and goals, as well as their levels of achievement. The stereotype that men are better than women in science, technology, engineering, and math (STEM) can impair women's performance^{1,2} and cause them to disengage from these fields of study.^{3,4} But when and how do these stereotypes come to affect behavior?

To explore these questions, Mindset Scholar [Andrei Cimpian](#) and his colleagues Lin Bian and Sarah-Jane Leslie conducted multiple studies to assess the developmental trajectory of the endorsement of gender stereotypes among young children between the ages of 5 and 7. In particular, they focused on gender stereotypes about raw intellectual talent (or "brilliance"), since this trait is commonly seen as important for success in many prestigious careers.⁵

AT WHAT AGE DO CHILDREN BEGIN ENDORSING GENDER STEREOTYPES ABOUT BRILLIANCE?

In their first study, the research team developed a task where children were told a brief story about a person who is "really, really smart." These children, ages 5, 6, and 7 (N=96), were then shown images of four adults - two men and two women - and were asked who they believed the story was about.

KEY FINDINGS:

- By the age of 6, girls were less likely than boys to believe that members of their gender are "really, really smart"
- 6- and 7-year-old girls avoided participating in activities that were labeled for children who are "really, really smart"

Male and female 5-year-olds were more likely to identify individuals of their own gender as "really, really smart." However, 6- and 7-year-old girls were much less likely than 6- and 7-year-old boys to associate brilliance with their own gender. This suggests that changes about children's ideas of intelligence occur rapidly, and that gender disparities in beliefs about intelligence are evident by age 6. The results were replicated in a follow-up study (N=144) using images of both children and adults.

This research summary highlights findings from the following article: Bian, L., Leslie, S.J., Cimpian, A. (2017). Gender stereotypes about intellectual ability emerge early and influence children's interests. *Science*, 355, 389-391.

DO THESE STEREOTYPICAL BELIEFS APPLY TO PERCEPTIONS OF SCHOOL ACHIEVEMENT?

In their second study, the researchers tested whether young girls held gendered beliefs about school performance in addition to intelligence. The participants were shown images of four children (two boys, two girls) and were asked to identify who received the best grades in school.

Unlike with perceptions of brilliance, there was no significant difference between younger and older girls in their propensity to identify girls as top grade earners. Older girls were actually more likely to select girls as earning top grades than their male peers were to select boys.

This suggests that young girls' stereotypical beliefs about brilliance may not be rooted in whom they perceive to be successful in a school setting. There was also no significant correlation between girls' perception of school achievement and their perception of brilliance.

DO PERCEPTIONS ABOUT BRILLIANCE RELATE TO YOUNG CHILDREN'S BEHAVIOR?

In the third study, the researchers introduced a novel game to 6- and 7-year-old participants (N=64). One game was described as designed for "children who are really, really smart" and the other for "children who try really, really hard." The participants were asked four questions to measure their interest in the game.

Girls were less likely than boys to express interest in the game said to be for "really, really smart" children, but not for the game said to be for hard-working children. Participants' gendered beliefs about brilliance were also measured. The research team found that female participants who displayed gendered beliefs about intelligence - in other words, girls who were more likely to attribute brilliance to males - were less likely to report interest in the game labeled for brilliant children. This suggests that stereotypical beliefs about brilliance predict, and may influence, real behavioral decisions made by young children.

IMPLICATIONS OF THIS RESEARCH

These studies provide preliminary evidence about the way that gendered beliefs about intelligence develop and relate to young children's decision-making. Understanding more about the sources of these stereotypical beliefs about brilliance can help inform the implementation of practices

and the design of learning spaces that promote inclusion and counter stereotypes.

In future research it will be important to study whether these findings replicate in different cultural contexts and how environments may influence children's perspectives on brilliance.

This brief was edited by Lisa Quay, Executive Director of the Mindset Scholars Network, and David Bowermaster, Principal, Fireside Strategy.

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