A Test of Relational and Concrete Cognitive Biases Across Cultures and Species

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Abstract

American adults exhibit cognitive biases that favor processing relational information (e.g., comparative heights) over concrete metrics (e.g., surface area), but the bias's origin—cultural, developmental, or evolutionary—is debated. We explored this question by comparing American adults and children, Tsimane adults (with and without formal-education), and rhesus macaques. Findings indicate that relational biases emerge with increased exposure to formal-education. That is, educated Tsimane and Americans show a relational bias, unlike the concrete bias seen in uneducated Tsimane and macaques. Furthermore, young American children show less relational bias than older children and adults, indicating a progressive increase in relational bias. These findings suggest that while common ancestors of humans and macaques may have evolved to favor simpler concrete processing, this bias can be overridden by environmental influences (e.g., abstract language and symbols) that promote relational processing. Further investigations on early-life biases could help educators tailor teaching methods to cognitive predispositions.

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