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Uncommon knowledge of a common phenomenon: intuitions and statistical thinking about gender birth ratio.

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Summary: The phenomenon of birth of a baby is a common and familiar one, and yet college students participating in a general biology class did not possess the expected common knowledge of the equal probability of gender births. We found that these students held strikingly skewed conceptions regarding gender birth ratio, estimating the number of female births to be more than twice the number of male births. Possible sources of these beliefs were analysed, showing flaws in statistical thinking such as viewing small unplanned samples as representing the whole population and making inferences from an inappropriate population. Some educational implications are discussed and a short teaching example (using data assembly) demonstrates an instructional direction that might facilitate conceptual change.

Classification: K45 M65

Keywords: statistical thinking; gender birth ratio; cognitive conflict; intuition

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