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Is there a spatial Dunning-Kruger effect? And how is it influenced by gender?

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Abstract

Performance on spatial tests is not only a matter of ability; it is also influenced by people's confidence and belief in their ability. Although we know that training can improve spatial performance, we know relatively little about the influences of beliefs and expectations on the efficacy of training. Here we investigated men and women's performance on a mental rotation task and their prediction of their performance. We also examined whether providing information about different strategies influenced performance. The results demonstrate a spatial Dunning-Kruger effect; both men and women consistently overestimated their performance. Women's estimates were lower than men's estimates were. Importantly, training influenced men and women's predictions of their performance in opposite directions; training increased men's confidence (but not their performance), whereas training decreased women's confidence (but not their performance). The results suggest that expectations and beliefs about spatial performance need to be considered when explaining training effects and sex differences.