

The Scaffolding of Inferential Reasoning: Intuitive Analysis of Variance

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Abstract

In the present study, we explored the effect of a scaffolding exercise designed to make salient the importance of within-group variance on participants informal reasoning during a subsequent intuitive analysis of variance task. Participants were first presented with several datasets that varied with respect to within-group differences and were asked to provide examples of extraneous factors that could be the source of the variance. Afterwards, participants were given additional datasets that differed with respect to both within and/or between-group variability, and were asked to rate the strength of evidence provided by the dataset in support of a hypothetical theory. Consistent with prior research, the majority of participants tended to place a strong emphasis on between-group variability while minimizing the importance of within-group variation. However, the results indicate that for a subset of participants ($n=6$), the scaffolding exercise was effective in highlighting the significance of within-group variation. We found that all participants who reasoned normatively on the scaffolding exercise were able to successfully complete the analysis of variance task in a normative manner.