The Effects of Feedback During Problem Solving in the Context of Stereotype Threat

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Purpose
Our purpose was to examine stereotype threat in the context of mathematics problem-solving when students receive feedback or do not receive feedback.

Background
Stereotype threat occurs when an individual feels they are at risk for confirming a stereotype (Steele & Aronson, 1995). For example, when solving mathematics problems, females may fear confirming the stereotype that “girls are bad at math.” To date, few studies have examined how authentic feedback influences learning in the context of stereotype threat (Rydell et al., 2017). Feedback literature has found the effects of receiving feedback vary widely. In this study, we investigated if stereotype threat was stronger if feedback was provided or not provided.

Method
PARTICIPANTS
342 undergraduate students enrolled in an introductory psychology course at Indiana University-Bloomington (M age = 19.05 years; 68.4% female)

PROCEDURE
Students participated in a single online learning session where they completed a series of 8 probability problems. Prior to solving those, participants solved 2 baseline items designed to assess prior knowledge of the task. Participants were randomly assigned to one of four conditions using a 2 (Stereotype Threat: Threat or Gender-Fair) x 2 (Feedback: Yes or No) between-subjects design.

Design

Results
Problem-solving performance was moderate (M = 4.23 out of 8, SD = 2.41).

Conclusions
When solving problems without feedback, there was no effect of gender or threat. When solving problems with feedback, there was a threat by gender interaction. The men in this study only outperformed women in the threat condition when feedback was provided.

Implications
The current results suggest that feedback may exacerbate the effects of stereotype threat by enhancing the evaluative nature of the learning environment.

They further suggest that the effects of feedback vary and are not always beneficial for problem solving.

Future research is needed to further examine the factors that influence the effectiveness of feedback and have the potential to diminish the effects of stereotype threat on learning.

References