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Report

Rising to the threat: Reducing stereotype threat by reframing the threat as a challenge

Adam L. Alter [a,*], Joshua Aronson [b], John M. Darley [c], Cordaro Rodriguez [c], Diane N. Ruble [d]

[a] Stern School of Business, New York University, Tisch Hall, 40 West 4th Street, New York, NY 10012, United States
[b] Steinhardt School of Culture, Education, and Human Development, 182 Washington Square East, New York University, New York, NY 10003, United States
[c] Department of Psychology, Princeton University, Princeton, NJ 08544, United States
[d] Department of Psychology, New York University, 6 Washington Place, New York, NY 10003, United States

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ABSTRACT

In two experiments, we found that the performance-inhibiting consequences of stereotype threat were eliminated when the threat was subtly reframed as a challenge. In Experiment 1, Black school children in North Carolina completed a 10-item mathematics test. Participants who reported their race before taking the test performed more poorly than participants who reported their race after completing the test, unless the test was framed as a challenge. Experiment 2 replicated this effect with undergraduates at a prestigious university. When reminded that they graduated from high schools that were poorly represented at the university, they performed more poorly than their peers on a math test. However, when the test was reframed as a challenge, this threat had no effect on their performance. These findings are discussed in terms of their theoretical and practical applications for both educational and athletic training.

People perform more poorly across a broad range of evaluative domains when reminded that they belong to a group associated with weakness in that domain (for reviews, see Aronson & McGlone, 2009; Schmader, Johns, & Forbes, 2008; Shapiro & Neuberg, 2007; Steele, Spencer, & Aronson, 2002). When reminded of their group membership, for example, White people struggle athletically (e.g., Stone, Lynch, Sjomeling, & Darley, 1999), Black people struggle academically (e.g., Steele & Aronson, 1995), women struggle mathematically (e.g., Shih, Pittinsky, & Ambady, 1999; Spencer, Steele, & Quinn, 1999) and spatially (McGlone & Aronson, 2006), and men struggle linguistically (e.g., Keller, 2007). These so-called *stereotype threat* effects are pervasive, and research suggests that they explain in part why Black students continue to perform more poorly than White students in academic settings (e.g., Cohen, Garcia, Apfel, & Master, 2006; Walton & Spencer, 2009). The present research tested a simple theoretically-driven and domain-general intervention that was designed to eliminate stereotype threat effects.

A summary of why stereotype threat impairs performance

Stereotype threat effects emerge for a variety of interrelated reasons, recently encapsulated in Schmader et al.'s (2008) three-mechanism stereotype threat model. They argued that stereotype threat activates physiological stress responses (e.g., Blascovich, Spencer, Quinn, & Steele, 2001), performance monitoring (e.g., Seibt & Förster, 2004), and the mental suppression of negative thoughts and emotions (e.g., Bosson, Haymovitz, & Pinel, 2004), all of which deplete limited cognitive resources. People experiencing stereotype threat consequently perform more poorly because they have fewer cognitive resources to devote to tasks than do their peers who are not experiencing threat.

Researchers have similarly identified a range of situational factors that moderate stereotype threat. As early studies showed, the threat disrupts performance only when the provoking stereotype is salient. Whereas Black students asked to report their race before taking a diagnostic academic test perform more poorly than their White counterparts, the effect does not occur if these students are asked to report their race after completing the test (e.g., Steele & Aronson, 1995). Participants must also identify with the target domain (e.g., Aronson, Lustina, Good, Keough, & Steele, 1999; Nosek, Banaji, & Greenwald, 2002), and the group with which they are associated (e.g., Schmader, 2002), as the negative stereotype is threatening only if it applies to a domain and a group that are personally relevant. Female engineers who work alongside male engineers are therefore particularly susceptible to stereotype threat, because their individual reputations and mathematical prowess are regularly challenged by the negative stereotype that women are mathematically less capable than men, an effect that has been shown in both laboratory and field experiments (e.g., Pronin, Steele, & Ross, 2004: Good, Aronson, & Harder, 2008). In

* Corresponding author. Fax: +1 609 258 1113.
E-mail address: aalter@princeton.edu (A.L. Alter).

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sum, self-relevant threats impair performance by depleting valuable cognitive resources. Our research examines the hypothesis that such depletion might be prevented by conditions that encourage individuals to adopt a mindset that construes such threats as challenges.

Challenge-framing as a threat-reduction mechanism

Over the past three decades, researchers have cast *threat* and *challenge* as opposing styles of appraising potentially stressful situations (e.g., Kobasa, 1982; Mendes, Blascovich, Hunter, Lickel, & Jost, 2007). Challenges are cast positively, as situations in which people feel capable of conquering stressors, whereas threatening situations seem to demand more resources than the perceiver can muster (Blascovich, Mendes, Hunter, & Salomon, 1999; White, 2008).

Threat appraisal generates stress-related physiological responses and impairs performance in moderately difficult tasks (e.g., Blascovich et al., 1999). Challenge appraisal, conversely, facilitates performance by inducing adaptive stress responses and preparing the perceiver to address the stress (Scheepers, 2009; Vick, Seery, Blascovich, & Weisbuch, 2008). Importantly, people might interpret the same task as a challenge or a threat, depending on a range of situational factors, like the negative consequences of failure (e.g., Keller & Bless, 2008). Given the divergent consequences of threat and challenge appraisals for performance, reframing an otherwise threatening task as a challenge might reduce the effects of stereotype threat. Accordingly, we conducted two experiments to examine whether introducing typically threatening tasks as challenges might eliminate the damaging effects of stereotype threat on performance.

Experiment 1: mitigating stereotype threat in elementary school students

In Experiment 1, we examined whether Black students might perform better on an otherwise threatening academic test if the test were framed as a challenge. Black students in North Carolina completed 10 sample items from a standardized math test called the End of Grade Exam (EOG), which is designed to ensure that children have attained a minimum standard of academic proficiency at the end of each grade. Some participants reported their racial background immediately before taking the math test, which made their racial group salient, whereas the remaining participants reported their racial background after completing the test. The experimenter framed the test either as a challenge or a threat by verbally describing it as a useful learning experience (challenge) or a true measure of their ability (threat). We expected students who reported their race before taking the test to perform more poorly than students who reported their race after completing the test, but only when the test was framed as a threat rather than a challenge.

Methods

Participants

Fifty-one school children (age range: 9–13 years; $M = 11.01$ years, $SD = .88$; from grades 4 to 6) participated in this study, administered by a Latino male experimenter.[1] Data from two participants were lost due to a clerical error, leaving 49 participants in the remaining analyses. In both this and the following experiment, we refrained from asking participants to report their gender, since prior research has shown that males experience threat when asked to complete linguistic tasks (Keller, 2007), whereas females experience threat when asked to complete mathematical tasks (e.g., Shih et al., 1999). Asking for participants' gender could have therefore introduced unintended sources of threat.

Materials, design, and procedure

Participants were randomly assigned to one of four conditions in a 2 (framing: threat vs. challenge) × 2 (race salience: high vs. low) between-participants design. Participants completed a 10-item EOG sample test in groups of four, though they sat behind small partitions that prevented them from seeing the other test-takers. Because participants within each group were randomly assigned to different conditions, the experimenter approached each participant individually and quietly explained the purpose of the test. Participants were therefore exposed to the instructions designed for their experimental condition, but not the instructions designed for the other conditions.

Framing manipulation

Participants in the *threat* and *challenge* conditions were given subtly different instructions, which emphasized either the diagnostic nature of the test (threat condition) or the role of the test in improving their general mathematical ability (challenge condition). Specifically, the experimenter told participants in the *threat* condition that the test would "show how good [they] were right now on this type of work," and that "it would be able to measure [their] ability at solving math problems." In contrast, those in the *challenge* condition were told that they "would learn a lot of new things," and that "working on these problems might be a big help in school because it sharpens the mind and learning to do math well could help [them] in [their] studies" (adapted from Elliott & Dweck, 1988, who used the manipulation with similar samples). To ensure that participants encoded the manipulation, they were asked to describe the purpose of the test at the end of the experiment, and they were prompted to determine whether the goal of the study was to help them to learn (as in the challenge condition), or to measure their performance (as in the threat condition).

Race salience manipulation

Participants completed a demographic sheet in which they reported their race either before beginning or after finishing the test. Since reporting one's race heightens the accessibility of potentially threatening stereotypes, participants in the high salience condition reported their race before beginning the test, whereas those in the low salience condition reported their race after completing the math test.

The EOG test

The North Carolina School Board administers the EOG at the end of each school year to measure whether students have reached an appropriate level of mathematical proficiency. The board creates different versions of the test for each grade, so participants completed a 10-item test consisting of items designed for students who had completed the previous grade (e.g., 5th graders completed the 4th grader test). Participants were given 10 min to complete the test. Participants did not perform differently by grade, $F(2, 46) = 1.21$, $p = .31$, $\eta_p^2 = .05$, so we collapsed scores across the school grade variable.[2]

[1] Approximately 30 students from one of several other ethnic backgrounds (predominantly White, Asian, and Latino) also completed the study, but there were fewer than 10 students from any of these other ethnic groups, so we were unable to examine reliably the effect of the manipulation on students from these other backgrounds. Participants were randomly assigned to a testing session, and were not separated based on ethnicity or gender.

[2] Although we tested students in Grades 4, 5, and 6, they all took age-appropriate tests, which explains why older students did not perform better than younger students.