

Stereotype Threat

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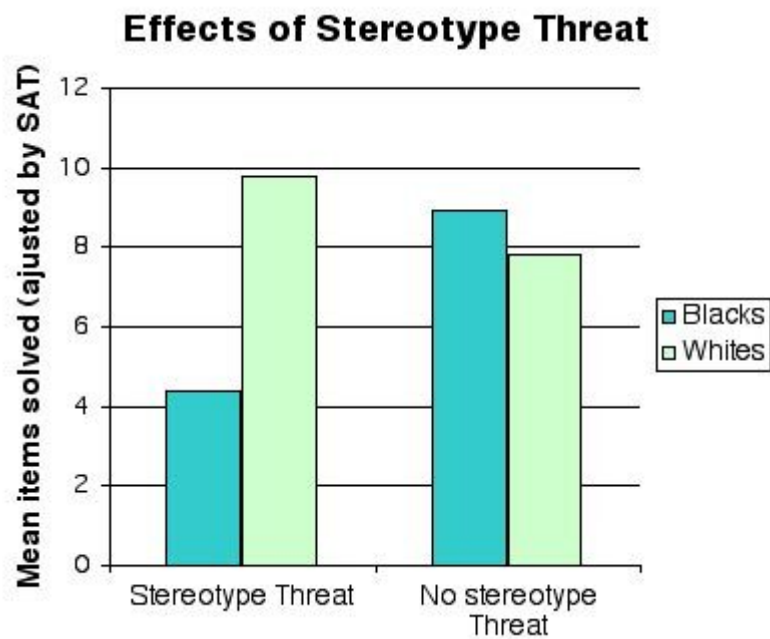
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Stereotype threat is the experience of anxiety or concern in a situation where a person has the potential to confirm a negative stereotype about their social group. First described by social psychologist Claude Steele and his colleagues, stereotype threat has been shown to reduce the performance of individuals who belong to negatively stereotyped groups. For example, stereotype threat can lower the intellectual performance of African-Americans taking the SAT reasoning test used for college entrance in the United States, due to the stereotype that African-Americans are less intelligent than other groups. Since its introduction into the scientific literature in 1995, stereotype threat has become one of the most widely studied topics in the field of social psychology.

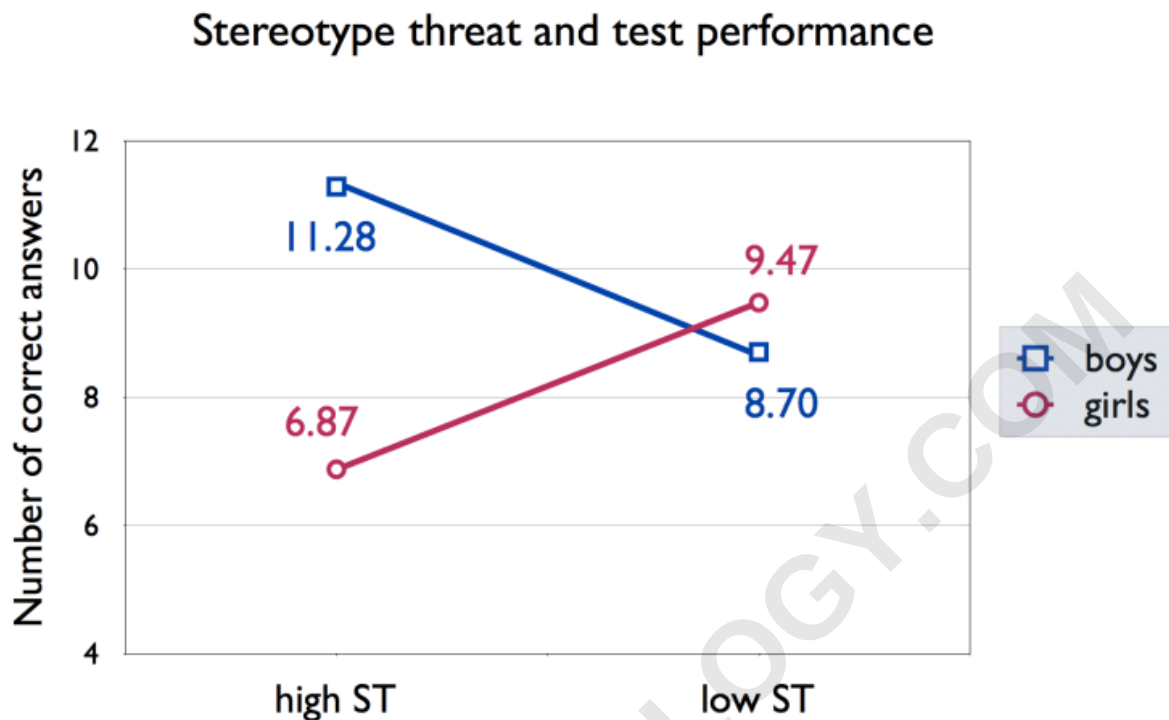
Stereotype threat is a potential contributing factor to long-standing racial and gender gaps in academic performance. However, it may occur whenever an individual's performance might confirm a negative stereotype. This is because stereotype threat is thought to arise from the particular situation rather than from an individual's personality traits or characteristics. Since most people have at least one social identity which is negatively stereotyped, most people are vulnerable to stereotype threat if they encounter a situation in which the stereotype is relevant. Situational factors that increase stereotype threat include the difficulty of the task, the individual's belief that the task measures their ability, and the relevance of the negative stereotype to the task. Individuals show stronger stereotype threat effects when they want to do well on the task, identify strongly with the stereotyped group, or expect discrimination due to the negative stereotype. Repeated experiences of stereotype threat can lead to a vicious circle of undermined confidence, poorer performance, and loss of interest in the relevant area of achievement.

Effects on performance



The Effects of Stereotype Threat on the Standardized Test Performance of College Students, J. Aronson, C.M. Steele, M.F. Salinas, M.J. Lustina - Readings About the Social Animal, 8th edition, E. Aronson

In the early 1990s, Claude Steele, in collaboration with Joshua Aronson, performed the first experiments demonstrating that stereotype threat can undermine intellectual performance. They had African-American and European-American college students take a difficult verbal portion of the Graduate Record Examination test. As would be expected based on national averages, the African-American students performed less well on the test. In a subsequent experiment, Steele and Aronson changed the instructions of the test so that participants no longer believed that the test accurately measured intellectual performance. This change reduced the performance gap between the two groups. Steele and Aronson concluded that changing the instructions on the test can reduce African-American students' concern about confirming a negative stereotype about their group. Supporting this conclusion, they found that African-American students who regarded the test as a measure of intelligence had more thoughts related to negative stereotypes of their group. Steele and Aronson measured this through a word completion task. They found that African-Americans who thought the test measured intelligence were more likely to complete word fragments using words that are associated with relevant negative stereotypes (e.g. completing __mb as "dumb" rather than "numb").



The effect of Stereotype Threat (ST) on math test scores for girls and boys. Data from Linking Stereotype Threat and Anxiety

More than 300 published papers document the effects of stereotypes threat on performance in a variety of domains. For example, a study on chess players revealed that women players performed more poorly than expected when they were told they would be playing against a male opponent. In contrast, women who were told that their opponent was female performed as would be predicted by past ratings of performance. The mere presence of other people can evoke stereotype threat. In one experiment, women who took a mathematics exam along with two other women got 70% of the answers right, while those doing the same exam in the presence of two men got an average score of 55%. Researchers Vishal Gupta, Daniel Turban, and Nachiket Bhawe extended stereotype threat research to entrepreneurship, a traditionally male-stereotyped profession. Their study revealed that stereotype threat can depress women's entrepreneurial intentions while boosting men's intentions. However, when entrepreneurship is presented as a gender-neutral profession, men and women express a similar level of interest in becoming entrepreneurs. Another experiment involved a golf game which was described as a test of "natural athletic ability" or of "sports intelligence". When it was described as a test of athletic ability, European-American students performed worse, but when the description mentioned intelligence, African-American students performed worse.

Overall, findings suggest that stereotype threat may occur in any situation where an individual faces the potential of confirming a negative stereotype. For example, stereotype threat can negatively affect the performance of European Americans in athletic situations as well as men who are being tested on their social sensitivity. The experience of stereotype threat can shift depending on which group identity is salient to the situation. For example, Asian-American women are subject to a gender stereotype that expects them to be poor at mathematics, and a racial stereotype that expects them to do particularly well. Subjects from this group performed better on a math test when their racial identity was made salient; and worse when their gender identity was made salient.

The effect of Stereotype Threat (ST) on math test scores for girls and boys. Data from Linking Stereotype Threat and Anxiety

Certain individuals appear to be more likely to experience stereotype threat than others. Individuals who are highly identified with a particular domain appear to be more vulnerable to experiencing stereotype threat. Therefore, students who are highly identified with doing well in school may, ironically, be more likely to underperform when under stereotype threat.

While research suggests that stereotypes may play a role in test score achievement gaps, it does not prove that that stereotypes are the primary source of the gaps. According to Paul R. Sackett, Chaitra M. Hardison, and Michael J. Cullen, both the media and scholarly literature have wrongly concluded that eliminating stereotype threat can completely eliminate differences in test performance between European-American and African-American individuals. For example, Sackett et al. have pointed out that in Steele and Aronson's (1995) experiments where stereotype threat was removed, there was still a remaining achievement gap that closely correlates with the gap between African-American and European-Americans' average scores on large-scale standardized tests such as the SAT. In subsequent correspondence between Sackett et al. and Steele and Aronson, Sackett et al. wrote that "They agree that it is a misinterpretation of the Steele and Aronson (1995) results to conclude that eliminating stereotype threat eliminates the African American-White test-score gap." Sackett et al. have expressed concern that this misunderstanding of stereotype threat research may shift public policy away from addressing other long-standing causes of achievement gaps such as racism, sexism and socioeconomic inequality.

Mechanisms

Although numerous studies demonstrate the effects of stereotype threat on performance, questions remain about the specific mental processes which underlie these effects. Steele and Aronson originally speculated that anxiety and narrowed attention, resulting from attempts to suppress stereotype-related thoughts, contribute to the observed deficits in performance. In 2008, Toni Schmader, Michael Johns, and Chad Forbes published an integrated model of stereotype threat that focused on three interrelated factors: 1) stress arousal, which impairs the processing of

information in the prefrontal cortex; 2) performance monitoring, which narrows attention; and, 3) efforts to suppress negative thoughts and emotions. Schmader et al. suggest that these three factors summarize the pattern of evidence that has been accumulated by past experiments on stereotype threat. For example, stereotype threat has been shown to disrupt working memory, increase self-consciousness about one's performance, and cause individuals to try and suppress negative thoughts as well as negative emotions such as anxiety.

A number of studies looking at physiological and neurological responses support Schamder, Johns, and Forbes' integrated model of the processes that produce stereotype threat. Supporting an explanation in terms of stress arousal, one study found that African-Americans under stereotype threat exhibit larger increases in arterial blood pressure. One study found increased cardiovascular activation amongst women who watched a video in which men outnumbered women at a math and science conference. Other studies have similarly found that individuals under stereotype threat display increased heart rates. Stereotype threat may also activate a neuroendocrine stress response, as measured by increased levels of cortisol while under threat.

In regards to performance monitoring and vigilance, studies of brain activity have supported the idea that stereotype threat increases both of these processes. Forbes and colleagues evoked electroencephalogram (EEG) signals which measure electrical activity along the scalp. This allowed the researchers ascertain that individuals experiencing stereotype threat were more vigilant for performance related stimuli. Another used functional magnetic resonance (fMRI) to investigate brain activity associated with stereotype threat. The researchers found that women experiencing stereotype threat while taking a math test showed heightened activation in the ventral stream of the anterior cingulate cortex (ACC), a neural region thought to be associated with social and emotional processing. Wraga and colleagues found that women under stereotype threat showed increased activation in the ventral ACC and the amount of this activation predicted performance decrements on the task.

Long-term consequences

Although decreased performance is the most recognized consequence of stereotype threat, studies have shown that it can also lead individuals to blame themselves for perceived failures, self-handicap, discount the value and validity of tests and other performance tasks, distance themselves from negatively stereotyped groups, and disengage from situations and environments that are perceived as threatening.

Over the long-term, the chronic experience of stereotype threat may lead individuals to disidentify with the domain in which they are experiencing the threat. For example, a woman may stop seeing herself as "a math person" after experiencing a series of situations in which she experienced stereotype threat. This disidentification is thought to be a psychological coping strategy to maintain

self-esteem in the face of failure. In addition to long-term psychological outcomes, the physiological consequences of threat may pose health risks to certain groups who frequently experience threat. For example, some researchers have hypothesized that the higher death rates for African-Americans from hypertension-related disorders may stem from the chronic activation of the cardiovascular system in response to stereotype threat.

Interventions

Additional research seeks ways to boost the test scores and academic achievement of students in negatively-stereotyped groups. In one study, teaching college women about stereotype threat and its affects on performance was sufficient to eliminate the predicted gender gap on a difficult math test. Another approach involves providing participants with information that intelligence is malleable and can be increased through effort.

A third type of intervention involves having participants write about a value that is important to them, a process referred to in the research literature as self-affirmation. In 2006, researchers Geoffrey L. Cohen, Julio Garcia, Nancy Apfel, and Allison Master found that a self-affirmation exercise, in the form of a brief in-class writing assignment, significantly improved the grades of African-American middle-school students and reduced the racial achievement gap by 40%. Cohen et al. have suggested that the racial achievement gap could be at least partially ameliorated by brief and targeted social-psychological interventions. One such intervention was attempted with UK medical students, who were given a written assignment and a clinical assessment. For the written assignment, the gap closed not by an improvement in the performance of ethnic minority students, but by a worsening of white students' performance. For the clinical assessment, both groups improved performance, maintaining the racial difference.

A fourth type of intervention for stereotype threat involves increasing participants' feelings of social belonging within the academic environment. Greg Walton and Geoffrey Cohen were able to boost the grades of African-American college students, as well as eliminate the racial achievement gap over the first year of college, by telling participants that concerns about social belonging tend to lessen over time.