How Stereotypes Stifle Performance Potential

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Abstract

In academic and organizational domains, performance measures are often used to assess achievement or aptitude. When certain groups of people systematically underperform on such measures, a common interpretation is that the groups differ in inherent ability. However, social psychological research over the past 15 years has documented a phenomenon called stereotype threat whereby subtle situational reminders of negative stereotypes can stifle the performance of those who are targeted by them. In this article, we review research aimed at understanding the sequence of cognitive and affective processes that underlie these situationally-induced performance impairments. We review evidence that being the target of negative stereotypes cues self-uncertainty and a physiological stress response, engages more explicit monitoring of one’s performance, and efforts to regulate unwanted negative thoughts and feelings. Alone or in concert, these extra-task processes hijack cognitive resources needed for successful performance. Armed with the knowledge of these mediating mechanisms, we then review evidence from both field and laboratory based research demonstrating that gender and racial gaps in achievement can be alleviated if not eliminated through creative and often subtle interventions that diffuse the pernicious effects that stereotypes can have.

Modern, industrialized nations pride themselves on being egalitarian societies where every individual, regardless of gender, ethnicity, or social class has an equal opportunity to achieve success in any field of choice. But despite these cultural values of equal opportunity, statistics continue to reveal racial, ethnic, and income disparities in educational attainment. These disparities extend to gender as well, demonstrated by the pronounced imbalance in the number of women who pursue math and science (National Science Foundation, 2009). The persistence of these gaps in achievement, even after efforts to dismantle obvious institutional barriers, has motivated research to understand why these gaps remain and what, if anything, can be done to reduce them.

Complex social problems seldom have merely one cause and people have speculated about the contribution of several factors. These include the role of early socialization processes where young children learn what behaviors, roles, and careers seem most appropriate or normative for someone like them (see Zhang, Schmader, & Forbes, 2009; for a review). In addition, if minority and low income children are disproportionately deprived of the same educational resources as their more advantaged peers, it is of little surprise that they might enter into higher levels of education less equipped to succeed (Kozol, 1992). In contrast to these explanations focused on socio-structural aspects of society, some have theorized that persistent group differences in test scores – so often used as indicators of ability and aptitude – reflect actual inherent mean differences in the biological make-up of different social groups that naturally result in group differences in achievement (Benbow & Stanley, 1980; Herrnstein & Murray, 1994).
Taken together, these various theoretical accounts of the group differences in achievement reflect an obvious debate between the role of nature and nurture in shaping who we are and what we can do. But one thing that all of these explanations share in common is an assumption that within a given performance situation – those contexts where one’s level of proficiency is assessed or evaluated – one’s history of socialization, past experiences, or even biologically based proficiencies has already established one’s ability to do well. In this article, we focus on a unique perspective on group differences in performance by reviewing the evidence that features of the performance situation itself can cue a cascade of psychological processes that have the end result of preventing those who are socially stigmatized from performing up to their true potential. Specifically, we discuss the mechanisms that underlie a phenomenon called stereotype threat (Steele, 1997; Steele & Aronson, 1995).

Demonstrating the Dilemma

In 1995, Stanford researchers Claude Steele and Joshua Aronson published a series of highly influential experiments. They reasoned that for those who are the targets of negative stereotypes of intellectual inferiority, even subtle reminders of these stereotypes can cue a concern with confirming them. In high stakes performance situations, like standardized testing, this concern can get in the way of good performance. To demonstrate this phenomenon, they asked White and Black undergraduates to complete a set of verbal problems. For half of the sample, they described this task as a diagnostic measure of verbal intelligence. For the other half of the sample, it was merely described as a problem solving exercise. When students believed that their intelligence was being assessed, Black students performed more poorly than their White peers, replicating the typical racial gap in standardized test scores that is so often found. Remarkably, when the same task was described in a more neutral way – as a laboratory exercise – Black students performed significantly better and their performance was equivalent to that of their White peers after controlling for individual differences in past test performance. Other studies by Steele and Aronson replicated this effect and demonstrated that even a simple reminder of one’s race (e.g., being asked to mark one’s ethnic background on an initial demographic form) is enough to elicit underperformance among African Americans.

In the 15 years after the publication of this seminal paper, researchers from across the globe have carried out similar studies demonstrating the breadth and generalizability of stereotype threat effects on performance. Similar performance-undercutting effects have been found for several stereotypes targeting specific groups, such as among Latino(a)s and children with low socioeconomic status who are stereotyped to be less intelligent (Croizet & Claire, 1998; Gonzales, Blanton, & Williams, 2002), among women stereotyped to be inferior at math, negotiating skills, or even driving ability (Kray, Thompson, & Galinsky, 2001; Spencer, Steele, & Quinn, 1999; Yeung & von Hippel, 2008), and among older adults who confront stereotypes about memory impairment (Levy & Leifheit-Limson, 2009). Importantly, the diversity of these replications strongly suggests that the performance gap between stereotyped and non-stereotyped groups in relevant domains can be caused by something in the performance situation itself – apart from any possible differences in biology or past socialization. As Steele (1997) so eloquently stated, there is “threat in the air” when one’s performance on some task has the potential to confirm a stereotype about a valued group identity.

But stereotype threat is not only experienced by those who are traditionally devalued in society. Instead, any situation can create a contextualized feeling of stereotype threat. For
example, White men do more poorly on a math test if they are told that the purpose of the study is to examine why Asians typically outperform them at math (Aronson et al. 1999). Whites also show diminished performance on sensorimotor tasks that are described as indicative of their natural athletic ability – an attribute thought to be more associated with Blacks (Stone, 2002; Stone, Lynch, Sjomeling, & Darley, 1999). Similarly, men underperform women on tasks of social sensitivity (Leyens, Désert, Croizet, & Darcis, 2000) and spatial skill (Wraga, Duncan, Jacobs, Helt, & Church, 2006) when reminded of gender stereotypes suggesting that women are superior at social perspective taking. We also see evidence of this phenomenon among those who are typically advantaged in society: Whites show evidence of cognitive depletion and psychological markers of threat during interracial interactions where they are likely to be concerned about appearing prejudiced (Mendes, Blascovich, Lickel, & Hunter, 2002; Richeson & Shelton, forthcoming). So while some groups in society clearly confront negative social stereotypes on a more persistent basis, there is the potential for anyone to have their performance or behavior impaired in situations where they fear confirming a negative stereotype. Considering these detrimental, and diverse outcomes, the logical next step in the research on stereotype threat has been to delineate the exact mechanisms which drive its effects on performance.

Deconstructing the Process

A core assumption of stereotype threat theory is that those who are most concerned with succeeding in a given domain experience the greatest degree of threat at the possibility of conforming to a stereotype (Steele, 1997). This assumption has been supported by several pieces of evidence (e.g., Aronson et al., 1999; Stone et al., 1999) and lays the groundwork for the assertion that stereotype threat induced performance decrements do not result from lower motivation, but instead from an increased drive to disprove the stereotype for oneself or one’s group (see Shapiro & Neuberg, 2007, for a detailed discussion of this distinction in how stereotype threat might be experienced).

For years after the theory first gained prominence, there was ongoing debate about why and how this increase in motivation actually results in a decrease in performance. Initial attempts to isolate the effects of anxiety or evaluation apprehension produced equivocal results (Spencer et al., 1999), leading some to speculate that perhaps reminding people of negative stereotypes produces negative performance through a simple cognitive priming process that has little to do with the experience of threat (Wheeler & Petty, 2001). Although the underlying mechanisms remained mysterious for some time, there is now substantial evidence that reminders of being stereotyped create performance deficits due to an integrated sequence of psychological processes that are motivated responses to the experience of threat and anxiety (Schmader, Johns, & Forbes, 2008). It should be noted that there is also a large literature showing that stereotype primes can affect behavior and performance automatically even in the absence of threat (see Marx, 2009 for a review). We believe this to be a separate phenomenon; our focus here is on the complex mechanisms by which threat impairs the cognitive processes so often needed for optimal performance.

According to Schmader et al.’s (2008) integrated process model, the central mechanism through which subtle reminders of negative stereotypes inhibit performance on a wide range of complex tasks is by reducing working memory capacity. Working memory capacity is thought to be a domain-general cognitive mechanism that manages the executive resources necessary for temporary storage of information (visual and auditory) while also controlling what cues are attended to in the current context (Engle, 2002). Schmader and Johns (2003) demonstrated that the working memory capacity necessary for success
on complex cognitive tasks is depleted in situations of stereotype threat. For example, in one study women expecting to take what was described to them as a diagnostic test of their natural mathematical aptitude, showed significantly lower working memory capacity that then explained why they performed more poorly on the test compared to a sample of women for whom the same set of problems was described as a neutral lab exercise. These data provided initial evidence that performing under the burden of a negative stereotype activates competing cognitions and sets in motion additional processing that competes for same central executive resources needed for successful performance. Additional research has sought to delineate exactly what kinds of processes are getting in the way.

The integrated process model of stereotype threat first assumes that individuals who experience this threat find the negative stereotypes associated with their group to be at odds with the way they typically view themselves. When a woman who has always found herself to be successful at math is reminded of the stereotype that woman typically do more poorly at math than men, a series of cognitive propositions are brought to mind that when activated concurrently are logically inconsistent: Women are not expected to do well in math, I am a woman, I expect to do well in math. Even if people are not consciously considering this cognitive dilemma, we believe that situations of stereotype threat simultaneously activate these conflicting ideas and thus set in motion a sequence of processes aimed at disambiguating and coping with this sense of self-uncertainty.

For example, in one series of experiments we asked female undergraduates to complete a computerized task where they needed to decide as quickly as possible whether they could imagine themselves in a series of roles and occupations (Schmader, Croft, & Whitehead, 2011). We reasoned that those who are quick to say yes (as well as slow to say no) to math-related careers would have a stronger self-identity that is tied to math. For example, someone who has a strong cognitive association of self to math might quickly embrace the idea of being a scientist and be a little slow to rule out becoming an accountant. We had participants complete this task twice, expecting that certainty of one’s self-concept for math would lead to a strong positive correlation between the two measurements. This is just what we found for men, and for women who were not exposed to stereotype threat. Importantly, men and women also did not differ in their mean levels of implicit self-identification with math. But when women completed the task once in a neutral context and once while they were waiting to perform a diagnostic math test, the two measures were uncorrelated. This surprising lack of a relationship suggests that the experience of stereotype threat might induce self-uncertainty – leaving women unable to access their default self-association to the domain.

If stereotype threat cues a sense of uncertainty about one’s connection to the domain, this should have several downstream consequences. At a very basic level, people find uncertainty threatening and that threat heightens arousal in a way that orients people toward cues in the environment that might help disambiguate the situation (Heine, Proulx, & Vohs, 2006). Note too, that the more motivated one is to do well and to disconfirm the stereotype, the more motivated one will be to resolve these feelings of uncertainty. But the processes of arousal and vigilance necessary to alleviate this negative affect can themselves disrupt performance.

First, let’s look at arousal. One proposed avenue through which stereotype threat decreases performance is the experience of physiological stress that can directly impair the kind of cognitive processing needed for successful performance on many tasks requiring complex forms of reasoning or abstract thought. Although initial studies in the stereotype threat literature had difficulty demonstrating that individuals feel greater anxiety under stereotype threat (Gonzales et al., 2002; Schmader, 2002; Schmader & Johns, 2003;
Spencer et al., 1999), later research used indirect measures to demonstrate that stereotype threat does in fact lead to stress-based arousal (Jamieson & Harkins, 2007; Matheson & Cole, 2004; Murphy, Steele, & Gross, 2007; O’Brien & Crandall, 2003). Moreover, the literature on social facilitation theorized that socially-induced arousal boosts performance on simple, well-learned tasks but can undermine performance on more complex tasks (Zajonc, 1965). Similar to these classic effects, situations of stereotype threat also facilitate performance on tasks that are easy, automatic, or where mistakes can be readily identified and corrected, but leads to impairments when tasks are novel, cognitively complex, or completed under an additional load or time pressure (Ben-Zeev, Fein, & Inzlicht, 2005; Jamieson & Harkins, 2007; O’Brien & Crandall, 2003). Such evidence implies a role for arousal in stereotype threat.

Even more direct evidence can be found in studies employing biological markers of threat. For example, Vick, Seery, Blascovich, and Weisbuch (2008) demonstrated that when taking what they believe to be a gender-biased math test, women showed greater vasoconstriction compared to men; but when taking a math test described as being gender-fair, men actually showed greater vasoconstriction compared to women. Such findings align with similar pattern of cardiovascular threat responses observed among Whites during interracial interaction, where arguably they might experience a threat of being seen as racist (Mendes & Jamieson, forthcoming).

Hand in hand with this heightened threat arousal is the activation of explicit monitoring processes that include an increased vigilance toward cues that signal threat or help resolve the uncertainty of the situation. The assumption here is that those who experience stereotype threat are not only performing the task at hand, they are also carrying out a secondary task of analyzing, interpreting, and explaining their performance on that task. It is as if the players on a ball field, while pitching, batting, running, and catching are also charged with giving the play-by-play for the television simulcast. Just as it is hardly a level playing field if only one team is providing the meta-analysis of the game, it is not surprising that performing under the weight of negative stereotypes would systematically impair performance for those who have these additional meta-cognitive processes engaged.

Evidence for this kind of meta-cognitive processing under stereotype threat comes from several sources. First, if these processes stem from a motivation to avoid confirming the stereotype, then one secondary task is to be vigilant for any signs that one might be failing at this endeavor. In fact, research has shown that when the threat of being stereotyped is salient, individuals become more attentive toward stimuli about others, their performance, or their internal mental states that might possibly indicate a confirmation of the stereotype (Forbes, Schmader, & Allen, 2008; Johns, Inzlicht, & Schmader, 2008; Kaiser, Vick, & Major, 2006). For example, academically identified minorities who believe their intelligence is being assessed show neurological evidence of a sensitivity to detect their errors on the task (Forbes et al., 2008).

Along with this vigilance comes a more careful, cautious, and conscious approach to performance that is typical of a prevention-focused mindset, whereby the aim is to avoid negative outcomes rather than approach positive ones (Higgins, 1997). Research has identified that such mindsets induce slow and methodical styles of processing, the same kind of motivational orientation that has been documented under stereotype threat (Seibt & Forster, 2004). The problem is that intense scrutiny of one’s actions activates more controlled modes of information processing that tend to rely on the same executive resources needed for performance on complex cognitive tasks. In addition, some tasks, once they are well-learned, are best performed by automated cognitive or motor routines.
Take the example of a professional golfer making a difficult putt; because this action has been practiced repeatedly, its successful execution becomes an act of intuitive proceduralized memory not the result of consciously considering and individually manipulating all the necessary parameters of stance, grip, angle, swing, etc. However, as Beilock, Jellison, Rydell, McConnell, and Carr (2006), the threat of being negatively evaluated can impair the putting performance of expert golfers by leading them to adopt a more conscious step-by-step approach to performance that disables the proceduralized motor scripts they have developed through years of practice.

So far we have argued that situations of stereotype threat cue an underlying sense of uncertainty that heightens stress arousal and elicits explicit monitoring of one’s performance. As a consequence, even though people feel an added drive to do well, thoughts of self-doubt and worry are brought to mind. For example, in their original experiments, Steele and Aronson (1995) found that Black undergraduates expecting to take an intelligence test were more likely to fill in word fragments with words denoting self-doubt. In a more explicit way, women self-report having more negative thoughts about their performance and math ability if they are told the math test they are taking has shown gender differences in the past (Cadinu, Maass, Rosabianca, & Keisner, 2005; see also, Beilock, Rydell, & McConnell, 2007; Brodish & Devine, 2009). Importantly, this increase in negative thinking compared to a non-threat inducing condition, partially accounts for reduced performance under stereotype threat (Cadinu et al., 2005).

An important aspect of the idea that stereotype threat elicits greater meta-cognitive processing of one’s performance is that the cues that are captured (making a mistake, feeling anxious, being more cautious) are more likely to be interpreted as potential indicators of failure. In any performance situation, particularly those where there is a lot on the line, people might make a few errors and feel a little anxious. But because stereotype threat tends to induce self-doubt, this negative thinking can bias how these cues are appraised in such a way that they affect cognitive performance. For example, in a pair of studies (Schmader, Forbes, Zhang, & Mendes, 2009), initial feelings of anxiety had a different relationship to working memory performance in stereotype threatening context depending on other thoughts that were currently primed. When participants were subtly primed with confidence-related words, anxiety before the task predicted greater working memory. But when participants were primed with doubt-related words (as stereotype threat has been shown to do), anxiety before the task predicted lower working memory. Presumably, one’s initial affective experience can take on either a positive or a negative meaning.

At this point in the process, individuals find themselves having thoughts of anxiety, worry, and self-doubt that not only directly distract attention from optimal performance, but that also signal active attempts to push these unwanted thoughts out of mind. On the surface, this would seem to be a reasonable coping response. The problem is that several lines of research point to the cognitively depleting consequences of trying to suppress thoughts, regulate one’s response, or control one’s emotional experience (e.g., Muraven & Baumeister, 2000; Richards & Gross, 2000; Wenzlaff & Wegner, 2000). As a result, those experiencing stereotype threat are not just expending cognitive resources on the task at hand; they are also using the same central executive processes to regulate, control, or manipulate the thoughts and feelings they are having in response to their performance.

Several pieces of evidence point to these depleting effects. In one series of studies (Johns et al., 2008), women expecting to take a difficult math test (compared to those in a neutral control group) had their attention automatically drawn toward anxiety related stimuli, consistent with our earlier assertion that the experience of stereotype threat increases anxious
thoughts and feelings as well as a vigilance to identify these feelings. What is perhaps even more interesting, however, is what happened when women were made aware that the study was designed to assess how anxious they might be feeling by measuring whether their eyes would be automatically drawn toward anxiety-related words. In this context, we were able to demonstrate that women under stereotype threat (but not those in a control condition) actively tried to avoid looking at the anxiety-related words in an effortful attempt to avoid the perception that they were feeling anxious. Moreover, the more they engaged in these anxiety-avoidance efforts, the worse their performance was on a subsequent measure of working memory capacity. By trying to control their feelings of anxiety, women depleted the very cognitive resource that would be needed for successful performance on a difficult math test (Schmader & Johns, 2003).

Given this kind of evidence that those who experience stereotype threat might want to avoid appearing too anxious, it is of little surprise that prior research has often failed to document anxiety effects due to stereotype threat using self-report measures (Blascovich, Spencer, Quinn, & Steele, 2001; Bosson, Haymovitz, & Pinel, 2004; Murphy et al., 2007). Although the evidence reviewed above makes it quite clear that situations of stereotype threat elicit psychological and cognitive signs of threat and anxiety, if people do not self-report feeling more anxious in these contexts, it might indicate that they are trying to suppress, avoid, or deny having this reaction. For example, recent data demonstrates that those who experience stereotype threat during a performance situation show increased activation in brain regions implicated in emotional processing and regulation while correspondingly showing decreases in the brain regions most needed for effective performance at the task (Krendl, Richeson, Kelley, & Heatherton, 2008; Wraga, Helt, Jacobs, & Sullivan, 2007). Other work shows evidence of thought suppression more generally under stereotype threat that can prompt ironic activation the very thoughts and feelings one is trying to put out of mind (Logel, Iserman, Davies, Quinn, & Spencer, 2009).

An added consequence of these regulatory efforts that take place under stereotype threat is that the experience can leave one mentally exhausted on any subsequent tasks, even though they might not be relevant to the stereotype. Specifically, several researchers have documented these instances of stereotype threat spillover showing that the experience of situational stigmatization can play a role in affecting not only stereotype irrelevant performance tasks (e.g., women’s performance on verbal tasks, Beilock et al., 2007) but also other kinds of behaviors where self-regulatory control would be needed (Inzlicht & Kang, 2010; Inzlicht, McKay, & Aronson, 2006).

In sum, there are various cognitive, affective and physiological processes that can deplete executive resources needed for success on complex tasks. These processes can be set in motion for anyone who finds him- or herself having to perform under the burden of a negative stereotype, but the prevalence of certain stereotypes make such encounters more ubiquitous for some. In such situations, uncertainty about one’s relation to the domain cues an added stress response, explicit monitoring of one’s performance, and biased appraisals that can lead to self-doubt and worry. If these thoughts aren’t themselves distracting, efforts to push them out of mind are likely to deplete the working memory resources needed for good performance. It is also worth noting that those who are consciously aware of and concerned that they might not be able to perform up to the high standards set by a positive stereotype can experience the same suite of uncertainties, performance monitoring, anxiety, and the attempts to control this anxiety (Beilock & Carr, 2005; Cheryan & Bodenhausen, 2000; Shih, Pittinsky, & Ambady, 1999). Such “choking effects” have been well-documented and likely stem from the same underlying mechanisms that impair performance under stereotype threat.
Eliminating and Alleviating the Threat

The greatest benefit of understanding the processes by which stereotype threat undermines performance is the potential for these discoveries to inform interventions that can effectively narrow the observed gaps in performance. In this final section, we review several strategies that have shown some success. These include strategies aimed at eliminating threat from the environment as well as strategies that equip individuals with the coping resources they need to alleviate the negative consequences that threat might have. Although the bulk of this evidence comes out of the laboratory, there are ongoing efforts to translate these basic research findings into real world interventions to be employed in the field. Some critics have speculated that stereotype threat might only be a phenomenon that can be demonstrated in the lab (Sackett, Hardison, & Cullen, 2004), however, there are an increasing number of studies that point to success of psychological interventions in changing performance in naturalistic performance contexts (Walton & Spencer, 2009).

Eliminating threat by changing the stereotypes

Stereotype threat can only exist to the degree that there are stereotypes that impugn one’s abilities. This necessarily means that the best way to eliminate the likelihood that one can experience stereotype threat is to change the stereotypes that exist in society. Such a cultural paradigm shift might seem daunting if not impossible, but there are ways in which we move closer to that goal through rather smaller scale actions. For example, several studies now have shown that exposure to successful role models essentially erodes the stereotypic assumption that one’s group lacks competence in that domain (Dasgupta & Asgari, 2004; Stout, Dasgupta, Hunsinger, & McManus, 2011). This has been demonstrated in lab experiments where women overcome cues to stereotype threat and perform as well as their male peers on a math test if the study is conducted by a competent female math student (McIntyre, Paulson, & Lord, 2003; see also Marx & Roman, 2002). Additionally, research in real world environments has also demonstrated that over the course of their first year of college, female undergraduates develop more positive implicit associations between women and math to the degree that they have been exposed to female math and science professors (Dasgupta & Asgari, 2004). When paired with research showing that experimental retraining of these gender stereotypes increases women’s working memory capacity and performance on a math test (Forbes & Schmader, 2010), these results offer encouragement that increased visibility of women and minorities in positions of intellectual and professional leadership can help to elevate performance of underrepresented students.

Even if stereotypes themselves are not changed, interventions can perhaps reduce the likelihood they are ever activated by manipulating the goals one’s has in the situation. Part of what might be underlying performance impairments due to stereotype threat is that individuals are thrust into a state of self-evaluation – where understanding and managing one’s impression in light of the stereotype becomes a goal in and of itself. This suggests that efforts to activate other, more task-oriented goals could also be an effective means to short-circuit the processes that can deplete performance. For example, in one set of studies framing a test as a challenge (rather than a threat) was effective in elevating performance even when features of the situation were likely to make one’s stereotyped identity salient (Alter, Aronson, Darley, Rodriguez, & Ruble, 2010). Such instructions might be effective ways to prime goals that make it less likely that stereotypes are activated and could impair performance (Moskowitz, 2010).
Alleviating threat with effective coping strategies

Although young people report being optimistic that stereotypes will change as members of underrepresented groups make inroads into domains that have been traditionally dominated by the majority (Diekman & Eagly, 2004), such change does take time. Fortunately, research suggests that even if we cannot completely dismantle the stereotypes that cue threat, we can equip individuals with coping strategies to combat threat. These strategies can be broadly grouped into those that bolster self-impressions and those that reframe the nature of potentially threatening cues.

Bolstering the self

There is a general phenomenon in social psychology whereby individuals are protected against possible threats to who they are by having affirmed core values that shape their lives. Interestingly, this theory of self-affirmation was developed by Claude Steele (1988), the originator of research on stereotype threat. Perhaps it is not surprising then that researchers soon discovered that affirming core values could buffer one from the experience of stereotype threat (Martens, Johns, Greenberg, & Schimel, 2006). But it is one thing to show that a laboratory manipulation of self-affirmation can elevate women’s performance on a math test administered in the same experimental session. It is quite another to show that a simple instruction to spend a few minutes writing about a value that is important in your life can have a long-term effect on actual grades. Yet Cohen and colleagues have done just that (Cohen, Garcia, Apfel, & Master, 2006; Cohen, Garcia, Purdie-Vaughns, Apfel, & Brzustoski, 2009; Miyake et al., 2010). First year minority undergraduates who engaged in this value affirmation earned significantly higher grades over their first two years in college and were less likely to drop out of school than a matched sample of minorities who received a neutral intervention by writing about an unimportant value (i.e., their morning routine). The effect was most pronounced among low-performing minority students (at a highly selective Ivy League University) suggesting that these students might have been the most plagued by thoughts of uncertainty and doubt that such affirmation can remedy.

In addition to this research on self-affirmation, laboratory studies have pointed to the effectiveness of other types of manipulations that essentially disconnect one’s sense of self from a negatively stereotyped group. These include reminders of other group identities the individual possesses (McConnell & Brown, 2009), including those that might be more positively stereotyped in the domain (Rydell, McConnell, & Bielock, 2009), as well as instructions to individuate the self by bringing to mind one’s own unique characteristics (Ambady, Paik, Steele, Owen-Smith, & Mitchell, 2004). Although each of these manipulations is somewhat distinct, they share in common an attempt to provide a more positive if not expansive frame of the self in a situation that is otherwise conspiring to reduce the person to a negative stereotype.

Reappraising the threat

If changing group stereotypes attacks the problem of stereotype threat by providing a more positive frame on one’s group, and self-affirmation and other similar manipulations help by providing a more positive frame on the self, another obvious line of attack is to encourage a more positive frame on the performance situation itself. A large literature in psychology points to the general effectiveness of reappraisal for coping with stressful life
events (e.g., Ochsner & Gross, 2008). Furthermore, the integrated process model of stereotype threat proposed by Schmader et al. (2008) asserts that performance is impaired in stereotype threatening situations because the same cognitive mechanisms needed for the task are co-opted for the performance monitoring and suppression processes. If one’s experience of the situation can be reappraised in a more positive way, the need for this extra task processing should be reduced. Several pieces of evidence support this line of reasoning.

First, at the level of individual susceptibility, research has revealed that stereotype threat is felt less strongly, if at all, by those who report a general tendency to reappraise negative emotions in a more positive way (Schmader et al., 2009) and those who have a strong sense of humor (Ford, Ferguson, Brooks, & Hagadone, 2004). But even among those who do not spontaneously adopt a positive perspective on threatening situations, instructions to engage in this reappraisal have also had some success (Jamieson, Mendes, Blackstock, & Schmader, 2010). Earlier we mentioned a study in which women expecting to take a difficult diagnostic math test became more cognitively depleted as they tried to avoid any appearance that they might be feeling anxious (Johns et al., 2008). In follow-up studies, when women and minorities were provided with an instruction to take an objective approach to their performance or even to reappraise any anxiety they might be feeling in a more positive way, these depletion effects were eliminated and as a result, their test performance improved. Some studies even suggest that the added arousal that individuals can experience in stereotype threatening situations predicts poorer performance in the context of experiencing self-doubt, but can be re-appropriated for success if the individual is instead induced to feel confident (Schmader et al., 2009).

Taken together, this research points to the important role that is played by how people understand their experience during stereotype threat. Those who have the benefit of positive stereotypes have the advantage of interpreting any anxiety they might be feeling as a sign that they are challenged and energized, whereas the activation of negative stereotypes can provide a more negative interpretation of what might be the same underlying experience. In fact, evidence even points to the effectiveness of learning about stereotype threat as a possible cure (Johns, Schmader, & Martens, 2005). In this study, women who learned that gender stereotypes can elevate anxiety levels for women in math performed equally to their male peers and significantly better than those not given this information about the pernicious effects of stereotype threat. Knowledge of the phenomenon can inoculate individuals from stereotype threat by allowing them to explain their anxiety in a less self-relevant way. That is, if anxiety can be construed as evidence that stereotypes exist in culture, rather than as evidence of poor performance, we believe we can halt onset of the cyclical self-doubt, thought suppression and hyper vigilance through which stereotype threat operates (Schmader et al., 2008).

Laboratory research demonstrating the effectiveness of reappraisal techniques is complemented by a field-based intervention pointing to similar effects (Walton & Cohen, 2007). In their research, Walton & Cohen (2007) provided first year minority college students with testimonials from more advanced undergraduates who described the struggles and anxieties they confronted and overcame during their transition to college. Although these testimonials came from students of diverse racial and ethnic backgrounds, they were particularly effective at helping minority students reframe their own difficulties as a normal part of university life. As Walton and Cohen argue, because members of underrepresented groups struggle with feeling that they might not belong, interventions that normalize the experience of stress and anxiety can be particularly effective at helping these students realize their potential.
Conclusion

In this article, we have reviewed some possible reasons for performance discrepancies between negatively stereotyped groups and their more advantage peers, focusing on stereotype threat effects as a central source of underperformance in women and minorities. Although persistent group differences in achievement are likely to be caused by a diverse array of processes, the large body of research on stereotype threat reveals it to be a very real phenomenon that can impair performance. What is most remarkable about the experience of stereotype threat is that it can be created in the performance setting itself and lead even those with a history of success to perform below their true potential (Walton & Spencer, 2009).

To understand these effects, we must realize that successful performance assumes that one is able to devote all of his or her attention to the task at hand. The problem is that the weight of a negative stereotype stifles one’s cognitive resources. Through an integrated system of self-uncertainty, increased stress, explicit monitoring, and efforts to suppress negative thoughts and feelings, those who are targeted by negative stereotypes juggle additional cognitive demands that siphon resources away from performance itself. Fortunately, with a clear understanding of these mechanisms, we have gained insight into the various ways that threat can be reduced. By providing people with more positive representations of their group or equipping them with psychological coping strategies to combat the threat they confront, targets of negative stereotypes can be empowered to perform up to their potential.

The excitement over the theory of stereotype threat has yielded important advances over the past 15 years, but there are still many open questions. First, the dominant approach to examining stereotype threat has been to focus on those most susceptible to the experience of it. But we might also learn a great deal from specifically studying those individuals who attain great success despite frequent exposure to stereotype threat cues. Perhaps in the success stories, we can backward engineer the recipe for advancement and resilience. Secondly, although the primary focus of stereotype threat has been on performance outcomes, the experience of being socially devalued in a context is likely to have more far-reaching effects for motivation and for health and well-being. More research needs to employ non-traditional paradigms to examine other consequences that prior research might have overlooked. Finally, to actually reduce the longstanding gaps in performance, additional research is needed aimed at translating techniques from the lab setting to real world business and academic settings. Social psychologists are too often reticent to step outside the controlled context of their lab, but field-based research is essential if we are to apply our basic science to effect real change.

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Short Biographies

Toni Schmader is the Canada Research Chair in Social Psychology at the Department of Psychology at the University of British Columbia. She received her Ph.D. in Social Psychology from the University of California, Santa Barbara in 1999, and spent 10 years on the faculty at the University of Arizona before moving to Canada. Her research examines
the interplay between self and social identity, particularly when one's social identity is accorded lower status or is targeted by negative stereotypes. In exploring these issues, her research draws upon and extends existing work on social stigma, social justice, social cognition, intergroup emotion, self-esteem, and motivation and performance. Her findings have been published in Psychological Review, Psychological Science, and the Journal of Personality and Social Psychology.

Alyssa Croft is a Ph.D. student at the University of British Columbia studying Social/Personality Psychology. She completed her Bachelor's degree in Psychology at the University of Arizona in 2008 and her Master's degree at the University of British Columbia in 2011. Broadly speaking, her research seeks to understand how individuals are affected by being the target of negative stereotypes. More specifically, she hopes to examine the extent to which stereotypes can undermine one's ability to learn new skills and information, as well as how they influence subsequent performance in relevant domains.

Endnote
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