

Prejudice Discrimination  
and Stereotyping

# 8 Stereotype and Social Identity Threat

Joshua Aronson  
New York University

Matthew S. McGlone  
University of Texas, Austin

In the 1994 race for governor of Texas, Ann Richards, the popular incumbent, was expected to easily win the debates and to go on to win the election. She was a brilliant debater whose public speaking earned her a reputation for being feisty, "silver tongued," and quick on her feet. Her underdog opponent, by contrast, was an undistinguished political newcomer; his résumé included many failed business ventures and a losing bid for Congress many years earlier. People were, therefore, naturally surprised when the newcomer turned out to be an artful debater—polished, articulate, and intelligent. In the debate he made Richards look awkward and defensive by comparison. The truly surprising thing about this is that the articulate newcomer was none other than George W. Bush, a man whose current reputation as a public speaker has inspired a cavalcade of ridicule: books cataloguing his frequent and embarrassing gaffes—with such titles as *The Bush Dyslexicon* and *Bushisms*—interview programs devoted to discussing the question "Is Bush an idiot?" and countless late-night talk show jokes on the subject of his inability to form a coherent sentence. Tapes of the 1994 debate show a Bush utterly unrecognizable to viewers a decade later:

This Bush was eloquent. He spoke quickly and easily. He rattled off complicated sentences and brought them to the right grammatical conclusions. He mishandled a word or two ("million" when he clearly meant "billion"; "stole" when he meant "sold"), but fewer than most people would in an hour's debate. More striking, he did not pause before forcing out big words, as he so often does now, or invent mangled new ones. (Fallows, 2004)

The obvious question is to ask what happened. How does an articulate person become so decidedly bumbling and verbally maladroit? One observer of this 10-year difference, a doctor, concluded that Bush suffers from "pre-senile dementia," but other doctors dispute this, citing recent neurological exams Bush underwent that showed no sign of impairment. Although we cannot prove it, we believe the answer is both more complex and more interesting than dementia—and a good deal more relevant to the psychology of prejudice and discrimination. We believe that Bush suffers from an especially extreme case of what psychologists call stereotype threat, or social identity threat, a mental impairment arising from his negative reputation rather than a faulty brain. We return to exactly why we believe this later, but first we turn to a discussion of social identity threat phenomena and the research that has examined it. The research makes the general point that, like Bush, people who regularly display intellectual underperformance—African Americans, Latinos, and women in the domains of math and science—frequently are smarter than they appear and that many of their difficulties are rooted not in inferior intelligence, but rather in the more tractable social forces that confront them in their daily interactions.

## SOCIAL IDENTITY THREAT DEFINED

*Social identity threat* is a state of psychological discomfort that people experience when confronted by an unflattering group or individual reputation in situations where that reputation can be confirmed by one's behavior (Aronson & Steele, 2005; Steele, 1997; Steele & Aronson, 1995; Steele, Spencer, & Aronson, 2002). A variety of cultural stereotypes refer to abilities of certain groups ("girls can't do math," "Jews are good with money," "White men can't jump," and so on), and people belonging to groups thus stereotyped tend to be as aware of their groups' reputation as anyone in the culture—whether or not they personally agree with the reputation (Devine, 1989).<sup>1</sup> Thus, in situations where such a reputation is relevant (e.g., taking a mathematics test) people negatively targeted by the stereotype (e.g., women) can experience an extra mental burden not experienced by people with a different social identity (e.g., men).

Once aroused, social identity threat can have a number of disruptive effects, among them, the short-term impairment of intelligent thought and performance on intelligence-related tests. Over time, social identity threat can prompt defensive adaptations that have far-reaching effects, such as disengaging from activities or domains where the stereotype is relevant, and, as a result, impaired intellectual development. Thus, social identity threat can result in a self-fulfilling prophecy whereby a person comes to resemble his or her reputation, living down to social expectations. Over the past dozen years, some 200 published studies have examined stereotype threat and demonstrated repeatedly how people confronted with this psychological predicament perform less well on various tests of intellectual ability than they do in situations where the threat is reduced. Thus stereotype threat has joined the list of environmental factors discussed in nature–nurture debates about race and gender gaps in mental test performance (e.g., Jencks & Phillips, 1998; Murray, 2005; Rushton & Jensen, 2005).

It has been frequently pointed out that social identity threats can take many forms and can manifest in different psychological experiences depending on the specifics of the situation, on individual differences the person brings to the situation (Aronson et al., 1999; Shapiro & Neuberg, 2007), and on the transient mindset he or she adopts in the situation (McGlone & Aronson, 2006; Shih, Pittinsky, & Ambady, 1999). As such, the term *stereotype threat* has become something of a catch-all used to describe a variety of situations that can make people perform or behave in a manner consistent with a negative stereotype. In a recent theoretical paper, Shapiro and Neuberg (2007) pointed out that there are at least six qualitatively distinct "stereotype threats" that can arise depending on whose performance or behavior is evaluated (one's self or the stereotyped group as a whole) and who is doing the evaluating (the self, others from one's group, or others from an outgroup). This list of threats grows larger still given that we define it to include cases such as that of George W. Bush, where the negative stereotype in question applies to a group of one.

That this phenomenon can take a variety of forms may partly explain why people may have heard of stereotype threat but appear unclear of its central tenets and range of application—who is susceptible, how it impairs performance, and what these effects mean in the "real world" of high-stakes testing or the classroom. In short, despite a good deal of coverage in the popular press, in college textbooks, and even in a Hollywood movie, people generally do not know how social identity threat works. This was highlighted in a recent survey of Stanford students, nearly all of whom failed a simple quiz about basic stereotype threat findings (Cherkasskiy, Glickman, & Steele, 2007). This is unfortunate, given that recent findings demonstrate that students with a clear understanding of how stereotype threat works are less susceptible to its effects on test performance (Aronson & Williams,

<sup>1</sup> People develop personal reputations that, like stereotypes, function as expectations about what they are like and how they are likely to behave or perform, and—as is the case with George W. Bush—these reputations are sometimes as known to the individual in question as to others. Because a group stereotype is not at issue in such instances, a better name for the phenomenon of confronting a negative personal reputation might be simply "identity threat." For the sake of simplicity, however, we include this under the same umbrella term—social identity threat.

2004; Johns, Schmader, & Martens, 2005; McGlone & Aronson, 2007). The complexity of the phenomenon is particularly acute at this writing, as the number of research studies, each with its own take on the phenomenon, has multiplied rapidly. We hope, therefore, to clearly lay out the most pertinent research findings in a way that can correct some common misunderstandings about stereotype and social identity threat. Rather than present an exhaustive cataloging of all the studies, we focus most of our discussion on those studies most central to the issues of academic achievement problems, where the bulk of the research efforts have been made. However, we also briefly describe some of the most interesting applications of social identity threat to important domains beyond standardized test and school achievement.

### INITIAL DEMONSTRATIONS OF SOCIAL IDENTITY THREAT

Steele and his students conducted the first studies of stereotype threat, examining the effects of stereotype threat on the standardized test performance of African Americans (Steele & Aronson, 1995) and the mathematics performance of women (Spencer, Steele, & Quinn, 1999). Steele and Aronson's first experiment tested the hypothesis that people who experience stereotype threat would experience less of it if they could be assured that their intelligence was not being evaluated, thus rendering the stereotype about their group irrelevant in the situation. African American and White college students were given a very difficult verbal exam comprised of difficult items culled from the Graduate Record Exam (GRE). In one study, half of the test-takers were informed that the test was being used much like an IQ test, to measure their abilities. This "diagnostic" condition was intended to create the psychological conditions people typically face when taking similar tests in the real world. That is, the African American test-takers were expected to experience a good deal of stereotype threat because the experimenter, a White man, was evaluating them on a dimension in which African Americans stereotypically are thought to be inferior. Their performance was compared to that of test-takers in a "nondiagnostic" condition of the experiment. In this condition, test-takers were assured that the study had nothing to do with intelligence and that their abilities would not be evaluated. In every other respect, the situation was identical. The main finding in this study was that African Americans performed dramatically better in the nondiagnostic condition. In a follow-up study, Steele and Aronson found that simply asking African Americans to indicate their race on a questionnaire prior to taking a test was enough to induce stereotype threat and undermine performance in an otherwise nondiagnostic (and presumably nonthreatening) situation; African American students asked to indicate their race solved roughly half as many items as their counterparts who were not asked to indicate their race. In both of these experiments the stereotype threat manipulations had negligible effects on the White test-takers (see Figure 8.1).<sup>2</sup>

Spencer et al. (1999) conducted similar studies in which the math abilities of women and men were tested. In the most intriguing of these studies, Spencer et al. gave men and women a difficult math test. In the control condition, men outperformed women to a significant degree, in line with the stereotype that men are better at math. In the experimental condition, the experimenter made a simple statement prior to administering the test: "This test does not show gender differences." Women in this condition performed significantly better—indeed their performance matched the performance of the men in the experiment.

<sup>2</sup> It is important to note that to reduce variability in these small studies, test-takers' verbal SAT scores were used as a covariate to equate students on verbal ability, preparation, and test-taking ability. Thus, the Black-White differences must be interpreted with caution. Specifically, equal mean performances between the Black and White students should not be interpreted to mean that reducing stereotype threat would eliminate the Black-White test score gap. However, the results do make clear that reducing stereotype threat improves the scores of Black test-takers significantly, an effect that is clear with or without the statistical correction for SAT.

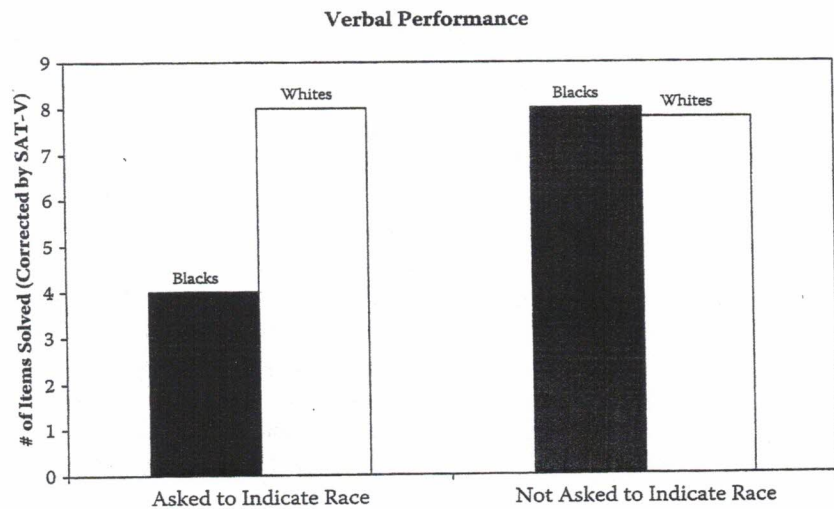
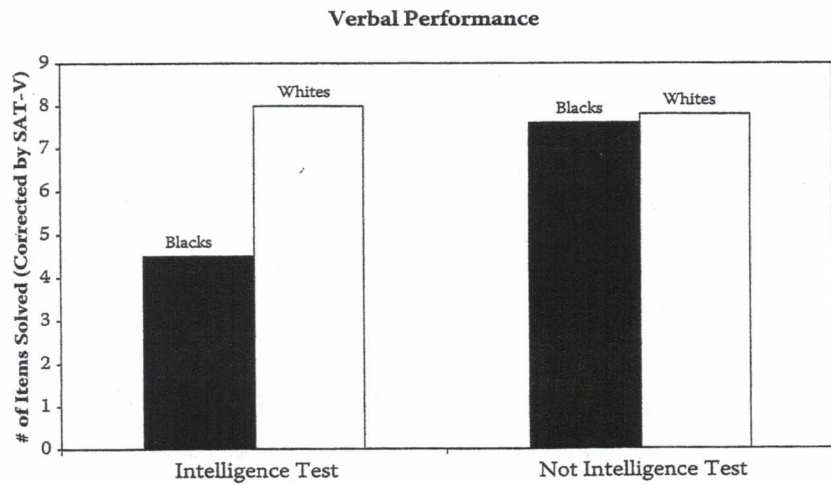


FIGURE 8.1 Effects of stereotype threat on verbal performance (Steele & Aronson, 1995).

### GENERALITY OF SOCIAL IDENTITY THREAT EFFECTS

Social identity threat is not an experience limited to African Americans and women. For example, experiments have found performance decrements among Latinos (Aronson & Salinas, 1997; Gonzales, Blanton, & Williams, 2002; Schmader & Johns, 2003), Native Americans (Osborne, 2001), poor White college students in France (Croizet & Claire, 1998), students who are highly engaged and characterized by high aspirations (Aronson et al., 1999), and more average students (Aronson & Salinas, 1997; Brown & Day, 2006). Elderly individuals have been found to perform worse on memory tests when led to believe that memory deficits increase with age but perform better when such notions are debunked (Hess, Auman, Colcombe, & Rahhal, 2003). Although social identity threat may be

most likely and most keenly felt among historically stigmatized groups it is a predicament that can beset anyone, not only because anyone can develop a negative personal reputation, but also because most groups can be compared to some other group that is reputed to be superior on some dimension (Aronson et al., 1999). Thus social identity threat can impair the performance of even those groups who are neither "minority" nor broadly stigmatized as intellectually inferior. White men at top-tier universities, for example, bear no historical stigma of being intellectually inferior. However, in select circumstances, comparisons with supposedly superior groups arise, effectively creating a situational threat. For example, in a simple experiment (Aronson et al., 1999), highly proficient White males were given a difficult math test. Two groups of these students were told that the test was aimed at determining their math abilities. For one of the groups, however, a stereotype threat was induced; they were told that a chief aim of the research was to understand the apparent superiority of Asians in mathematics ability. In this condition, these competent and confident males—most of them were mathematics or engineering majors with astronomical math SAT scores—performed nearly a full standard deviation worse than their equally talented counterparts in the control condition. Likewise, psychology students have been found to perform less well when they believe they will be compared to science students on tests of science ability (Croizet, Desprès, Gauzins, Huguet, Leyens, & Meot, 2004). Such studies refute any claim that stereotypes have impact only on those who have faced broad discrimination or prejudice, or who harbor persistent self-doubts about their group's abilities. Clearly, under the proper circumstances, just about anyone can perform poorly when confronted with a stereotype that puts their group at a disadvantage (see also Leyens, Désert, Croizet, & Darcis, 2000; Smith & White, 2002, for similar findings with White males).

### THE PROCESS OF SOCIAL IDENTITY THREAT

We turn now to the social psychological process whereby a person confronted with a negative stereotype or individual reputation comes to perform more poorly and suffer both short- and long-term deficits in intellectual ability. This process is illustrated in Figure 8.2. The experience of social identity threat is thought to begin with the awareness that one has a negative reputation or belongs to a group that is negatively stereotyped. It has been assumed that this general awareness leads potential targets of stereotypes to approach situations vigilant for cues that the stereotype or reputation is confirmable (Kaiser, Vick, & Major, 2006; Inzlicht, Aronson, & Mendoza-Denton, in press; Steele, 1997; Steele, Spencer, & Aronson, 2002). Thus for the test-taker in Steele and Aronson's studies described earlier, the message that the researchers were interested in measuring their intelligence or that they wanted the test-takers to indicate their race offered clear and unambiguous cues that their group reputation (as unintelligent) was relevant. In many everyday cases, however, the cues are far less clear and individuals will experience ambiguity and uncertainty about whether they are being viewed through the lens of a stereotype or personal reputation. Such ambiguity appears to be commonplace for minority students, who in their social interactions wonder whether the feedback they receive or the outcomes they experience are mediated by prejudice (e.g., Crocker & Major, 1989).

### THE ROLE OF INDIVIDUAL DIFFERENCES

The degree of vigilance for and the nature of one's reactions to potentially threatening cues depend importantly on individual differences. For example, difficult items on a test will mean different things to a highly proficient student than to a mediocre one. A presidential candidate with a reputation for putting his foot in his mouth may be particularly attuned to the political affiliation of his audiences and interviewers. Likewise, a White male experimenter administering an ability test may seem more racist to a Black student who has experienced a great deal of racism than an equally talented Black student who has not. Some individuals thus enter situations more alert than others to the "threat potential" of cues in the environment, to the prospect of bias or unfair treatment based on their social identity. Studies show that some students are particularly sensitive to any cues that signal racism or

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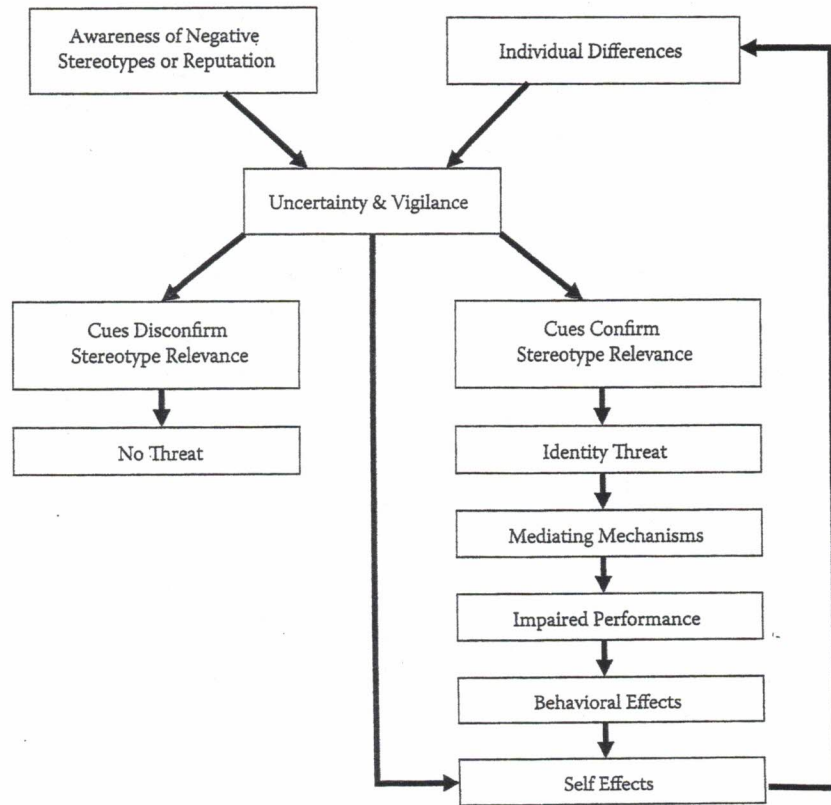


FIGURE 8.2. The process of social identity threat.

sexism (e.g., Pinel, 1999), and anxiously anticipate and react more intensely to such cues when they find them (Mendoza-Denton et al., 2002). Such individuals will be more likely to interpret ambiguous cues as instances of bias and therefore feel threatened. It is true that research points to benefits for self-esteem of attributing negative outcomes to prejudice; the individual can perform poorly without feeling dejected, for example, if he or she can blame the performance on a culturally biased test or a racially bigoted evaluator (e.g., Crocker & Major, 1989). With regard to academic performance, however, there are clear shortcomings to chronic expectations of bias and discrimination.

For example, Aronson and Inzlicht (2004) found that African Americans who measured high in expectations of racial prejudice performed more poorly on tests of their verbal abilities than equally intelligent African Americans with lower expectations of prejudice (see also Brown & Pinel, 2003; Massey, Charles, Lundy, & Fischer, 2003). Moreover, Aronson and Inzlicht found clear negative implications for students' academic self-confidence: Those who chronically expected prejudice had academic self-confidence that fluctuated wildly over time—as if they were riding on a roller-coaster of self-confidence and self-doubt—whereas those who expected less prejudice were far more stable in their confidence. Aronson and Inzlicht attributed this “unstable efficacy” to the fact that expectations of prejudice interfere with the process of assessing one's own abilities. Specifically, if one attributes academic outcomes to prejudice, it is more difficult to form clear knowledge about one's strengths and weaknesses and self-assessments are therefore more likely to be unduly influenced by one's most recent performances—to feel especially stupid after failure and especially smart after success—because academic self-concept typically helps people interpret their performances. People who expect less prejudice appear to have more internally grounded and less reactive assessments of their abilities. Perhaps as a result, minority college students who expect more prejudice appear to have greater difficulty adjusting to college (Mendoza-Denton et al., 2002). Thus, although

self-esteem may remain protected despite perceptions of bias, academic performance and academic self-image appear to suffer consequences directly related to such perceptions.

Stereotype and social identity threat were initially discussed as purely situational phenomena, imposed on the person wholly from without (Aronson, Quinn, & Spencer, 1998; Steele, 1997; Steele & Aronson, 1995). Subsequent research, however, makes clear the role of both person and the situation. Situations vary in the degree to which they contain threatening cues, but individuals differ in the degree to which such cues are perceived and responded to. If such cues are not present or if they are actively nullified in the situation (say, by instructions that a test is unconcerned with measuring intelligence), most individuals, regardless of their individual vulnerability to stereotypes, will experience minimal social identity threat and performance will not suffer (as shown in the left side of Figure 8.2). By the same token, if the situational threat is strong enough, most individuals will probably perform less well on a difficult task, regardless of their chronic level of vulnerability, their "stigma consciousness" (Brown & Pinel, 2003), their "race-based rejection sensitivity" (Mendoza-Denton et al., 2002), or their level of racial or gender identity (C. Davis, Aronson, & Salinas, 2006; Schmader, 2002), all of which have been shown to predict underperformance in identity-threatening situations. As with personality traits and attitudes, the influence of such moderators is likely to be greatest when situational influences are ambiguous or weak (e.g., Brown & Pinel, 2003; Darley & Batson, 1973; Liberman, Samuels, & Ross, 2004).

#### MEDIATING MECHANISMS OF SHORT-TERM PERFORMANCE

When an individual experiences identity threat (right side of Figure 8.2), a number of psychological mechanisms have been proposed that impair performance and a score of experimental studies have found evidence for them.

##### Anxiety

A good deal of evidence suggests that trying to disprove a negative stereotype arouses anxiety. The early studies on stereotype threat studies tested for this by using self-report measures of test anxiety—and the evidence was spotty. Stereotype-threatened students sometimes reported heightened anxiety, but often did not (e.g., Osborne, 2001; Spencer et al., 1999; Steele & Aronson, 1995), despite a clear pattern of underperformance. Studies conducted since have employed more direct nonverbal measures and confirm that anxiety plays at least a partial role. Blascovich, Spencer, Quinn, and Steele (2001), for example, replicated the conditions of Steele and Aronson's studies; they had Black and White college students take a difficult verbal test under stereotype threat or no stereotype threat conditions (the diagnostic test was described as "racially fair" in the no stereotype threat condition). Blood pressure was monitored throughout the test in all conditions. The study yielded a typical pattern of stereotype threat effects on performance: Black test-takers performed least well when the test was represented as diagnostic of verbal ability and performed significantly better when it was represented as racially fair. Blacks in the stereotype threat condition showed a distinct pattern of blood pressure readings: Their blood pressure spiked sharply and significantly from their baseline levels, but for all other test-takers, it dropped. Importantly, questionnaires probing for anxiety found no differences, suggesting that people can experience disruptive physiological states like anxious arousal without necessarily reporting higher levels of anxiety than do less aroused people. This underscores the difficulty in relying on verbal reports to indicate internal states or causes of behavior and performance (e.g., Nisbett & Wilson, 1977).

A classic method of indicating anxiety and arousal is to compare the effects of testing conditions on complex versus simple tasks. Physiological arousal has long been known to boost performance on simple tasks but interfere with performance on complex tasks (Yerkes & Dodson, 1908). If stereotype threat impairs complex tasks but facilitates simple ones, this strongly suggests that arousal is involved in stereotype threat. In a recent experiment, O'Brien and Crandall (2003) showed just this. Women under stereotype threat performed better on an easy math test than women under no

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stereotype threat but, replicating earlier stereotype threat studies (e.g., Spencer et al., 1999), performed worse on the hard math test.

Another approach to assessing anxiety is to observe individuals in stereotype-threatening situations and code their nonverbal behavior for signs of anxiety. In such a study, Bosson, Haymovitz, and Pinel (2004) found that homosexual men under stereotype threat displayed significantly greater levels of nonverbal anxiety than heterosexual or nonthreatened homosexual men when they were asked to interact with young students, a situation that made their identity as homosexuals problematic.

That stereotype threat arouses anxiety provides convergent evidence that students under stereotype threat are trying hard to not confirm the stereotype—adopting what are referred to as “performance avoidance goals” (Elliot & Church, 1997; Elliot, McGregor, & Gable, 1999; Smith, 2004), or “prevention goals” (Seibt & Förster, 2004)—where the individual’s focus is on avoiding failure rather than achieving success. Brown and Josephs (1999) showed, for example, that women performed especially poorly when told a math test was designed to identify their weaknesses, but performed much better when told a test was designed to find their strengths.

### Reduced Working Memory and Impaired Self-Regulation

The anxiety aroused by stereotype threat appears to interfere with cognitive functioning by reducing cognitive resources the test-taker needs to perform well. As anyone who has taken a high-stakes test knows, when anxious, a variety of extraneous thoughts and emotions can arise that can interfere with attention to the task and foil one’s performance. Various researchers have examined this line of reasoning in the context of stereotype threat. Steele and Aronson (1995), for example, found that students under stereotype threat experienced greater cognitive activation of stereotype-related and self-doubt-related constructs. Others have found that students under stereotype threat report an abundance of negative thoughts and task-related worries (Beilock et al., 2007; Cadinu, et al., 2005; Keller & Dauenheimer, 2003; Marx & Stapel, 2006). Spencer, Iserman, Davies and Quinn (2001) found that people under stereotype threat actively try to suppress such thoughts and emotions, a process that appears to compound the problem and further undermine performance (see also Inzlicht & Gutsell, in press; McGlone & Aronson, 2007). Although theorists agree that all such intrusive processes impair performance by consuming mental resources, there is some disagreement about which resources are at issue. Schmader and her colleagues (2003; 2007) cast this impairment in terms of “reduced working memory capacity” and present evidence that such thoughts and emotions—in addition to direct effects of anxiety—simply reduce the amount of short-term memory available to solve intellectual problems. Consistent with this analysis, a recent study (Beilock, Rydell, & McConnell, 2007) found that women under stereotype threat performed worse on math problems that required short-term memory and because their short-term memory capacity was reduced, went on to perform poorly on a verbal task involving short-term memory. Such “spillover effects”—where impairments in a stereotyped domain deplete resources needed for performance in nonstereotyped domains—are particularly noteworthy, because they suggest that stigma exacts a more general toll than previously thought. For example, if a woman experiences stereotype threat during the math portion of the SAT, this can exert an extra burden on her performance on a subsequent verbal section of the test. Inzlicht and colleagues first documented this kind of spillover, finding that under stereotype threat, students were less adept than nonthreatened counterparts at performing any number of tasks that demand self-regulation—maintaining a tight squeeze on an exercise handgrip, resisting tempting food, performing well on a Stroop task, or staying focused during a standardized test (Inzlicht & Gutsell, 2007; Inzlicht, McKay, & Aronson, 2006). Stereotype threat thus appears to tax more than the process of remembering; it appears to put a burden on a broader set of “executive” functions. Whether it is more accurate or useful to distinguish a working memory explanation from a more general executive function explanation awaits research that pits the two explanations against one another in the same study. The general picture is clear, however: Stereotype threat undermines performance by depleting cognitive resources needed for all kinds of mental functions.



### Expectations

A common misunderstanding about stereotype threat is that it undermines performance simply by lowering a person's performance expectations. One study did indeed find that inducing stereotype threat lowered performance expectations for an upcoming test (Stangor, Carr, & Kiang, 1998), but actual performance was not assessed in this study, so it is unclear whether these lowered expectations would have translated into lower performance. Other studies (e.g., Spencer et al., 1999; Stone, Lynch, Sjomeling, & Darley, 1999) find no such direct effect of stereotype threat on expectations, despite the fact that stereotype threat impaired performance. Still other studies (Steele & Aronson, 1995) find that raising performance expectations fails to undo the effects of stereotype threat on performance. The role of expectations in stereotype threat therefore appears to be complex. One reason for this is that on most sequential tasks like standardized tests, where items will differ in form and difficulty as one progresses, initial expectations based on situational cues that arouse or nullify stereotype threat can change as soon as one encounters success or difficulties while progressing from item to item. Blanket initial expectancies can thus be poor predictors of performance (e.g., Zigler & Butterfield, 1968).

### Effort

Another misunderstanding of the literature on stereotype threat attributes the impaired performance to reduced effort. Sackett (2005), for example, argued that in the presence of stereotype threat cues, test-takers simply decide not to try because, in the context of a psychology experiment, there are no penalties for giving up. Were they in the real world taking a high-stakes test such as the SAT, where the penalties for withdrawing effort are real and severe, most test-takers would not reduce their effort, and the effect of stereotype threat on performance would evaporate. Sackett believed that this is why stereotype threat, although an interesting laboratory phenomenon, has little if any effect on test score gaps in the real world. Although this is certainly a plausible hypothesis, studies that have measured effort—how long people work on the test, how many problems they attempt, how much effort they report putting in, and so on—have revealed no clear pattern of effort withdrawal in response to stereotype threat. Still, effort withdrawal looms as a possible interpretation for the performance differentials in the real world, because in none of these laboratory studies were there any consequences imposed on test-takers for low performance or low effort. To examine whether inducing stereotype threat has effects in situations like high-stakes tests, where test-takers suffer consequences for giving up, Aronson and Salinas (2001) conducted an experiment in which meaningful consequences were attached to performance. Students took a difficult test with electrodes attached to their wrists that they were led to believe were monitoring the effort they expended on the test. The test-takers were further led to believe that there would be severe consequences for not trying hard to do well; they would have to retake the test—for up to 3 hours of testing—until an acceptable amount of effort was detected. Under such circumstances, only a masochist would simply give up on the test in the face of stereotype cues. The results clearly refuted the effort-withdrawal hypothesis; test-takers performed worst in the condition in which the stakes for not trying were imposed and when stereotype threat was induced. This strongly suggests that reduced effort is not a necessary mediator of stereotype threat effects on test performance. To be sure, this does not force the conclusion that effort withdrawal never mediates underperformance. Indeed, effort reduction appears to be a mediator of the longer term effects of social identity threat on academic achievement, as recent research with college students shows (e.g., Massey & Fischer, 2005). We discuss these effects shortly.

### Priming Effects

The social cognition literature is replete with demonstrations of the behavioral effects of stereotype activation. These effects are typically assimilative; that is, behavior becomes consistent with the activated stereotype (Wheeler & Petty, 2001). For example, when people are subtly exposed to words associated with negative aging stereotypes (e.g., *senile*), they walk more slowly and exhibit

poorer memory, but when the words cast aging in a positive light (e.g., *wise*), their walking pace quickens and their memories improve (Bargh, Chen, & Burrows, 1996; Hausdorff, Levy, & Wei, 1999). Researchers have characterized such priming effects as "ideomotor" phenomena in which behavior follows automatically from the activation of stereotypical trait schemas (Wheeler, Jarvis, & Petty, 2001). These effects are presumed to occur because our knowledge of stereotypes includes information about associated behaviors, which increase in action potential when the trait schema is highly accessible.

Stereotype threat theorists generally agree that the activation of a negative stereotype is a necessary condition for stereotype threat to occur. Is it sufficient? Investigations of stereotype priming and stereotype threat have proceeded separately for the most part, but have yielded some parallel findings. In particular, research has shown that stereotype activation can have a similar impact on stereotype targets and nontargets. Priming the African American stereotype can impair the intellectual performance of students both within (Steele & Aronson, 1995) and outside of (Wheeler et al., 2001) this ethnic group, and priming the female stereotype has a similar negative impact on men and women (Dijksterhuis, 2001). Although these parallel findings have been noted in the literature, theoretical explanations portray them as largely separate phenomena. For example, Dijksterhuis and Bargh (2001) suggested that self-relevant stereotypes can result in both stereotype threat and ideomotor effects, but the former may be stronger because they result from two sources of activation (knowledge of the stereotype plus one's social identity). Similarities notwithstanding, the hypothesized mechanisms underlying these effects are very different. As noted earlier, stereotype threat theorists typically characterize priming-based performance decrements as resulting from an affect-induced depletion of cognitive resources. In contrast, ideomotor theorists attribute priming effects to cognitive construct activation that can alter one's behavior without conscious awareness or affect (Wheeler & Petty, 2001).

Some researchers have suggested that the activation of negative stereotypes is sufficient to induce stereotype threat (Ambady et al., 2004; Dijksterhuis & Bargh, 2001; Oswald & Harvey, 2000; Wheeler et al., 2001; Wheeler & Petty, 2001), but others have argued that stereotype threat cannot be reduced to a simple priming effect. In particular, Marx and his colleagues have argued that priming will not produce stereotype threat unless the primed individuals harbor some concern about confirming a negative stereotype about their group (Marx, Brown, & Steele, 1999; Marx & Stapel, 2006a; Marx, Stapel, & Muller, 2005). Thus stereotype threat affects only those who know the stereotype (a requisite for priming it) and feel targeted by it (a requisite for it to be threatening). Stereotype priming may nevertheless exert assimilative effects on both targets and nontargets, but only the former should exhibit threat-based concerns.

To test this hypothesis, Marx and Stapel (2006a) had men and women take a difficult math test under stereotype threat (i.e., the test was portrayed as diagnostic of math ability) or neutral (nondiagnostic test) conditions. Prior to test administration, half of these participants were primed with the negative trait *dumb* and its semantic associates, and the other half were not primed. Priming this trait adversely affected the test performance of men and women alike in both the diagnostic and nondiagnostic test conditions (consistent with an ideomotor account). In addition, women underperformed relative to men when the test was portrayed as diagnostic, but not when it was portrayed as nondiagnostic (consistent with previous stereotype threat research). However, only women in the diagnostic test condition exhibited an increased concern about the relationship between their math ability and their gender; negative trait priming alone did not elevate women's threat-based concerns in the nondiagnostic condition. These results suggest that stereotype activation is not sufficient to induce stereotype threat. Targets must also make the connection between the stereotype and their performance in the testing context.

Most experiments that find some individual difference variable moderates the effects of stereotype activation on performance strengthen this argument. For example, Inzlicht, Aronson, Good, and McKay (2006) found that individuals low in "self-monitoring," the desire and ability to control one's self-expressions to cultivate a desired public image, were particularly vulnerable to a

threatening environment—specifically in which their gender or racial group was outnumbered. Such situations typically result in lower performance among women on math tests (Inzlicht & Ben-Zeev, 2000). High self-monitors, however, were unaffected by being outnumbered, despite the fact that stereotypes were shown to be cognitively activated by this situation. A simple priming effect simply cannot explain these results.

#### LONGER TERM EFFECTS ON ACHIEVEMENT

Thus far we have sketched the process that spoils performance when people are confronted with social identity threat—*anxiety about confirming a negative reputation consumes cognitive resources needed for intelligent thought. This is the short-term effect of social identity threat. Over time and in the face of failures of this sort, individuals are frequently apt to alter their behaviors in ways that reduce such threats. Studying harder, practicing more, and enrolling in test-prep courses could all reduce such vulnerability (see Beilock et al., 2007), and there is plenty of anecdotal evidence to suggest that individuals faced with stereotype threat sometimes respond to devaluation of their abilities by buckling down and working harder (Aronson, 2002). However, the literature also suggests that many individuals exposed to social identity threat frequently adopt defensive behaviors and strategies that lead to longer term deficits in ability, thus implicating negative stereotypes in producing not only test score gaps, but ability gaps as well.*

#### Avoidance of Challenge

As the developmental theorist Judith Rich Harris (1998) has observed, students who start out just a little behind their peers in intellectual ability tend to avoid activities that could increase their intelligence. Meanwhile those who start out just a little bit ahead “are busy doing pushups with their brains.” Thus an achievement gap between Blacks and Whites or girls and boys in math that starts out relatively small can widen dramatically over a span of years. This is an apt description of what occurs in American schools, where, for example, Blacks start school on average a year behind Whites, but fall increasingly behind as they make their way through school (e.g., Fryer & Levitt, 2004). It is an axiom of educational psychology that intellectual growth requires intellectual challenge. Yet under social identity threat, challenge can signal the potential for racial, gender, or personal devaluation—both in others’ eyes and in one’s own eyes as well. Aronson and Good (2001) have found, for example, that minority children respond to an evaluative—and thus identity threatening—setting by shying away from challenging problems in favor of easy, success-assuring ones. They found that in the sixth grade (but not before) students chose to work on easier problems on an evaluative test, but selected problems appropriate for their grade level when the test was framed as nondiagnostic of their abilities. This was true of both Latinos on a reading test and girls on a math test. Stone (2002) found conceptually similar results: Under stereotype threat, athletes were more likely to avoid practice that would have improved their likely performance on an upcoming test of golf ability. Similarly, Pinel (1998) showed that women most prone to stereotype threat actively avoided tests in domains in which women are stereotypically alleged to be inferior to men. Such avoidance tactics are related to “self-handicapping” (Jones & Berglas, 1978), wherein the individual interferes with his or her own performance to have a plausible excuse for failure—such as “I didn’t practice,” which although hardly flattering, is nonetheless preferable to “I lack ability.” One can well imagine that in schools, when given the choice of a curriculum that varies in degree of difficulty, students’ perceptions of potentially threatening circumstances may steer them toward alternatives with less threat potential, and as a result, they miss important opportunities to develop their intelligence.

Sociologist Douglas Massey and his associates (Massey et al., 2003; Massey & Fischer, 2005) conducted a longitudinal survey of more than 4,000 freshmen from different ethnic backgrounds attending more than 28 American colleges. Students were surveyed each year and their performance in college was monitored throughout their undergraduate careers. Unsurprisingly, Massey et al.

found the common achievement gaps observed between groups: Asians and Whites outperformed Blacks and Latinos, even when controlling for SAT scores, family income, and other important background factors. However, when students' responses to questions probing their degree of stereotype vulnerability were controlled, the grade gaps disappeared; the degree of stereotype threat they felt as freshmen was associated with lower grades. Moreover, the degree to which students endorsed the negative stereotypes about their group predicted the amount of effort they reported putting into their studies; the more they believed the stereotypes to be accurate, the less hard they worked and the lower grades they earned.

### Disidentification

These dual effects—acceptance of the stereotype and reduced effort and engagement—may reflect a chronic defense referred to as “disidentification” (Steele, 1992), which involves detaching self-esteem from outcomes. Confronted with failure, people typically find ways of protecting their self-esteem. When a person fails a test and then claims the test was biased or that he or she does not really care about doing well—a response sometimes called “devaluing” (Major, Quinton, & McCoy, 2002)—this temporary response soothes the ego and reduces the dejection that typically accompanies failure. However, when such responses become chronic and the person adjusts his or her self-concept, divesting self-esteem from the domain, this can seriously thwart achievement. Stereotype threat on tests appears to be most acutely experienced by students who are most invested in doing well (Aronson et al., 1999; Steele, 1997), those who are highly identified with an intellectual domain. Thus one way to reduce the experience of threat is to psychologically divest from threatening domains. Although failure in and of itself is enough to prompt disidentification, stereotype threat appears to make it a far more common response among Blacks and Latinos because the stereotype suggests not only a lack of ability, but also limited belongingness in the domain (Cohen & Steele, 2002; Good, Dweck, & Rattan, 2006). In the long run, though, disengagement of this sort is counterproductive; some degree of psychological investment is necessary to sustain motivation for achievement (Osborne, 1997; Steele, 1992, 1997).

Thus, the endpoint of our model, after performance effects spur behavioral and attitudinal adaptations, is the modification of the self, which, as shown in Figure 8.1, feeds back to one's vulnerability to potentially threatening circumstances. In the case of disidentification, it is presumed that one will become less vulnerable to potentially threatening cues for the simple reason that devaluation in the domain requires one to care about the domain. However, other effects of social identity threat, such as chronic avoidance of challenge or evaluation, would presumably have the opposite effect, producing a vicious cycle that renders the individual less academically successful (e.g., Elliot & Church, 2003), more prone to negative affect (Zuckerman, Kieffer, & Knee, 1998), and more prone to self-doubt (e.g., Arkin & Oleson, 1998). George W. Bush, perhaps in response to his reputation as unintelligent, has adopted a pattern of avoiding press conferences, of accepting interviews only with politically sympathetic representatives of the press (i.e., Fox News), and of vetting audiences for his speeches to make sure they are supportive. This is functionally equivalent to the student who chooses easy problems to solve when under threat. Such a strategy is likely to increase one's vulnerability to social identity threat because it validates the fears that underlie it. By the same token, attributing one's difficulties to racial bias, as individuals often do (e.g., Major et al., 2002), can have a similarly spiraling effect: Each time one does it, one may become ever more prone to see bias in one's environment, thus rendering one's self more vulnerable to social identity threat (Aronson & Inzlicht, 2004; Mendoza-Denton et al., 2002). Shortly we describe adaptations that reduce threat without nurturing maladaptive tendencies.

### THE PITFALLS AND PROMISE OF SOCIAL IDENTITY SALIENCE

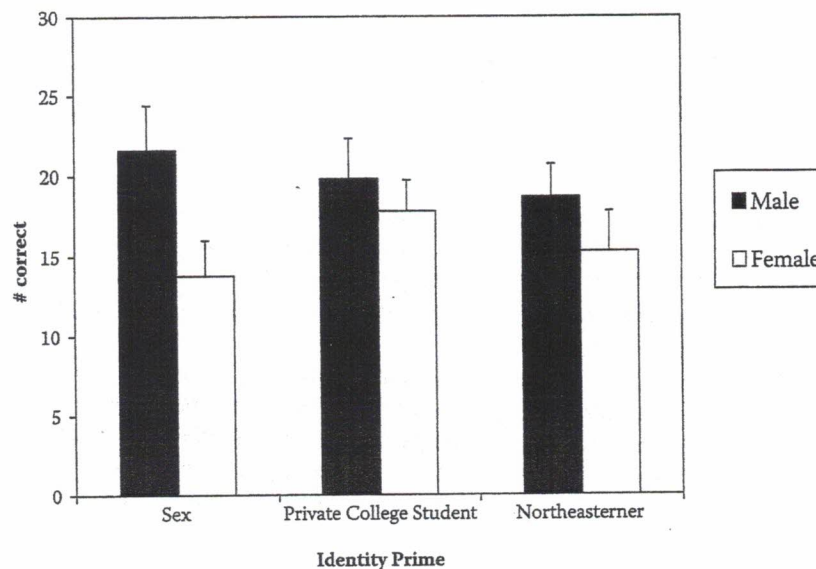
As noted, the numerous demonstrations of social identity threat all hinge on cues—demographics questions about ethnicity or gender, a statement about how test results will be used, etc.)—that

increase the salience of an individual's stigmatized identity in an evaluative context. Ascribed identities such as one's gender or ethnicity—the principal stigmatized identities investigated in stereotype threat research—are already well-formed, pivotal aspects of the self-concept before the age of 5 (Aboud, 1988). Children are not only cognizant of and conversant about these identities, but are also familiar with their associated stereotypes by the early elementary school years (Bigler, Jones, & Lobliner, 1997; Ruble & Martin, 1998). By adolescence, the centrality of gender and ethnicity to one's sense of self, combined with their stereotypical associations established during childhood ("Blacks aren't as smart as Whites," "Boys are better at math than girls," etc.) make college students with stigmatized ascribed identities especially vulnerable to stereotype threat, although its effects have been observed in much younger students as well (Aronson & Good, 2003; Good & Aronson, 2008; McKown & Weinstein, 2003).

This vulnerability is most evident in studies demonstrating the impact of social identity salience on intellectual performance. Prior to administering a mathematics test, Shih et al. (1999) presented their Asian American female participants with a brief questionnaire comprised of questions designed to make salient their identity as women (e.g., Do you prefer single-sex or coed college dormitories?), as Asian Americans (e.g., How many generations of your family have lived in America?), or as members of a test-irrelevant social category (cable TV subscribers). Participants primed to categorize themselves as women achieved the lowest performance of all three groups, consistent with the negative stereotype about women's math ability. In contrast, participants primed to categorize themselves as Asian American achieved the highest performance of all groups, consistent with the stereotype crediting this group with superior math ability. As noted earlier, Inzlicht and Ben-Zeev (2000) found that groups of women performed worse on a math (but not a verbal) test when a male test-taker was present, presumably because this made their female identity salient (see also Inzlicht & Ben-Zeev, 2003). These findings suggest that when students' multiple social identities are considered in an academic context, stereotype threat phenomena may be approached far more strategically than previously recognized. They also raise the intriguing possibility that subtle interventions designed to increase the salience of certain social identities but not others can improve students' test performance.

Nonascribed aspects of personal identity that emerge relatively late in adolescence may mitigate ego threat (Marcia, 1966). In particular, domains of identity predicated on interpersonal interaction (e.g., college student), religion (e.g., Roman Catholic), ideology (e.g., liberal), intellectual interests (e.g., psychology major), and occupational aspirations (e.g., prelaw) come to the fore as adolescents formulate a sense of self based on their own preferences, choices, and accomplishments (Patterson, Sochting, & Marcia, 1992; Waterman, 1982). These "achieved identities" are adaptive for any adolescent as she negotiates the spheres of independence and nonfamilial interdependence associated with adulthood. They also provide a potential substrate for female and ethnic minority adolescents to transcend the negative expectations associated with their stigmatized ascribed identities (Kobrynowicz & Biernat, 1998).

Shih et al.'s (1999) findings demonstrate that stereotype threat can be subdued by a subtle process of ascribed identity manipulation—in this case, focusing people's attention on an ascribed identity (Asian ethnicity) for which there is a positive test-relevant stereotype ("Asians are good at math") rather than one for which there is a negative stereotype ("females are bad at math"). McGlone and Aronson (2006) investigated the possibility that the manipulation of an individual's salient achieved identity (i.e., membership in social categories based on an individual's choices and achievements) can produce comparable benefits. With very few exceptions, the intellectual performance stereotypes associated with ascribed identities (gender and ethnicity) tend to be negative (e.g., "females are bad at math," "African Americans aren't good readers," etc.). Furthermore, the handful of positive performance stereotypes associated with ascribed identities (e.g., "Asians are good at math," "Jews are good at handling money," etc.) are often predicated on negative stereotypes about targets' habits (e.g., "Asian students don't have social lives") and motivation (e.g., "Jews are greedy"). The domain of achieved identities is broader than that of ascribed identities, and includes many positive performance



**FIGURE 8.3.** Spatial reasoning test performance by participant gender and identity prime condition (McGlone & Aronson, 2006).

stereotypes without negative motivational baggage. For example, consider the positive intellectual performance stereotype associated with the category of “private college students.” Although this identity may be linked in some cases to ascribed characteristics (e.g., an individual who is born into a family with the means to afford a private college education), clearly an individual must choose a college and thus might contemplate the strong positive intellectual performance stereotype associated with this achieved identity (i.e., “private college students are academically gifted”).

In a variant of Shih et al.’s (1999) methodology, McGlone and Aronson (2006) had undergraduates complete questionnaires designed to prime either their ascribed gender identity, achieved “private college student” identity, or a test-irrelevant identity prior to taking a spatial reasoning test. As shown in Figure 8.3, female participants who were primed to contemplate their identity as students at a selective private college performed better than those who were primed to contemplate their gender or a test-irrelevant identity. For males, priming their gender identity increased performance relative to the test-irrelevant or private college student primes. These results demonstrate that reminding students of their achieved identities (e.g., private college student) can subdue stereotype threat associated with their ascribed identities (e.g., female). They also add to the mounting evidence indicating that social identity can be both the vector and antidote of stereotype threat’s ill effects. These results are important for a further reason: Spatial abilities are considered to be the most highly sex-linked abilities, those that are assumed to flow from biological differences. That the spatial abilities gap can be closed by a simple manipulation of social identity casts doubt on the notion that sex-linked differences are fixed and strongly suggests that they are remediable through intervention (e.g., Halpern, 2000; Newcomb, 2002).

#### BEYOND THE ACADEMIC CONTEXT

Investigations of social identity threat have focused principally on its impact on intellectual performance in laboratory and field-testing settings. Yet the predicament can in principle arise in any domain of human behavior for which there are identity-based stereotypic expectations about performance and any context in which this performance is evaluated. In recent years, researchers have demonstrated stereotype threat’s operation in a variety of performance domains and populations beyond the academic context.

### Athletic Performance

The overrepresentation of African Americans at the highest levels of certain amateur and professional sports has been a major source of racial stereotypes about athletic performance. Although the scientific evidence implicates class, cultural, and historical factors as primary causes for this phenomenon (Wiggins, 1997), mass media portrayals by some sportscasters (e.g., Jimmy "the Greek" Snyder) and filmmakers (e.g., Ron Shelton's 1992 film *White Men Can't Jump*) frame it as a consequence of Black athletes' alleged advantage in "natural ability" over White athletes. Several studies confirm that laypeople hold racial stereotypes about athletes consistent with this framing (Beilock & McConnell, 2004; Devine & Baker, 1991; Johnson, Hallinan, & Westerfield, 1999; Krueger, 1996; Sailes, 1996; Stone, Perry, & Darley, 1997). For example, Stone et al. (1997) observed that White college students listening to a radio broadcast of a men's basketball game were more inclined to attribute natural athletic ability to a successful target player when they thought he was Black, but attributed his performance to "court smarts" and "hustle" when they thought he was White.

Racial stereotypes can exert an influence not only on the perception of an athlete's performance, but also on the performance itself. Stone et al. (1999) invited Black and White college students to participate in a golf putting task that they characterized as a standardized measure of "natural athletic ability," "sports intelligence" (i.e., the ability to think strategically during an athletic performance), or "psychological factors associated with general sports performance." The two groups performed equally well when the task was framed as a measure of general sports performance. However, White participants performed worse than control participants when it was framed as diagnostic of natural athletic ability, and Black participants performed worse than the controls when it was framed as diagnostic of sports intelligence. These findings parallel the effects of diagnosticity framing in the intellectual performance domain: Frames that create the risk of confirming a negative group stereotype harm the performance of group members. The negative consequences of this framing may also have an impact on the way one approaches or prepares for the performance. In a subsequent study, Stone (2002) observed that when White participants were given the opportunity to practice prior to completing the aforementioned golf task, they practiced less when the task was framed as diagnostic of natural athletic ability than when it was purported to measure general sports performance. By self-handicapping themselves via reduced practice, the White athletes created ambiguity about the meaning of a potential poor performance. The irony of course is that withdrawing preparatory effort could provide evidence that others (competitors, audiences, and coaches) might interpret as confirmation of the negative stereotype.

### Aging and Memory

Ageist stereotypes portraying older people as having memory problems are widespread, particularly in Western societies (Kite & Johnson, 1988; Nelson, 2002). Researchers have demonstrated a variety of negative memory outcomes associated with aging stereotype ideation. For example, Levy and Langer (1994) tested young and older groups of Americans and Chinese for their beliefs about aging and then assessed memory performance. They observed that age differences in memory were related to the degree to which individuals within these cultures displayed positive views of aging. Views toward aging were less positive among Americans than Chinese, and age differences in memory performance were larger in the former group. Levy (1996) found that older adults performed worse on a memory test when they were explicitly primed with negative rather than positive aging stereotypes. Stein, Blanchard-Fields, and Hertzog (2002) observed comparable effects induced by implicit stereotype activation.

Other researchers have explored the operation of stereotype threat among older adults more directly in studies manipulating the diagnosticity of memory tests or cues designed to highlight negative aging stereotypes. For example, Rahhal, Hasher, and Colcombe (2001) found that age differences in performance on a sentence memory task, obtained when participants were informed that the test was intended to examine their memory ability, were eliminated when the memory aspect

of the task was deemphasized. Hess, Auman, Colcombe, and Rahhal (2003) administered a free recall test to younger and older adults after providing tutorials about positive or negative aspects of the relationship between aging and memory. Implicit measures of association (Banaji & Hardin, 1996) indicated that all participants exhibited higher activation of the negative aging stereotype in the negative than the positive information condition. However, only older adults' recall performance was significantly affected by the manipulation. They exhibited higher recall accuracy in the positive information condition and lower accuracy in the negative condition, relative to a control condition. Consistent with Steele and Aronson's (1995) claims regarding the role of ability identification in stereotype threat effects, the negative impact of aging stereotypes on recall performance was strongest among older adults who most valued their memory ability.

### Political Knowledge

Political scientists and pollsters have long noted a significant gap between men and women's knowledge of basic civics as well as contemporary political figures and events. For example, data collected in the National Election Studies (NES) between 1947 and 1995 indicate that men achieved 20% to 35% higher accuracy in identifying the political party currently controlling the U.S. House of Representatives, the collective term used to refer to the first 10 amendments to the Constitution (Bill of Rights), or even a senator or representative from their home state (Delli-Carpini & Keeter, 1996). The persistence of the knowledge gap evident in NES data is consistent with findings of the Annenberg Survey Project (Jamieson, 1996; Jamieson et al., 2000; Jamieson & Kenski, 2000). Jamieson and her colleagues have also found that gender differences in political knowledge persist even when respondents are equated in terms of age, race, education, income, marital status, party identification, and exposure to news media. Their findings indicate that some mechanism beyond standard demographic factors is responsible for the knowledge gap. Conway (1985) suggested that women's apparent lack of political knowledge is due to their lack of interest in the domain. However, interest-based accounts are hard-pressed to explain why women have voted at an equal or higher rate than men since 1980 (Delli-Carpini & Fuchs, 1993). Graber (1988) hypothesized that women are under less social pressure to remember information than men and consequently forget information at a faster rate; if so, then the gender gap in political knowledge would be just one facet of a cross-domain retention gap. Although Graber's hypothesis has been embraced by some political scholars (Jamieson et al., 2000), to date there is no direct evidence directly supporting it. Moreover, the hypothesis is tenuous from a psychological standpoint, in that memory researchers have yet to document any domain-general gender differences in memory capacity or forgetting proclivity (Bourtchouladze, 2002).

Survey researchers have long been aware that people's desire to project a positive self-image can influence their reporting of attitudes and behaviors (e.g., Schumann & Converse, 1971). The concept of "social desirability bias" is routinely invoked when survey responses suggest a higher degree of awareness, affability, or resolve than less reactive measures indicate (Silver, Anderson, & Abramson, 1986; Welch, 1977). McGlone and Aronson (2006) explored the possibility that the desire to be positively regarded can influence not only women's reported political attitudes (Bennett & Bennett, 1989), but also their facility in drawing on the knowledge on which their attitudes are predicated (D. W. Davis & Silver, 2003). Specifically, they hypothesized that female respondents in a political knowledge survey would exhibit a performance decrement when threatened by the prospect of confirming a negative stereotype about their gender. They found that explicit reference to this prospect (i.e., a portrayal of the survey as diagnostic of gender differences in political knowledge) impaired women's survey performance, as did the more implicit cue of an interviewer's voice of the opposite sex. These cues exerted no appreciable influence on men's performance. This combination of findings suggests that the manipulated factors rendered the context of the survey an intellectually threatening environment for female respondents (Inzlicht & Ben-Zeev, 2000). These factors are operative in the methodology of the NES and other similar surveys, and thus may contribute to the gender gap in political knowledge.



### Managerial Performance

Ethnic and gender stereotypes are widespread in the workplace. Numerous studies have demonstrated that Americans generally perceive the traits associated with successful managers as more likely to be held by White men than by women or members of any ethnic minority (Boyce & Herd, 2003; Brenner, Tomkiewicz, & Schein, 1989; Roberson & Block, 2001). This bias has been observed among both entry-level employees and managers themselves, and is magnified when the focus is on traits associated with higher levels (e.g., CEO) of management (Martell, Parker, Emrich, & Crawford, 1998). Such perceptions contribute to and are perpetuated by the underrepresentation of women and minorities at senior management levels, a phenomenon that has been the subject of numerous theories in the management literature. Among the most frequently advanced are discrimination theories, which assume that stereotyping and bias on the part of those in power are responsible for the slower progress of stigmatized groups in organizations (see Davison & Burke, 2000, for a review).

Until very recently, there has been scant research exploring the direct impact of stereotyping on stigmatized employees' performance. In a laboratory simulation, Bergeron, Block, and Echtenkamp (2006) had male and female participants perform a managerial decision-making task after priming stereotypically masculine (e.g., aggressive) or feminine (e.g., nurturing) traits. Although the men were not affected by the priming manipulation, women primed with masculine traits underperformed in the task relative to those primed with feminine traits. This effect was attenuated when women reported high identification with the masculine gender role, thus suggesting that women's susceptibility to threat in a managerial role hinges on their perceived fit into established gender roles (Fletcher, 1999).

In a survey of Black managers in the utility industry, Roberson, Deitch, Brief, and Block (2003) found a reliable relationship between solo status and reports of stereotype threat experiences: Managers who were the only Black employees in their workgroup were more likely to report feelings of stereotype threat than those who had one or more Black colleagues. Solo Black managers reported not only higher perceptions of threat, but also greater inclinations to seek indirect performance feedback (i.e., from peers rather than superiors) and also to discount feedback from superiors as motivated by racism and prejudice. Although correlational in nature, these findings point to the troubling possibility that stereotype threat may lead minority managers to develop suboptimal feedback strategies, thus depriving those who experience the threat of valuable information about their performance and recommendations for improvement.

### THREAT-REDUCING INTERVENTIONS

Implicit in much of the preceding discussion is the fact that social identity threat can be reduced by attending to and modifying both the situational and personal influences that give rise to it. For example, reducing the degree of evaluative scrutiny in situations reliably improves performance across a number of studies (e.g., Croizet & Claire, 1998; Steele & Aronson, 1995), as does priming identities that facilitate performance (McGlone & Aronson, 2007; Shih et al., 1999). Yet such tactics are far less practicable in the real world than in the psychology laboratory, where conditions can be controlled and identities primed. Thus several lines of research have taken the approach of attempting to mitigate threats in situations more like the real world where ability evaluation is part and parcel of the environment, and where the cues that influence the salience of social identities are subject to myriad uncontrolled influences. The integrated classroom is a prime example of such an environment, increasingly so, in the current era of high standards and frequent tests. Several lines of research point to promising approaches to help students cope with the social identity threat frequently engendered in such environments.

### FOREWARNING

A number of researchers have explored the possibility that awareness of one's susceptibility to processes such as stereotype threat can mitigate their ill effects. Give students an understanding of how anxiety can stem from stereotype threat, the reasoning goes, and they will feel less pressure, because an external attribution (I'm anxious because of stereotype threat) is less self-incriminating—and upsetting—than the internal one fostered by the stereotype itself (I'm anxious because I'm too dumb for this test). In one study (Aronson & Williams, 2004), prior to being tested in the Steele and Aronson paradigm described earlier, Black college students were sent and instructed to read a pamphlet describing either the stereotype threat effect, the phenomenon of test anxiety, or a completely unrelated topic. Those in the first two conditions performed just as well under stereotype threat as comparable students who were not forewarned but took the test under nonthreatening conditions. A similar study (Johns, Schmader, & Martens, 2004) found equally positive results among women taking difficult math tests. Also in the context of women and mathematics, McGlone and Aronson (2007) found that forewarning eliminated the male–female gap when test-takers were instructed to think of a positive social identity (private college student) to counter the stereotype, and widened the gap when they were instructed to suppress all stereotype-related thoughts. Thus, knowledge of the stereotype process can be helpful, particularly when individuals are given a specific cognitive strategy designed to counter the stereotype. The forewarning studies are not only important for those interested in interventions to boost achievement, but they also offer relief for those of us who worry that teaching their psychology students about the research might create rather than reduce a vulnerability to stereotypes.

### REFRAMING THE NATURE OF ABILITY

Inspired by research on self-theories of intelligence (e.g., Dweck, 1999), Aronson (1999) reasoned that stereotype threat would be least problematic for students who conceived of their abilities as malleable rather than fixed. If stereotypes create anxiety by implying a lack of ability, stereotype threat should be less threatening if one sees or can be induced to see ability as expandable. To test this reasoning, students were given a GRE verbal test presented either as a test of an ability that was malleable or fixed. African Americans—and to a lesser degree the Whites—performed much better and reported lower performance anxiety when the test was said to diagnose an ability that could be expanded with practice.

Three field interventions built on these findings. Aronson, Fried, and Good (2002) employed numerous tactics of attitude change to induce college students to embrace a malleable-intelligence mindset. Attitudes toward academic achievement and actual performance were assessed 4 months later and at the end of the school year. The results were impressive. African American students in the malleable-intelligence condition raised their grades (overall grade point average) by four tenths of a grade point. In a second intervention study (Good, Aronson, & Inzlicht, 2003), low-income Latino and White junior high students participated in an intervention that taught and reinforced one of three different messages. One group learned that intelligence is expandable; another group of students were taught to attribute their academic difficulties to the normal process of adapting to junior high rather than any lack of ability, a conceptual replication of an intervention by Wilson and Linville (1982). These two groups of students were compared to a control group, which spent the same amount of time learning about the perils of drug use. The results were impressive; Latino students mentored in the two experimental groups received higher scores on the statewide standardized test of reading than their counterparts who received the antidrug message. Similar results were found for girls' math performance on the mathematics test; girls in the control group underperformed relative to boys, but those in the two intervention groups performed as well as boys. A recent study conceptually replicated these findings, boosting the grades and academic engagement

among students making the transition from elementary to middle school by teaching the notion of expandable intelligence (Blackwell, Trzesniewski, & Dweck, 2007).

### Role Models

Stereotypes gain power when objective reality confirms them. Thus when girls learn that they are not supposed to be as good at math as boys, this knowledge is reinforced by cues in the social environment, such as fewer women teaching math or held up as examples of mathematical prowess—or even just seeing women in stereotypically feminine roles (Davies, Spencer, Quinn & Gerhardtstein, 2002). Thus, a number of studies have attempted to counter stereotype threat by increasing the salience of counterstereotypic individuals—and with good effects. Marx and Roman (2002), for example found that having a female experimenter, introduced as a math expert, administer an evaluative math test significantly boosted the performance of female test-takers. A similar study found that women performed better on a math test after merely reading about four individual women who had succeeded in architecture, law, medicine, and invention (McIntyre, Paulson, & Lord, 2003). Similarly positive effects have been found for African American students (Marx & Goff, 2005).

### Self-Affirmations

A number of researchers have reasoned that if stereotype threat arouses anxiety because it poses a significant threat to self-esteem, then affirming the self-concept with self-affirmations—for example, getting students to reflect on central talents, values, and beliefs—may reduce threat and boost performance. Several studies support this line of reasoning, showing that affirmations improve test performance among the stereotype-threatened students. This has been demonstrated with women taking math tests (Martens, Johns, Greenberg, & Schimel, 2006) and low-income minority students in a field study (Cohen, Garcia, & Master, 2006). In one recent study, the affirmation procedure reduced the achievement gap in grades by 40%. It is important here to distinguish self-concept from self-esteem. These self-affirmations typically do not raise self-esteem; rather, they remind students of what matters to them, which has the effect of making them less susceptible to self-esteem threats—including stereotype threats alleging mathematics inferiority.

## CONCLUSION: BUSH'S BRAIN

We began this chapter suggesting that there is probably nothing physically wrong with George W. Bush's brain to explain the apparent loss of IQ points he has experienced since his run for governor in 1994. Rather, two things happened that, in combination, provided ample grounds for a severe case of social identity threat, one strong enough to markedly impair his public speaking abilities. First, his job became much more difficult; the campaign for the presidency, like the presidency itself, is tremendously more demanding than running for—and even serving as—governor of Texas, a notoriously undemanding governorship. Second, he developed a reputation that portrayed him as unintelligent, one that reverberated, grew, and spread quickly in the media echo chamber. This reputation was very hard to find evidence of in the media prior to the 2000 presidential race. These two factors provide the necessary conditions for stereotype threat. As we have shown, the same process that confronts Bush often confronts the typical Black or Latino student taking a standardized test or being evaluated in an academic situation: A reputation of intellectual inferiority, a challenging task, and an evaluative context in which failure on the task will confirm the negative reputation all conspire to suppress intelligent thought. The good news is that although reputations, like stereotypes, can be hard to change, there are many ways to intervene to help individuals cope with social identity threat. Much of the research we have discussed shows how, with attention to the ways that situations are arranged and the mindsets that students can be taught, social identity threat need not compromise intellectual performance and growth. Acknowledging and acting on the fact that human intelligence is both fragile and malleable, we believe that schools and universities need not

be the threatening environments they so often are for minority students, but instead, to quote Bush himself, can become the kind of places "where wings take dream."

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