

Copyright

by

Jeannetta Gwendolyn Williams

2004

**The Dissertation Committee for Jeannetta Gwendolyn Williams
Certifies that this is the approved version of the following dissertation:**

**FOREWARNING: A TOOL TO DISRUPT STEREOTYPE
THREAT EFFECTS**

Committee:

Christopher J. McCarthy, Supervisor

Joshua M. Aronson, Co-Supervisor

Rebecca S. Bigler

Kristin D. Neff

Frank W. Wicker

**FOREWARNING: A TOOL TO DISRUPT STEREOTYPE
THREAT EFFECTS**

by

Jeannetta Gwendolyn Williams, B.A., M.A.

Dissertation

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

The University of Texas at Austin

May, 2004

Dedication

This dissertation project is dedicated to the many minority and poor students who have not had the opportunity to pursue their academic dreams. I hope that this study aids in the fight for social justice and educational equity.

Acknowledgements

Thank you to my advisors, Christopher J. McCarthy and Joshua M. Aronson. I cannot tell you how much I treasure your encouragement, guidance, and patience.

Thank you to my outstanding committee members, Frank W. Wicker, Kristin D. Neff and Rebecca S. Bigler. I appreciate your hard work in serving on this committee and for making me a better scholar.

Thank you to the graduate students who assisted me with data collection and the undergraduates who participated in the study. Also, I greatly appreciate the support of my dear friends Catherine Good, Martha Culp, and Thea Woodruff through the past six years of graduate work.

I owe the world to my loving husband, Cleon Williams, friends, and family.

Finally, I would like to thank my parents, Alice and William Crabbe, for giving me their strength, wisdom, guidance, and love.

FOREWARNING: A TOOL TO DISRUPT STEREOTYPE THREAT EFFECTS

Publication No. _____

Jeannetta Gwendolyn Williams, Ph.D.

The University of Texas at Austin, 2004

Supervisor: Christopher J. McCarthy

Co-Supervisor: Joshua M. Aronson

This study investigated forewarning as a preventive strategy against *stereotype threat*—a situation-evoked anxiety linked to minority underperformance on standardized tests. During evaluative tasks, concerns about possibly confirming a group-based negative stereotype may interfere with cognitive performance. The lack of an apparent stressor may lead an individual to attribute stress to personal inability. However, the true stressor is the negative stereotype aroused by the testing situation. This dissertation addressed whether forewarning participants about stereotype threat would ease or exacerbate threat effects on the cognitive performance of African Americans. In addition, this study examined the relationship between self-compassion and post-test anxiety and cognitive interference. Further, the relationships between self-compassion, social identity strength, and rejection sensitivity were explored.

Prior to completing a challenging reading test under stereotype threatening or non-threatening test conditions, African American college students read a short text that described either stereotype threat or general test anxiety. The control group read a text unrelated to stereotypes, testing, or anxiety. The results revealed that participants forewarned about stereotype threat outperformed those forewarned about general test anxiety and the control group, when testing under stereotype threat conditions. Forewarning, either about stereotype threat or test anxiety, did not impair performance under non-threatening conditions. An interesting finding was that those forewarned about stereotype threat reported greater anxiety than the forewarned-test anxiety group and the control group. It was also found that self-compassion was negatively correlated with anxiety and cognitive interference and that the magnitude of these correlations was greater under threatening conditions than under non-threatening test conditions. Further, self-compassion was positively related to social identity strength and unrelated to race-based rejection sensitivity.

The results suggest that foreknowledge helps African American college students to resist stereotype threat effects on cognitive performance. Further, it appears that self-compassion may prove beneficial in assuaging emotional and cognitive reactivity tied to stereotype threat. These findings point to the importance of identifying the mechanisms by which foreknowledge influences thought and behavior. Limitations of the study and suggestions for future research are discussed.

Table of Contents

List of Tables	x
List of Figures.....	xi
Chapter One: Introduction.....	1
Chapter Two: Literature Review	4
Stereotype Threat.....	4
Theoretical Foundations	5
Mediators: Anxiety and Cognitive Load	8
Individual Differences in Vulnerability to Stereotype Threat.....	9
Anxiety, Cognitive Interference, and Test Performance	11
Forewarning as an Attributional Strategy.....	13
Attributions: Dimensions and Individual Differences.....	14
Experimental Manipulations of Attributions for Arousal	18
The Use of Forewarning in Persuasion, Medical, and Physiological Studies	20
The Role of Self-Compassion in Deflecting Self-Image Threats.....	22
Chapter Three: Method.....	28
Research Overview.....	28
Procedures In Brief.....	29
Participants and Design	30
Surveys and Background Information.....	31
Procedure	36
Forewarning Message Treatment	36
Lab Sessions	38

Chapter Four: Results.....	41
Forewarning Comprehension and Recall	41
Reading Test Performance	41
Performance-Number Correct	44
Performance Accuracy	47
Self-Reported Anxiety and Cognitive Interference	49
Anxiety	49
Cognitive Interference	51
Self-Compassion.....	51
Anxiety and Cognitive Interference	51
Group-Based Social Identity, Rejection Sensitivity, and Motivation Anxiety.....	52
Summary of Results	53
Chapter Five: Discussion.....	55
Overview of the Current Findings	56
Limitations and Suggestions for Future Research.....	62
Appendices	76
References	108
Vita	118

List of Tables

Table 1: Means, Standard Deviations and Internal Consistency Estimates for Scales	72
Table 2: Correlations of Composite SAT Scores, Self-Compassion, Motivation Anxiety, Personal Mastery, Rejection Sensitivity- Race, and Social Identity Strength with Accuracy and Number Correct	73
Table 3: Correlations of Composite SAT Scores, Self-Compassion, Motivation Anxiety, Personal Mastery, Rejection Sensitivity- Race, and Social Identity Strength with State Anxiety and Cognitive Interference	74
Table 4: Correlations among Self-Compassion, Social Identity Strength, External Regard, Motivation Anxiety, and Rejection Sensitivity- Race	75

List of Figures

Figure 1. Adjusted performance scores, defined as the number correct on the reading test corrected for SAT composite, as a function of forewarning message and test condition.	45
Figure 2: Adjusted accuracy scores, corrected for SAT composite scores, for the control group and forewarned-stereotype threat groups in the stereotype threat testing condition.	49

Chapter One: Introduction

The current tide of “standards-based” reforms claims to address, in part, the academic underachievement of minorities (Valencia, Valenzuela, Sloan, & Foley, 2001). Using Texas as a testing ground for national policies, recent legislation has dramatically increased the number of examinations that students must pass for grade advancement and graduation. Proponents for this accountability system assert that because test standards have been raised, the academic rigor of Texas schools has actually increased (Haney, 2000; Scheurich, Skrla, & Johnson, 2000). More importantly, they argue that these new standards mark an unprecedented commitment to improving the achievement of all students, despite data that project increasing grade retention and attrition rates for African Americans and Latinos (Haney, 2000; Scheurich, Skrla, & Johnson, 2000).

Texas implemented its assessment centerpiece, the Texas Assessment of Academic Skills (TAAS), for the 1990-1991 school year (Haney, 2000). Since that time, the results of the test have been praised; however, critics argue that the success touted in Texas is more an illusion than reality (Haney, 2000; McNeil & Valenzuela, 2001; Valencia, Valenzuela, Sloan, & Foley, 2001). For example, Haney (2000) argues that data indicate that the number of test takers has decreased, the number of minorities assigned to special education classes and exempted from taking the test has increased, roughly half of African American and Latino students who enter ninth grade fail to graduate, retention rates for

minorities are nearly double those for White students, and other measures of achievement, such as scores on the Scholastic Aptitude Test, the TASP, a college preparation test, and NAEP have either remained stagnant or decreased.

While these accountability efforts appear to focus on improving student learning, the responsibility for achievement is placed squarely on the backs of students, teachers, and parents. Housed in schooling environments that can both pre-determine and ensure academic underperformance through a variety of tracking and labeling methods, students are expected to rise above the immediate, costly and negative expectations regarding their academic potential. This “deficit thinking” model of education (Valencia et al., 2001, p. 319; Valenzuela, 1999) pushes minorities toward grade retention and dropping out, yet this is guised as merely reflective of the “educability” of the student (Valencia et al., 2001, p. 319).

Such reform efforts are touted as innovative, race-blind policies that remedy the achievement gap between students of color and Whites. Yet, a growing body of research suggests that the racial achievement gap has not been effectively reduced (Haney, 2000). The issue of minority underperformance on “high stakes” tests is not a new issue; it continues to stir widespread debate regarding its causes. A variety of factors have been offered to account for the underperformance of minority students on standardized tests. These explanations range from genetic limitations of intelligence (Herrnstein & Murray, 1994; Jensen 1969, 1980) to sociocultural barriers to educational access, such as racial discrimination and poverty (Feagin & Sikes, 1994; Herrnstein & Murray, 1994;

Jencks & Phillips, 1998; Jensen, 1969, 1980). Some researchers have explored whether minority group cultures promote negative attitudes toward academics, which then affect educational outcomes (Boykin, 1986; Ogbu, 1986; Romo & Falbo, 1996). In addition, the validity of such tests has been questioned, the argument being that the tests tap into culturally specific knowledge and are biased against minorities (Neisser et al., 1996). However, when empirical studies have statistically controlled for these causal factors, the performance gap between Whites and minority students glaringly remains (Steele, 1997). This suggests that a primary contributor to African American underachievement may be something other than individual traits, cultural practices, socioeconomic conditions or test validity (Steele 1992, 1997). Instead, the educational barriers that African Americans face may be caused by the insidious effects of being members of a stigmatized group in society (Ogbu, 1986; Steele 1992, 1997).

Chapter Two: Literature Review

STEREOTYPE THREAT

A recent theory has demonstrated the negative impacts of stereotypes on the test performance of African Americans, called *stereotype threat* (see Aronson, Quinn, & Spencer, 1998; Aronson & Steele, 2004; Steele, 1997 for reviews). Stereotype threat is defined as the apprehension people experience when they feel that their behavior could confirm a negative stereotype about their group (Aronson, Quinn, & Spencer, 1998). This pressure to avoid a stereotypical performance induces a self-evaluative anxiety that impairs performance (Aronson, Quinn, & Spencer, 1998).

In the classic study, experimenters presented African American and White Stanford students with a difficult reading test, described as either diagnostic or nondiagnostic of ability (Steele & Aronson, 1995). That is, the test was purportedly a measure of ability or not related to ability. Across all conditions, the test was identical. The data indicated that under nondiagnostic conditions, test scores for African Americans and Caucasians were comparable, whereas under diagnostic conditions, the African American students underperformed. The researchers argued that for African Americans, framing the task as diagnostic evoked a negative ability stereotype, i.e. intellectual inferiority, which induced anxiety and motivation to disprove the stereotype. The removal of stereotype threat conditions, by portraying the test as simply a problem-solving task rather

than as an assessment measure, led to improved performance for the African American participants.

Similar to the results with African American participants, stereotype threat effects upon cognitive performance have been found with Latino students (Aronson & Salinas, 1998, as cited in Aronson & Steele, 2004) and Asian females, when gender rather than race was emphasized (Shih, Pittinsky, & Ambady, 1999), persons of low socio-economic status (Croizet & Claire, 1998), and the elderly when using memory tasks (Levy, 1996). In addition, White males performed less well on a mathematics task when presented immediately prior with information alleging Asian superiority in the domain (Aronson et al., 1999). These findings indicate that stigmatized group membership is not a necessary condition in order for a person to suffer from stereotype threat (Aronson et al., 1999). The stereotype threat model does not implicate group membership as the stressor. Instead, the culprits are the negative stereotypes associated with group membership that can interfere with cognitive performance. That is, it was not simply being a White male, but what being a White male alleged, inferiority to Asian students in mathematics, that proved problematic. Yet, it is important to consider that members of historically stigmatized groups likely confront negative stereotypes and the experience of stereotype threat to a far greater extent than their non-stigmatized counterparts.

Theoretical Foundations

Negative stereotypes are threatening because they propose negative, unchanging expectations about the performance of certain groups. African

Americans, for example, may feel pressed to dispel these stereotypes in situations where important tasks are tied to their race. That is, the goal is to avoid failure at all costs because failure would indicate that the stereotype has some element of truth to it. What is ironic is that it is this pressure to avoid a stereotypical performance that can interfere with cognitive functions and impair performance. It is not the case that stereotype targets actually believe the stereotype is true. Instead, individuals need only to be aware of the stereotype and its pertinence to a specific domain in order for stereotype threat to affect performance.

What conditions are necessary in order for stereotype threat to occur? Perhaps most basic and most important, group-based stereotypes must be made salient in the testing situation in order for subsequent efforts to avoid confirming the stereotypes to ensue (Aronson, Quinn, & Spencer, 1998). Steele and Aronson (1995) illustrated that negative stereotypes and their implications, rather than simply group membership, are responsible for threat effects in a series of experiments with African American college students. For example, word fragment completion and self-report trait tasks revealed that under threatening conditions, negative stereotypes are aroused and targeted individuals sought to avoid describing themselves with stereotypic characteristics (Aronson, Quinn, & Spencer, 1998; Steele & Aronson, 1995). These findings indicate that it is indeed the arousal of stereotypes and the desire to evade self-ascription to these traits that underlies cognitive underperformance, rather than an internalization of these stereotypes as a result of discrimination. In addition, four factors that appear necessary for threat effects to disrupt cognitive performance are task difficulty,

evaluation of ability, the applicability of the stereotype to the domain, and domain identification by targets (Aronson, Quinn, & Spencer, 1998).

First, it is reasonable to expect that for easy tasks, an individual would be able to cognitively manage negative ruminative thoughts and stress, and perform at a high level. However, when the task is more demanding, stress can reduce cognitive functioning (Inzlicht, McKay, & Aronson, 2004, as cited in Aronson & Steele, 2004; Schmader & Johns, 2003).

Second, the purported purpose of a test can dramatically affect test performance (for a review, see Aronson, Quinn, & Spencer, 1998). Stereotyped individuals who are led to believe, either explicitly or more subtly, that a test accurately measures ability would be concerned about failure because failure could point to the possible truth of the stereotype. To illustrate, consider the individual presented with a non-assessment task, wherein a poor performance reveals nothing about their ability and poses no danger to a valued domain.

Third, the stereotype must apply to the domain in question (Aronson, Quinn, & Spencer, 1998). For example, in the presence of known group differences or test bias, women who completed math exams and ethnic minorities who worked on difficult reading comprehension problems underperformed relative to their counterparts (Aronson, Quinn, & Spencer, 1998; Aronson & Salinas, 1997; Spencer, Steele, & Quinn, 1999). In these experiments, group differences were clearly related to task performance, which likely was perceived as threatening due to the inherent unfairness of the test.

Fourth, the domain under evaluation must be important to the individual. It may be the case that the individual values the domain to the degree that it is deemed critical to their self-image. Interestingly, “those most invested in a domain” (Aronson, Quinn, & Spencer, 1998, p. 87), who have demonstrated high achievement in the area, are conceivably most at-risk because what the stereotype alleges, namely a lack of ability, could damage their sense of self (Aronson & Good, 2001, as cited in Aronson & Steele, 2004). Logically, the consequences of poor performance in a domain are particularly damaging to the highly invested individual because the domain is core to their self-image. It may also be the case that the domain is considered important because the consequences for doing poorly are great. Consider the example of a female art student applying to college. Although she may not feel a personal investment in mathematics, it is nonetheless important to score well on the quantitative section of the SAT in order to gain admission to college.

Mediators: Anxiety and Cognitive Load

There are two proposed mediators of stereotype threat effects that are highly relevant to this dissertation study-anxiety and cognitive load. Recall that stereotype threat is defined as the apprehension people experience when they fear fulfilling a negative stereotype through a poor performance (Steele & Aronson, 1995). It would be expected, then, that stereotyped individuals should experience more arousal under stereotype threatening conditions versus non-threatening conditions. Depending on the indicator used, research evidence supports this premise. For example, Blascovich, Spencer, Quinn and Steele (2001) found that

the blood pressure of African Americans completing a cognitive test under stereotype threatening conditions rose dramatically. However, self-reported anxiety, measured after completing cognitive tasks, has often failed to indicate differences in stress (Aronson & Steele, 2004).

It is likely that arousal does exert some direct influence on cognitive performance. However, it is also likely that anxiety indirectly impacts performance through cognitive load. Difficult tasks require certain processes to function well in order for high performance to result, such as maintaining task attention, remembering facts, and using problem-solving strategies. Negative stereotypes are not simply distracting; they usurp valued resources from the task at hand. Several studies have found, for example, that stereotype threat impairs performance by diminishing working memory (Inzlicht, McKay, & Aronson, 2004, as cited in Aronson & Steele, 2004; Schmader and Johns, 2003). Put simply, negative stereotypes interfere with the cognitive processes required for high performance.

Individual Differences in Vulnerability to Stereotype Threat

It appears that negative stereotypes overwhelm the testing climate to spoil the performance of targeted individuals. But, are there individual differences in vulnerability to stereotype threat? Research suggests this is the case. First, as discussed previously, being highly invested in a domain seems to put individuals more at risk of stereotype threat (Aronson & Good, 2001, as cited in Aronson & Steele, 2004; Aronson, Quinn, & Spencer, 1998). Second, identification with one's group is linked to stereotype vulnerability (Schmader, 2002). A person who

feels connected with a particular group may feel especially impacted by stereotypes aimed at the group and therefore, they may exert greater effort to disconfirm the stereotypes.

Third, individuals vary in the ability to detect and reactions to discrimination. In other words, people judge their surroundings for evidence of prejudice and discrimination. For example, an African American seeking a new job may count the number of minority faces he sees during an interview as evidence of the employer's diversity. This difference in detecting discrimination is known as *stigma consciousness* (Pinel, 1999). Further, people not only discern situations for discrimination, but may come to expect negative outcomes to be race-linked. Mendoza-Denton and colleagues (2002) define anxious race-based expectations as *rejection sensitivity*. Higher levels of stigma consciousness and rejection sensitivity have been associated with susceptibility to stereotype threat (Aronson & Inzlicht, 2003; Brown & Pinel, 2003).

Lastly, stereotype acceptance and self-monitoring have been tied to stereotype threat susceptibility (Aronson & Steele, 2004). It is argued that an individual need not believe a stereotype to be true in order for stereotype threat effects to occur. That is, low performance does not stem from some deep feelings of intellectual inferiority that are triggered during the testing situation. However, if a person *does* suspect there is some truth to the stereotype, they may feel especially pressured to score well enough to escape a skewed judgment of their ability (Aronson et al., 1999).

Research also suggests that individuals who are low self-monitors are more vulnerable to stereotype threat. Low self-monitors are people who are “less concerned with creating positive impressions” (Aronson & Steele, p. 28). When in the presence of Whites, Black participants who were low self-monitors fared poorly on a standardized test compared with high self-monitors (Inzlicht, Aronson, Good, & McKay, 2003, as cited in Aronson & Steele, 2004). The researchers argue that because low self-monitors are less adept at maintaining favorable impressions, they are more susceptible to performance impairments when group-based differences are salient; however, they also suggest that more studies are needed in this area (Aronson & Steele, 2004).

ANXIETY, COGNITIVE INTERFERENCE, AND TEST PERFORMANCE

The exact route from stereotype awareness to cognitive underperformance is not entirely clear. However, it is argued that anxiety, as cognitive interference, impairs performance (Kurosawa & Harackiewicz, 1995; Sarason, 1980, 1984; Sarason, Pierce, & Sarason, 1996; Sarason, Sarason, Keefe, Hayes, & Shearin, 1986). Once again, according to Steele and Aronson’s definition (1995), stereotype threat is the apprehension people experience when they feel that their performance could confirm a negative stereotype about their group and show that the stereotype in question is applicable for the individual. This overwhelming, incessant concern regarding the implications of failure can tax the cognitive system, such that task attention and concentration are difficult (Carver & Scheier, 1981; Sarason, 1984, 1986; Sarason et al., 1996; Wine, 1980, 1982). For example, Blankstein and Flett (1990) found that task-related thoughts were

positively correlated to performance on an anagram task and task-related intrusive thoughts, such as “I thought about how poorly I was doing,” were negatively related to performance. Cognitive interference includes a broad range of possible thoughts, however ruminative, negatively valenced, task-related thoughts are typically those held accountable for decreased performance (Martin & Tesser, 1989).

Test anxiety research has implicated worry as the primary component correlated with performance deficits (Eysenck, 1992, 1997). Numerous studies have shown that high test anxiety is related to task distraction, difficulty in concentration, poor retrieval of knowledge content and test-taking strategies, and various psychological conditions such as depression and learned helplessness (Deffenbacher, 1980; Deffenbacher & Hazaleus, 1985; Eysenck, 1992; Kurosawa & Harackiewicz, 1995; Sarason, 1986; Tryon, 1980; Wigfield & Eccles, 1989; Wine, 1980, 1982). Coupled with the finding that stereotype activation can inhibit the retrieval of non-stereotypic information, threatened individuals may find themselves in a particularly dangerous situation (Devine, 1989; Dijksterhuis & van Knippenberg, 1996). That is, once a negative stereotype is made salient and self-evaluative anxiety ensues, it may be nearly impossible for a test-taker to escape the vicious cycle of ruminative thoughts that interfere with the task at hand—especially during the time limit of difficult, high stakes examinations. The test-taker is continually assessing his or her lack of ability and the consequences for low performance; the irony being that it is this intrusive worry, rather than a true lack of ability, that leads to failure.

In summary, negative stereotypes, aroused by the testing situation, may pose a dual threat to African Americans. Ability-related stereotypes refer to negative expectations for both the performance of one's group as a whole and for the individual members within the group. The test-taker's motivation to avoid a poor performance is thus twofold: to demonstrate that the stereotype does not characterize the individual and to challenge the veracity of the group stereotype. For the individual, negative stereotypes may endanger a valued aspect of the self-image—a view of oneself as an intelligent, competent person in the area under evaluation—and may stimulate efforts to escape failure (Steele, 1997; Steele & Aronson, 1995). In short, for a minority student, the pressure to perform well is compounded by the motivation to avoid confirming a negative stereotype. The stress of the situation heightens anxiety, which burdens cognitive resources, and spoils performance.

FOREWARNING AS AN ATTRIBUTIONAL STRATEGY

According to the stereotype threat theory, the lack of an apparent stressor may lead an individual to attribute anxiety to inability (Aronson, Quinn, & Spencer, 1998; Steele, 1997). Thinking that one has somehow reached the limits of his or her ability seems as plausible an explanation for performance difficulties as any other explanation. However, the true stressors are the negative stereotypes aroused by the evaluative situation. Perhaps, providing a clear cause for the ambiguous anxiety, or *forewarning*, may correct the misattribution that occurs and arguably, reduce anxiety and improve performance. Or, this information could possibly draw greater attention to the stereotype, increase anxiety and further

depress performance (Bargh, Chen, & Burrows, 1996). Thus, describing the stereotype threat phenomenon and specifically addressing negative stereotypes, the *true* stressor, may either alleviate test taker's arousal, or may exacerbate anxiety by highlighting the negative expectations alleged by the stereotype.

This dissertation study examines the role of forewarning, as an attribution strategy, in relation to stereotype threat effects with African American college students. Whereas other stereotype threat interventions have, for example, focused on changing beliefs about the nature of intelligence (Aronson, Fried, & Good, 2002; Good, Aronson, & Inzlicht, 2003) and ability, (Josephs & Schroeder, 1997, as cited in Aronson, Quinn, & Spencer, 1998), forewarning aims to make available a causal attribution for experienced anxiety. As the present study is primarily informed from the attribution literature, a discussion of relevant attribution reframing and forewarning methods follows.

Attributions: Dimensions and Individual Differences

The types of attributions, or causal explanations, that individuals make are influenced by environmental and personal factors (Pintrich & Schunk, 1996). External factors include performance feedback and social norms information whereas personal factors include prior knowledge and personality traits. These factors influence the explanations people use to account for certain outcomes (Pintrich & Schunk, 1996). For example, prior knowledge can be thought of as a summary of past, personal experiences. This information reduces the load on cognitive processing by providing typical or probable explanations for behavior. Only events that deviate from past experiences, especially those with important

and potentially negative outcomes, would require novel attributions (Weiner, 1986).

Attributions, which have been categorized along three dimensions, function largely to protect self-esteem and maintain a favorable self-image (Weiner, 1986; Weiner & Graham, 1999). The causal dimensions that the bulk of research has concerned are locus of control, whether a cause stems from the individual or is external; stability, how a cause varies over time; and controllability, whether the cause is amenable to modification (Weiner, 1986; Weiner & Graham, 1999). Various combinations of these dimensions may yield preferred attributional styles (Weiner & Graham, 1999). An individual, for instance, may have a well-developed reservoir of “excuses” ready for negative academic outcomes. Self-handicapping is the situation in which individuals craft conditions that invite failure, yet cannot be chalked up to their ability (Arkin & Baumgardner, 1985, as cited in Weiner & Graham, 1999). An example would be watching television instead of studying so that poor test performance could be credited to a lack of preparation rather than incompetence. Another strategy for self-image protection that may be used by stigmatized groups is attributing negative outcomes to external factors—the “system blame” response to group-based discrimination suggested by Ogbu (1986).

Research has also focused on the individual differences underlying causal attributions. Trait variables that have been associated with causal cognitive processes are causal uncertainty and attributional complexity (Fletcher, Danilovics, Fernandez, Peterson, & Reeder, 1986; Weary & Edwards, 1994;

Weiner & Graham, 1999). Causal uncertainty is a person's belief about their ability to comprehend cause-effect relations in the social world (Weary & Edwards, 1994; Weiner & Graham, 1999). Weary and Edwards (1994) argue that such beliefs may be chronically salient for some individuals, may be increased in situations where uncontrollability or ambiguous causality seems present, and may prompt information-seeking processes (Weary & Edwards, 1994; Weary & Jacobson, 1997; Weiner & Graham, 1999). Attributional complexity is defined as an individual's desire to undergo causal searches (Fletcher, Danilovics, Fernandez, Peterson, & Reeder, 1986). To distinguish these constructs, whereas causal uncertainty concerns the ability to understand causal relationships, attributional complexity concerns the motivation to seek out causal information (Weiner & Graham, 1999). Empirical research supports that strategic seeking of diagnostic information can reduce causal uncertainty (Weary & Jacobson, 1997). Moreover, attributional complexity has been linked to adaptive mental health outcomes (Weiner & Graham, 1999).

For the present study, forewarning about stereotype threat serves as an external factor to guide attributions away from personality inability. Theoretically, forewarning of stereotype threat effects may provide the diagnostic information to reduce attributional ambiguity and anxiety (Crocker & Major, 1989). Rather than crediting the experienced arousal to an internal, stable, uncontrollable cause (intellectual inability), the threatened individual may ascribe the anxiety to an external, situational cause (presence of a negative stereotype). This line of reasoning aligns well with other attributional reframing interventions

in the stereotype threat and academic performance literature. For example, the test performance of African American and White college students were compared as a function of whether they had been informed that the ability under evaluation was either “fixed” or “expandable” (Aronson, 1999, as cited in Aronson, Fried, & Good, 2002). The results indicated that those given the “expandable” perspective solved more test items correctly and reported less anxiety than those in the “fixed” condition (Aronson, 1999, as cited in Aronson, Fried, & Good, 2002). The “expandable” view of intelligence yielded long-term benefits, in terms of enjoyment of schooling and grade point averages, for African American college students in subsequent research (Aronson, Fried, & Good, 2002). Likewise, providing information to freshmen that grades generally improve across the collegiate years, an expandable view of ability, led to improved scores on a performance measure, reduced attrition, and increased grade point averages throughout the sophomore year (Wilson & Linville, 1982).

In the preceding studies, the interventions focused on attributing academic outcomes to a malleable, controllable cause–effort. Unlike these studies, however, the forewarning strategy in this dissertation study provides information to allow for an attribution to an external, situational cause.

The stereotype threat model depicts salient negative stereotypes as the sources of anxiety on critically important tasks. The danger of possibly fulfilling the stereotype is the true stressor, yet the threatened individual misattributes the stress to inability. It could be the case that forewarning test-takers about stereotype threat effects could correct this error in causality and reduce anxiety,

by providing a less ominous attribution for low performance. Specifically, rather than that crediting performance difficulties and anxiety to what the negative stereotype alleges, forewarning could allow threatened individual to ascribe the anxiety to a situational, externally-based impediment-the true stressor. Yet, it is unclear whether external sources are better at attenuating stress when they are framed as a *true* or *false* stressor. Demonstrations of placebo effects, as well as ineffective, attribution reframing studies exemplify this dilemma.

Experimental Manipulations of Attributions for Arousal

Attribution therapies have been experimentally manipulated to explore the relationship between perceived arousal source and anxiety. In a classic study, Schacter and Singer (1962) depicted the remarkable link between arousal and experience of arousal. Participants were injected with epinephrine, an excitatory chemical, or with a placebo. The chemical was referred to as a vitamin supplement called “suproxin.” A subset of these groups was informed of the physiological effects of the supplement, including heart palpitations and hand tremors. As the effects of the drug occurred, the informed participants naturally ascribed their physiological experiences to the drug. The uninformed participants, however, had no clear cause for the experienced effects. Also, a stooge was brought into the study who had also been injected with “suproxin,” and acted either angrily or in a joyous manner. When the uninformed participants were asked how they felt, those who witnessed the angry stooge, described feeling angry and behaved in a similar fashion. Those who observed the joyful stooge

described feeling happy and acted accordingly. The results of this experiment point to the importance of causal ascriptions for arousal.

In another study, participants were given a local anesthesia before having dental surgery (Gerdes, 1979). The participants also received a dose of adrenaline, which heightened arousal, or no adrenaline. Half of the patients were told the adrenaline was the source of the arousal and half were told nothing concerning the arousal. The results indicated that informed participants who received the adrenaline reported less anxiety than those who received the adrenaline with no such warning, and at nearly the same level as those who received no adrenaline at all.

Other studies have demonstrated the importance of causal ascriptions for arousal. For example, Savitsky, Medvec, Charlton, & Gilovich (1998) found that participants who were motivated to attribute experienced arousal to an external source, “white noise,” expressed greater confidence in their signal detection ability than those who could not ascribe their arousal to a neutral source. In yet another study, Weiner and Samuel (1975) found that highly anxious test-takers led to ascribe arousal effects to a placebo pill outperformed their peers who were not afforded this attribution, and at the same level as less anxious participants. These findings indicate how an ambiguous source of arousal can lead to a causal search, in which environmental cues can play an important role.

The use of forewarning in examining seemingly *automatic* cognitive processes has yielded inconsistent findings. Forewarning participants about the halo effect and rewarding them for not demonstrating its effects were ineffective

(Wetzel, Wilson, & Kort, 1981). For example, a person may consider another person attractive and therefore also competent, smart, and likeable. In another study, Sharpe and Adair (1993) found that experimental instructions, which detailed the existence of the hindsight bias in judgment (i.e. “I-knew-it-all-along”) did not increase resilience to its biasing influence. Interestingly, altering the instructions to motivate a “never-knew-that” attribution did reduce the hindsight bias in general knowledge judgments. The aforementioned studies suggest that forewarning may be effective inasmuch as an alternate, reasonable attribution is given. Providing information about the biasing phenomenon along with disincentives for demonstrating these biases did little to change the attributional processes perhaps because an alternate causal explanation was not given. The forewarning strategy in the present research provides information about stereotype threat to specifically distinguish this attribution from the prevailing one—that the test-taker exemplifies a negative stereotype about African Americans.

The Use of Forewarning in Persuasion, Medical, and Physiological Studies

The success of a particular forewarning strategy may be specific to the type of phenomenon or process involved. In persuasion studies, the content of the forewarning message may reference a persuader’s message or persuader’s intent (Papageorgis, 1968). The forewarning debatably provides the opportunity for counter-attitudinal thoughts prior to the presence of the persuader, resulting in resilience to the persuader’s message (Petty & Cacioppo, 1977, 1979). For example, normally persuasive arguments have been shown to have little effect if

the recipient learns beforehand of the persuader's intent (e.g., Cialdini & Petty, 1981).

Other factors have been considered in relation to forewarning and persuasion resilience. Experimental evidence has indicated that warnings are successful in reducing persuasion when presented prior to the persuader's message, rather than considering oppositional thoughts after the persuader's presentation (Kiesler & Kiesler, 1964). In addition, forewarning has been shown to be most effective when the topic under consideration is personally involving and there is no distraction during the forewarning session (Apsler & Sears, 1968; Chen, Reardon, Rea, & Moore, 1992; Romero, Agnew, & Insko, 1996; Watts & Holt, 1979). Thus, the positioning, content, and importance of the forewarning message may alter attitudinal responses.

Medical research has also provided some encouraging findings regarding forewarning effects, with respect to physiological responses and health outcomes. Waid (1979) found that forewarning of a noxious stimulus reduced skin conductance response and approximations of stimulus intensity. Research conducted by Ison, Sanes, Foss, & Pinckney (1990), revealed that forewarning of a shock to the forehead produced differential responses in the startle blink reflexes of participants, which suggests that forewarning may provoke a state of sensory preparation depending on the neural pathways that are aroused. In another study, children's anticipatory anxiety was found to be related to postoperative reports of pain such that those with more realistic expectations of pain apparently had shorter postsurgical hospital stays (Palermo & Drotar, 1996). Thus, the

importance of knowing what to expect from a variety of physiological stimuli seems related to decreased anxiety and positive health outcomes.

Although support for attribution techniques for stress reduction is widespread, there remains uncertainty about the effectiveness of attribution therapies used to treat a variety of conditions, such as shyness (Brodz & Zimbardo, 1981) and speech anxiety, (Olson, 1988; Olson & Ross, 1988) and inconsistent findings have occurred (for reviews, see Ross & Fletcher, 1985; Ross & Olson, 1981). On the one hand, forewarning may be beneficial because it removes attributional uncertainty and related stress. On the other hand, forewarning may call greater attention to a stressor and increase anxiety. Forewarning about stereotype threat has shown some early promise. In a recent poster session, Johns and Schmader (2004) reported that teaching about stereotype threat maintained the math performance of women testing under stereotype threatening conditions. This finding, though preliminary, suggests that attributions for arousal, especially those with ambiguous causes, greatly influence the experience of and reactions to the arousal. It is this reasoning that drives this study of forewarning as an intervention against stereotype threat.

THE ROLE OF SELF-COMPASSION IN DEFLECTING SELF-IMAGE THREATS

Beyond the situational influence on test performance, negative stereotypes can undermine the long-term academic success of African Americans through the process of *academic disidentification* (Steele, 1997). Members of certain groups, such as minorities and women in mathematics and sciences, are well aware of the negative stereotypes that confront them and that others may judge them through a

stereotypical lens (Crocker, Major, & Steele, 1998). Overcoming these obstacles is necessary in order to attain academic success. It is no surprise that these individuals may not only value and take pride in their accomplishments, but also view intellectual ability as a self-defining characteristic. That is, one may see herself as a “a math person.” What is surprising is that a strong academic track record seems not to provide resilience against stereotype threat effects (Aronson & Steele, 2004; Steele, 1997). Rather, the most academically talented students may be those most vulnerable to the threat that negative stereotypes pose, as they have the most to lose (Aronson & Steele, 2004; Aronson, Quinn, & Spencer, 1998). This threat stems not from an endorsement of the stereotype by the targeted individual, but rather from the importance placed upon disconfirming the stereotype in order to maintain the integrity of the self-image and to avoid being judged stereotypically by others (Aronson & Steele, 2004; Aronson, Quinn, & Spencer, 1998; Steele, 1997; Steele & Aronson, 1995). Thus, a vicious paradox regarding academic identification may ensue. Strong identification with academics may put minority students at risk of stereotype threat experiences and chronic stereotype experiences may lead to poor achievement.

A secondary aim of this dissertation study is to explore the identification processes that underlie stereotype threat and to examine a potential remediation factor. Because stereotype threat and disidentification stem from efforts to protect the self-image, most interventions can be characterized as serving image-maintenance functions. That is, they reframe attributions about intelligence or ability (Aronson, Fried, & Good, 2002; Good, Aronson, & Inzlicht, 2003), for

example, to reduce the possibility of viewing oneself poorly in a particular area. The reasoning behind such an approach is that students who view intelligence as expandable (e.g. “The mind is a muscle, the more you work it, the smarter you get”) are more likely to develop a love of learning that will carry them through the highs and lows of academic performance and prevent attrition. This allows a student to stay connected to mathematics despite failure because failures are viewed as opportunities for learning rather than evidence that one will never be good at math.

Reframing perspectives on intelligence and learning have been shown to benefit both minority and non-minority students, from the junior high school through undergraduate levels (Aronson, Fried, & Good, 2002; Good, Aronson, & Inzlicht, 2003). Such interventions promote academic success and identification by encouraging students to value learning and to see themselves as scholars in development. Implicit in this reasoning is that a flexible view of one’s intelligence and abilities serves a protective function and allows academic identification to take hold and flourish.

Rather than simply shielding the self-image from impending threats, an alternate approach may be to reframe the importance of self-image maintenance. A recently developed construct, called *self-compassion*, suggests a new direction for dealing with the achievement-threat paradox (Neff, 2003). In this model (Neff, 2003), healthy attitudes toward the self arise from being mindful or keenly aware of one’s experiences (Mindfulness), showing kindness and understanding to the self when failures occur (Self-Kindness), and noting the universal qualities

of human experiences (Common Humanity). As discussed below, a person who exemplifies high self-compassion may be more resilient to stereotype threat effects.

The Self-Kindness component, as opposed to Self-Judgment, calls for understanding of personal difficulties rather than harsh criticism (Neff, 2003). It is argued that because the source of stress is ambiguous under threatening conditions, test-takers may attribute the anxiety to personal inability. Perhaps, the self-compassionate individual would not be as apt to look for personal deficiencies when anxious feelings arise.

The Common Humanity tenet relates to the stereotype threat experience, wherein the test-taker tries to undo a legacy of societal stereotypes through an individual performance. Being able to identify the universality of the experience, rather than feeling isolated, may reduce the pressure on the single individual to avoid a stereotypical performance. The self-compassion model through its emphasis on Mindfulness also addresses the most malicious aspect of the stereotype threat situation. The cognitive abilities of the test-taker are arguably most affected by the negative, ruminative thoughts regarding the consequences for failure. Mindfulness calls for both positive and negative thoughts and feelings to be considered, but the individual does not “run away” with them. This discernment rather than incessant, critical judging of the self, or Overidentification, would allow a test-taker to concentrate on the task at hand and perform at a desirable level. Therefore, self-compassion may yield interesting

insights into the mechanisms that underlie stereotype threat and direct a new line of prevention research.

Using the measure developed by Neff (2003), the present research examines the relationship between self-compassion and post-test anxiety and cognitive interference (see Appendix A). It is expected that under both non-threatening and threatening test conditions, self-compassion will be negatively related to anxiety and cognitive interference. However, a stronger correlation between self-compassion and anxiety and cognitive interference is expected for the stereotype threat testing condition. State anxiety will be measured as the score on an adapted version of the State-Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970). Cognitive interference will be measured by the score on the task-related items from the Cognitive Interference Questionnaire (Sarason, Sarason, Keefe, Hayes, & Shearin, 1986, see Appendix B).

Also, this study explores the relationships between self-compassion and social identity, measured by the Social Identity Profile (Seagal, 2001, see Appendix C) and rejection-sensitivity, as measured by the Rejection Sensitivity Questionnaire-Race (Mendoza-Denton, Downey, Purdie, Davis, & Pietrzak, 2002, see Appendix D).

Previous research has indicated that social identity is a negative predictor of test performance under stereotype threat conditions. That is, the more one feels tied to and representative of one's cultural group-the group targeted by negative stereotypes-the greater the pressure to avoid a stereotypical performance, which subsequently depresses test performance. Self-compassion, however, may be a

boon to test-takers by assuaging performance-demand pressures. Thus, an interesting question is whether there is a relationship between self-compassion and social identity for African Americans.

Further, studies have cited a link between stereotype threat vulnerability and readiness to detect and expectations to experience discrimination. It is possible that self-compassion could disrupt stereotype threat by allowing stereotype detection to occur, but not the heightened anxiety and emotionality that typically follow. Therefore, an interesting question concerns the relationship between self-compassion and anxious expectations of race-based outcomes, defined as rejection sensitivity.

Chapter Three: Method

RESEARCH OVERVIEW

The primary aim of this dissertation study is to investigate forewarning as a preventive technique against stereotype threat. There are three main research questions to address. First, does forewarning of stereotype threat reduce or intensify threat effects upon verbal test performance among African Americans? And, does forewarning of stereotype threat, with specific mention of prevalent societal stereotypes, affect cognitive test performance differently than a forewarning of general effects of test anxiety, with no specific reference to negative ability stereotypes? Second, does forewarning negatively impact the performance of participants testing under non-evaluative conditions? Third, does forewarning, either of stereotype threat or test anxiety, influence self-reported measures of state anxiety and cognitive interference?

A secondary aim of the study is to examine the relationship between self-compassion and cognitive stress, as measured by state anxiety and cognitive interference. Because self-compassion is characterized as having an empathic understanding of one's difficulties and shortcomings and being keenly aware of one's thought processes, it is expected that self-compassion may deflect stereotype-related stress. It is predicted that under both non-threatening and threatening test conditions, self-compassion will be negatively correlated with anxiety and cognitive interference, yet under threatening test conditions, the

magnitudes of the correlations will be greater. Also of interest in the study is how self-compassion may predict group-based identity and rejection-sensitivity.

PROCEDURES IN BRIEF

Study participants included African American undergraduates at a large, predominantly White university. Participants first completed two sets of background questionnaires, sent approximately ten days apart via postal mail. The first survey packet included a request for participants' consent to obtain their academic records, including college entrance exam scores and cumulative grade point average. Next, participants scheduled a one-hour lab session by signing up on a department subject pool bulletin board or via email with the experimenter. The experimenter informed participants that each lab session would include a total of four participants. In actuality, each participant took part in the lab session alone. This misinformation was given in order to boost participant motivation to read the forewarning message and in their work on the reading task during the lab session. Approximately two days prior to the lab session, each participant was sent a "reminder" email that contained the various forewarning messages. These messages provided a forewarning of stereotype threat, a forewarning of general test anxiety, or a control passage that discussed healthy habits during college. Participants were asked to read these texts in order to prepare for a group discussion during the lab. At the outset of the lab, participants were asked to complete three questions to ensure that comprehension of the forewarning message. The session experimenter then presented a reading task, described as either diagnostic or non-diagnostic of ability. The task instructions differed in

order to create a stereotype threatening or non-threatening testing climate. In addition, the experimenter explained to the stereotype threat testing group that the reading tests would be graded and the participants would share their scores with the three other members of the lab session. All participants were given a 21-item with a 20-minute time limit. Following the test, participants were given a set of scales that addressed state anxiety, interfering thoughts, and items to assess performance evaluations and strategies. Finally, participants were fully debriefed and thanked for completing the study.

PARTICIPANTS AND DESIGN

The study was conducted at a large southwestern university. Study participants were 66 undergraduates (age: $M = 20.4$ years, $SD = 1.61$), who identified themselves as African American. The sample was 78.8% female, 13.6% freshman, 25.8 % sophomore, 18.2% junior, and 42.4% senior. Participants completed the study in exchange for course research credit or a small monetary incentive. The study, advertised as a “College and Academic Life Study,” purportedly focused on various aspects of undergraduate life. Participants were informed that they would be asked to complete two sets of surveys, to read a short text, and to take part in a lab group session.

The study assumed a 3 (Forewarning message: forewarning-stereotype threat, forewarning-test anxiety, or no forewarning) x 2 (Test condition: stereotype threat vs. no threat) between-subjects, fully-crossed factorial design, yielding six experimental cells. Participants were randomly assigned to

the six experimental conditions, resulting in an approximately equal number of participants per condition.

SURVEYS AND BACKGROUND INFORMATION

Surveys were distributed in two rounds approximately ten days apart. The first set of surveys included an adapted version of the Motivation Trait Questionnaire Short (Heggstad & Kanfer, 2000, see Appendix E), a measure to assess identification with academics and perceptions of test bias (Appendix F), and the Social Identity Profile (Seagal, 2001). In addition, participants were asked for consent to obtain college entrance examination scores and cumulative grade point average, and also to report their SAT and/or ACT scores. Consent for the release of academic records was requested prior to the laboratory session to remove the possibility of an experimental influence on willingness to provide such information and/or misinformation in self-reported scores.

The adapted version of the Motivation Trait Questionnaire-Short (MTQ-Short) used in this study includes two factors, Personal Mastery and Motivation Anxiety. The Personal Mastery factor is comprised of the subcomponents, Desire to Learn (I prefer activities that provide me the opportunity to learn something new) and Mastery (I set goals as a way to improve my performance). This subscale was included to account for individual differences in learning goals, which could possibly mediate the impact of stereotype threat on performance. The Motivation Anxiety factor includes two subscales for Worry (I worry about the possibility of failure) and Emotionality (I am unable to concentrate fully in stressful situations). Items are responded to on a 6-point Likert scale from 1 (*very*

untrue of me) to 6 (*very true of me*). This measure was included in order to control for trait anxiety when examining the influence of the forewarning messages on self-reported state anxiety following the reading test. Motivation Anxiety and Personal Mastery scale scores were calculated as the sum of their subscales.

The MTQ-short is a highly reliable and valid measure of achievement motivation (Kanfer & Ackerman, 2000). However, the MTQ-short was originally piloted with a sample that did not include African Americans. Also, some of the items used wording related to an occupational context. For this study, the few items related to a work context were replaced with a school context.

The Social Identity Profile (SIP) examines the perceptions of stigmatized group members toward their group (Seagal, 2001). This measure was developed with a collegiate sample, including African Americans. An individual completing the measure is asked to indicate group membership from among a list and then to respond to the items in reference to that group. The 20-item measure, which features a Likert-type response scale from 1 (*strongly agree*) to 7 (*strongly disagree*), includes four subscales: Centrality, Internal Regard, Sense of Belonging, and External Regard. Centrality focuses on the importance of group membership to the sense of self, “My ___ identity is tied to nearly every other aspect of myself.” Internal Regard concerns the sense of pride in one’s group membership, “I am proud that I am ___.” Sense of Belonging relates to feelings of connectedness and affiliation with other group members, “I am a valuable member of the ___ community.” External Regard examines an individual’s

beliefs about the perception of the group by non-group members, “Others tend to feel positively about ____.” The SIP yields two factor scores, Social Identity Strength (SIS), including Centrality, Internal Regard, and Sense of Belonging, and External Regard. Seagal (2001) demonstrated that Social Identity Strength correlates positively with Collective Self-Esteem (Luhtanen & Crocker, 1992), involvement with other group members, and Stigma Consciousness (Pinel, 1999). External Regard correlates negatively with Stigma Consciousness and positively to Collective Self-Esteem (Seagal, 2001).

The second set of surveys consisted of the Self-Compassion Scale (Neff, 2003), a scale to assess stereotype vulnerability (Appendix G), the Causal Uncertainty Scale (Weary & Edwards, 1994, see Appendix H), and the Rejection Sensitivity Questionnaire-Race (Mendoza-Denton, Downey, Purdie, Davis, & Pietrzak, 2002).

Self-compassion focuses on having healthy attitudes towards oneself and others through empathic understanding and kindness (Neff, 2003). The Self-Compassion Scale is comprised of six subscales: Self-Kindness, Self-Judgment, Common Humanity, Isolation, Mindfulness, and Overidentification. Self-Kindness includes items such as, “I’m tolerant of my own flaws and inadequacies.” The Common Humanity items include for example, “When things are going badly for me, I see the difficulties as part of life that everyone goes through.” An example from the Mindfulness subscale is, “When I fail at something important to me I try to keep things in perspective.” The response scale is 5-point, from 1 (*almost never*) to 5 (*almost always*). An overall self-

compassion score is calculated as the sum of the six subscale means, with reverse coding for self-judgment, isolation, and overidentification items (Neff, 2003). Self-Compassion is negatively related to measures of trait anxiety, depression, and fear of failure, and positively related to self-esteem (Neff, 2003). It was expected that higher levels of self-compassion could possibly inoculate individuals against the anxiety and cognitive interference tied to the stereotype threat phenomenon.

The Causal Uncertainty Scale (CUS) assesses beliefs “about one’s uncertain or inadequate ability to fully understand or detect causal relations in the social world” (Weary & Edwards, 1994, p. 309). The scale is comprised of 14 items, such as “I often feel like I do not have enough information to come to a conclusion about why things happen to me,” with a 6-point response scale from 1 (*strongly disagree*) to 6 (*strongly agree*). The two factors underlying the scale distinguish between causal uncertainty about one’s own and others’ outcomes (Edwards, Weary, & Reich, 1998). The internal consistency estimates for both factors, the CUS-own and CUS-others are adequate, Cronbach’s alpha .82 and .79, respectively. CUS-own has stronger positive relationships with depression, perceived lack of control, trait anxiety, intolerance/discomfort with ambiguity, locus of control, neuroticism than CUS-others (Edwards, Weary, & Reich, 1998). Also, CUS-own is inversely related to self-esteem, desire for control, decisiveness, agreeableness, and openness to experience (Edwards, Weary, & Reich, 1998). The CUS measure was included in this study because forewarning may provide the necessary information to reduce attributional ambiguity and

related anxiety—especially for those individuals with chronically salient uncertainty beliefs.

The Rejection Sensitivity Questionnaire-Race (RSQ-Race) “assesses individual differences in anxious expectations of race-based rejection” (Mendoza-Denton, Downey, Purdie, Davis, & Pietrzak, 2002). The questionnaire presents 12 scenarios, and in each, respondents are asked whether they would be anxious about a negative outcome tied to their race, from 1 (*very unconcerned*) to 6 (*very concerned*) and also whether they would expect to be rejected due to their race, from 1 (*very unlikely*) to 6 (*very likely*). An example scenario is “Imagine you have just finished shopping, and you are leaving the store carrying several bags. It’s closing time, and several people are filing out of the store at once. Suddenly, the alarm begins to sound, and a security guard comes over to investigate.” Respondents are then asked to indicate, “How concerned or anxious would you be that the guard might stop you because of your race/ethnicity?” and “I would expect that the guard might stop me because of my race/ethnicity,” according to the aforementioned scale. The overall score on the RSQ-Race is calculated as the mean of the product scores, concern/anxiety by likelihood expectation, for the 12 items. The RSQ-Race exhibits strong reliability and validity, Cronbach’s alpha = .90. Mendoza-Denton et al. (2002) found that RSQ-Race scores for African Americans were positively related to perceiving race-based negativity and emotional reactivity tied to the negative events, and positively related to ethnic identity. Individuals high in race-based rejection sensitivity may be particularly

vulnerable to stereotype threat, making this an important individual variable to take account of in this study.

PROCEDURE

Forewarning Message Treatment

The researcher informed participants that the lab session would include individual tasks and a group discussion with three other participants. Participants were told that two days prior to their lab session, an important “reminder email” would be sent that would provide instructions for the session and a short text to read in preparation for the group discussion. The text included the Forewarning message. The two forewarning experimental groups received a text titled “Living with Tests” (see Appendixes I and J). The control group’s text was titled “College and Nutrition.” Participants were asked to become familiar with the main ideas presented in the text and were provided with the text titles assigned to the other lab group members, all of which were seemingly related to academic life. A sample statement from the reminder email message is listed below.

During the session, you will be asked to complete and evaluate academic tasks, and to take part in a group discussion with three other participants. In preparation for the group discussion component of the session, you are asked to read a short text and to know the main ideas presented in the text before you attend the lab session. The title of your text is “Living with Tests”. The text is listed below. Your lab session group members will have read: Resources for Writing Term Papers, Analyzing Financial Aid Packages, and The Art of Taking Notes. Your text is short and should only take a few minutes to read. Please read it well enough to know the main points of the text.

The creation of an imagined discussion group was used to increase the likelihood that participants would read the forewarning message carefully, to increase task effort on the reading test, and to enhance the evaluative component of the stereotype threatening test situation. During the debriefing portion of the study, a majority of participants indicated that the possibility of a group discussion during the lab motivated them to work hard on the reading task and prompted them to read the forewarning message carefully.

Participants were randomly assigned to a Forewarning Message condition, either reading a short text about stereotype threat or general test anxiety, or a control passage. For the participants in the forewarned-stereotype threat condition, the text titled “Living with Tests,” described the stereotype threat theory and the negative effects of stress on cognitive performance, making specific reference to African Americans and the negative stereotype about the intellectual inferiority of this group. Other groups linked to stereotype threat effects, such as Latinos, women in mathematics, and White males when compared with Asians in mathematics, were also included to discourage suspicion that the research explicitly focused on African Americans as a racial group. The forewarned-test anxiety participants read a text also titled “Living with Tests” that explained the negative effects of test anxiety on cognitive performance but made no mention of negative stereotypes or any racial/ethnic group. The forewarned-stereotype threat and forewarned-test anxiety texts differed only in that the forewarned-stereotype threat text contained a brief excerpt from *Newsweek* interview with Dr. Claude Steele, who described the stereotype threat

phenomenon. The control condition participants read a text titled “College and Nutrition” that discussed healthy eating habits and fitness options during college.

Lab Sessions

The lab sessions began approximately two weeks after survey data was collected. A female experimenter greeted participants upon their arrival. The experimenter informed the participant that the three other participants had already arrived and escorted the participant to an individual study room. The experimenter explained that during the lab session, participants would first work on several academic tasks individually and then take part in the group discussion.

Forewarning Treatment Manipulation Check. As a manipulation check of the forewarning message treatment, the experimenter presented the participant with the first academic task, which was to complete three reading comprehension items based on the forewarning message (see Appendix K). The experimenter reviewed the participant’s responses and stated, “It appears that you reviewed the passages and are prepared to discuss them with the group.”

Testing Condition Treatment. Participants were randomly assigned to complete a reading comprehension test under stereotype threatening or non-threatening conditions. The experimenter read the task instructions aloud.

Task Instructions for Non-threatened Group. For participants testing under non-threatening conditions, the activity was framed simply as a problem-solving task. Each participant in this treatment group was told the following:

We are interested in the psychology of problem solving. This is not an assessment measure; we are simply interested in how you approached the reading problems. At the end of this session, we will discuss the reading

problems as a group. The group discussion component will work best if you give a strong effort on the task. Again, this is not a test of your ability. Instead we are interested in how undergraduates work on these types of problems.

Participants were asked to complete the information listed on the test booklet cover including age, gender, college/school, major, and year of study.

Task Instructions for Stereotype Threatened Group. For participants testing under the stereotype threatening condition, the experimenter explained the following:

We are interested in the psychology of problem solving. You are asked to complete a reading comprehension test. At the end of this session, the four participants will be brought together. The researcher will grade the tests. Each participant will report his or her test grade to the group. The group will discuss the different problem types on the test. Similar tests have revealed group differences and because this is an important consideration, racial/ethnic group membership designation is requested. A racial/ethnic group designation section is included on the test booklet.

Participants were asked to complete the information listed on the test booklet cover including age, gender, college/school, major, year of study, and race/ethnicity.

All participants were allotted 20 minutes to complete a challenging, 21-item exam (see Appendix L), composed of reading comprehension items drawn from a Graduate Record Exam practice guide (Educational Testing Service, 2002). The experimenter left the room while the participant worked on the test, stopping in only to notify the participant when 5 minutes remained in the testing period.

Post-Test Questionnaires and Debriefing. Following the test, the participants were given a short set of surveys to complete including items adapted from the State-Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970), the Cognitive Interference Questionnaire (Sarason, Sarason, Keefe, Hayes, & Shearin, 1986, see), and additional items concerning test-taking strategies (Appendix M), test performance expectations and identification with verbal abilities (Appendix N). Upon completion of the surveys, the experimenter explained the true purpose of the study and the participant was fully debriefed.

It is important to note that the experimenter was not blind to participant assignments to the forewarning message or testing conditions. First, in the event that a participant had forgotten to read the forewarning text, the experimenter would need to present the appropriate text at the beginning of the lab session. Second, the task instructions for the reading comprehension test were read aloud. The four female experimenters in the study interacted with participants as little as necessary during the lab session, only to deliver and collect study materials, provide task instructions, and debrief the participants.

Chapter Four: Results

FOREWARNING COMPREHENSION AND RECALL

This manipulation check examined whether participants recalled and understood the content of the forewarning messages. At the start of the lab session, participants were asked to complete three questions regarding the forewarning text, presumably to prepare for the group discussion (see Appendix K). The forewarning-test anxiety and forewarning-stereotype threat groups received the same set of questions while the control group answered questions pertaining to good health practices in college. For the two experimental groups, the first two items were multiple-choice questions, “Which of the following best describes the effects of stress and anxiety on test performance?” and “What relationship exists between stress factors and test performance?” The final question provided for an open response, “Please briefly describe below, in 1-2 sentences, what you think is the main idea of the reading passage.” Only one participant incorrectly answered one of the multiple-choice questions. All participants were able to summarize the main ideas of their assigned forewarning message in the open-ended response indicating that all participants did recall and comprehend the forewarning treatment messages.

READING TEST PERFORMANCE

This experiment examined the impact of forewarning on the reading test performance of African American undergraduates under threatening and non-threatening test conditions.

To begin data analyses, three assumptions had to be met. The first assumption was independence of observations. Because the participants were randomly selected from a large pool, it was assumed that the observations were independent. The second assumption was the normal distribution of the dependent variables. The 1-Sample Komolgorov-Smirnoff test was conducted for the dependent variables, (i.e. number correct on the reading test, performance accuracy, state anxiety, and cognitive interference) for each of the six experimental groups and over all groups. These tests yielded p-values greater than .05 indicating that the dependent variables were normally distributed. The third assumption, homogeneity of variance, was addressed using Levene's test. The F-values for the aforementioned dependent variables were not statistically significant at the .05 level, indicating that the homogeneity assumption was met.

As practiced in the stereotype threat literature, multiple indicators of performance were examined in this study (e.g., Brown & Pinel, 2003; Inzlicht & Ben-Zeev, 2000, 2003; Spencer, Steele, & Quinn, 1999; Steele & Aronson, 1995). First, performance was defined merely as the raw number correct on the reading test, adjusted by SAT composite score, which was a measure of prior preparation and ability. Second, performance was defined in terms of accuracy, the number correct divided by the total number attempted, which was considered a more sensitive indicator of performance.

A third type of performance indicator commonly used, which adjusts the number correct with a penalty for incorrect responses, was not included in this study. This type of indicator requires that participants indicate on the answer

sheet which responses are “guesses.” The participants in this study represented a wide range of ability levels, with a substantial number of participants enrolled in college skills development courses. In a pilot study using a similar sample, participants completed a reading test comprised of Graduate Record Exam (GRE) level items at a high level of difficulty, as typically used in stereotype threat experiments with college students. This resulted in a significant floor effect on scoring. For the present study, to allow for maximum variability in participant scoring, items that were correctly answered by 50 % or more of GRE test takers in the general population were included. Despite the reduction in item difficulty, the 21-item reading test can be viewed as a challenging test for the undergraduates in the study, given the 20-minute time limit. Considering the test difficulty and time limit provided, including a request to indicate which responses were “guesses,” which would take time away from problem-solving, was deemed unnecessary.

The measures of stereotype vulnerability, academic identification, and the External Regard subscale of the Social Identity Profile exhibited poor internal consistency, as indicated by Cronbach’s alpha, and were excluded from subsequent analyses (see Table 1). The Personal Mastery subscale of the MTQ-Short was not related to the primary or secondary dependent variables in the study and will not be discussed further (see Table 2 and Table 3). Also, the scores on the Causal Uncertainty Scale indicated a consistent pattern across all participants. Because of the lack of variability on this measure, it was excluded from further analysis.

Performance-Number Correct

The most critical comparison to address in this study was whether forewarning participants about stereotype threat would influence reading test performance under stereotype threat testing conditions as compared to the control group. To examine this question directly, a variable representing the six interaction conditions (Forewarning Message X Test Condition) was created and a planned contrast was conducted (using contrasts of 0 1 0 -1 0 0) to compare test performance, defined as the raw number of correct test responses by forewarned-stereotype threat versus the control group in the stereotype threat testing condition (for an example, see Brown & Pinel, 2003). Composite score on the SAT was moderately correlated with reading test scores and this correlation did not significantly differ by experimental condition (see Table 2). Thus, SAT composite score, as an indicator of prior ability, was deemed an appropriate covariate to include in the analysis. A discussion of the use of SAT composite score is presented below. An alpha level of .05 was used for the ANCOVA. This analysis was statistically significant, $F(1, 59) = 3.97, p < .05$, such that the forewarned-stereotype threat adjusted scores ($M = 12.81, SE = .70$) surpassed those for the control group in the stereotype threat condition ($M = 10.63, SE = .85$).

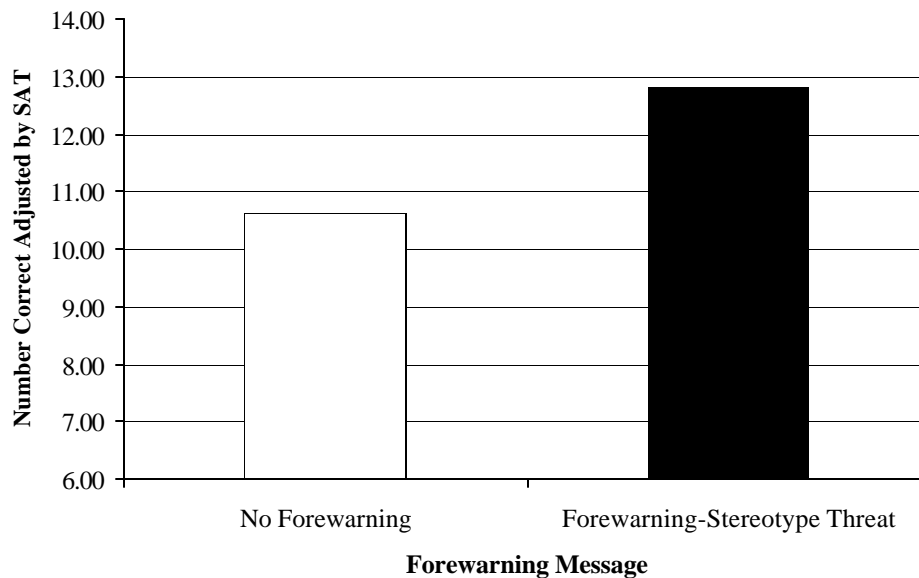


Figure 1. Adjusted performance scores, defined as the number correct on the reading test corrected for SAT composite, as a function of forewarning message and test condition.

It was necessary to use the SAT composite score, calculated as the verbal and math subscales combined, rather than the verbal subscale score only, as a covariate in the test performance and performance accuracy analyses for several reasons. First, 5 participants in the study did not consent to release their academic records but did provide estimates of their subscale scores. To determine whether self-reported scores would be accurate substitutes for the official scores, the correlation between official SAT scores and reported SAT scores for participants who provided both sets of information was examined. This analysis indicated a

high correlation between the scores, $r = .88$, $p < .001$; thus, the self-reported scores were substituted for official SAT scores for those 5 participants.

Second, 5 participants who had consented to have their academic records released had only completed the ACT college entrance exam, which is a composite score. To retain these participants in this small sample, ACT scores were converted to composite SAT scores using an online conversion chart (www.eguidancecounselor.com). The correlation between SAT composite scores and ACT scores for those who had records on file for both tests was calculated. This analysis revealed a strong correlation between the scores, $r = .93$, $p < .001$, indicating a high level of accuracy for the score conversion.

Third, I examined the correlation between official SAT verbal subscale scores and overall SAT scores and found a strong relationship, $r = .90$, $p < .001$. Finally, in the data obtained in this study, SAT composite scores were significantly related to the number correct on the reading test, $r = .75$, $p < .001$ and to test performance accuracy, $r = .47$, $p < .001$. Also, SAT composite score was a significant predictor of test performance accuracy, $F(1,59) = 19.51$, $p < .001$, partial $\eta^2 = .13$. Thus, to retain the data for the 10 participants described above, it was necessary to utilize SAT composite scores, rather than simply using SAT verbal scores as an indicator of prior ability, and SAT composite score emerged as an important variable to control for in my analyses.

Grade point average (GPA) was considered as an alternate measure of prior ability. The correlation of GPA with the dependent variable number correct was moderately strong $r = .31$, $p < .02$, but GPA and test performance accuracy

were not related $r = .17$, $p = .20$. Also, nine participants did not have GPA scores on file with the university, due to being first-year or transfer students. For these reasons, I chose not to include this variable in the analyses.

Performance Accuracy

This study sought to address the following questions: first, whether forewarning about stereotype threat, which specifically references the negative stereotype of African Americans' intelligence, affects African American undergraduates' cognitive performance differently than a forewarning about general test anxiety and whether forewarning spoils performance when testing under non-threatening conditions. These questions required the examination of all combinations of the experimental groups. Thus, a 3 (Forewarning Message: forewarning of stereotype threat, forewarning of test anxiety, no forewarning) X 2 (Testing Condition: stereotype threat, no stereotype threat) ANCOVA was performed on performance accuracy, defined as the number correct divided by the total number of attempted items on the reading test. Composite score on the SAT was again included as a covariate in the analysis. The ANCOVA indicated no statistically significant main effects for forewarning message $F(2, 59) = 1.38$, $p = .26$ or testing condition $F(1, 59) = .25$, $p = .62$. However, the ANCOVA did reveal a significant forewarning message by testing condition interaction, $F(2, 59) = 4.29$, $MSE = .02$, $p < .02$, eta-squared = .13.

Subsequent post-hoc analyses using the Bonferroni adjustment were performed to examine the interaction effects. First, a comparison of the two groups revealed that the participants testing under the stereotype threat conditions

($M = .60$) scored less well than the non-threatened participants ($M = .71$) - a replication of the stereotype threat effect on performance. Second, performance accuracy did not significantly differ across the 3 groups in the non-threatening conditions: forewarned-stereotype threat ($M = .66$), forewarned-test anxiety ($M = .62$), and the control group ($M = .71$), $ps > .28$. This finding suggests that forewarning, either of stereotype threat or test anxiety, does not impair baseline performance. Third and most important, under stereotype threatening test conditions, participants forewarned about stereotype threat ($M = .76$) outscored those who were not forewarned ($M = .60$), $p < .02$, and participants forewarned about test anxiety ($M = .69$) outscored those in the control group ($M = .60$), however, this group difference was not statistically significant, $p = .31$.

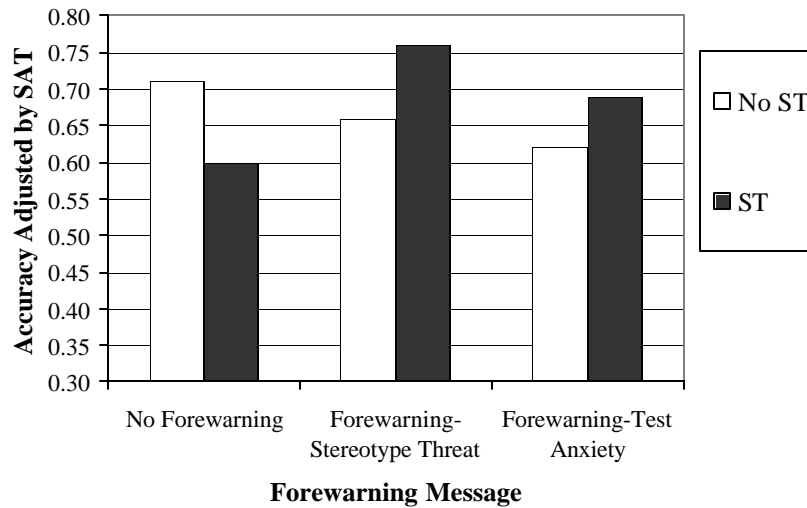


Figure 2: Adjusted accuracy scores, corrected for SAT composite scores, for the control group and forewarned-stereotype threat groups in the stereotype threat testing condition.

SELF-REPORTED ANXIETY AND COGNITIVE INTERFERENCE

Anxiety

Did the experimental treatments influence self-reported scores of anxiety? A 3 (forewarning message) X 2 (test condition) ANCOVA was performed on anxiety, as indicated by a mean score on the state anxiety measure, with two covariates included in the analysis, a self-compassion overall score and a motivation anxiety score. Self-compassion and motivations anxiety were moderately correlated with state anxiety and because these correlations did not

differ as a function of experimental conditions, both were included as covariates in the analyses (see Table 3). It should be noted, self-compassion was negatively related to motivation anxiety, $r = -.59$, $p < .001$. No relationship between composite score on the SAT and anxiety scores was relationship and therefore, SAT score was not used as a covariate in the analyses. Forewarning message and testing conditions did not reveal significant main effects; however, a significant forewarning message by testing condition interaction emerged, $F(2, 56) = 3.17$, $p < .05$, $MSE = .32$, eta-squared = .10.

Post-hoc analyses were conducted on the adjusted anxiety scores using the Bonferroni correction. These analyses revealed no significant difference between the two control groups, (i.e. non-threatening versus threatening conditions; $MS = 2.03$ and 1.79 , $p = .34$, respectively). Also, for participants testing under the 3 non-threatening conditions, self-reported anxiety did not significantly differ as a function of forewarning message: forewarned-stereotype threat ($M = 1.72$), forewarned-test anxiety ($M = 1.82$) and the control group ($M = 2.03$), $ps > .61$.

Participants forewarned about stereotype threat reported significantly greater anxiety when testing under threatening conditions ($M = 2.35$) than when testing under non-threatening conditions ($M = 1.72$), $p < .02$. Interestingly, for those testing under threatening conditions, those forewarned about stereotype threat ($M = 2.35$) reported marginally *higher* levels of anxiety than those who were not forewarned ($M = 1.79$), $p = .09$. Those forewarned about test anxiety ($M = 2.18$) did indicate greater anxiety than the control group ($M = 2.35$), but this group difference was not statistically significant, $p = .42$.

Cognitive Interference

Because task-related cognitive interference is a proposed mechanism underlying stereotype threat effects, I examined the influence of the experimental forewarning messages and testing conditions upon participants' self-reported cognitive interference scores. Once again, a 3 (forewarning message) X 2 (test condition) ANCOVA, with self-compassion and motivation anxiety scores used as covariates, was conducted on the dependent variable (i.e. mean score on the task-related items on the CIQ). Composite score on the SAT was examined as a potential covariate in these analyses, but this variable did not significantly correlate with cognitive interference scores. The ANCOVA indicated no significant main effects for forewarning group and no significant forewarning message by testing condition interaction, $F_s < 1$, ns.

SELF-COMPASSION

Anxiety and Cognitive Interference

It was expected that self-compassion could possibly protect students from the stress related to stereotype threat testing situations. I predicted that for participants testing under non-threatening or threatening conditions, there would be a negative relationship between self-compassion and anxiety and between self-compassion and cognitive interference, but that these correlations would be stronger under threatening test conditions. It was not expected that self-compassion and forewarning message would interact.

In the preceding section, self-compassion exhibited a strong relationship with the dependent variable anxiety and was used as a covariate in

the ANCOVA analysis. The correlation between self-compassion and anxiety did not significantly differ as a function of experimental group, making self-compassion an appropriate variable to use as a covariate. Under both non-threatening and threatening test conditions, there was an inverse relationship between self-compassion and anxiety (see Table 3). Yet, the relationship was stronger under threatening, $r = -.44$, than non-threatening test conditions, $r = -.37$. This pattern remained when the effects of forewarning condition and motivation anxiety were partialled out. Unlike the analysis of anxiety scores, self-compassion was overall a relatively weak predictor of cognitive interference. Yet, once again, the correlation between self-compassion and cognitive interference was stronger under threatening, $r = -.61$, than non-threatening test conditions, $r = -.20$.

Group-Based Social Identity, Rejection Sensitivity, and Motivation Anxiety

Correlation coefficients were calculated among overall self-compassion scores, Social Identity Strength, Rejection Sensitivity-Race, and Motivation Anxiety (see Table 4). The Bonferroni method was used to control for Type I error across the pairwise comparisons such that a p-value of less than .005 was necessary for statistical significance. The results indicated that self-compassion related positively to Social Identity Strength, $r = .41$, $p < .001$, which included the Centrality, Internal Regard, and Belongingness aspects of the Social Identity Profile. Also, self-compassion scores did not relate to Rejection Sensitivity-Race scores, $r = -.06$, $p = .64$. As stated previously, self-compassion was inversely related to Motivation Anxiety, $r = -.59$, $p < .001$. Two participants who failed to

complete all items on the aforementioned scales were not included in these analyses.

SUMMARY OF RESULTS

The results of the study suggest that foreknowledge helps African American students resist stereotype threat effects on cognitive performance. Cognitive performance was measured as the score on a challenging, timed reading test. Performance differences emerged among the experimental groups when reading score was defined simply as the raw number correct and when defined in terms of accuracy (i.e. the raw number correct divided by the number attempted). Under threatening testing conditions, those forewarned about stereotype threat performed best. The average number correct and accuracy were higher for participants forewarned about test anxiety than the control group, but this difference was not statistically significant. In addition, it did not appear that foreknowledge undermined cognitive performance under non-evaluative conditions-the forewarning treatment groups did score less well than the control group yet not to a statistically significant degree.

Post-test measures of state anxiety and task-related cognitive interference were included to examine the impact of the different forewarning treatments on cognitive stress, a theoretical mediator of stereotype threat's effects on performance. Group differences in cognitive interference were not revealed. However, a surprising finding did emerge regarding state anxiety, when controlling for pre-test worry, emotionality, and self-compassion: participants

forewarned about stereotype threat reported feeling *more* anxious than either those forewarned about test anxiety.

The study also examined the influence of self-compassion upon cognitive interference and anxiety. The results revealed negative relationships between self-compassion and anxiety and between self-compassion and cognitive interference, under both threatening and non-threatening conditions. However, the magnitude of these correlations was greater under threatening conditions than under non-threatening test conditions, as predicted.

Also, the relationships among self-compassion and several individual difference factors were explored (see Table 4). First, it was found that self-compassion positively related to the Social Identity Strength (SIS) component of the Social Identity Profile. The SIS component includes belongingness, internal regard, and centrality subscales. Second, self-compassion was not related to race-based rejection sensitivity. Recall that the rejection sensitivity measure examines worry and expectation of race-linked negative outcomes. Third, self-compassion was inversely related to motivation anxiety, which included subscales for worry and emotionality. Because higher levels of self-compassion are theoretically associated with the ability to keep one's affective responses and cognitions in balance, the negative relationship between self-compassion and trait motivation anxiety is reasonable.

Chapter Five: Discussion

Research has shown that efforts to dispel stereotypes can negatively impact cognitive performance, a phenomenon called stereotype threat (Aronson, Quinn, & Spencer, 1998; Steele, 1997; Steele & Aronson, 1995). Specifically, stereotype threat is defined as the apprehension people experience when they feel that their behavior could confirm a negative stereotype about their group (Aronson, Quinn, & Spencer, 1998; Steele & Aronson, 1995). This apprehension has been linked to underperformance on cognitive tasks and has been offered as an explanation for the achievement gap between White students and their minority counterparts. What is unique about stereotype threat is that it points to aspects of the testing climate, a “threat in the air” (Steele, 1997), as responsible for performance impairments.

In recent years, research concerning stereotype threat has burgeoned. While the stereotype threat effect on performance has been reliably demonstrated, evidence to support its theoretical underpinnings has proven less forthcoming. Yet, it is generally believed that negative stereotypes incite a cognitive pressure that undermines cognitive performance. The main purpose of this dissertation was to investigate whether foreknowledge of stereotype threat would provide resilience to stereotype threat effects for African American undergraduates. My reasoning was that cognitive pressure results in part from attributional ambiguity. That is, the lack of apparent stressor in stereotype threat situations may lead an individual to attribute anxiety to inability (Aronson, Quinn, & Spencer, 1998;

Steele, 1997). However, this is an incorrect attribution. The true stressor is the negative stereotype regarding African Americans' intelligence. I questioned, then, whether clearing up this misattribution, by telling test takers about stereotype threat, would lead to improved performance. It was also plausible that this information could make the situation worse, by drawing greater attention to the negative stereotype and increasing stress. Put simply, the question was whether the adage "forewarned is forearmed" would be true when applied to stereotype threat.

OVERVIEW OF THE CURRENT FINDINGS

The results of this study indicate that being forewarned about stereotype threat does benefit African American undergraduates testing under evaluative conditions according to two measures of performance, number correct on a reading test and accuracy. Also, it appears that a less specific forewarning message, which referenced only general test anxiety, did lift performance, however not to a level statistically better than the control group. Further, the performance of the two forewarning experimental groups did not differ from the control group when testing under non-evaluative conditions. This evidence supports that forewarning does not impair baseline performance.

Post-test measures of state anxiety and task-related cognitive interference were included to examine the impact of the forewarning treatments on cognitive stress, the theoretical mediator of stereotype threat's effects on performance. For those testing under non-threatening conditions, the forewarning groups did not report significantly different levels of state anxiety. In addition, no differences in

state anxiety were noted between the non-threatened and threatened control group. This is not a surprising finding in that many stereotype threat studies have failed to find differences in anxiety levels when self-report measures are used. Studies that have been successful in demonstrating stereotype threat-related stress responses have used other indicators, such as blood pressure (e.g. Blascovich, Spencer, Quinn, & Steele, 2001). Yet, one exciting finding regarding self-reported anxiety did emerge from the data. Among those testing under threatening conditions, those forewarned about stereotype threat indicated feeling more *anxious* than those not forewarned. This result is surprising only in that it was believed that forewarning could rescue performance under threatening conditions only by reducing cognitive stress. How is it, then, that performance improved *and* anxiety increased?

It may be that heightened anxiety and improved performance are not incompatible. Being told that due to one's racial group and the negative expectations regarding the group's intelligence, one may underperform on critical tasks is certainly information that could make an individual apprehensive. Yet, it may be nonetheless beneficial. Forewarning was argued to influence performance by reducing the attributional ambiguity of the stereotype-threatening situation. Reporting greater anxiety, for these participants, may have stemmed from the ability to articulate their experiences because the forewarning message simply provided a clear explanation for experienced stress.

The process by which forewarning improves performance may include two steps. First, the forewarning information may prompt members of

stigmatized groups to be aware of possible stereotype threatening situations and anxious feelings. That is, individuals first appraise the situation and assess their responses to the situation. Second, the information provides the correct attribution for experienced stress. Instead of chalking up anxiety to inability, which could begin a ruminative cycle of self-doubt, anxiety is appropriately attributed to negative, group-based stereotypes, the “threat in the air” (Steele, 1997). Although the first step in the process may heighten anxiety, because surveying a situation for race-based danger is stressful, the second step may provide the resources necessary to cope with the stress. Because the coping resources exceed the threat, the anxiety does not interfere with cognitive functioning. That is, forewarning may initially increase anxiety, but the anxiety is managed such that performance is maintained. Participants were also asked about their feelings of stress and thoughts that occurred during the test, using the task-related items from the Cognitive Interference Questionnaire (CIQ). Unfortunately, a post-test coping measure was not included in this study. Please note that group differences in reported task-related cognitive interference were not revealed. It may be that the CIQ did not have sufficient sensitivity to measure differences among groups. It is also likely that because the CIQ was presented after the state anxiety items, group differences in stress were entirely captured by the anxiety measure.

It is possible that the forewarned-stereotype threat group was more willing to report anxiety, but that differences in *experienced* anxiety did not occur. First, it may be the case that reporting that one has been negatively impacted during a

psychology experiment, especially one that concerns racial stereotypes, is undesirable. Perhaps, participants forewarned about stereotype threat felt more comfortable in reporting performance pressure experienced during a race-related task. Second, being forewarned about the negative influences of stress on performance may have cued participants in to the idea that anxiety was a topic of interest in the study and that reporting anxiety was not something to avoid. The forewarning messages were provided to participants only a couple of days prior to their laboratory sessions. This procedure was followed to ensure that participants were given enough time to consider and understand the forewarning text, but not so long that the main ideas of the text would be forgotten. However, by packaging the forewarning and the lab session into one study, it was reasonable to expect that participants would note the link between them and act accordingly. In other words, forewarned participants may have indicated more anxiety because they believed this response was what the researchers were interested in. Non-forewarned participants, to contrast, would not have been tipped off to this demand characteristic. A better procedure for the study may have been to provide the forewarning message and to run the laboratory sessions in two seemingly unrelated studies. In this scenario, it would be more likely that reported stress would be tied to actual stress rather than some demand characteristics of the study.

It is also important to note that the anxiety finding was only marginally significant, $p < .09$. With a larger sample size, this statistic could easily become non-significant. Considering that no statistically significant difference in reported

anxiety was found between the control group when testing under non-threatening versus threatening conditions, this argument seems plausible.

The study also focused on the relationship between self-compassion and cognitive stress. It was expected that under non-threatening testing conditions, self-compassion scores would be inversely correlated with post-test measures of cognitive stress, but that under threatening conditions, the magnitude of these correlations would be greater. Correlational analyses support these predictions. Self-compassion scores were negatively related to both indicators of cognitive stress. However, these relationships were stronger under threatening conditions than under non-threatening test conditions. In addition, self-compassion scores were negatively associated with motivation anxiety, which includes trait measures of worry and emotionality.

Self-compassion appears to either assuage or prevent evaluative stress, which may be exacerbated in situations where one's race is made task-relevant. Whereas forewarning may improve performance reducing worry, self-compassion may be more effective in reducing emotional reactivity. Although self-compassion was not related to test performance in this study, it may still prove beneficial in disrupting stereotype threat. Worry, rather than affect, has been tied to cognitive impairments, as illustrated by research in test anxiety. Yet, physiological symptoms, such as a racing heartbeat or sweaty palms, may provide the first cues to an individual that a stressful event is occurring. In fact, the sweaty palms may prompt the individual to start the process of questioning his or

her ability to do well on a test. Self-compassion may therefore curtail these initial affective responses to a stereotype threatening situation.

I also explored the relationships between self-compassion, social identity and rejection sensitivity. According to the stereotype threat theory, people who feel more connected to the group targeted by negative stereotypes are more vulnerable to stereotype threat effects. In this study, I expected self-compassion to serve a protective function against stereotype threat. Thus, an exploratory aim of the study was to investigate the relationship between a group-based risk factor, social identity, and an individual-based resilience factor, self-compassion. A significant positive relationship was found between self-compassion and social identity strength, which addresses an individual's sense of belongingness with other African Americans, the importance of being African American to their identity, and their view towards African Americans as a group. It may be that self-compassion, as well as compassion toward one's group, develops as the result of being stigmatized in society.

Finally, I was interested in comparing self-compassion scores with a measure of race-based rejection sensitivity. This measure focuses on how anxious African Americans would be that negative outcomes would be tied to their race, as depicted in a set of diverse situations, and the likelihood of the race-linked outcomes. Similar measures, such as stigma consciousness (Pinel, 1999) and items purported to measure stereotype vulnerability as a trait, have been tied to increased susceptibility to stereotype threat. The possibility that self-compassion could reduce anxiety related to expected discrimination warranted exploration.

However, results indicated no relationship between self-compassion and rejection sensitivity. The rejection sensitivity measure asks the respondent to indicate anxious feelings and likelihood expectations for race-related scenarios. It may be that self-compassion tempers anxious responses to these types of events, but may not at all influence likelihood expectations, which may account for the low correlations between these variables.

LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

Although many of the findings of this study are interesting and encouraging, there are several limitations regarding the results found. First, the sample size was quite small and power to detect differences in scoring was reduced. The major finding of the study, that forewarning about stereotype threat improves performance relative to the control group when testing under threatening conditions, did emerge from the data. This is a considerable finding considering the small sample size and heterogeneity of participant ability. However, with a larger sample size, significant differences among the forewarning conditions when testing under non-threatening test conditions may have been found. Recall that the accuracy means for the two forewarning conditions were lower than the control group under the non-threatening test conditions. Also, with a larger sample, the difference in performance accuracy between the control and forewarned-test anxiety groups and between the two forewarning groups may have become statistically significant. Also recall that under stereotype threatening conditions, the forewarned-test anxiety group

outperformed the control group and underperformed the forewarned-stereotype threat group. It is reasonable that being forewarned about the general effects of anxiety on performance would provide some protection against stereotype threat, but not as much resilience as the more specific stereotype-threat forewarning message.

A surprising result from the study was the marginally significant difference in self-reported anxiety between the forewarned-stereotype threat and control group who tested under threatening conditions. It is unclear, of course, whether this result was moving toward or moving away from the .05 level of significance. A larger sample would be needed to clarify the direction of this finding.

Second, a larger initial sample size may have enabled screening procedures to select participants who were more homogeneous in terms of ability. As stated previously, this sample was diverse in terms of prior ability. Because the study included students from a departmental subject pool and volunteers, who differed in college entrance exam scores and year of study, a wide range of ability was expected. However, with a larger number of participants, it may have been feasible to restrict participation in the study to those with a specific grade point average or percentile score on the SAT or ACT, for example.

In addition, previous self-compassion studies divided participants into high and low self-compassion groups and then examined group differences on other measures. The small number of participants in this study did not allow for such divisions. Instead, self-compassion was simply included as a covariate in the

analyses. With a larger sample, self-compassion could be used as a blocking variable, such that participants would be similar in terms of this variable. This could help to reduce the error variance in the study. An alternative would be to split the sample into a high versus low self-compassion group and use self-compassion as an independent variable in a factorial design. We could then explore the interaction between self-compassion levels and testing conditions in producing performance differences among African Americans.

The stereotype threat theory suggests that those students most identified with academics, presumably those with the highest ability, are most vulnerable to stereotype threat. The “vanguard hypothesis”, however, has been challenged by others who claim that if the stakes for performance are high enough, domain identification and ability are not necessary in order for stereotype threat effects to occur. As stated previously, a female student hoping to major in art must still score well enough on the quantitative section of the SAT to be admitted to college. In this example, she may be not at all concerned about doing well in math, but the consequences for doing poorly (i.e. not being accepted by the college) are steep enough for stereotype threat to impact performance.

The sample for this dissertation study was not large enough in order to screen participants by their academic identification, although this information was collected. Instead, the consequences for failure were raised, with the hope of creating stark differences in the testing climate of the lab sessions. The “consequence” for a poor performance on the reading test was having to share one’s score with a group of unknown peers. This consequence certainly does not

hold the weight of real-world outcomes, such as not being accepted to college or not receiving a scholarship, but it was hoped that this public evaluation component would raise the stakes for performance. A larger sample size would have allowed for the screening of potential participants according to their identification with academics along with this public evaluation manipulation.

Finally, to create a “high stakes” testing climate in the study, a “fake comparison” group was used in the study. Prior to the dissertation study, I conducted a pilot study in which participants completed a challenging reading test in small groups. The pilot study included Caucasians and Latinos. Similar to the present study, participants in the stereotype threat testing condition were told that their tests would be scored by the experimenter and that they would discuss their scores with one another. However, because the participants were allowed to sign up for a lab session of their choosing, the group contexts differed. For example, some of the sessions included only females, only Latinos, or participants who happened to be friends. These differences in group composition affected the testing climate. Some participants, for instance, simply were unconcerned about doing poorly and talking about their failures with their friends.

To remedy this situation for the dissertation study, participants were told they would take part in a lab session with three other participants. Participants were given no other information about the group except for the titles of the texts they were presumably reading in preparation for the lab session. At the beginning of the lab, participants were instructed that they would first work on tasks individually and then join the other group members to discuss the reading task. In

this paradigm, participants could not expect to be familiar with the other people in the session and possibly, the three other group members would be White. During the debriefing period, participants were asked if they thought the group was real. Several participants expressed some doubts about whether there were other people in the session, but none were completely certain the group was not real. For future studies, the group context issue could be solved by posing three confederates as the group members. Using three White confederates with African American study participants could help to raise the possibility of race-based comparisons and fuel the stereotype threat manipulation. However, it could also be the case that including non-group members may create threat-even when the task is described as non-diagnostic of ability.

There are many remaining questions to explore with future studies. First, it is important to learn the duration of forewarning's effects on performance. This dissertation study required participants to read a forewarning text approximately two days prior to a lab session. In this context, the delay between the forewarning, recall of the forewarning message, and the reading test was relatively short. Subsequent studies could address the questions as to how far in advance individuals can be forewarned and benefit from its effects on performance and whether it is best to forewarn participants multiple times in differing contexts. Also, does forewarning influence cognitive performance beyond the laboratory, resulting in higher course grades for example?

Second, studies should examine whether level of understanding and personal endorsement of forewarning messages moderate forewarning's impact

on stereotype threat. This study presented the forewarning message in a brief text and participants were asked to provide a brief description of the text's main ideas. The manipulation check questions established that all participants understood the gist of the forewarning. However, these questions did provide the means to objectively measure participants' level of understanding. Further, participants were not asked if they believed the content of the message until the debriefing session. It was merely assumed that citing a prominent psychologist in the text would confer the authority to make the forewarning credible to the participants. The majority of participants did indicate personal experiences with stereotype threat during the debriefing period, but this was, of course, part of an exchange with the experimenter.

Asking participants to consider and possibly report personal experience with stereotype threat as part of the forewarning manipulation, would have allowed participants to process the information more deeply and possibly increase their belief in the phenomena. Also, multiple forms of media, such as a video clip of Claude Steele discussing stereotype threat of interviews with African American students about stereotype threat incidents in their lives, could be used to enhance participant understanding and interest in the forewarning treatment. These procedures were not used in the dissertation study because the main focus was on the basic question as to whether mere awareness of stereotype threat could influence threat effects on performance. This is akin to picking up a leaflet describing stereotype threat a couple of days prior to taking the SAT. The next step is to explore whether forewarning's effectiveness can be improved by increasing

participant comprehension, valuing, and belief in the forewarning message. This line of study also opens the possibility to investigate whether specific recall of the forewarning message is sufficient and/or necessary in order to impact cognitive performance. It may be the case that the route from forewarning to performance is at a more covert cognitive level.

Third, forewarning is only one of many possible intervention approaches to reducing stereotype threat effects. The forewarning in this study provided a description of stereotype threat-the correct attribution for stereotype-related stress. It is unknown, however, if this attribution correction is better at improving cognitive performance than some other external attribution. For example, would African American participants benefit more from a forewarning about stereotype threat than a forewarning about the relationship between anxiety and “white noise”-a false attribution for anxiety? Also, how does forewarning stack up against other successful approaches? For example, Aronson and colleagues (Aronson, Fried, & Good, 2002; Good, Aronson, & Inzlicht, 2003) have shown that framing intelligence as malleable helps to improve the cognitive performance of stereotype targets. More interesting, it would be important to know whether combining the malleability of intelligence treatment and forewarning about stereotype threat would result in greater performance enhancements than either intervention used alone.

Fourth, the study did not include a White comparison group. In terms of the stereotype threat effect, we would expect to find that White participants would perform equally well under stereotype-threatening and non-threatening test

conditions. However, the question remains as to how forewarning influences outgroup members. It is possible that forewarning of stereotype threat could positively impact the performance of outgroup members. That is, the White participants could derive performance benefits from downward social comparisons to a stigmatized group. In a meta-analysis of stereotype threat-related studies, Walton and Cohen (2003) found that non-stigmatized groups show performance benefits when negative stereotypes about outgroups are linked to cognitive tasks. It could be the case that because forewarning addresses the link between the negative stereotype of African Americans and their underperformance on critical tasks, Whites could experience performance benefits—a phenomenon known as *stereotype lift* (Walton & Cohen, 2003). It is also possible that the performance of Whites could suffer. Knowing that the researchers have offered no alternative explanations for the underperformance of Whites (i.e. test scores are accurate representations of their ability) could impair performance. In fact, the research on stereotype lift indicates that the performance boost disappears only when the task is explicitly described as racially fair and free from group differences in scoring. Providing an explanation for the underperformance of stereotyped groups, as the forewarning text offers, is certainly not the same as describing a test as racially fair. However, the forewarning does in a sense, remove the benefit of being a member of a non-stereotyped group. An intriguing finding for future forewarning studies would be that non-stigmatized participants, the White participants, benefit more from a general forewarning about test anxiety than from a specific forewarning about

stereotype threat whereas the opposite case would hold for members of stigmatized groups.

The inclusion of White participants in the study would also be useful in determining the generalizability of forewarning's impact on performance. Recall that Aronson et al. (1999) demonstrated that White males suffered performance decrements on a math test when a comparison to Asians was made. This finding was important in illustrating that being a member of a historically stigmatized group was not necessary in order for stereotype threat to influence cognitive performance. Future studies could make use of this paradigm by incorporating a comparison between Whites and Asians in the math domain in the forewarning message and then investigating group differences in scoring on a math test among White male undergraduates. An encouraging finding is that forewarning appears to boost the performance of women testing under stereotype threat conditions (Johns & Schmader, 2004). Yet, more research is needed to address forewarning's effect on performance with other stigmatized groups and to non-historically stigmatized groups, such as White males in math.

Finally, while this study focused on the relation between forewarning and stereotype threat, it also concerned the broader question as to how foreknowledge impacts thought and behavior. Forewarning has been used with a wide variety of psychological phenomena with mixed results. This diverse literature informed the framing of the forewarning message for the present study. Despite its relative success in boosting test performance, it remains unclear as to how forewarning actually disrupts stereotype threat. It was found that self-reports of anxiety

following a threatening test were greater when participants had been forewarned about stereotype threat. This may indicate that these participants were better at articulating their experiences (i.e. forewarning provided a clear attribution for stress) or that participants were more comfortable in reporting stress in the experimental conditions. It may be the case that forewarning initially increases anxiety, the arousal being tied to determining whether a situation is threatening or not, and then provides the resources necessary to cope with and reduce cognitive stress. Discovering the mechanisms by which forewarning specifically influences the performance of stereotype targets, perhaps by reducing cognitive load, is critical not only to this line of intervention, but also to other presumably automatic responses to potential discrimination.

Table 1: Means, Standard Deviations and Internal Consistency Estimates for Scales

	Mean (Standard Deviation)	Cronbach's a	Scale Range
Motivation Trait Questionnaire-Short (n=65)			(1-5, subscales)
Personal Mastery Subscale	4.61 (.64)	.87	
Desire to Learn	4.51 (.65)	.77	
Mastery Goals	4.70 (.73)	.79	
Motivation Anxiety Subscale	3.66 (.82)	.88	
Worry	3.87 (.99)	.86	
Emotionality	3.45 (.83)	.72	
Self-Compassion Scale (n=64)	18.67 (3.95)	.83	(6-30, overall) (1-5, subscales)
Self-Kindness	3.30 (.79)	.81	
Self-Judgment	3.10 (.86)	.81	
Common Humanity	3.07 (.95)	.81	
Isolation	2.86 (1.03)	.86	
Mindfulness	3.31 (.75)	.70	
Over-Identification	3.07 (.93)	.79	
Social Identity Profile (n=65)			(1-7, subscales)
Social Identity Strength	5.79 (.83)	.87	
Centrality	5.28 (1.26)	.80	
Internal Regard	6.47 (.72)	.81	
Sense of Belonging	5.62 (1.10)	.79	
External Regard	2.77 (.85)	.42	
Rejection Sensitivity-Race (n=64)	12.17 (6.43)	.89	(1-36)
Stereotype Vulnerability (n=65)	3.73 (1.06)	.65	(1-6)
Causal Uncertainty-Own (n=64)	2.55 (.87)	.81	(1-6)
Academic Identification (n=65)	4.97 (.75)	.49	(1-6)
State Anxiety (n=66)	1.99 (.62)	.92	(1-4)
Cognitive Interference (n=66)	2.76 (.95)	.89	(1-5)

Table 2: Correlations of Composite SAT Scores, Self-Compassion, Motivation Anxiety, Personal Mastery, Rejection Sensitivity-Race, and Social Identity Strength with Accuracy and Number Correct

	N	Accuracy	Number Correct
Composite SAT Scores	66	.47**	.75**
Self-Compassion	65	.18	.08
Motivation Anxiety	65	-.06	.04
Personal Mastery	65	.10	.07
Rejection Sensitivity-Race	64	.14	.15
Social Identity Strength	65	.02	-.03

* = $p < .01$

Table 3: Correlations of Composite SAT Scores, Self-Compassion, Motivation Anxiety, Personal Mastery, Rejection Sensitivity-Race, and Social Identity Strength with State Anxiety and Cognitive Interference

	n	State Anxiety	Cognitive Interference
Composite SAT Scores	66	-.04	-.13
Self-Compassion	64	-.38**	-.36**
Motivation Anxiety	65	.33**	.45**
Personal Mastery	65	.09	.18
Rejection Sensitivity-Race	64	.10	.23
Social Identity Strength	65	-.24	-.07

* = $p < .01$

Table 4: Correlations among Self-Compassion, Social Identity Strength, External Regard, Motivation Anxiety, and Rejection Sensitivity-Race

	Social Identity Strength	External Regard	Motivation Anxiety	Rejection Sensitivity- Race
Self-Compassion	.41*	-.06	-.59**	-.06
Social Identity Strength		-.28*	-.38**	.15
External Regard			.20	-.11
Motivation Anxiety				.04

** = $p < .01$

* = $p < .05$

Appendices

Appendix A

Self-Compassion Scale

Please indicate how often you have acted in the manner stated in each of the items using the scale below. Indicate your response in the space preceding each item.

- | | 1 | 2 | 3 | 4 | 5 |
|---------|--------------|---|---|---|---------------|
| | Almost never | | | | Almost always |
| ___ 1. | | | | | |
| | | | | | |
| ___ 2. | | | | | |
| ___ 3. | | | | | |
| ___ 4. | | | | | |
| ___ 5. | | | | | |
| ___ 6. | | | | | |
| ___ 7. | | | | | |
| ___ 8. | | | | | |
| ___ 9. | | | | | |
| ___ 10. | | | | | |
| ___ 11. | | | | | |
| ___ 12. | | | | | |
| ___ 13. | | | | | |
| ___ 14. | | | | | |
| ___ 15. | | | | | |
| ___ 16. | | | | | |
| ___ 17. | | | | | |

- ___ 18. When I'm really struggling I tend to feel like other people must be having an easier time of it.
- ___ 19. When something upsets me I try to keep my emotions in balance.
- ___ 20. When I'm feeling down I try to approach my feelings with curiosity and openness.
- ___ 21. When something painful happens I try to take a balanced view of the situation.
- ___ 22. When I fail at something important to me I try to keep things in perspective.
- ___ 23. When something upsets me I get carried away with my feelings.
- ___ 24. When I'm feeling down I tend to obsess and fixate on everything that's wrong.
- ___ 25. When something painful happens I tend to blow the incident out of proportion.
- ___ 26. When I fail at something important to me I become consumed by feelings of inadequacy.

Appendix B

Cognitive Interference Questionnaire-Adapted

We are interested in the kinds of thoughts that go through people's heads when they are working on these problems. The following list includes some of the thoughts you may have had while working on the problems you just completed. Please indicate approximately how often each thought occurred to you while working on this task by placing the appropriate number in the blank provided at the left of each question.

Example: 1=never
2=once
3=a few times
4=often
5=very often

- _____ 1. I thought about how poorly I was doing.
- _____ 2. I wondered what the experimenter would think of me.
- _____ 3. I wondered how much time I had left.
- _____ 4. I thought about how I should work more carefully.
- _____ 5. I thought I should try to relax.
- _____ 6. I wondered about how others have done on this task.
- _____ 7. I thought about the difficulty of the problems.
- _____ 8. I thought about my level of ability.
- _____ 9. I thought about the purpose of the experiment.
- _____ 10. I thought about how I would feel if I were told how I performed
- _____ 11. I thought about how often I was getting confused.
- _____ 12. I thought of times I failed in the past.
- _____ 13. I thought about things completely unrelated to the experiment.

If you had any recurring thought during the test, what were they?

Please circle the number on the scale below corresponding to the degree you felt your mind wandering during the test.

1=Not at all 1----2----3----4----5----6----7
4=somewhat
7=very much

Appendix C

Social Identity Profile

PLEASE READ THESE INSTRUCTIONS CAREFULLY. This questionnaire begins by asking whether you are a member of one of several groups. Please indicate below whether any of the group memberships apply to you. If more than one group applies, CHOOSE ONE to check. Then complete the rest of the questions with this group membership in mind for each item.

Asian American
Latino/Hispanic
African American

Native American
White/Caucasian
Middle Eastern/Indian

Use this scale in answering the questions below:

1	2	3	4	5	6	7
strongly disagree	disagree	disagree somewhat	neither agree nor disagree	agree somewhat	agree	strongly agree

1. _____ I often think about being _____.
2. _____ I am glad to be _____.
3. _____ I don't have much to contribute to the _____ community.
4. _____ Being _____ has little to do with how I feel about myself.
5. _____ I am proud that I am _____.
6. _____ I don't fit in well with other _____.
7. _____ Being _____ is central to my sense of who I am.
8. _____ I feel bad about being _____.
9. _____ Other _____ usually accept me.
10. _____ My _____ identity is tied to nearly every other aspect of myself.
11. _____ Being _____ makes me feel positively about myself.
12. _____ I am a valuable member of the _____ community.
13. _____ Being _____ is not a significant part of me.
14. _____ I wish I were not _____.
15. _____ I usually feel good when I'm around other _____.
16. _____ Others tend to feel positively about _____.

17. _____ There is very little discrimination about _____.
18. _____ I frequently notice instances of discrimination against _____.
19. _____ In general, people have poor regard for _____.
20. _____ Others tend to treat _____ fairly.

Appendix D

Rejection Sensitivity Questionnaire-Race

Please read through the situations and respond using the scales below each item. For each item, consider the following and indicate your response in the space provided.

A. How concerned or anxious would you be that your race/ethnicity might influence the situation?

1	2	3	4	5	6
<i>Very Unconcerned</i>	<i>Unconcerned</i>	<i>Somewhat Unconcerned</i>	<i>Somewhat Concerned</i>	<i>Concerned</i>	<i>Very Concerned</i>

B. I would expect that my race/ethnicity would influence the situation.

1	2	3	4	5	6
<i>Very Unlikely</i>	<i>Unlikely</i>	<i>Somewhat Unlikely</i>	<i>Somewhat Likely</i>	<i>Likely</i>	<i>Very Likely</i>

1. Imagine that you are in class one day, and the professor asks a particularly difficult question. A few people, including yourself, raise their hands to answer the question.

Concerned/anxious? _____
Likelihood? _____

2. Imagine that you are in a pharmacy, trying to pick out a few items. While you're looking at the different brands, you notice one of the store clerks glancing your way.

Concerned/anxious? _____
Likelihood? _____

3. Imagine you have just completed a job interview over the telephone. You are in good spirits because the interviewer seemed enthusiastic about your application. Several days later you complete a second interview in person. Your interviewer informs you that they will let you know about their decision soon.

Concerned/anxious? _____
Likelihood? _____

4. It's late at night and you are driving down a country road you're not familiar with. Luckily, there is a 24-hour 7-11 just ahead, so you stop there and head up to the counter to ask the young woman for directions.

Concerned/anxious? _____

Likelihood? _____

5. Imagine that a new school counselor is selecting students for a summer scholarship fund that you really want. He has only one scholarship left and you are one of several students that is eligible for this scholarship.

Concerned/anxious? _____

Likelihood? _____

6. Imagine you have just finished shopping, and you are leaving the store carrying several bags. It's closing time, and several people are filing out of the store at once. Suddenly, the alarm begins to sound, and a security guard comes over to investigate.

Concerned/anxious? _____

Likelihood? _____

7. Imagine you are riding the bus one day. The bus is full except for two seats, one of which is next to you. As the bus comes to the next stop, you notice a woman getting on the bus.

Concerned/anxious? _____

Likelihood? _____

8. Imagine that you are in a restaurant, trying to get the attention of your waitress. A lot of other people are trying to get her attention as well.

Concerned/anxious? _____

Likelihood? _____

9. Imagine you're driving down the street, and there is a police barricade just ahead. The police officers are randomly pulling people over to check drivers' licenses and registrations.

Concerned/anxious? _____

Likelihood? _____

10. Imagine that it's the second day of your new class. The teacher assigned a writing sample yesterday and today the teacher announces that she has finished correcting the papers. You wait for your paper to be returned.

Concerned/anxious? _____

Likelihood? _____

11. Imagine that you are standing in line for the ATM machine, and you notice the woman at the machine glances back while she's getting her money.

Concerned/anxious? _____

Likelihood? _____

12. Imagine you're at a pay phone on a street corner. You have to make a call, but you don't have change. You decide to go into a store and ask for change for your bill.

Concerned/anxious? _____

Likelihood? _____

Appendix E

Motivation Trait Questionnaire-Adapted

This questionnaire asks you to respond to statements about your attitudes, opinions, and behaviors. Read each statement carefully, and decide whether or not the statement describes you. Using the scale at the top of each page indicate the degree to which the **ENTIRE** statement is true of you. Give only one answer for each statement.

Some of the statements may refer to experiences you may not have had. Respond to these statements in terms of how true you think it **WOULD BE** of you.

1	2	3	4	5	6
◆	◆	◆	◆	◆	◆
Very UNTRUE of Me	UNTRUE <i>of Me</i>	Somewhat UNTRUE of Me	Somewhat TRUE of Me	TRUE of Me	Very TRUE of Me

PLEASE NOTE:

- There are no right or wrong answers. Simply describe yourself honestly and state your opinions accurately.
 - In deciding on your answer, consider your life in general and not only the last few weeks or months.
 - Deciding on an answer may be difficult for some of the statements. If you have a hard time deciding, choose the answer that is **MOST** true of you.
1. _____ When I become interested in something, I try to learn as much about it as I can.
 2. _____ I set goals as a way to improve my performance.
 3. _____ When working on important projects, I am constantly fearful that I will make a mistake.
 4. _____ If I know someone is judging me, I get so focused on how I am doing that I have difficulty concentrating on the task.

5. _____ When I am learning something new, I try to understand it completely.
6. _____ If I already do something well, I don't see the need to challenge myself to do better.
7. _____ I do not get nervous in achievement settings.
8. _____ My heart beats fast before I begin difficult tasks.
9. _____ Even when I have studied hard enough to get a good grade, I study more because I want to completely understand the material.
10. _____ When learning something new, I focus on improving my performance.
11. _____ I am unconcerned even if I know that other people are forming an unfavorable impression of me.
12. _____ I have trouble relaxing because I worry about things at school.
13. _____ I like to take classes that challenge me.
14. _____ I compete with myself -- challenging myself to do things better than I have done before.
15. _____ Before beginning an important project, I think of the consequences of failing.
16. _____ I am unable to concentrate fully in stressful situations.
17. _____ I am an intellectually curious person.
18. _____ I set high standards for myself and work toward achieving them.
19. _____ I am afraid of other people noticing my shortcomings.
20. _____ I get headaches when I have a lot of important things to do.
21. _____ I prefer activities that provide me the opportunity to learn something new.
22. _____ I work hard at everything I undertake until I am satisfied with the result.
23. _____ I get nervous just thinking about having an important project evaluated.
24. _____ I am able to remain calm and relaxed in stressful situations.
25. _____ I am naturally motivated to learn.
26. _____ I do not set difficult goals for myself.
27. _____ I worry about the possibility of failure.
28. _____ I am able to remain calm and relaxed before I take a test.
29. _____ I thirst for knowledge.
30. _____ My personal standards often exceed those required for the successful completion of a project.
31. _____ I get tense when other people assess my progress.
32. _____ I get an uneasy feeling in my stomach when working toward something I really want to accomplish.
33. _____ I worry about how others will view my school performance.
34. _____ I lose sleep because I am troubled by thoughts of failure.
35. _____ I am cautious about trying to do something that could lead to embarrassment.

Appendix F

Academic Identification

1. My math abilities are important to me.

1	2	3	4	5	6
<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Somewhat Disagree</i>	<i>Somewhat Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>

2. My verbal abilities are important to me.

1	2	3	4	5	6
<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Somewhat Disagree</i>	<i>Somewhat Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>

3. Being a good student is a big part of who I am.

1	2	3	4	5	6
<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Somewhat Disagree</i>	<i>Somewhat Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>

4. I envision myself entering a career that involves strong verbal skills.

1	2	3	4	5	6
<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Somewhat Disagree</i>	<i>Somewhat Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>

5. I envision myself entering a career that involves strong math skills.

1	2	3	4	5	6
<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Somewhat Disagree</i>	<i>Somewhat Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>

6. Being good at math is an important part of my self-image.

1	2	3	4	5	6
<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Somewhat Disagree</i>	<i>Somewhat Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>

7. Having strong verbal skills is an important part of my self-image.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
<i>Strongly</i>	<i>Disagree</i>	<i>Somewhat</i>	<i>Somewhat</i>	<i>Agree</i>	<i>Strongly</i>
<i>Disagree</i>		<i>Disagree</i>	<i>Agree</i>		<i>Agree</i>

8. Overall, doing well in school has a lot to do with how I feel about myself.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
<i>Strongly</i>	<i>Disagree</i>	<i>Somewhat</i>	<i>Somewhat</i>	<i>Agree</i>	<i>Strongly</i>
<i>Disagree</i>		<i>Disagree</i>	<i>Agree</i>		<i>Agree</i>

9. Overall, being good at math has little to do with how I feel about myself.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
<i>Strongly</i>	<i>Disagree</i>	<i>Somewhat</i>	<i>Somewhat</i>	<i>Agree</i>	<i>Strongly</i>
<i>Disagree</i>		<i>Disagree</i>	<i>Agree</i>		<i>Agree</i>

10. I feel good about my academic abilities.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
<i>Strongly</i>	<i>Disagree</i>	<i>Somewhat</i>	<i>Somewhat</i>	<i>Agree</i>	<i>Strongly</i>
<i>Disagree</i>		<i>Disagree</i>	<i>Agree</i>		<i>Agree</i>

11. I feel good about my math abilities.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
<i>Strongly</i>	<i>Disagree</i>	<i>Somewhat</i>	<i>Somewhat</i>	<i>Agree</i>	<i>Strongly</i>
<i>Disagree</i>		<i>Disagree</i>	<i>Agree</i>		<i>Agree</i>

Some people believe that standardized tests like the SAT and TAAS are extremely biased against certain groups. Some people believe the tests are not at all biased. Other people's views fall somewhere in between. In your opinion, how biased (if at all) do you think tests like these are? Please circle your response on the scale.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>
Not at all		Somewhat				Extremely
Biased		Biased				Biased

If these tests are biased, against which group(s) are the tests biased and how?

Appendix G

Stereotype Vulnerability

Please read each item and circle your response on the scale provided.

1. In school I sometimes worry that if I don't perform well, people will think badly about individuals of my race/ethnicity.

1	2	3	4	5	6
<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Somewhat Disagree</i>	<i>Somewhat Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>

2. I am embarrassed to talk others about not doing well in school.

1	2	3	4	5	6
<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Somewhat Disagree</i>	<i>Somewhat Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>

3. I feel that if I do well in school, it reflects well on other members of my race/ethnicity.

1	2	3	4	5	6
<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Somewhat Disagree</i>	<i>Somewhat Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>

4. When taking tests, I worry so much about my performance that it's hard for me to concentrate.

1	2	3	4	5	6
<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Somewhat Disagree</i>	<i>Somewhat Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>

5. I sometimes feel like if I fail in school, I fail my race/ethnic group.

1	2	3	4	5	6
<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Somewhat Disagree</i>	<i>Somewhat Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>

6. I like it when teachers notice me in class.

1	2	3	4	5	6
<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Somewhat Disagree</i>	<i>Somewhat Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>

7. When people look at me they think a lot about my gender.

1	2	3	4	5	6
<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Somewhat Disagree</i>	<i>Somewhat Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>

8. In school, I never worry that people will draw conclusions about me based on what they think about my race/ethnicity.

1	2	3	4	5	6
<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Somewhat Disagree</i>	<i>Somewhat Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>

9. When I am talking to someone I don't worry what they may be thinking of me.

1	2	3	4	5	6
<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Somewhat Disagree</i>	<i>Somewhat Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>

10. I like to study with classmates who are not the same gender as me.

1	2	3	4	5	6
<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Somewhat Disagree</i>	<i>Somewhat Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>

Appendix H

Causal Uncertainty Scale-Own Outcomes

Please complete the following items according to the scale below. Indicate your response in the blank preceding each item.

1	2	3	4	5	6
<i>Strongly Disagree</i>	<i>Moderately Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Moderately Agree</i>	<i>Strongly Agree</i>

- ____ 1. I do not know what it takes to get along well with others.
- ____ 2. When I receive good grades, I usually do not understand why I did so well.
- ____ 3. I don not understand what causes most of the problems that I have with others.
- ____ 4. When I see something good happen to others, I often do not know why it happened.
- ____ 5. When I receive poor grades, I usually do not understand why I did so poorly.
- ____ 6. I do not understand what causes most of the good things that happen to me.
- ____ 7. When things go right, I generally do not know what to do to keep them that way.
- ____ 8. I often feel like I don't have enough information to come to a conclusion about why things happen to me.

Appendix I

Forewarning of Stereotype Threat Reading Passage (Experimental Condition)

Living with Tests

"No instrument smaller than the world is fit to measure men and women: Examinations measure examiners." Sir Walter Raleigh (II), *Laughter through a Cloud*, 1923.

Although we may agree with Sir Walter Raleigh's aphorism in principle, in reality, examinations are used to measure test takers, not test makers. Students often are in competition for valued commodities such as course grades and class rank; and, these accomplishments frequently lead to greater rewards such as scholarships, university admittance, and ultimately, jobs.

Examinations are a relatively easy way to "measure" the relative worth of each student, ultimately separating the chaff from the grain. Performing well on these high-stakes tests is crucial to insuring future opportunities and success. Thus, despite the aphorism, no one is immune from the anxiety and stress caused by the examinations that accompany any course of study.

Stress and anxiety have been shown to affect a person's test performance. When stress levels are too high, performance suffers. This performance impairment occurs because anxiety and accompanying physiological responses interfere with a person's ability to concentrate and focus on the task. Physiological responses, such as sweaty palms, pounding heart, and labored breathing, may be distracters in and of themselves. But, they also may serve as cues to the person's state of anxiety. This heightened awareness of anxiety may further increase the anxiety level, thus, resulting in more stress.

Certainly, some people experience more test anxiety and stress than others. High levels of stress can interfere with performance, and this may explain why some groups of people perform better in school than others. If a particular group of students must contend with more stress factors, then this group of students is at a greater risk of under-performing on examinations. For example, one theory suggests that people who are targeted by stereotypes, that suggest limited intellectual ability, actually experience greater levels of anxiety and stress during examinations.

*Excerpt from ******

Five years ago a ***** University psychologist showed [that] it is the targets of a stereotype who behavior is most powerfully affected by it. A stereotype that pervades the culture [eg. "ditzy blondes", "Blacks are not as intelligent as Whites", "forgetful seniors", "White males can't jump"] makes people painfully aware of how society views them—so painfully aware, in fact, that knowledge of the stereotype can affect how well they do on intellectual and other tasks. Now, with half a decade of additional research under their belts, psychologists are discovering the power of stereotypes not only over Blacks, but over women, members of ethnic minorities and the elderly, too... You do not even have to believe a negative stereotype to be hurt by it, psychologists find. As long as you care about the ability you're being tested on, such as golfing or math, and are familiar with the stereotype, it can sink you. What seems to happen is that as soon as you reach a tough par 3 or a difficult trig problem, the possibility of confirming, and being personally reduced to, a painful stereotype causes enough distress to impair performance.

Not only must the stereotyped individual manage the stress and anxiety that their non-stereotyped peers encounter, but the stereotyped student faces an extra burden due to their stereotyped status. The burden is this: low performance on the exam could strengthen the stereotype of the group and could indicate that the stereotype holds true for the individual. Consequently, a person's awareness of the stereotype about their group is enough to cause heightened anxiety and stress during examinations.

Thus, members of stereotyped groups may underperform on tests, not because the stereotype is true, but because the stereotype leads to stress and anxiety. Awareness of the source of the stress may help the individual manage the stress and achieve the high performance levels that lead to future opportunity and success. When individuals targeted by stereotypes feel anxious during examinations, they should recall that one component of the stress is the stereotype itself. So, if you are a member of stereotyped group and you're feeling anxious during a test, remember that it does not mean you lack the ability to succeed!

Appendix J

Forewarning of Test Anxiety Reading Passage (Experimental Condition)

Living with Tests

"No instrument smaller than the world is fit to measure men and women: Examinations measure examiners." Sir Walter Raleigh (II), *Laughter through a Cloud*, 1923.

Although we may agree with Sir Walter Raleigh's aphorism in principle, in reality, examinations are used to measure test takers, not test makers. Students often are in competition for valued commodities such as course grades and class rank; and, these accomplishments frequently lead to greater rewards such as scholarships, university admittance, and ultimately, jobs.

Examinations are a relatively easy way to "measure" the relative worth of each student, ultimately separating the chaff from the grain. Performing well on these high stakes tests is crucial to insuring future opportunities and success. Thus, despite the aphorism, no one is immune from the anxiety and stress caused by the examinations that accompany any course of study.

Stress and anxiety have been shown to affect a person's test performance. When stress levels are too high, performance suffers. This performance impairment occurs because anxiety and accompanying physiological responses interfere with a person's ability to concentrate and focus on the task. Physiological responses, such as sweaty palms, pounding heart, and labored breathing, may be distracters in and of themselves. But, they also may serve as cues to the person's state of anxiety. This heightened awareness of anxiety may further increase the anxiety level, thus, resulting in more stress.

Certainly, some people experience more stress than others. High levels of stress can interfere with performance, and this may explain why some groups of people perform better in school than others. Some individuals experience very high stress levels when presented with any type of test or evaluative task. This phenomenon is called test anxiety. Individuals high in test anxiety may be at a greater risk of underperforming on examinations due to their high anxiety rather than a lack of ability.

Consider the situation of the highly test anxious student. Not only must the test anxious student manage the same stress of studying and preparing for an important test as their peers, but also they face the extra burden of experiencing elevated anxiety simply at the presentation of the test. Consequently, this high anxiety may lead to a low performance on the test.

Thus, highly test anxious students may underperform on examinations, not because they are less capable, but because their high stress levels interfere with their task performance. Awareness of the source of the stress may help the individual to ease some of their anxiety about their ability and achieve the high performance that leads to future opportunity and success. When these individuals feel anxious during examinations, they should remember that one component of the stress is the presence of the test itself.

So, if you believe you are highly test anxious and you're feeling increased stress during a test, remember that it does not mean you lack the ability to succeed!

Appendix K

Forewarning about Stereotype Threat and Forewarning about Test Anxiety

Reading Comprehension Items

Refer to the preceding passage to answer the questions below. Indicate your answer by writing the response letter to the left of each question in the space provided.

- _____ 1. Which of the following best describes the effects of stress and anxiety on test performance?
- A. By allowing test-takers to tune out ambiguous stimuli, stress and anxiety impair test performance.
 - B. Stress and anxiety improve test performance by increasing activity in the memory recall areas of the brain.
 - C. Stress and anxiety impair test performance by interfering with concentration and task focus.
 - D. Stress and anxiety decrease inhibitions and fuel performance motivation.
- _____ 2. What relationship exists between stress factors and test performance?
- A. Increasing the number of stress factors impairs test performance.
 - B. Increasing the number of stress factors improves test performance.
 - C. Decreasing the number of stress factors impairs test performance.
 - D. None of the above.
3. Please briefly describe below, in 1-2 sentences, what you think is the main idea of the reading passage.

Appendix L

Reading Task

Please indicate the following:

Age:

Year of Study (eg. Freshman)

College (eg. Liberal Arts):

Major:

Gender:

*Race/Ethnicity:

**Stereotype Threat Condition Only*

Do Not Begin Until Instructed.

Directions: Each passage is followed by questions based on its content. After reading a passage, choose the best answer to each question. After you have decided on your response to a question, circle the letter to indicate your response. Answer all questions following a passage on the basis of what is stated or implied in that passage.

Passage 1

Zooplankton, tiny animals adapted to an existence in the ocean, have evolved clever mechanisms for obtaining their food, miniscule phytoplankton (plant plankton). A very specialized feeding adaptation in zooplankton is that of the tadpolelike appendicularian who lives in a walnut-sized (or smaller) balloon of mucus equipped with filters that capture and concentrate phytoplankton. The balloon a transparent structure that varies in design according to the type of appendicularian inhabiting it, also protects the animal and helps to keep it afloat. Water containing phytoplankton is pumped by the appendicularian's muscular tail into the balloon's incurrent filters, passes through the feeding filter where the appendicularian sucks the food into its mouth, and then goes through an exit passage. Found in all the ocean of the world, including the Arctic Ocean, appendicularians tend to remain near the water's surface where the density of phytoplankton is greatest.

1. It can be inferred from the passage that which of the following is true of appendicularians?

- (A) They are exclusively carnivorous.
- (B) They have more than one method of obtaining food.
- (C) They can tolerate frigid water.
- (D) They can disguise themselves by secreting mucus.
- (E) They are more sensitive to light than are other zooplankton.

2. The author is primarily concerned with

- (A) explaining how appendicularians obtain food
- (B) examining the flotation methods of appendicularians
- (C) mapping the distribution of appendicularians around the world
- (D) describing how appendicularians differ from other zooplankton
- (E) comparing the various types of balloons formed by appendicularians

3. According to the passage, all of the following are descriptive of appendicularians
EXCEPT

- (A) tailed
- (B) vegetarian
- (C) small-sized
- (D) single-celled
- (E) ocean-dwelling

4. The passage suggests that appendicularians tend to remain in surface waters because they

- (A) prefer the warmer water near the surface
- (B) are unable to secrete mucus at the lower levels of the ocean
- (C) use the contrast of light and shadow at the surface to hide from predators
- (D) live in balloons that cannot withstand the water pressure deeper in the ocean
- (E) eat food that grows more profusely near the surface

Passage 2

Practically speaking, the artistic maturing of the cinema was the single-handed achievement of David W. Griffith (1875-1948). Before Griffith, photography in dramatic films consisted of little more than placing the actors before a stationary camera and showing them in full length as they would have appeared on stage. From the beginning of his career as a director, however, Griffith, because of his love of Victorian painting, employed composition. He conceived of the camera image as having a foreground and a rear ground, as well as the middle distance preferred by most directors. By 1910 he was using close-ups to reveal significant details of the scene or of the acting and extreme long shots to achieve a sense of spectacle and distance. His appreciation of the camera's possibilities produced novel dramatic effects. By splitting an event into fragments and recording each from the most suitable camera position, he could significantly vary the emphasis from camera shot to camera shot.

Griffith also achieved dramatic effects by means of creative editing. By juxtaposing images and varying the speed and rhythm of their presentation, he could control the dramatic intensity of the events as the story progressed. Despite the reluctance of his producers, who feared that the public would not be able to follow a plot that was made up of such juxtaposed images, Griffith persisted, and experimented as well with other elements of cinematic syntax that have become standard ever since. These included the flashback, permitting broad psychological and emotional exploration as well as narrative that was not chronological, and the crosscut between two parallel actions to heighten suspense and excitement. In thus exploiting fully the possibilities of editing, Griffith transposed devices of the Victorian novel to film and gave film mastery of time as well as space.

Besides developing the cinema's language, Griffith immensely broadened its range and treatment of subjects. His early output was remarkably eclectic: it included not only the standard comedies, melodramas, westerns, and thrillers, but also such novelties as adaptations from Browning and Tennyson, and treatments of social issues. As his successes mounted, his ambitions grew, and with them the whole of American cinema. When he remade *Enoch Arden* in 1911, he insisted that a subject of such importance could not be treated in the then conventional length of one reel. Griffith's introduction of the American-made multireel picture began an immense revolution. Two years later, *Judith of Bethulia*, an elaborate historicophilosophical spectacle, reached the unprecedented length of four reels, or one hour's running time. From our contemporary viewpoint, the pretensions of this film may seem a trifle ludicrous, but at the time it provoked endless debate and discussion and gave a new intellectual respectability of the cinema.

5. The primary purpose of the passage is to
- (A) discuss the importance of Griffith to the development of the cinema
 - (B) describe the impact on cinema of the flashback and other editing innovations
 - (C) deplore the state of American cinema before the advent of Griffith
 - (D) analyze the changes in the cinema wrought by the introduction of the multireel film
 - (E) document Griffith's impact on the choice of subject matter in American films
6. The author suggest that Griffith's film innovations had a direct effect on all of the following **EXCEPT**
- (A) film editing
 - (B) camera work
 - (C) scene composing
 - (D) sound editing
 - (E) directing
7. It can be inferred from the passage that before 1910 the normal running time of a film was
- (A) 15 minutes or less
 - (B) between 15 and 30 minutes
 - (C) between 30 and 45 minutes
 - (D) between 45 minutes and 1 hour
 - (E) 1 hour or more
8. The author asserts that Griffith introduced all of the following into American cinema **EXCEPT**
- (A) consideration of social issues
 - (B) adaptations from Tennyson
 - (C) the flashback and other editing techniques
 - (D) photographic approaches inspired by Victorian painting
 - (E) dramatic plots suggested by Victorian theater

9. It can be inferred from the passage that Griffith would be most likely to agree with which of the following statements?

- (A) The good director will attempt to explore new ideas as quickly as possible.
- (B) The most important element contributing to a film's success is the ability of the actors.
- (C) The camera must be considered an integral and active element in the creation of a film.
- (D) The cinema should emphasize serious and sober examinations of fundamental human problems.
- (E) The proper composition of scenes in a film is more important than the details of their editing.

10. The author's attitude toward photography in the cinema before Griffith can best be described as

- (A) sympathetic
- (B) nostalgic
- (C) amused
- (D) condescending
- (E) hostile

Passage 3

A serious critic has to comprehend the particular content, unique structure, and special meaning of a work of art. And here she faces a dilemma. The critic must recognize the artistic element of uniqueness that requires subjective reactions; yet she must not be unduly prejudiced by such reactions. Her likes and dislikes are less important than what the work itself communicates, and her preferences may blind her to certain qualities of the work and thereby prevent an adequate understanding of it. Hence, it is necessary that a critic develop a sensibility informed by familiarity with the history of art and aesthetic theory. On the other hand, it is insufficient to treat the artwork solely historically, in relation to a fixed set of ideas or values. The critic's knowledge and training, are, rather, a preparation of the cognitive and emotional abilities needed for an adequate personal response to an artwork's own particular qualities.

11. According to the author, a serious art critic may avoid being prejudiced by her subjective reactions if she

- (A) treats an artwork in relation to a fixed set of ideas and values
- (B) brings to her observation a knowledge of art history and aesthetic theory
- (C) allows more time for the observation of each artwork
- (D) takes into account the preferences of other art critics
- (E) limits herself to that art with which she has adequate familiarity

12. The author implies that it is insufficient to treat a work of art solely historically because

- (A) doing so would lead the critic into a dilemma
- (B) doing so can blind the critic to some of the artwork's unique qualities
- (C) doing so can insulate the critic from personally held beliefs
- (D) subjective reactions can produce a biased response
- (E) critics are not sufficiently familiar with art history

13. The passage suggests that the author would be most likely to agree with which of the following statements?

- (A) Art speaks to the passions as well as to the intellect.
- (B) Most works of art express unconscious wishes or desires.
- (C) The best art is accessible to the greatest number of people.
- (D) The art produced in the last few decades is of inferior quality.
- (E) The meaning of art is a function of the social conditions in which it was produced.

14. The author's argument is developed primarily by the use of
- (A) an attack on sentimentality
 - (B) an example of successful art criticism
 - (C) a critique of artists' training
 - (D) a warning against extremes in art criticism
 - (E) an analogy between art criticism and art production

Passage 4

For some time scientists have believed that cholesterol plays a major role in heart disease because people with familial hypercholesterolemia, a genetic defect, have six to eight times the normal level cholesterol in their blood and they invariably develop heart disease. These people lack cell-surface receptors for low-density lipoproteins (LDL's), which are the fundamental carriers of blood cholesterol to the body cells that use cholesterol. Without an adequate number of cell-surface receptors to remove LDL's from the blood, the cholesterol-carrying LDL's remain in the blood, increasing blood cholesterol levels. Scientists also noticed that people with familial hypercholesterolemia appear to produce more LDL's than normal individuals. How, scientists wondered, could a genetic mutation that causes a slowdown in the removal of LDL's from the blood also result in an increase in the synthesis of this cholesterol-carrying protein?

Since scientists could not experiment on human body tissue, their knowledge of familial hypercholesterolemia was severely limited. However, a breakthrough came in the laboratories of Yoshio Watanabe of Kobe University in Japan in 1980. Watanabe noticed that a male rabbit in his colony had ten times the normal concentration of cholesterol in its blood. By appropriate breeding, Watanabe obtained a strain of rabbits that had very high cholesterol levels. These rabbits spontaneously developed heart disease. To his surprise, Watanabe further found that the rabbits, like humans with familial hypercholesterolemia, lacked LDL receptors. Thus, scientists could study these Watanabe rabbits to gain a better understanding of familial hypercholesterolemia in humans.

Prior to the breakthrough at Kobe University, it was known that LDL's are secreted from the liver in the form of a precursor, called very low-density lipoproteins (VLDL's), which carry triglycerides as well as relatively small amounts of cholesterol. The triglycerides are removed from the VLDL's by fatty and other tissues. What remains is a remnant particle that must be removed from the blood. What scientists learned by studying the Watanabe rabbits is that the removal of the VLDL remnant requires the LDL receptor. Normally, the majority of the VLDL remnants go to the liver where they bind to LDL receptors and are degraded. In the Watanabe rabbit, due to a lack of LDL receptors on liver cells, the VLDL remnants remain in the blood and are eventually converted to LDL's. The LDL receptors thus have a dual effect in controlling LDL levels. They are necessary to prevent oversynthesis of LDL's from VLDL remnants and they are necessary for the normal removal of LDL's from the blood. With this knowledge, scientists are now well on the way toward developing drugs that dramatically lower cholesterol levels in people afflicted with certain forms of familial hypercholesterolemia.

Line
(53)

15. In the passage, the author is primarily concerned with
- (A) presenting a hypothesis and describing compelling evidence in support of it
 - (B) raising a question and describing an important discovery that led to an answer
 - (C) showing that a certain genetically caused disease can be treated effectively with drugs
 - (D) explaining what causes the genetic mutation that leads to heart disease
 - (E) discussing the importance of research on animals for the study of human disease
16. Which of the following drugs, if developed, would most likely be an example of the kind of drug mentioned in line 53?
- (A) A drug that stimulates the production of VLDL remnants
 - (B) A drug that stimulates the production of LDL receptors on the liver
 - (C) A drug that stimulates the production of an enzyme needed for cholesterol production
 - (D) A drug that suppresses the production of body cells that use cholesterol
 - (E) A drug that prevents triglycerides from attaching to VLDL's
17. The passage supplies information to answer which of the following questions?
- (A) Which body cells are the primary users of cholesterol?
 - (B) How did scientists discover that LDL's are secreted from the liver in the form of a precursor?
 - (C) Where in the body are VLDL remnants degraded?
 - (D) Which body tissues produce triglycerides?
 - (E) What techniques are used to determine the presence or absence of cell-surface receptors?
18. According to the passage, by studying the Watanabe rabbits scientists learned that
- (A) VLDL remnants are removed from the blood by LDL receptors in the liver
 - (B) LDL's are secreted from the liver in the form of precursors called VLDL's
 - (C) VLDL remnant particles contain small amounts of cholesterol
 - (D) triglycerides are removed from VLDL's by fatty tissues
 - (E) LDL receptors remove LDL's from the blood

19. The development of drug treatments for some forms of familial hypercholesterolemia is regarded by the author as

- (A) possible, but not very important
- (B) interesting, but too costly to be practical
- (C) promising, but many years off
- (D) extremely unlikely
- (E) highly probable

20. The passage implies that if the Watanabe rabbits had had as many LDL receptors on their livers as do normal rabbits, the Watanabe rabbits would have been

- (A) less likely than normal rabbits to develop heart disease
- (B) less likely than normal rabbits to develop high concentrations of cholesterol in their blood
- (C) less useful than they actually were to scientists in the study of familial hypercholesterolemia in humans
- (D) unable to secrete VLDL's from their livers
- (E) immune to drugs that lower cholesterol levels in people with certain forms of familial hypercholesterolemia

21. The passage implies that Watanabe rabbits differ from normal rabbits in which of the following ways?

- (A) Watanabe rabbits have more LDL receptors than normal rabbits.
- (B) The blood of Watanabe rabbits contains more VLDL remnants than does the blood of normal rabbits.
- (C) Watanabe rabbits have fewer fatty tissues than do normal rabbits.
- (D) Watanabe rabbits secrete lower levels of VLDL's than do normal rabbits.
- (E) The blood of Watanabe rabbits contains fewer LDL's than does the blood of normal rabbits.

Appendix M

Personal Test Assessment and Identification Items

1. How hard did you try to perform well on the timed reading task? (Circle One)

1=Not hard at all 1-----2-----3-----4-----5-----6-----7
4=Somewhat hard
7=Extremely hard

2. In general, how difficult did you find these problems?

1=Not difficult at all 1-----2-----3-----4-----5-----6-----7
4=Somewhat difficult
7=Extremely difficult

3. How many problems did you think you solved correctly?(Out of 21)_____.

4. Compared to the average UT student, how well do you think you performed on the timed test?

1=Very poorly 1-----2-----3-----4-----5-----6-----7
4=Somewhat well
7=Extremely well

5. Compared to the average UT student, how much do you care about having the skills necessary for doing well on tests like the SAT, GRE, LSAT, etc.?

1=Not at all 1-----2-----3-----4-----5-----6-----7
4=Somewhat
7=Very much

6. Is your verbal ability important to you?

1=Not at all 1-----2-----3-----4-----5-----6-----7
4=Somewhat
7=Very much

7. Do you envision yourself entering a career that involves strong verbal skills?

1=Not at all 1-----2-----3-----4-----5-----6-----7
4=Somewhat
7=Definitely

Appendix N

Performance Strategies

There are many ways to approach reading comprehension problems. The following questions ask you to assess the way you approached the problems on the timed reading task. There are no right or wrong answers, so please be as candid as possible. Please circle your response on the scales provided

1. I tried to limit my time on problems.

1	2	3	4	5	6
<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Somewhat Disagree</i>	<i>Somewhat Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>

2. I persisted on problems until I had an answer.

1	2	3	4	5	6
<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Somewhat Disagree</i>	<i>Somewhat Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>

3. I skipped around from problem to problem.

1	2	3	4	5	6
<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Somewhat Disagree</i>	<i>Somewhat Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>

4. I felt confident in my answers.

1	2	3	4	5	6
<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Somewhat Disagree</i>	<i>Somewhat Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>

5. I read problems more than once.

1	2	3	4	5	6
<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Somewhat Disagree</i>	<i>Somewhat Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>

6. If you were to take the same type of exam again, how would you perform?

1	2	3	4	5	6
<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Somewhat Disagree</i>	<i>Somewhat Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>

7. The purpose of this study is:

References

- Apsler, R., & Sears, D. O. (1968). Warning, personal involvement, and attitude change. *Journal of Personality and Social Psychology*, 9, 162-166.
- Aronson, J., Fried, C. B., & Good, C. (2002). Reducing the effects of stereotype threat on African American college students by shaping theories of intelligence. *Journal of Experimental Social Psychology*, 38, 113-125.
- Aronson, J., Inzlicht, M. (2003; under review). The Ups and Downs of Attributional Ambiguity: Stereotype Vulnerability and Self-Knowledge. *Psychological Science*.
- Aronson, J., Lustina, M., Good, C., Keough, K., Brown, J. L., & Steele, C. M. (1999). When White men can't do math: Necessary and sufficient factors in stereotype threat. *Journal of Experimental Social Psychology*, 35, 11-23.
- Aronson, J., Quinn, D., & Spencer, S. (1998). Stereotype threat and the academic underperformance of minorities and women. In J. Swim and C. Stangor (Eds.), *Prejudice: The target's perspective* (pp. 83-103). San Diego, CA: Academic Press.
- Aronson, J. & Steele, C. M. (2004). Stereotypes and the Fragility of Academic Competence, Motivation, and Self-Concept. In A. Elliot and C. Dweck (Eds.), *The Handbook of Competence and Motivation*. New York: Wiley
- Bargh, J. A., Chen, M., & Burrows, L. (1996). Automaticity of social behavior: Direct effects of trait construct and stereotype activation on action. *Journal of Personality and Social Psychology*, 71 (2), 230-244.
- Blankstein, K. R., & Flett, G. L. (1990). Cognitive components of test anxiety: A comparison of assessment and scoring methods. *Journal of Social Behavior and Personality*, 5, 187-202.

- Blascovich, J., Spencer, S. J., Quinn, D., & Steele, C. (2001). African Americans and high blood pressure: The role of stereotype threat. *Psychological Science, 12* (3), 225-229.
- Boykin, A. W. (1986). The triple quandary and the schooling of Afro-American children. In U. Neisser (Ed.), *The school achievement of minority children*. Hillsdale, NJ: Erlbaum.
- Brodz, S. E., & Zimbardo, P. G. (1981). Modifying shyness-related social behavior through symptom misattribution. *Journal of Personality and Social Psychology, 41*, 437-449.
- Brown, R. P. & Pinel, E. C., (2003). Stigma on my mind: Individual differences in the experience of stereotype threat. *Journal of Experimental Social Psychology, 39*, 626-633.
- Carver, C. S., & Scheier, M. F. (1988). A control-process perspective on anxiety. *Anxiety Research, 1* (1), 17-22.
- Chen, H. C., Reardon, R., Rea, C., & Moore, D. J. (1992). Forewarning of content and involvement: Consequences for persuasion and resistance to persuasion. *Journal of Experimental Social Psychology, 28*, 523-541.
- Cialdini, R. B., & Petty, R. E. (1981). Anticipatory opinion effects. In R. E. Petty, T. M. Ostrom, & T.C. Brock (Eds.), *Cognitive responses in persuasion* (pp. 217-235). Hillsdale, NJ: Erlbaum.
- Crocker, J., & Major, B. (1989). Social stigma and self-esteem: The self-protective properties of stigma. *Psychological Review, 96*, 608-630.
- Crocker, J., Major, B., & Steele, C. (1998). Social stigma. In D. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *Handbook of Social Psychology*, (4th ed.). Boston: McGraw Hill.
- Croizet, J. C., & Claire, T. (1998). Extending the concept of stereotype threat to social class: The intellectual underperformance of students from low

- socioeconomic backgrounds. *Personality and Social Psychology Bulletin*, 24, 588-594.
- Deffenbacher, J. L. (1980). Worry and emotionality in test anxiety. In I. G. Sarason (Ed.), *Test anxiety: Theory, research, and applications* (pp. 349-385). Hillsdale, NJ: Erlbaum.
- Deffenbacher, J. L., & Hazaleus, S. L. (1985). Cognitive, emotional, and physiological components of test anxiety. *Cognitive Therapy and Research*, 9 (2), 169-180.
- Devine, P. G. (1989). Stereotypes and prejudice: Their automatic and controlled components. *Journal of Personality and Social Psychology*, 56 (1), 5-18.
- Dijksterhuis, A., & van Knippenberg, A. (1996). The knife that cuts both ways: Facilitated and inhibited access to traits as a result of stereotype activation. *Journal of Experimental Social Psychology*, 32, 271-288.
- Edwards, J. A., Weary, G., & Reich, D. A. (1998). Causal uncertainty: Factor structure and relation to the big five personality factors. *Personality and Social Psychology Bulletin*, 24 (5), 451-462.
- Educational Testing Service. (2002). *GRE: Practicing to Take the General Test* (10th ed.). Princeton, NJ: Author.
- Eysenck, M. W. (1992). *Anxiety: The cognitive perspective*. Hillsdale, NJ: Erlbaum.
- Eysenck, M. W. (1997). *Anxiety and cognition: A unified theory*. Hove, East Sussex: Psychology Press.
- Feagin, J. R., & Sikes, M. P. (1994). *Living with racism: The black middle class experience*. Boston: Beacon.
- Fletcher, G. J. O., Danilovics, P., Fernandez, G., Peterson, D., & Reeder, G. D. (1986). Attributional complexity: An individual difference measure. *Journal of Personality and Social Psychology*, 51, 875-884.

- Gerdes, E. P. (1979). Autonomic arousal as a cognitive cue in stressful situations. *Journal of Personality, 47*, 677-711.
- Good, C., Aronson, J., & Inzlicht, M. (2003). Improving Adolescents' Standardized Test Performance: An Intervention to Reduce the Effects of Stereotype Threat. *Journal of Applied Developmental Psychology, 24*, 645-662.
- Haney, W. M. (2000, August 19). The myth of the Texas miracle. *Education Policy Analysis Archives, 8*, Article 41. Retrieved, October 8, 2002, from <http://olam.ed.asu.edu/epaa/v8n41/>
- Heggestad, E. D., & Kanfer, R. (2000). Individual differences in trait motivation: Development of the Motivational Trait Questionnaire. *International Journal of Educational Research, 33*, 751-766.
- Herrnstein, R.J., & Murray, C. (1994). *The bell curve: Intelligence and class structure in American life*. New York: Free Press.
- Inzlicht, M., & Ben-Zeev, T. (2000). A threatening intellectual environment: Why females are susceptible to experiencing problem-solving deficits in the presence of males. *Psychological Science, 11*, 365-371
- Inzlicht, M., McKay, L., & Aronson, J. (2004). Losing Control: How being the target of stigmatization depletes the ego. Unpublished Manuscript, New York University.
- Ison, J. R., Sanes, J. N., Foss, J. A., & Pinckney, L. A. (1990). Facilitation and inhibition of the human startle blink reflexes by stimulus anticipation. *Behavioral Neuroscience, 104* (3), 418-429.
- Jencks, C., & Phillips, M. The Black-White test score gap: An introduction. In C. Jencks & M. Phillips (Eds.), *The Black-White test score gap*. Washington, DC: Brookings Institution Press.
- Jensen, A. R. (1969). How much can we boost I.Q. and scholastic achievement? *Harvard Educational Review, 39*, 1-123.

- Jensen, A. R. (1980). *Bias in mental testing*. New York: Free Press.
- Johns, M. & Schmader, T. (2004). Knowing is half the battle. Paper presented at the annual meeting of the Society for Personality and Social Psychology, Austin Texas.
- Kanfer, R., & Ackerman, P. L. (2000). Individual differences in work motivation: Further explorations of a trait framework. *Applied Psychology: An International Review*, 2000, 49 (3), 470-482.
- Kiesler, C. A., & Kiesler, S. B. (1964). Role of forewarning in persuasive communications. *Journal of Abnormal and Social Psychology*, 48, 327-335.
- Kurosawa, K., & Harackiewicz, J. M. (1995). Test anxiety, self-awareness, and cognitive interference: A process analysis. *Journal of Personality*, 63 (4), 931-951.
- Levy, B. (1996). Improving memory in old age through implicit self-stereotyping. *Journal of Personality and Social Psychology*, 71, 1092-1107.
- Luhtanen, R., & Crocker, J. (1992). A collective self-esteem scale: Self-evaluation of one's social identity. *Personality and Social Psychology Bulletin*, 18, 302-318.
- Martin, L. & Tesser, A. (1989). Toward a motivational and structural model of ruminative thought. In Uleman, J. S., & Bargh, J. A. (Eds.), *The direction of thought: The limits of awareness, intention, and control* (pp 306-326). New York: Guilford Publications.
- McNeil, L., & Valenzuela, A. (2001). The harmful impact of the TAAS system of testing in Texas: Behind the rhetoric. In G. Orfield and M. L. Kornhaber (Eds.), *Raising standards or raising barriers: Inequality and high-stakes testing in public education* (pp.127-150). New York: The Century Foundation.

- Mendoza-Denton, R., Downey, G., Purdie, V. J., Davis, A. & Pietrzak, J. (2002). Sensitivity to status-based rejection: Implications for African American students' college experience. *Journal of Personality & Social Psychology*, 83 (4), 896-918.
- Neff, K. D. (2003). Development and validation of a scale to measure self-compassion. *Self and Identity*, 2, 223-250.
- Neff, K. D. (2003). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self and Identity*, 2, 85-102.
- Neisser, U., Boodoo, G., Bouchard, T. J., Boykin, A. W., Brody, N., Ceci, S. J., Halpern, D. F., Loehlin, J. C., Perloff, R., Sternberg, R. J., & Urbina, S. (1996). Intelligence: Knowns and unknowns. *American Psychologist*, 51 (2), 77-101.
- Ogbu, J. U. (1986). The consequences of the American caste system. In U. Neisser (Ed.), *The school achievement of minority children* (pp. 19-56). Hillsdale, NJ: Erlbaum.
- Olson, J. M. (1988). Misattribution, preparatory information, and speech anxiety. *Journal of Personality and Social Psychology*, 54, 758-767.
- Olson, J. M., & Ross, M. (1988). False feedback about placebo effectiveness: Consequences for the misattribution of speech anxiety. *Journal of Experimental Social Psychology*, 24, 275-291.
- Palermo, T. M., & Drotar, D. (1996). Prediction of children's postoperative pain: The role of presurgical expectations and anticipatory emotions. *Journal of Pediatric Psychology*, 21 (5), 683-698.
- Papageorgis, D. (1968). Warning and persuasion. *Psychological Bulletin*, 70, 271-282.
- Petty, R. E., & Cacioppo, J. T. (1977). Forewarning, cognitive responding, and resistance to persuasion. *Journal of Personality and Social Psychology*, 35, 645-655.

- Petty, R. E., & Cacioppo, J. T. (1979). Effects of forewarning of persuasive intent and involvement on cognitive responses. *Personality and Social Psychology Bulletin*, 5, 173-176.
- Pinel, E. (1999). Stigma consciousness: The psychological legacy of social stereotypes. *Journal of Personality and Social Psychology*, 76 (1), 114-128.
- Pintrich, P. R., & Schunk, D. H. (1996). *Motivation in education: Theory, research, and applications*. Englewood Cliffs, NJ: Prentice Hall.
- Romero, A. A., Agnew, C. R., & Insko, C. A. (1996). The cognitive mediation hypothesis revisited: An empirical response to methodological and theoretical criticism. *Personality and Social Psychology Bulletin*, 22, 651-665.
- Romo, H., & Falbo, T. (1996). *Latino high school graduation: Defying the odds*. Austin, TX: University of Texas Press.
- Ross, M., & Fletcher, G. J. O. (1985). Attribution and social perception. In G. Lindsay & E. Aronson (Eds.), *The handbook of social psychology* (pp. 73-122). New York: Random House.
- Ross, M., & Olson, J. M. (1981). An expectancy-attribution model of the effects of placebos. *Psychological Reviews*, 88, 408-437.
- Sarason, I. G. (1980). Introduction to the study of test anxiety. In I.G. Sarason (Ed.), *Test Anxiety: Theory, Research, and Applications*, 3-13, Hillsdale, NJ: Erlbaum.
- Sarason, I. G. (1984). Stress, anxiety, and cognitive interference. Reactions to tests. *Journal of Personality and Social Psychology*, 46 (4), 929-938.
- Sarason, I. G., Pierce, G. R., & Sarason, B. R. (1996). *Cognitive interference: Theories, methods, and findings*. Hillsdale, NJ: Erlbaum.
- Sarason, I. G., Sarason, B. R., Keefe, D. E., Hayes, B. E., & Shearin, E. N. (1986). Cognitive interference: Situation determinants and traitlike

- characteristics. *Journal of Personality and Social Psychology*, 51, 215-226.
- Savitsky, K., Medvec, V. H., Charlton, A. E., & Gilovich, T. (1998). "What, me worry?": Arousal, misattribution, and the effect of temporal distance on confidence. *Personality and Social Psychology Bulletin*, 24 (5), 529-536.
- Schacter, S., & Singer, J. E. (1962). Cognition, social and psychological determinants of emotional state. *Psychological Review*, 69, 379-399.
- Scheurich, J. J., Skrla, L., & Johnson, J. F. (2000, December). Thinking carefully about equity and accountability. *Phi Delta Kappan*, 82 (4), 293-299.
- Schmader, T. (2002). Gender identification moderates the effects of stereotype threat on women's math performance. *Journal of Experimental Social Psychology*, 38, 194-201.
- Schmader, T. & Johns, M. (2003). Converging evidence that stereotype threat reduces working memory capacity. *Journal of Personality and Social Psychology*, 85, 440-452.
- Seagal, J. D. (2001). Identity among members of stigmatized groups: A double-edged sword. (Doctoral dissertation, The University of Texas at Austin, 2001). *Dissertation Abstracts International*, 62 (03), 417B. (UMI No. 3008439)
- Sharpe, D., & Adair, J. G. (1993). Reversibility of the hindsight bias: Manipulation of experimental demands. *Organizational Behavior and Human Decision Processes*, 56, 233-245.
- Shih, M, Pittinsky, T. L., Ambady, N. (1999). Stereotype susceptibility: Identity salience and shifts in quantitative performance. *Psychological Science*, 10 (1), 80-83.
- Spencer, S.J., Steele, C.M., & Quinn, D.M. (1999). Stereotype threat and women's math performance. *Journal of Experimental Social Psychology*, 35, 4-28.

- Spielberger, C. D., Gorsuch, R. R., & Lushene, R. (1970). *The State-Trait Anxiety Inventory (STAI) test manual*. Palo Alto, CA: Consulting Psychologists Press.
- Steele, C. M. (1992, April). Race and the schooling of Black Americans. *The Atlantic Monthly*, 269, 67-78.
- Steele, C. M. (1997). A threat in the air: How stereotypes shape intellectual identity and performance. *American Psychologist*, 52 (6), 613-629.
- Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology*, 69 (5), 797-811.
- Tryon, G. S. (1980). The measurement and treatment of test anxiety. *Review of Educational Research*, 50 (2), 343-372.
- Valencia, R. R., Valenzuela, A., Sloan, K., & Foley, D. (2001). Let's treat the cause, not the symptoms: Equity and accountability in Texas revisited. *Phi Delta Kappan*, 83 (4), 318-326.
- Valenzuela, A. (1999). *Subtractive schooling: U.S.-Mexican youth and the politics of caring*. Albany, NY: State University of New York Press.
- Waid, W. M. (1979). Perceptual preparedness in man: Brief forewarning reduces electrodermal and psychophysical response to noxious stimulation. *Psychophysiology*, 16, 214-221.
- Watts, W. A., & Holt, L. E. (1979). Persistence of opinion change induced under conditions of forewarning and distraction. *Journal of Personality and Social Psychology*, 37, 778-789.
- Weary, G., & Edwards, J. A. (1994). Individual differences in causal uncertainty. *Journal of Personality and Social Psychology*, 67, 308-318.
- Weary, G., & Jacobson, J. (1997). Causal uncertainty beliefs and diagnostic information seeking. *Journal of Personality and Social Psychology*, 73, 839-848.

- Weiner, B. (1986). *An attributional theory of motivation and emotion*. New York: Springer.
- Weiner, B., & Graham, S. (1999). Attribution in personality psychology. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and Research* (pp. 605-628). New York: Guilford Press.
- Weiner, M. J., & Samuel, W. (1975). The effect of attributing internal arousal to an external source upon test anxiety and performance. *The Journal of Social Psychology, 96*, 255-265.
- Wetzel, C. G., Wilson, T. D., & Kort, J. (1981). The halo effect revisited: Forewarned is not forewarned. *Journal of Experimental Social Psychology, 17*, 427-439.
- Wigfield, A., & Eccles, J. S. (1989). Test anxiety in elementary and secondary school students. *Educational Psychologist, 24* (2), 159-183.
- Wilson, T. D., & Linville, P. W. (1982). Improving the academic performance of college freshmen: Attribution therapy revisited. *Journal of Personality and Social Psychology, 42* (2), 367-376.
- Wine, J. D. (1980). Cognitive attentional theory of test anxiety. In I. G. Sarason (Ed.), *Test anxiety: Theory, research, and applications* (pp. 349-385). Hillsdale, NJ: Erlbaum.
- Wine, J. D. (1982). Evaluation anxiety: A cognitive-attentional construct. *Series in clinical & community psychology: Achievement, stress, & anxiety, 207-219*.

Vita

Jeannetta Gwendolyn Williams was born in Watertown, New York, on April 9, 1974. She is the daughter of Alice June Crabbe and William Earl Crabbe. After completing her work at Watertown High School, Watertown, New York, in 1992, she entered The University of Rochester in Rochester, New York. She received the degree of Bachelor of Arts in Psychology from The University of Rochester in May 1996. During the following years she was employed as a Program Assistant at the Jefferson-Lewis Board of Cooperative Educational Services. In August 1998 she entered The Graduate School at The University of Texas of Austin. She received a University Research Assistantship, 1999; the Bruton Fellowship, 2000-2003; and a National Science Foundation Pre-Doctoral Fellowship, 2000-2003. She earned the degree of Master of Arts in Program Evaluation from The University of Texas in December 2001. She is currently employed as an Office Assistant at the Texas Association of Secondary School Principals and also teaches psychology and social research as an adjunct faculty member for St. Edward's University.

Permanent Address: 2200 Willow Creek Drive #108, Austin, Texas 78741

This dissertation was typed by the author.