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THREAT BY ASSOCIATION: MINIMAL GROUP AFFILIATION AND ITS OUTCOME FOR STEREOTYPE THREAT

by

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THESIS

Submitted to the Graduate School

of Wayne State University,

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_____

Advisor Date

DEDICATION

This work is dedicated to Mike Califano, James Geeting, and Jason Newman.

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I would like to thank Dr. Rusty McIntyre for his many suggestions and comments that made this work possible, to my thesis advisers Dr. Pat Siple and Dr. Ira Firestone, and to my lab mates David Oberleitner and Phoebe Lin for their motivation and helpful guidance.

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CHAPTER 1

Introduction

"Stereotype threat is a general threat not tied to the psychology of particular stigmatized groups. It affects the members of any group about whom there exists some generally known negative stereotype (e.g., a grandfather who fears that any faltering of memory will confirm or expose him to stereotypes about the aged). Stereotype threat can be thought of as a subtype of the threat posed by negative reputations in general." Steele, 1997

Negative stereotypes, of which all groups suffer, are a matter of concern for individuals, specifically for those who have a stake in disproving such stereotypes. Besides often being derogatory, the negative stereotypes may cause these individuals to over-think or monitor their performance in an attempt to disconfirm such beliefs. Ironically, such attempts may cause detriments in cognitive ability or attention that may lead one to confirm those negative stereotypes. Previous research on stereotype threat, however, has examined the issue more closely and determined that negative stereotypes cause detriments for various reasons. Though useful in exploring the mechanisms of stigma-based threats, using real groups (with their own histories) does not afford researchers the ability to examine the effect of negative stereotypes for peripherally or loosely held identities. Using theories of stereotype threat and minimal group methodologies the present research aims to explore whether or not stereotype-based threats can produce similar results using experimental groups, which are relatively free of stigmatized or stereotyped histories.

Stereotype Threat

Individuals often identify closely with their race, gender, religion, as a manner of creating their place in society. Membership may be beneficial when one's group is stereotyped to be overly successful in a given domain, but a similar (though negative) effect can occur when one's group is stereotyped to be poor in another domain. Consequently, some individuals may suffer not necessarily as a function of their true ability, but rather due to the knowledge that their group has been known to perform poorly in a given task. This dilemma, often described as stereotype threat, focuses on the effect of negative stigma and how it affects the individuals to whom the stereotype would apply.

In an attempt to explain underperformance of Blacks on standardized tests, Steele and Aronson (1995) completed a series of experiments to examine how expectations that one could possibly confirm negative stereotypes about one's group would lead to underperformance on academic tasks. The first and second study involved Black and White participants and their performance in a verbal abilities test. The authors hypothesized that Blacks taking a test framed as diagnostic would perform more poorly in comparison to Blacks who took a test that was not framed as diagnostic and more poorly in comparison to Whites who heard either set of instructions. The results supported their hypotheses and showed that Black participants did show decreased performance in comparison to Blacks who were instructed that the test was not diagnostic of intellectual ability as well as to Whites (from whom test label had no effect). It should also be noted that Whites' performance did not significantly change as a function of their condition in either study. In another study they showed that when Blacks indicated their racial category on a pre-test questionnaire, those individuals

underperformed in comparison to Whites who indicated their racial category and to both Blacks and Whites that did not indicate their racial category. The authors concluded that when activated and made salient via diagnostic testing, negative stereotypes were a driving force in explaining underperformance by Blacks in comparison to those without such stereotype activation. It is notable that these seminal findings were the result of real-world group effects (i.e. African-Americans and poor math performance) and so it is possible that these effects would appear for groups to which negative stigmata were not previously known or held by targeted, or 'threatened', individuals.

Stereotype threat and related theories have argued that the threat occurs in situations for which negative stereotypes are applicable, such as domain-relevant and diagnostic testing. Individuals perceive a risk in which they may confirm a negative stigma as it relates to their group. As a result, individuals would not only confirm negative stereotypes of their group, but also confirm the applicability of the stereotype regarding their own performance. When perceiving this possibility for relevant and important domains, it may result in the decrease in ability to perform successfully. Schmader, Johns, and Forbes (2008) have proposed that stereotype threat is a process in which both controlled as well as automatic processing is disrupted through various pathway, such as physiological stressors, self and situational monitoring, and suppression processes. These processes interact and eventually overload or otherwise decrease the efficacy of an individual's working memory. This decrease of coordinated informational processing eventually leads to decreased performance in controlled tasks. Additionally, their model holds considerable explanatory power in explaining the decreased performance in more automatic processes. Rather than working memory as

the primary factor responsible for performance decrease, individuals begin to monitor their otherwise automatic behavior. As a result, individuals become too vigilant in monitoring their behavior for stereotypical responses and suffer in task performance as a consequence. Given that Schmader and colleagues' model suggests that changes in various factors (physiological stressors, monitoring, and suppression) are the result of stereotype threat, it appears that any condition that allows these type of reactions should replicate similar effects, regardless of the source of the 'threat'.

Past research has shown that stereotype threat occurs in members of different groups for which negative stereotypes and stigma exist, such as Blacks (Brown & Day, 2005; Steele & Aronson, 1995; Stone, Lynch, Sjomeling, & Darley, 1999) , women (Quinn & Spencer, 2001; Schmader & Johns, 2003; Spencer, Steele, & Quinn, 1999), Whites (Aronson, Lustina, Good, Keough, Steele, & Brown, 1999; Stone, 2002), men (Brown & Josephs, 1999; Leyens, Desert, Croizet, & Darcis, 2000), Asians (Shih, 1999), Latinas (Gonzalas, Blanton, & Williams, 2002), the elderly (Hess, Auman, Colcombe, & Rahhal, 2003), and those low in SES (Croizet & Claire, 1998). Although these studies have found consistent effects of stereotype threat for negatively stereotyped groups, there are few, if any, that have attempted to produce threat in individuals via experimentally created groups, which should not have pre-existing stereotypes. Past studies have previously tested individuals using methodologies that include not only concern for the individual, but also concern for their closely identified and socially salient group. Thus, it's possible that individuals may suffer from similar effects even for peripherally held groups if the group membership is made salient, individuals identify with their group, and the group is described as being deficient in ability in a given

domain. It seems plausible that if stereotype threat is the result of stigma awareness and otherwise disrupted controlled processes, then it should follow that even when primed with identification of an experimentally created group and placed into a threatening environment, performance decreases should follow. The various conditions in which threat occurs will be examined in light of this observation.

Several reviews (Schmader, Johns, & Forbes, 2008; Smith, 2004; Wheeler & Petty, 2001) have examined the various processes and potential mediators that appear to be necessary for stereotype threat to occur. Schmader and colleagues (2008) have conceptualized stereotype threat as being a three-way relationship in which one's concept of group, concept of ability domain, and concept of self interact with each other to produce or not produce threat. Generally, individuals will experience threat (or at least more of it) when one is highly identified with the stigmatized group, are highly identified with or believe the performance task to be important to oneself and one's ego, and also are made aware of a negative stigma that exists between one's group and the performance task. These three factors come with their own caveats relative to individual differences as well as differing priming techniques that may facilitate or hinder the interaction between them.

Individuals must be aware, consciously or unconsciously, of the negative stigma that concerns their group in relation to the performance task for threat to occur. Researchers often use individuals who are not aware with any type of stigma as their control conditions in contrast to those individuals who are threatened by related stigma. For example, Spencer, Steele, and Quinn (1999, Study 2) instructed both men and women to complete relatively difficult items from the Graduate Records Exam (GRE).

Participants were instructed to take two tests, of which one was described as showing clear signs of gender bias, in which men typically out-performed women, and one which was described as having no gender differences. The descriptions of the tests were randomized in the experimental session that allowed for a contrast of those who received the threat condition and those who received a control condition. Using one of the two tests in their final analyses, the authors found a stereotype threat effect in that women who were threatened with gender differences performed significantly poorer than men taking the same test while performing equally when not threatened.

Past studies have activated negative stereotypes without explicit reference through manipulations such as explaining the test as highly diagnostic in the test area (Steele & Aronson, 1995). As discussed previously, Steele and Aronson found that high-diagnosticity primed Black participants scored significantly lower than their low-diagnosticity counterparts. As a necessary factor, individuals must be aware of the negative stigma between the group to which they belong and the performance in which threat is expected to occur. It is important to note, however, that simply belonging to a group may not always be sufficient, but rather individuals must perceive belonging to this group as important for defining their identity. An individual's group membership is only important as the value the individual receives from it and accordingly, stereotype threat should occur for individuals who have the most to gain from their group identity. These identities help to define the individual in terms of ability and self-regard relative to the group's status. If an individual's group is stigmatized, then the benefits that arise from positive group identification may come at a price as characterized by stereotype threat.

Stereotype threat is linked to negative stereotypes that are self-relevant as opposed to other-relevant. Brown and Josephs (1999) conducted research to show that different groups have different priorities that may result in stereotype threat. A pre-test regarding math that identified men as being primarily concerned with showing exceptional ability and women were concerned with appearing weak in math. Their results indicated that when given instructions that the test was diagnostic of exceptional ability, men exhibited decreased performance relative to women while showing increased performance relative to women in a test described as an indicator of one's weakness in math. These results indicate that only those negative stereotypes that are applicable to one's identity and group are likely to cause stereotype threat effects. As outlined above, threat is a process in which individuals are concerned with confirming the negative stereotype about their group, ironically prompting psychological processes that may lead to decreased performance. As a consequence, models of threat predict a decrease in performance when the stereotype in question is relevant to the individual; that is, the individual must belong to the group to which the salient or accessible stereotype is applied for the negative effects to take place.

To illustrate the relation of group salience to priming specific group identities, Shih, Pittansky, and Ambady (1999) showed marked differences between Asian-American women when tested in mathematics. In Study 1, the authors administered a mathematics test after inducing group salience for either the social category Asians (high ability in math) or Women (low ability in math). Following the predictions of threat modeling, Asian-American women who were primed to think of themselves belonging to the group Women scored significantly lower on a math test than those primed to think of

themselves as Asian. Salience of one's group, however, is not the only manner in which group identification exerts performance change via stereotype threat.

In a related situation in which one's identity can be influential on stereotype threat processes, it appears possible to experimentally manipulate the degree to which individuals are likely to identify with qualities of a single identity. Pronin, Steele and Ross (2004) explored how women who had previously taken multiple math courses (high-ability) were likely to disparage stereotypic qualities that were associated with women's seemingly inability to do math, such as flirting and child-bearing but not qualities unrelated to stereotypic prototypes, such as empathy. They furthered these results when they showed that women high identified in math ability were presented a 'scientific article' discussing gender differences in the ability of mathematics which resulted in a similar pattern of negative quality dismissal but not for positive qualities. These findings did not replicate for women low identified in mathematics. The authors concluded that these results were indicative of a bifurcation, or partitioning, of their group identity for these high-identified women. Rather than accepting all the qualities that are associated with women (both positive and negative for math skill), the women chose to distance themselves from some qualities but not from others as a possible means of either self-esteem protection which may help fend off stereotype threat without losing their identification as women. This method of bifurcation has also been shown to occur on a larger scale across identities rather than qualities of a single group.

When thinking of one's concept of self and which groups they belong to and identify with, multiple identities can co-exist. For example, Julie can at one time conceptualize herself as a graduate student, a daughter, a woman, an Asian-American,

a member of her sorority, etc. These multiple identities can be made salient at any given point and have different effects relative to stereotype threat (Shih et al., 1999). In a manner similar to singular identity bifurcation as was shown previously, these multiple identities can serve as a defensive mechanism in which multiple identities diffuse the impact of negative stereotypic qualities of any single identity or group. Gresky, Ten Eyck, Lord and McIntyre (2005) experimentally manipulated the degree to which highly math-identified women construed their multiple identities and examined the effect on their math ability under an explicit statement that women typically scored lower than men on math tests. Specifically, the authors instructed these women to either draw relatively small or large self-concept maps with few or many nodes and then asked them to solve math problems from the GRE. Those women who drew smaller self-concept maps scored significantly poorer than women who were asked to draw large maps. The authors reasoned that by priming participants to view themselves as belonging to many group identities (see Linville, 1985) the negative group identity to which the salient negative stereotype was directed (women) was not as powerful as they could diffuse their identity over other, perhaps more positively stereotyped, groups.

The third necessary factor for threat to occur is that individuals believe there is a positive or high identification between their self-concept and the task domain (Aronson et al., 1999; Steele, 1997). The high identification carries with it an expectation that one is likely to perform well on a given task or at the least is personally invested in performing well as it pertains to their ego. Individuals with low identification may not feel as though their self-esteem is tied directly into the task. Additionally, low identified individuals may also lack the necessary skills to be affected by stereotype threat.

Individuals who lack ability for a task may not be affected by stereotype threat that can be measured through normal means; that is, if one has poor ability in math and receives threat, their level of performance may already be too low to produce statistical differences in comparison to non-threatened individuals with similar levels of identity. High identification in relevant domains may often be measured by scales such as the Domain Identification Measure (DIM; Smith & White, 2001). The DIM is a series of items that include items such as, “I get good grades in English.” and “How much do you enjoy math-related subjects?” and can be used as a reliable proxy to determine who should be most threatened and most likely to suffer subsequent performance loss.

Aronson, Lustina, Good, Keough, Steele and Brown (1999, Study 2) investigated personal identification in math in White men, a group without pre-existing negative stereotype for performing poorly in math. These White men, after being split into a moderate and a high identification group, were presented either with information that Asians typically outperformed Whites or not. Their results indicated that those categorized as highly identified significantly performed poorer in a threat condition than when they were not. Additionally, only those highly identified participants indicated anxiety over being evaluated when in the threat condition as compared to the no-threat condition, while those moderately identified did not differ between threat conditions. Similarity, Stone and colleagues (Stone et al., 1999, study 2) investigated a moderator on the athletic performance in White men. Participants were surveyed for their level of psychological or chronic level of engagement with sports and were dichotomized into high and low levels of identification. These participants were also placed into either a high or low misattribution condition, in which those in the high condition were asked to

focus some of their attention on the newly renovated lab space and its effects on one's anxiety while those in the low misattribution condition were given no such notice. The threat manipulation consisted of a threatening or no-threat condition which consisted of instructions that their performance was a measure of natural athletic ability or a measure of general psychological factors, respectively. Participants' performance was measured on their golf ability (number of putts to make a hole). Their results confirmed their initial hypothesis. High sports identified White men who were told their golf performance was a measure of natural athletic ability and who were not given an external explanation for any experienced anxiety completed the golf game with the highest number of strokes indicating poorer performance. Again, only those who likely shared a link between their performance and their self-concept performed poorly under threat conditions. Low identified participants did not significantly differ on their performance regardless of other manipulations. Given this evidence, it becomes important to understand the process through which highly identified individuals, but not those low identified, are affected.

As noted in the reviews above, working memory becomes diluted with thoughts of confirming negative stereotypes leading to poorer performance. Schmader and Johns (2003) have examined individual's working memory capacity when under stereotype threat. Upon inducing gender-based threat for women and math ability, participants were asked to complete math problems while also being asked to memorize a series of words. Their results produced a meditational model in which the relationship between stereotype threat and math test performance was mediated by working memory capacity, supporting their initial hypothesis that threat serves as a cognitive

load upon controlled processing. These findings are helpful in understanding how threat can impact one's performance on novel or controlled processes, but working memory is not necessarily engaged in relatively automatic tasks. Indeed automatic (over-learned) processing has been shown to be interrupted by similar processes by Beilock, Jellison, Rydell, McConnell, and Carr (2006) when they induced threat in high-skilled golf players. However, they found that when asked given a secondary task concurrent with threat and a golfing task, the threat was alleviated. The authors reasoned that when the participants were induced with threat, they were likely to over-focus on automatic processes (golf putting), ironically reducing their performance. The secondary task appeared to remove the performance decreases, most likely by reducing the participants' lament over the threatening stereotype. Similar findings have found that stereotype rumination in threat-induced women acts as a mediator between threat and performance (McIntyre, Paulson, Taylor & Lord, manuscript under revision**).** New research has also identified increased social and emotional brain activity via function magnetic resonance imaging in women induced with threat in comparison to non-threatened women, who are likely to activate math-related areas (Krendl, Richeson, Kelley, & Heatherton, 2008)

Stereotype threat research began as a means to explore academic performance discrepancies in Blacks (Steele & Aronson, 1995) and has since expanded to include multiple domains, which is indicative of its pervasiveness. Consequently, different tasks have also been used to provide a means of measuring the effects of threat. Studies using tests of verbal ability or intelligence has found consistent results using a varying pool of social categories of participants, such as Steele and Aronson (1995), and

Croizet and Claire (1998). A wide array of studies in stereotype threat have focused on inducing threat in participants asked to take a math test using women subjects and have been the subject of both threat induction and alleviation (Aronson et al., 1999; Brown & Pinel, 2003; Gonzales et al., 2002; Gresky et al., 2005; Inzlicht & Ben-Zeev, 2003; Martens et al., 2006; Schmader, 2002; Shih, 1999; Spencer et al., 1999). An important finding obtained by Quinn and Spencer (2001) indicated that women who were threatened with gender-based stereotypes were able to equally perform with men on the same math test when presented with numerical math problems, but performed in a manner consistent with threat when presented with word problems, from which participants were asked to formulate and solve math problems. The authors reasoned that in a threatening environment, women were unable to process important information. This was later confirmed by Croizet and colleagues (Croizet et al., 2004) who demonstrated that stereotype threat produces a disruption in cognitive processes. Given the amount of studies focusing on ability-based performance tasks, one may be tempted to argue that threat occurs as a result of academic pressure and challenges rather than negative stereotype pressures. However, stereotype threat has also been shown to occur in processes outside of traditional academic studies.

Various studies have shown threat effects appear in non-academic but otherwise cognitively demanding tasks, such as the Raven's Advanced Progressive Matrices (Brown & Day, 2006; McKay, Doverspike, Bowen-Hilton, & Martin, 2002; McKay, Doverspike, Bowen-Hilton, & McKay, 2003) and in spatial rotation tasks that use tasks similar to the Vandenberg Mental Rotation Test (Vandenberg & Kuse, 1978), in which participants are threatened with spatial ability stereotypes (Martens et al., 2006, study 2;

McGlone & Aronson, 2006) and perform at a decreased level of success, similar to those found in verbal and math tests. In addition to cognition-based performance, studies using behavioral outcomes such as athletic ability (Beilock & McConnell, 2004; Beilock et al., 2006; Stone, 1999; Stone, 2002; Stone & McWhinnie, 2008), negotiation ability (Kray, Thompson, & Galinsky, 2001) and affective processing (Leyens et al., 2000) have also shown threat effects. Clearly, stereotype threat has been shown to occur under different experimental manipulations, in various populations, and in a wide range of domains. These results notwithstanding, stereotype threat has previously been studied using pre-existing groups and stereotypes and though useful for its practical implications, it has yet to be shown that stereotype threat can be experimentally created to hang in the air as Steele (1997) would describe.

Given the available research previously discussed, stereotype threat can occur for naturally occurring groups that are stigmatized. These effects, however, may occur for identities that are relevant only in specific instances. For example, a psychology student may find himself under stereotype threat when taking math classes in a class full of engineering students despite a relatively minimal identification with the group of “psychology student”. Although the student may not identify with psychology anywhere other than school this specific instance may be enough to provoke disruptive thoughts about living up to expectations of being weak in math ability. Alternatively, a highly capable individual may join an organizational committee known for underperforming on company projects. After hearing these rumors the individual may worry about being seen as one of the failing group members, but also as a failure as an individual employee. This person’s high ability could be reduced in a manner consistent with

stereotype threat. The current research is interested in providing evidence that stereotype threat can occur in individuals identifying with a peripheral group. This research will extend previous literature to show that peripheral groups, though less accessible than chronically identified groups, serve as a sufficient factor of stereotype threat.

Minimal Group Paradigm

In order to examine stereotype threat using groups without previously held negative stereotypes or stigma, these groups would to be created in situations allowing for experimental manipulation. In relation to stereotype threat, the most promising advantage of using such a methodology is experimental control over (perceived) stigma assigned to a group. Participants can be assigned to a new group that can have positive stereotypes in one domain but negative stereotypes in other domains. Additionally, with minor justification and explanation, these groups can also be manipulated to be reflective of “internal” qualities with which participants can easily identify, such as personality characteristics or tendencies. Just as one can apply a single horoscope to a multiple of individuals, these groups can be framed in such a way that individuals will not be motivated to be overly critical of their assignment, which may lead to group identification. These techniques are described in relation to their usefulness in researching stereotype threat.

The Minimal Group Paradigm (MGP), previously used in Tajfel’s (1970) exploration of the prejudice and more generalized issues of intergroup discrimination, seeks to create situations where individuals are allowed to (and often do) discriminate between themselves and other members of their group (ingroup) and members of other

groups (outgroup). These groups are experimentally created and have no history or otherwise information attached to them other than what the experimenter provides. Tajfel's (1970; Tajfel, Billig, Bundy, & Flament, 1971) original procedure involved (randomly) categorizing individuals into one of two possible groups (e.g. Over-estimators vs. Under-Estimators) on the presumed basis of a testing procedure such as estimating the number of dots seen on a screen or one's preference for certain artists via painting ratings. Once categorized, participants were given booklets containing matrices in which they were to choose from a selection of yoked rewards for members of either their own group (ingroup) or for members of the other group (outgroup). For example, participants could choose to give one person-A 1 point while giving person-B 14 points, person-A 12 points and person-B 11 points, or person-A 14 points while giving person-B 1 point. Tajfel (1970; Tajfel et al., 1971) found that when given information regarding the two recipients' group status (ingroup or outgroup), participants were likely to discriminate based on group preference. For example, when participants were told to pick an option that involved point distribution to both an ingroup member and an outgroup member, they were likely to pick options that created the biggest difference between the groups (e.g. 14 points to the ingroup member, 1 point to the outgroup member). When deciding outcomes for two members of either group, however, participants were likely to choose outcomes that were of equal fairness to both targets (e.g. 12 points to individual A and 12 points to individual B). These findings suggest that the categorization process was a sufficient requirement to promote ingroup favoritism. In contrast to real-world groups in which previous historical rationale or social standing may promote realistic group conflict (for a review see Jackson,1993)

individuals experimentally grouped together and allowed to discriminate are motivated and do so according to a need for a positive social identity (Hogg & Abrams, 1988), often achieved through ingroup favorability (see Brewer, 1979; Brewer, 1999).

Social Identity Theory (SIT; Tajfel & Turner, 1986) suggests that individuals look toward their social categories as a self-reference for their own identity. Consequently, the groups to which individuals belong and their emotional and evaluative meaning largely determine the degree to how individual view themselves in society. Minimal group procedures offer an arbitrary identity upon categorization which results in a differentiation between groups as a manner of creating a positive social identity. Tajfel and Turner (1979) indicate that for intergroup discrimination to occur, individuals must identify with and internalize their group membership as part of their self-concept. MGP studies have largely focused on intergroup discrimination between two arbitrary groups resulting from one's desire to maintain these positive social identities and as a result, levels of identification. The effects, however, of group categorization have implications in stereotyped and stigmatized group situations.

Minimal group categorization and subsequent discrimination have shown positive outcomes for individuals, such as higher self-esteem in individuals who were allowed to discriminate once categorized as compared to those who were not allowed to discriminate (Lemyre & Smith, 1985). Likewise, Oakes and Turner (1980) found similar effects of increased self-esteem for individuals who have been permitted to discriminate between experimentally created groups. These results support the premise that individuals, when confronted with an ambiguous situation (such as MGP), strive to maintain a positive self-image in part provided by actively showing ingroup favorability.

As a consequence, individuals are psychological rewarded for belonging to experimental groups if allowed to maintain their positive self-concept. If one accepts that individuals indeed do identify with experimental groups (if only temporarily), then they are likely to also be affected by group-based positive and negative stereotypes both psychological and behaviorally. There is support for performance increases following stereotype activation (Shih, Ambady, Richeson, Fujita, & Gray, 2002), though for group members this finding was only shown for implicit (vs. explicit) stereotype activation. Other performance increases have been shown to occur for individuals when primed with relevant negative stereotypes of outgroups (for a review, see Walton & Cohen, 2001). Additionally, negative stereotypes of one's ingroup have been shown to decrease performance in certain situations (e.g. Aronson et al., 1999; Steele & Aronson, 1995). Thus, if individuals do identify with their minimally assigned categories, it seems plausible that stereotypes, both positive and negative may influence performance outcomes.

The minimal group paradigm provides a way to create peripheral groups for individuals that result in intergroup discrimination as a result of creating a distinction between one's ingroup and the outgroup. As discussed these groups and the act of discrimination appears to benefit individuals in their self-esteem (e.g. Oakes & Turner, 1980) and lead to group identification (Tajfel & Turner, 1979). Stereotype threat research has shown that stigmatization of a group (when made salient) can lead to performance decreases for identified individuals (e.g. Steele & Aronson, 1995). Combining these two paradigms allows the current research to examine the outcome of stigmatization of peripherally held groups on individuals. Upon acceptance and

identification with one's group in the minimal group procedure, subsequent group stigmatization may produce stereotype threat effects in a manner similar to prior research.

If minimal groups do provide a way to induce group identification and subsequent stereotype activation, it would also seem possible to manipulate the effects of these stereotypes in various ways. For example, work on bifurcation (Gresky et al., 2005; Pronin et al., 2004) has shown that stereotypes can be influential as a function of how much one's temporal self-concept is linked to a stigmatized group. These manipulations have served to alter the impact of negative stereotypes as they relate to the individual by "spreading out" the implications of negative group-based stereotypes on one's self-concept.

Additional work has shown that individuals who are aware of negative stereotypes for important self-conceptual groups have shown a decreased link between the self and group ties via trait or behavioral dissociation, such as high math-identified women dissociating themselves from feminine traits stereotypic of poor math performance (Pronin et al., 2004). Tajfel and Turner (1979) discuss various theoretical principles derived from SIT and argue that "When social identity is unsatisfactory, individuals will strive either to leave their existing group and join some more positively distinct group and/or to make their existing group more positively distinct." If minimally categorized individuals are presented with negative stereotypes of their new group, they may either attempt to identify with other groups or identify more closely with their group as a way of bolstering their self-concept, likely leading to higher discrimination and differentiation if allowed. There does not appear to be any research indicating whether

or not individuals will suffer as a result of stigma attached to their experimental group nor if they will attempt to dissociate or bolster their group identification in the face of negative stigma. Nonetheless, it appears relevant to test if individuals can be negatively affected through minimal groups and their associated stigmata.

Chapter 2

Rationale

According to Schmader and colleagues (Schmader et al., 2008, p. 339) “even if one is not chronically identified with a negatively stereotyped group, manipulations can temporarily prime a sense that the group defines the self, inducing the cognitive imbalance that underlies stereotype threat.” Following this logic, the minimal group paradigm can likely be applied experimentally to induce stereotype threat. All previously cited studies used pre-existing groups and stigma to induce threat, but fail to address that the stigma used had been previously known, if not also believed, by threatened individuals. Albeit this issue may be less important as to the real-world applications of stereotype threat, it seems worthwhile to examine the effects of stigma through laboratory manipulation. Following this line of inquiry no past study has shown that the negative stereotypes used need to be accepted or even known. Indeed, Steele (1997, p. 618), in discussing general features of stereotype threat, says “To experience stereotype threat, one need not believe the stereotype nor even be worried that it is true of oneself.” Steele further goes on to define stereotype threat as a process in which negative group-based stereotypes become “self-relevant” and serve as the lens through which the individual’s behavior is viewed or interpreted. Upon realizing the implications of their group’s stigma on their own performance, individuals suffer as a result of increased anxiety or threat. This being the case, using negative stereotypes associated with experimentally created groups may fulfill the psychological requirement to create stereotype threat. If individuals identify with a peripheral group, although only temporally, a stigma regarding their performance on an ability-diagnostic tasks may

produce stereotype threat effects. One of the benefits of using experimentally created groups is the lack of participant awareness of these groups, which allows the experimenter to prime or manipulate the degree to which the groups are stigmatized, as well as to control for the stigma history of the group or for learned coping mechanisms. Additionally, minimal group research has shown consistent ego-relevant effects (e.g. Lemyre & Smith, 1985; Oakes & Turner, 1980) for categorized individuals as well as in-group favoritism as indicative of group identity formation.

Assuming that stereotype threat does occur for experimentally created groups, previous research on identity bifurcation (Pronin et al., 2004) would suggest that the more participants are closely identified with their new group, the more their performance should suffer as a function of threat. Additionally, as Gresky and colleagues (2005) showed, multiple group level identification may make for moderated levels of threat effects through group self-identification processes.

The present research has multiple hypotheses tested with two studies. The first study will investigate the outcome of placing individuals into stigmatized experimental groups to look for evidence of stereotype threat as a result of threat priming and strength of spontaneous group identification. It is hypothesized that individuals placed into a peripherally held but stigmatized group will perform more poorly on tasks than those placed into a non-stigmatized group. The second study will examine the outcome of group self-identification priming in a minimal group paradigm. Specifically, those who are primed with fewer self-relevant identities will identify more with their experimental group than those primed with many social categories. A second hypothesis is that those who are primed with fewer self-relevant identities will perform poorer on tasks

than those primed with many self-relevant identities. The third hypothesis will also be tested in both studies in such that it is expected that group identification will mediate the stereotype threat effect in that those who more highly identify with their group will suffer more threat, which will produce poorer performance.

Chapter 3

Study 1

Methods

Participants

One hundred eighteen undergraduate students (29 men, 89 women) participated in exchange for course credit. All participants were native English speakers.

Procedure

Participants were run in groups of two to four and were instructed that the current study involved looking at relationships between personality, perceptual styles, and verbal ability. Participants were instructed that they would first be asked to provide likeability ratings for a selection of paintings that had previously been used in the past to successfully place individuals into one of two distinguishable personality types and perceptual preference based on an individual's ratings of the paintings. They were then told that these two personality groups were different across various domains, including verbal skill. Thus, after providing ratings of the paintings and ostensibly providing the experimenter with their personality type and were told they would complete a test previously used to measure individual differences in verbal ability.

Participants' evaluations were based on random assignment as they entered the lab; participants were either told they had a Convergent personality (N = 39), a Divergent personality (N = 23), or were told their evaluation would be used in later data analyses and would not be revealed to them (N = 56).[1] Those given a Convergent evaluation were told "Convergent personalities prefer to process visual and semantic information in a bottom-up fashion; that is, they prefer to examine details first to form an

overall impression." while those given a Divergent evaluation were told "Divergent personalities prefer to process visual and semantic information in a top-down fashion; that is, they prefer to first form an overall impression and then consider details afterward." The provided information is similar to the information provided by Ashburn-Nardo and colleagues (2001) to their participants.

After participants were told of their personality type, they then went on to the assessment of verbal ability on the RAT. The experiment had four conditions and all participants run in a single session were in the same condition though they did not interact in any way.

> *Threat*: Participants received a group identity via a personality evaluation, were told that an upcoming verbal test was a highly diagnostic measurement of verbal ability, and received information that cast the group to which they were "evaluated" in a negative light regarding verbal ability; *Lift*: Participants received a group identity via a personality evaluation, were told that an upcoming verbal test was a highly diagnostic measurement of verbal ability, and received information that cast the group to which they were "evaluated" in a positive light regarding verbal ability; *Difficult:* Participants did not receive a group identity and were told that an upcoming verbal test was a highly diagnostic measurement of verbal ability; *Control:* Participants did not receive a group identity and were told that an upcoming verbal test was a pilot study and was not diagnostic of any ability.

Participants were instructed to turn on the computer in front of them, which presented much of the stimulus and study instructions through Media Lab software. Upon turning on the computer, participants answered questions from the Academic Identity Scale (Smith & White, 2001). After completing this scale, participants were told that the next task to be completed was a painting-rating task that had been used in the past to distinguish between two different personality types. Participants were presented with a painting on the computer monitor and were then asked to rate 20 abstract art paintings on a 6pt forced choice scale anchored with 1 (Dislike Strongly) and 6 (Like Strongly). The pictures were obtained through an Internet search and were not related to each other in any systematic fashion.

After proceeding through all 20 paintings participants were given information pertaining to the two specific personality types and were told to await their personality evaluation, which was supposedly based on their responses. After receiving their evaluation information, participants were asked to complete a trait-rating scale for Convergent and Divergent personality groups. The trait-ratings consisted of 10 pairs of adjectives placed as anchors on a 7pt scale (e.g. 1 (Boring) to 7 (Interesting); Appendix 1). Participants given a Convergent personality rated the Convergent group first, then the Divergent group; participants given a Divergent personality rated the Divergent group first, then the Convergent group; participants not given an evaluation rated the two groups in a random order chosen by the computer. Upon completion of this scale, participants then answered nine questions on a 7pt scale using anchors of 1 (Strongly Disagree) and 7 (Strongly Agree) taken from a questionnaire designed to assess an individual's identification with a personally relevant social group (Leach, Zomeren,

Zebel, Vliek, Pennekamp, & Doosje, 2008; Appendix 2). For example, participants told they were a Convergent personality were asked to respond with their agreement to statements such as “I think other Convergent personalities and I would work well together.” and “I am glad I am a Convergent personality.”

After completing the two questionnaires, participants were then provided with instructions for a verbal ability test, which was comprised of items from the compound Remote Association Test (RAT; Mednick, 1962). The items on the compound RAT are comprised of three words and the goal is to generate a single word that would attach either before or after all three words to create three new compound words (e.g. *stock*pile, *stock*market, *stock*room). Thirty items were taken from a normative database provided by Bowden and Jung-Beeman (2003; Appendix 4). There were two sets of instructions provided for the RAT.

The *difficult* instructions indicated to the participant that the upcoming test was a series of diagnostic items used in previous research to distinguish between those with high and low levels of natural verbal ability. The *easy* instructions indicated to the participant that the upcoming test was a pilot test of lab-related materials and though they should take it seriously it did not predict high or low verbal ability levels.

Additionally, participants in the *Threat* and *Lift* conditions received further instructions regarding past ability of their respective group members. Specifically, those in the *Threat* condition were told that previous group members (of their personality evaluation) had performed very poorly in comparison to the other personality group and had created an expectation for future group members to perform poorly as well. Participants in the *Lift* condition were told that previous group members (of their

personality evaluation) had performed very strongly in comparison to the other personality group and had created an expectation for future group members to perform strongly as well.

After reading instructions for completing the test participants were given four example items to familiarize themselves with the item format and then were asked to fill out several expectation-related items (Appendix 3), which were used to assess participants' expectations for their upcoming performance. The items were scored on a 7pt scale using anchors of 1 (Strongly Disagree) and 7 (Strongly Agree). For example, participants read items such as "I believe that I will perform much better than the average student on the word association test." After completing the expectation questionnaire, participants were given an opportunity to clarify test procedures and were then instructed to start the test. Of the 30 items provided, participants were given 30 seconds to complete each item. If participants did not provide an answer after 30 seconds, the item was considered incomplete and the next item appeared.

Once participants had completed the 30 items, they were then asked to fill out a series of post-study questions (Appendix 5), including manipulations checks (e.g. "I noticed distinct differences in the paintings I viewed." and "My perceptual and thinking style would best be characterized as." and other test-related measures (e.g. "How well do you think you did on the verbal task?"). Participants then provided demographic information, were fully debriefed, and were then thanked and dismissed.

Results

Manipulation Checks

To check if participants felt the painting preference task was believable, they

were asked in the post-RAT questionnaire two questions regarding this task. The first statement read “I noticed distinct differences in the paintings I viewed.” and presented participants with a 7pt scale using anchors of 1 (Strongly Disagree) and 7 (Strongly Agree). A one-sample t-test was conducted to see if participants’ average response differed from the midpoint of 4, which would indicate a “Neither” or “Don’t know” response. This analysis indicated that participants, on average (M = 5.33), did appear to “see” a difference in the paintings, t (117) = 10.35, p < .001. Additionally, the four conditions did not differ on their response to this question, F (3, 114) = 1.36, p = .256

Participants were asked to indicate their previously given personality evaluation by selecting an answer to the following statement:“Based on the results obtained from earlier information, my perceptual and thinking style would best be characterized as.” which used a 7pt scale with anchors of 1 (Convergent Personality) and 7 (Divergent Personality). An independent sample t-test indicated that those given evaluations of Convergent Personalities (M = 2.10) and Divergent Personalities (M = 5.13) significantly differed on their response to this item, t (60) = -6.96, p < .001, indicating that participants correctly identified with their previously supplied evaluation. Additional analyses conducted separately for Convergent and Divergent Personalities were conducted to examine if participants’ average response differed from the midpoint of 4, which would indicate a “Neither” or “Don’t know” response. These analyses indicated that participants told that they were Convergent Personalities did significantly differ from the midpoint, t (38) = -6.57, p < .001, as did those given a Divergent Personality evaluation, t (22) = 3.99, p=< .001. Additionally, participants not given a category, on average (M = 4.07) did not differ significantly from the midpoint of 4, t(55) = .35, p =

.725, suggesting they did not spontaneously identify with either group.

It was also important to show that participants also showed an ingroup favorability, as assessed by the trait-ratings of the two groups. Thus, it would be expected that participants would evaluate their respective ingroup subjectively higher than their respective outgroup. All scores were re-coded to indicate whether they were judging their own personality category (ingroup) or their opposing category (outgroup). Across all categorize participants, there was a significant difference shown in their ratings of a participant's ingroup and outgroup by a correlated sample t-test, t (61) = 4.47, p <.001, with the average ingroup rating (M = 4.97) being higher than the average outgroup rating (M = 4.31). Additionally, a one-sample t-test was performed to show that participants did respond to the group identification questionnaire in a manner indicating group affiliation. This test indicated participants' average group identification (M = 4.93) was significantly different from the midpoint of 4, t (61) = 12.08, p <.001. Participants did not appear to differ in their identification based on the evaluation they received (i.e. Convergent vs. Divergent), t (60)= .740, p = .462 or differ between participants who received a group evaluation (i.e. *Threat* and *Lift),* t (60) = -.400, p = .691. Overall, it appeared that the participants did show ingroup favorability and identification to their minimally assigned group.

Performance Analyses

Participants' responses to the RAT were first analyzed to ensure that all participants followed instructions for completing the items, of which nine participants had not and were removed from subsequent analyses leaving data for 109 participants. Of the 30 items possible, scores were created by summing the number of items

correctly answered. These scores ranged from 6 to 24, with a mean score of 13.53 (*SD* = 3.81). Participants' scores on the RAT were first analyzed using a One-Way ANOVA design with the participant's condition as the factor. This analysis did not return a significant difference between the different conditions as can be seen in Table 1, F (3,105) = 1.36, p = .259. A series of contrast tests were conducted to explore possible differences between the three manipulated conditions and the control group, however none of the differences were significant (all *p*s = ns). Given that the earlier ANOVA included two groups that did not receive instructions pertinent to a personally relevant group a separate independent sample t-test was conducted between the *Threat* and *Lift* groups. This analysis did not indicate significant differences between those who received negative information about their group's previous ability (M = 14.59) and those who received positive information regarding past performance (M = 12.67), t (55) = 1.86, p = .069, η^2 = .059. The direction of the means and the condition in which they occurred is something to be noted, however, and will be discussed below. It was further hypothesized that the one's score on the English subscale of the AIS would be useful as a covariate as to remove variance associated with a self-report measure of English ability on a test described as one of verbal knowledge. An ANCOVA between all four conditions was not significant, F (3, 104) = .938. p = .425, nor was an ANCOVA between the *Threat* and *Lift* conditions, F (1, 54) = 1.964. p = .167. It should be noted, however, that participants' English subscale score was not related to participants' RAT score, r (109) = .15, p = .121.

Given the lack of expected findings, further exploratory analyses were conducted. An ANOVA was conducted using a 2x2 design with Gender (Male vs.

Female) and condition (*Threat* vs. *Lift*) as the factors. There was a main effect for gender F (1, 53) = 4.08, p = .048, η^2 = .071 and a main effect for condition, F (1, 53) = 5.44, p = .026, η^2 = .09. These findings were qualified by a significant interaction, F (1, 53) = 4.49, p = .039, η^2 = .078. As can be seen in Table 2, this interaction occurred as a function of males in the *Threat* condition outperforming males in the *Lift* condition as well as males in the *Threat* condition outperforming females in both conditions.

Post-Performance Analyses

Participants were asked to answer two statements regarding their thoughts on future testing procedures on hypothetical future participants and their performance on the RAT. The first question asked, "In future experimental sessions, we will continue to look at the performance of convergent and divergent personalities on tests of verbal ability in group sessions. In general, which group do you think will succeed the most?" Participants were asked to pick between three choices, Convergent, Divergent, or neither group. Their choices and whether or not they had heard instructions describing their group as able or unable to perform well on the RAT were subjected to a chi-square analysis using only responses that had indicated a group selection. Responses were re-coded into choices of ingroup vs. outgroup. This analysis used only those participants who had received a group evaluation during the picture preference task. There did not appear to be a significant relationship between being told one's group was previously successful or unsuccessful on the RAT and their choice of which group would be more successful in the future, χ^2 (1) = 1.79, p = .181. Furthermore, a loglinear analysis was conducted to test for an interaction between gender (male vs. female),

stereotype (positive vs. negative) and future choice (ingroup vs. outgroup). This 3-way interaction was not significant, χ^2 (1) = 1.08, p = .299.

Secondly, participants were asked to evaluate their choice for a hypothetical partner for the RAT with the question, “If you were given the option to choose a partner for the verbal ability test you have just completed, from which group would you prefer a partner?” Again, participants were asked to pick between three choices, Convergent, Divergent, or neither group. Their choices and whether or not they had heard instructions describing their group as able or unable to perform well on the RAT were subjected to a chi-square analysis using only responses that had indicated a group selection. Responses were re-coded into choices of ingroup vs. outgroup and only used choices indicating a group preference. There did not appear to be a significant relationship between being told one’s group was previously successful or unsuccessful on the RAT and their choice a future partner from either group, χ^2 (1) = 1.48, p = .224. Furthermore, a loglinear analysis was conducted to test for an interaction between gender (male vs. female), stereotype (positive vs. negative) and future choice (ingroup partner vs. outgroup partner). This 3-way interaction was not significant, χ^2 (1) = 2.63, p = .105.

Chapter 4

Study 2

Methods

Participants

One hundred and twenty-three undergraduate students (38 men, 85 women) participated in exchange for course credit. Participants were allowed to participate provided they were a native English speaker.

Procedure

The study consisted of a 2 (Stereotype; Positive vs. Negative) x 2 (Mapping; Simple vs. Complex) design. All participants were given a Convergent personality evaluation. Participants were run in groups of two to four at a time and after being seated were instructed that the current study involved looking at relationships between personality and perceptual styles as well as verbal ability. In addition to tasks presented in study 1, participants were also asked to fill out a self-mapping form (see Gresky et al., 2005). All participants in a single session were all in the same condition, though they never interacted with one another.

The procedure for study 2 followed a similar format as the procedure in study 1. Participants were given introductory information, completed the AIS, completed the painting preference task, received their Convergent personality evaluation, and then answered questionnaires assessing group trait ratings and group identification. Upon completion of the questionnaires, participants were given a form on which they were to "map" their various social identities. Participants in the "simple" condition had six circles surrounding a space for the participants' name in the middle and those in the "complex"

condition had 18 circles surrounding a space for their name. Participants were instructed to think of their personal social identities through both terminology explanations as well as a pre-made example form, supposedly from an earlier participant. Participants were guided to indicate their name in the middle space, to indicate their previously indicated personality type in one of the circles, and to then fill the remaining circles with self-identified social identities (e.g. their race, their school major, their employment, etc; Appendix 6). Participants were not limited in time but were asked to complete all the circles before moving on to the next task.

After completing the identity mapping form, participants were then provided with instructions and examples for the RAT, which used the same items as in study 1. The instructions provided were similar to that of study 1, in that those in the *threat* condition were given instructions that the upcoming test was a series of diagnostic items used in the previous studies to distinguish between those with high and low levels of natural verbal ability and that previous group members (of their personality evaluation) had performed very poorly in comparison to the other personality group, thus creating an expectation for future group members to perform poorly as well. Those in the *lift* condition were given the same test diagnosticity information, but were informed that previous group members (of their personality evaluation) had performed very strongly in comparison to the other personality group and had created an expectation for future group members to perform strongly as well. After hearing the instructions, participants completed the example items and filled out a questionnaire assessing test expectations regarding their upcoming performance on the RAT. Participants were given 30 seconds per item and were presented with 30 items total. Upon completing the RAT participants

filled out a post-study questionnaire, indicated demographic information and were then dismissed.

Results

Manipulation Checks

To check if participants felt if the painting preference task was believable, they were asked in the post-RAT questionnaire two questions regarding this task. The first statement read “I noticed distinct differences in the paintings I viewed.” and presented participants with a 7pt scale using anchors of 1 (Strongly Disagree) and 7 (Strongly Agree). A one-sample t-test was conducted to see if participants’ average response differed from the midpoint of 4, which would indicate a “Neither” or “Don’t Know” response. This analysis indicated that participants, on average (M = 5.55), did appear to “see” a difference in the paintings, t (122) = 12.32, p < .001. Additionally, the four conditions did not differ on this question, F (3, 119) = 1.13, p = .34. Secondly, participants were asked to indicate their previously given personality evaluation by selecting an answer to the following statement: “Based on the results obtained from earlier information, my perceptual and thinking style would best be characterized as.” which used a 7pt scale with anchors of 1(Convergent Personality) and 7 (Divergent Personality). A one-sample t-test was conducted to see if participants’ average response differed from the midpoint of 4, which would indicate a “Neither” or “Don’t Know” response. This analysis indicated that participants, on average (M = 1.67), did agree with, or at least recall correctly, their personality evaluation, t (122) = -21.71, p < .001. Additionally, the four conditions did not differ on their ability to correctly identify their previously supplied group, F (3, 119) = .297, p = .828.

It was also important to show that participants (who were all evaluated as Convergent personalities) also showed an ingroup favorability, as assessed by the trait-ratings of the two groups. Thus, it would be expected that participants would evaluate their ingroup (Convergent) subjectively higher than the outgroup (Divergent). A correlated sample showed a significant difference in the trait-ratings, t (122) = 10.59, p <.001, with the average Convergent rating (M = 5.46) being higher than the average Divergent rating (M = 4.26). Group differences on ingroup favorability were not found to be significant, F (3, 119) = .090, p = .965. Additionally, a one-sample t-test was performed to show that participants did respond to the group identification questionnaire in a manner indicating group affiliation. This test indicated a significant difference between the average group identification measure (M = 5.29) and the expected midpoint of 4, t (122) = 18.26, p <.001. Levels of identification did not appear to differ significant between conditions, F (3, 114) = .448, p = .719. Overall, it appeared that the participants did show ingroup favorability and identification to their minimally assigned group.

A final manipulation check was performed by analyzing whether or not those placed in the “Simple” mapping group found the mapping task more or less difficult than those in the “Complex” mapping group, which was viewed integral to the “spreading” of one’s personal identity. Thus, an independent-sample t-test was conducted, however it did not appear that the two groups differed on their perceptions of the task difficulty, t (114) = -1.28, p = .202, suggesting that the map manipulation may have been ineffective.

Performance Analyses

Participants' responses to the RAT were first analyzed to ensure that all participants followed instructions for completing the items, of which two participants had not and were removed from subsequent analyses. Of the 30 items possible, scores were created by summing the number of items correctly answered. These scores ranged from 5 to 22, with a mean score of 13.06 (*SD* = 3.44). Participants' scores on the RAT were first analyzed using a 2 (Threat vs. Lift) x 2 (Simple vs. Complex) ANOVA design. As seen in Table 5, this analysis did not return main effect for either factor nor was the expected interaction significant, F (1,117) = 2.12, p = .148. Based on the significant positive relationship between participants' RAT scores and the English subscale of the Academic Identity scale (r (121) = .20, p = .027), an ANCOVA was also conducted on participants' RAT scores to examine possible effects after controlling for self-reported English ability and interest. This analysis also did not return the expected interaction, F (1,116) = 2.53, p = .115.

Seeking to replicate the gender differences observed in study 1, an ANOVA was conducted using a 2x2 design with Gender (Male vs. Female) and condition (*Threat* vs. *Lift*) on the RAT scores. This interaction was not significant, F (1,117) = 3.91, p = .570. An ANCOVA using the same factors but controlling for self-reported English identification also returned a non-significant interaction, F (1,116) = .205, p = .652.

Post-Performance Analyses

Participants were asked to answer two statements regarding their thoughts on future testing procedures on hypothetical future participants and their performance on the RAT. The first question asked, "In future experimental sessions, we will continue to look at the performance of convergent and divergent personalities on tests of verbal

ability in group sessions. In general, which group do you think will succeed the most?" Participants were asked to pick between two choices, convergent or divergent personalities. Their choices and whether or not they had heard instructions describing their group as able or unable to perform well on the RAT were subjected to a chi-square analysis. This analysis indicated a significant asymmetrical distribution of choices, χ^2 (1) = 6.23, p = .013, which was driven by those who heard that their group was highly successful at the RAT and picked convergent personalities as more likely to succeed on the RAT more than divergent personalities in future testing (see Table 6). A loglinear analysis was also conducted to test for an interaction between gender (male vs. female), condition (*threat* vs. *lift*), and future choice (convergent vs. divergent). This 3-way interaction was not significant, χ^2 (1) = 1.24, p = .265.

Secondly, participants were asked to evaluate their choice for a hypothetical partner for the RAT with the question, "If you were given the option to choose a partner for the verbal ability test you have just completed, from which group would you prefer a partner?" Again, participants were forced to choose between either convergent or divergent personalities. A significant asymmetrical distribution of choices appeared, χ^2 (1) = 22.19, p < .001, which was driven by those who heard their group was highly incompetent at the RAT and indicated that they would prefer an individual evaluated as having a Divergent personality as their partner as compared to having a fellow Convergent personality (see Table 7). A loglinear analysis was also conducted to test for an interaction between gender (male vs. female), condition (*threat* vs. *lift*), and future choice (convergent partner vs. divergent partner). This 3-way interaction was significant, χ^2 (1) = 4.88, p = .027. The summary table for these data can be found in

Table 8. As can be seen in these data, women were more likely than men to be influenced by their condition (i.e. group-based performance expectancies) when deciding on a future partner.

Chapter 4

General Discussion

Across two studies, attempts were made to lead participants to believe they belonged to a minimally-assigned group to which there were either positive or negative expectations of verbal ability based on their group membership. In both studies participants appeared to believe the so-called personality evaluations provided, identified with their respective group as measured by questions aimed at their level of identification with said group as well as associated more positive qualities to their own (in)group as compared to the outgroup. Both studies, however, failed to find support for the performance-based hypotheses; performance on a verbal ability based test did not differ as a function of group-based expectations. In study 1 there was an unexpected gender difference whereby men who were told they were expected to perform poorly did better than both men who were told they were expected to do well and better than women given either group-based expectation. This difference was not replicated in study 2, however, thus limiting the current research's ability to suggest a gender difference in response to an ego-challenging and presumed self-relevant (via one's group) expectation.

In study 2 participants favored their group and desired a future partner from their ingroup (over the outgroup) when they were led to believe that their group excelled at verbal abilities yet reversed this trend when they believed their group generally did not perform well on verbal tests. Given the partially supported cognitive and motivational-based hypotheses related to group identification and preference, there yet remains hope for minimal-group affiliation-driven effects in a manner not all that dissimilar to

traditional stereotype threat findings (Steele & Aronson, 1995). That is, although the focal purpose of impairing and improving verbal ability test performance based on one's peripherally held group identity was not realized, there appear to be possible changes in the experimental design of the current research that could prove fruitful in future work.

Current Research and Limitations

There has been work examining the moderating effect of self-to-group identification in traditional stereotype threat (e.g. Davis, Aronson, & Salinas, 2006; Schmader, 2002). Furthermore, the model briefly discussed in the introduction by Schmader and colleagues (2008) also suggests that group identification is one of the three core components of stereotype threat effects. In the current studies, it may have been the case that participants did not feel a strong enough affiliation with the experimentally created group. Although in both studies participants did respond to various measures in ways that would suggest group identification, this may not have been effective for multiple reasons. The more simple reason is that although participants answered the questions provided in an identification-consistent manner, they may not have fully linked their self-identity to the group regardless of the group stereotype eventually provided. Alternatively, participants may have chosen to disregard the so-called personality test once they heard that their group was expected to perform poorly on the verbal task as a means of self- and ego-protection. This rationale may have trouble explaining the negligible impact of hearing about positive expectations, however, as it appears that individuals like to think of themselves as better than other people on a variety of tasks (Greenwald, 1980, Taylor & Brown, 1988). It could be also be possible that participants, upon hearing the successful performance

expectations, disassociated from their group as means to provide a future excuse for poor performance; that is, if a participant fails to meet the high expectations, one's ego may be protected by denying one's membership of a typically successful group. Nonetheless, actual identification may not have occurred regardless of the results provided by the identification measures.

Aside from concerns regarding participant's identification with their group (or the lack thereof), the performance measure may not have been adequately chosen. The Remote Association Test (Mednick, 1962) is considered to be a test of insight (e.g. Bowden & Jung-Beeman, 1998), or the process by which an answer "instantly" seems obvious to an individual when presented with a test item. During the debriefing process, many participants in both studies of the current research indicated that they were either to come up with the answer immediately upon item presentation or were unable to answer the items at all in the time provided. Though not conclusive with non-recorded descriptions of the participants' self-reported on-line processes involved in item solving, it may have been the case whereby participants did not experience difficulty in answering the problem as they may have been too easy, thus answered immediately, or too difficult resulting in many incorrect or non-answers. Although formal analyses were not conducted on the items answered, it did appear that many of the same items were answered correctly by a vast majority of the participants while difficult items answered correctly seemed randomly dispersed. Central to this issue is the disruption of working memory by which the stereotype phenomenon has been theorized to occur (see Beilock, et al., 2007; Croizet et al., 2004; Schmader & Johns, 2003; Schamder et al., 2008), thereby disrupting critical thinking skills. Although working memory may have

indeed been affected by the current research's manipulations, working memory may have been less integral to the successful answering of these specific RAT problems than would be expected of more common tests, such as difficult math or verbal comprehension questions.

Other informal evidence found in the response pattern of certain items, however, may suggest otherwise. The *incorrect* answers provided by participants to a number of items did appear to follow a common theme in which they responded with a single word that would link with two of the three presented words. The third word in the list, however, clearly was not related to the answered provided. (e.g. *ache* with *tooth, heart,* and *potato*). This may suggest a disruption in the controlled processes of verbal comprehension as individuals proficient in the English language would recognize an incorrect pairing of two words to form a compound word/phrase, but if one's attention were focused on one's performance (possibly as a result of a group-based performance expectation) rather than recognizing the correct answer, the manipulations may have been successful but ultimately were misdirected in their measurement. The formal analyses cannot soundly support this suggestion, although it would suggest possible avenues of research using this particular performance outcome.

Baring possible issues with on-line processes within the participant (i.e. group identification, working memory disruption), the manipulation used may have failed to impress upon the participants the necessary level of diagnosticity-of-task typically found (and thought necessary) in stereotype threat effects (Schamder et al., 2008; Steele & Aronson, 1995; Steele, 1997). The instructions provided to the participants prior to completing the RAT suggested that the test was linked to generalized verbal ability

performance and was similar to items likely to be found on standardized tests such as the Scholastic Aptitude Test and the Graduate Records Exam. Additionally, the instructions provided to convey the group-based expectations may not have been enough to produce performance-altering effects. Participants were only given two sentences within the larger body of instructions that suggested that their group either did or did not excel on the upcoming test. It is possible that participants tuned this information out, though the choices made for future partners and successful performances might suggest otherwise. Alternatively, participants may not have believed that the test itself was indicative of an individual's verbal ability in general but rather one of a specific nature (e.g. word generation speed).

The trend of data in study 1 also suggests a possible performance alteration due in part on the manipulations involved, but in the opposite direction. Work based on the biopsychosocial model (see Blascovich & Tomaka, 1996, for a review) suggests that anxiety may prompt two different motivational states affecting affective and cognitive processes, perhaps improving or impairing some behavioral responses in response to goal-directed situations such as successfully completing the RAT. The first, *challenge*, suggests that individuals feel they have the resources or skill levels to meet the demands of a particular situation, where as *threat* suggests that individuals feel they do not have the necessary resources to meet those same demands. Though the current research was not expecting a reversal of the expectation-to-performance relationship, it could be the case that participants who were told they were expected (based on their group-membership) to perform poorly at the task could have felt they needed to effectively prove the expectation wrong in a reactance-like manner. For those given a

positive expectation for RAT performance, they may have felt as though they could not live up to the high group-based standard and may have faltered as a result.

Similar work on regulatory focus (Higgins, 1998) may suggest similar hypotheses as the *challenge* vs. *threat* research. Work by Seibt and Förster (2004) indicates that positive self-stereotypes may induce a promotion focus, one marked by eagerness and other approach-related behaviors whereas negative self-stereotypes may induce avoidance-related behaviors marked by vigilance to not perform poorly supported by heir results which suggested that positive stereotypes led to faster yet relatively inaccurate test responses and negative stereotypes led slower yet relatively more accurate test answers. Furthermore, these authors found an advantage on creative tasks for those in an approach state but an advantage for analytic tasks for those in a avoidance state. It was reasoned that those in an approach state are more likely to rely on out-of-the-box thinking while those in an avoidance state may prefer to rely on algorithms in their thinking. Though exploration of these findings is limited in the current research, participants told they were expected to do poorly were more thorough in their selection of responses to the items in the RAT, which could be successfully answered if an individual were to selectively apply their possible answer to all three presented words until an answer was found. Those in an approach state, however, may have relied on heuristic thinking and presumed that as long as a possible answer fit in well with two of the presented words it was also likely to fit the third word without actively confirming this possibility. Further work by Keller (2007) suggests that negative stereotypes can have different performance outcomes as a function of one’s current state of regulatory focus.

Although the current work cannot speak to the state of its participants, it does seem possible for this to have occurred.

Future Directions

The current work suggests various avenues for further work as well as possible changes to the present research to explore stereotype threat that may arise from peripheral or experimentally created groups and their supposed stigmata. By addressing the concerns of group identification and more actively ensuring that participants are able to not only identify with their "personality" group but also are motivated to represent them on supposedly diagnostic tasks such as the RAT, the group-based expectations should be more likely to have an effect on their performance. On a related issue, the manipulations should be better crafted to persuade participants that their performance on the RAT is also indicative of future performance in their academic career outside of just their "general verbal ability". For example, a failing performance on more general academic tests (e.g. mathematics, verbal comprehension, logic questions) may appear to be more indicative of one's skill in academia (or lack thereof) as opposed to a task such as the RAT, which may appear to rely solely on a large knowledge of common compound words and/or phrases.

Although increasing the perception of the RAT as a diagnostic test may be one of many ways the current research could be improved upon, it would be prudent to first validate the RAT as a suitable test for stereotype threat related work. A search indicates that there has yet to be any empirical research using the RAT within a stereotype threat paradigm, though generalized verbal ability tests have been used in the past (e.g. Steele & Aronson, 1995). Although RAT performance did not appear to

be affected by the current manipulations when considering a given participant's condition, the observed gender and condition interaction in study 1 does suggest some possibility for a real-world difference in threat expectations. Work by Vick, Seery, Blasocovich, and Weisbuch (2008) indicates a gender difference in the physiological reactions (i.e. *challenge* vs. *threat*) to stereotype threat as a function of hearing either gender-biased or gender-neutral test information. It was observed in the current work (study 1) that men performed at a higher level on the RAT when given information that they, as a function of their group membership (being male), would perform poorly. This change in performance was not observed in either direction for women (being female). Although this finding was not replicated in study 2, it does suggest the possibility of gender differences in performance upon learning of group-based expectations and their implications for individuals within that group.

It may be also more beneficial to focus on the strategies of those who scored relatively poorly on the RAT than those successfully answering items. Through informal analyses of the response sets of the RAT items, it did appear that there were repeating trends in the responses on many of the same items, suggesting there may have been a cognitive deficit of full processing, yet evident that thoughtful (though incorrect) processing did occur. Thus, rather than looking only for correct items to determine the impact of group-based expectations on individuals, it would be advantageous to examine the *lack* of fully thought out responses as a function of these expectations. Additionally, as suggested by the work on the biopsychosocial model (Blascovich & Tomaka, 1996) and on regulatory focus (Higgins, 1998) on performance outcomes based on one's current motivational state, once more basic processes have been

determined within the minimal group / stereotype threat paradigm it would be worthwhile to examine if these minimal group performance outcomes are moderated by regulatory focus as they appear to be in real groups (e.g. gender; Keller, 2007).

Although the current work's hypotheses were only partially supported, it does give a line of thought and reasoning toward future work in using this paradigm. This work was partially inspired by the author's observed reactions to ad-hoc group-based stereotypes in graduate school and in previous undergraduate courses (e.g. some areas in psychology are better at statistics than others) regardless of their objective truth. To conclude that ad-hoc groups and their stereotypes have no effect on their members would be mistaken. Although real-world categories (e.g. gender, race, etc) may result in often found stereotype-threat effects (Steele, 1998), it would seem likely that any group to which an individual identifies with and has subsequent expectations based on that group's stereotypes should have some sort of meaningful impact on that individual's performance, independent of the individual's objective skill set. Thus, although minimal group stereotype threat effects were not currently supported, other ad-hoc groups may result in the sort of detrimental effects believe to commonly afflict real-world groups.

Footnotes

[1] Participants were given Convergent or Divergent evaluations as to eliminate any potential inherent preference or identification for either group based on individually held pre-conceptions or inference of the meaning of the labels.

Appendix 1

Perceptor Category (Please Circle One): Convergent Divergent Don't Know/Unsure

For each of the scale items below, write in the number that represents the response closest to your feelings and impressions of members of the two estimator groups. The scale values are on the following page.

SCALE ITEM	Convergent Thinkers	Divergent Thinkers
Hostile - Friendly	_____	_____
Disruptive - Helpful	_____	_____
Stupid - Intelligent	_____	_____
Difficult to Like - Very Likeable	_____	_____
Cold - Warm	_____	_____
Boring - Interesting	_____	_____
Uncooperative - Cooperative	_____	_____
Deceitful - Honest	_____	_____
Greedy - Unselfish	_____	_____
Narrow-Minded - Broad-Minded	_____	_____

Group Impressions Scale

Hostile Neither Friendly
---
1 2 3 4 5 6 7

Disruptive Neither Helpful
---
1 2 3 4 5 6 7

Stupid Neither Intelligent
---
1 2 3 4 5 6 7

Difficult to Like Neither Very Likeable
---
1 2 3 4 5 6 7

Cold Neither Warm
---
1 2 3 4 5 6 7

Boring Neither Interesting
---
1 2 3 4 5 6 7

Uncooperative Neither Cooperative
---
1 2 3 4 5 6 7

Deceitful Neither Honest
---
1 2 3 4 5 6 7

Greedy Neither Unselfish
---
1 2 3 4 5 6 7

Narrow-Minded Neither Broad-Minded
---
1 2 3 4 5 6 7

Appendix 2

INSTRUCTIONS: We would like to obtain some more detailed information about your feelings about your group's and the other group's performance. First, we would like to ask you some general questions about how you feel about your group. Please read each of the following items and indicate your agreement with it by writing in the number that comes closest to your feelings.

1	2	3	4	5	6	7	8	9
Strongly Disagree			Neither nor Disagree			Agree		Strongly Agree

_____ 1. I feel I identify with my group.

_____ 2. I am glad I belong to this group.

_____ 3. I would feel held back by my group.

_____ 4. I think other members of my group and I would work well together.

_____ 5. I see myself as an important member of this group.

_____ 6. I feel I do not fit in well with this group.

_____ 7. I do not consider the group to be important.

_____ 8. I would feel uneasy with other members of this group.

_____ 9. I feel strong ties to this group.

Appendix 3

The following items concern the upcoming task. Please indicate how strongly you disagree or agree with each statement.

I expect to perform very well on the word association test.

1	2	3	4	5	6	7
Strongly Disagree			Neutral		Strongly Agree	

I feel that it is very important to do well on tests of verbal ability, such as the word association test.

1	2	3	4	5	6	7
Strongly Disagree			Neutral		Strongly Agree	

I feel the word association test will be very difficult.

1	2	3	4	5	6	7
Strongly Disagree			Neutral		Strongly Agree	

I believe that people similar to me have little verbal processing ability.

1	2	3	4	5	6	7
Strongly Disagree			Neutral		Strongly Agree	

I believe that I will perform much better than the average student on the word association test.

1	2	3	4	5	6	7
Strongly Disagree			Neutral		Strongly Agree	

I believe that people similar to me do poorly at these types of tests.

1	2	3	4	5	6	7
Strongly Disagree			Neutral		Strongly Agree	

I believe that I have much ability in verbal processing for tasks such as making word associations.

1	2	3	4	5	6	7
Strongly Disagree			Neutral		Strongly Agree	

Appendix 4

Item #	Stimuli			Answer
1	Loser	Throat	Spot	Sore
2	Night	Wrist	Stop	Watch
3	Duck	Fold	Dollar	Bill
4	Dew	Comb	Bee	Honey
5	Fountain	Baking	Pop	Soda
6	Cracker	Fly	Fighter	Fire
7	Measure	Worm	Video	Tape
8	Worm	Shelf	End	Book
9	Print	Berry	Bird	Blue
10	Date	Alley	Fold	Blind
11	Fox	Man	Peep	Hole
12	Sleeping	Bean	Trash	Bag
13	Food	Forward	Break	Fast
14	Water	Mine	Shaker	Salt
15	Basket	Eight	Snow	Ball
16	Cross	Rain	Tie	Bow
17	Main	Sweeper	Light	Street
18	Fly	Clip	Wall	Paper
19	Wagon	Break	Radio	Station
20	Eight	Skate	Stick	Figure
21	Foul	Ground	Mate	Play

22	Way	Board	Sleep	Walk
23	Blank	List	Mate	Check
24	Mouse	Bear	Sand	Trap
25	Test	Runner	Map	Road
26	Man	Glue	Star	Super
27	Tooth	Potato	Heart	Sweet
28	Wet	Law	Business	Suit
29	Hold	Print	Stool	Foot
30	Horse	Human	Drag	Race

Appendix 5

I noticed distinct differences in the paintings I viewed

1 2 3 4 5 6 7

Strongly Disagree Strongly Agree

My perceptual or thinking style can be best characterized as

1 2 3 4 5 6 7

Convergent Divergent

In future experimental sessions, we will continue to look at the performance of convergent and divergent thinkers on these types of tasks in group sessions. In general, which group will succeed most at these types of tasks?

Convergent Thinkers Divergent Thinkers Neither Group

Additionally, in future experimental sessions, we will continue to look at the performance of convergent and divergent thinkers on these types of tasks in group sessions. If you were given the option to choose, who you would like as a partner?

A Convergent Thinker A Divergent Thinker No Preference

When going through the verbal ability test, did you worry about how you would perform?

1 2 3 4 5 6 7

Not Very Much Very Much

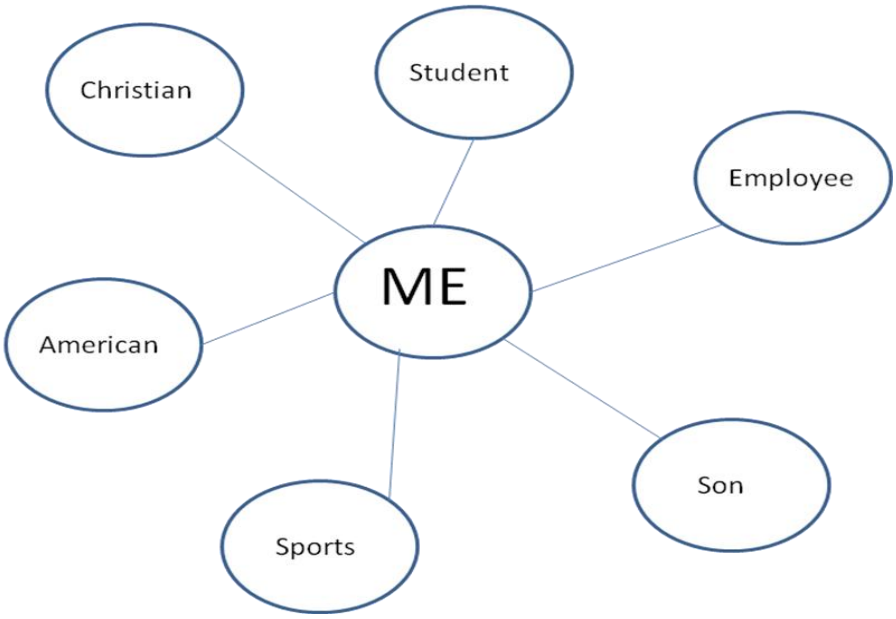
When going through the verbal ability test, did you worry about letting your group down?

1 2 3 4 5 6 7

Not Very Much Very Much

Appendix 6

Simple



Complex

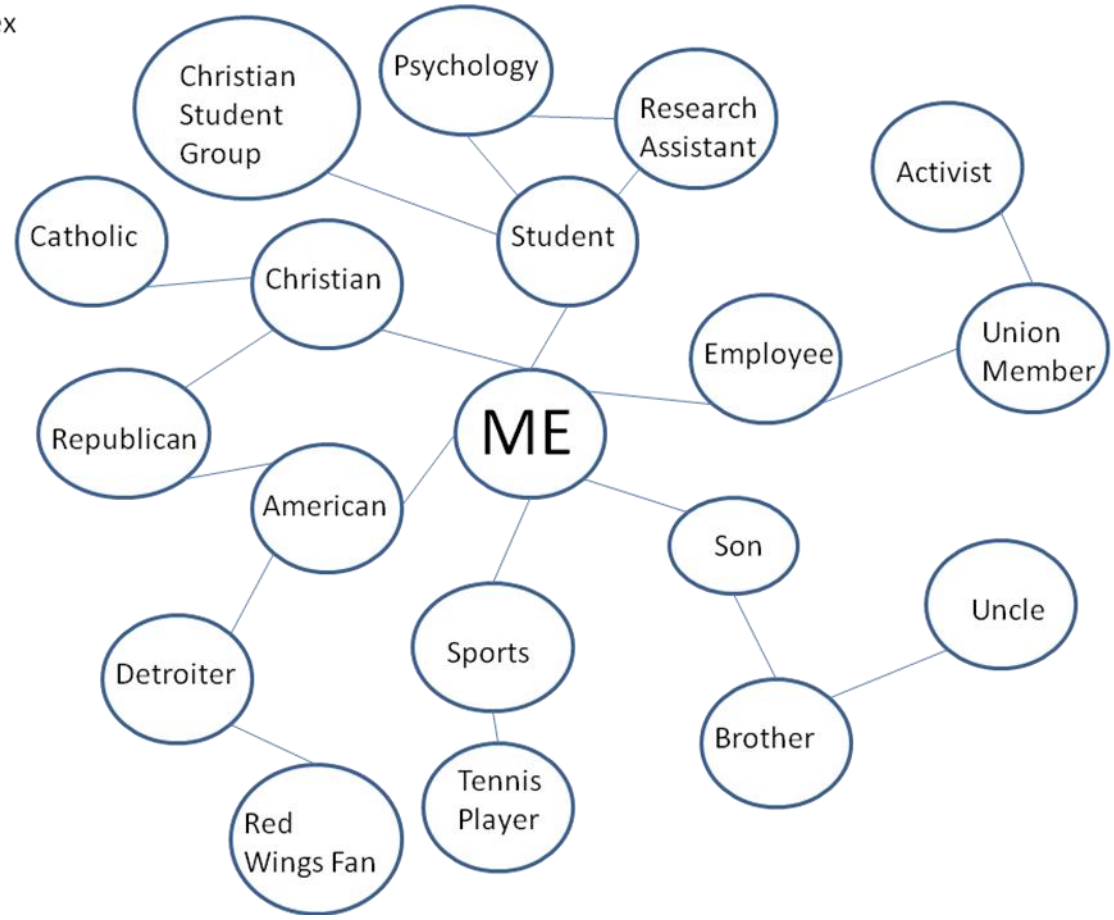


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Table 1. Mean RAT scores for participants receiving different personality evaluations and group-related instructions on the RAT (Experiment 1).

	Threat	Lift	Difficult	Control
RAT Score	14.59	12.67	13.15	13.81
	(4.20)	(3.63)	(3.26)	(4.00)
	n = 27	n = 30	n = 26	n = 26

Note: Standard deviations are in parentheses.

Table 2. Mean RAT scores as a function of gender and experimental condition (Experiment 1).

	Threat	*Lift*
Male	17.09	12.60
	(4.89)	(2.95)
	n = 11	n = 10
Female	12.88	12.70
	(2.63)	(4.00)
	n = 16	n = 20

Note: Standard deviations are in parentheses.

Table 3. Number of participants choosing which group will do better in the future on the RAT based on their received stereotype (Experiment 1).

	Positive Stereotype	Negative Stereotype
Ingroup	15	8
Outgroup	12	14

Table 4. Number of participants choosing a partner from either group for future completion of the RAT based on their received stereotype (Experiment 1).

	Positive Stereotype	Negative Stereotype
Ingroup	14	8
Outgroup	16	18

Table 5. Mean RAT scores for participants receiving identity mapping instructions and group-related instructions on the RAT (Experiment 2).

	Positive Stereotype	Negative Stereotype
Simple Map	12.90	13.62
	(3.75)	(3.58)
	n = 31	n =32
Complex Map	13.38	12.28
	(3.17)	(3.22)
	n = 29	n = 29

Note: Standard deviations are in parentheses.

Table 6. Number of participants choosing which group will do better in the future on the RAT based on their received stereotype (Experiment 2).

	Positive Stereotype	Negative Stereotype
Convergent	43	30
Divergent	18	32

Table 7. Number of participants choosing a partner from either group for future completion of the RAT based on their received stereotype (Experiment 2).

	Positive Stereotype	Negative Stereotype
Convergent	36	11
Divergent	25	51

Table 8. Number of participants choosing a partner from either group for future completion of the RAT based on their received stereotype and their gender (Experiment 2).

	Males			Females	
	Positive Stereotype	Negative Stereotype		Positive Stereotype	Negative Stereotype
Convergent	10	6	Convergent	26	5
Divergent	10	12	Divergent	15	39

ABSTRACT

THREAT BY ASSOCIATION: MINIMAL GROUP AFFILIATION AND ITS OUTCOME FOR STEREOTYPE THREAT

by

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August 2010

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Major: Psychology (Social)

Degree: Master of Arts

Stereotype threat has been shown to be an important cause of performance detriments in various social groups. It has also been theorized that stereotype threat could be applicable to any group so long as the individual believes their performance may reinforce the negative stereotype. The current work attempts to induce stereotype threat in participants believing they belong to an experimentally created and negatively stereotyped group using a minimal group paradigm. Across two studies there did not appear to be significant performance changes typically observed in stereotype threat research. Various cognitive measures and post-performance inquiries did generally support claims that participants were identifying and processing the stereotypes according to the instructions provided, suggesting that although performance was not affected, traditionally thought stereotype threat processes were occurring. Unexpected gender effects were also observed in both performance and post-test measures and are explored where appropriate. Suggestions for future iterations of the current work are suggested in light of the unsupported hypotheses.

AUTOBIOGRAPHICAL STATEMENT

Eric W. Fuller graduated with a B.A. in psychology and sociology from the University of Michigan – Dearborn in 2007. He is currently attending Wayne State University in Detroit in a doctoral program with interests in social psychology and statistical methods.