


Summer 2008

# The Relationship Between Valuing Diversity and Implicit Racial Bias: A Construct Validation Study

Rebekka Althouse Gordon  
*Old Dominion University*

Follow this and additional works at: [https://digitalcommons.odu.edu/psychology\\_etds](https://digitalcommons.odu.edu/psychology_etds)

 Part of the [Cognitive Psychology Commons](#), and the [Industrial and Organizational Psychology Commons](#)

## Recommended Citation

Gordon, Rebekka A.. "The Relationship Between Valuing Diversity and Implicit Racial Bias: A Construct Validation Study" (2008). Doctor of Philosophy (PhD), dissertation, Psychology, Old Dominion University, DOI: 10.25777/b07b-ev51 [https://digitalcommons.odu.edu/psychology\\_etds/150](https://digitalcommons.odu.edu/psychology_etds/150)

This Dissertation is brought to you for free and open access by the Psychology at ODU Digital Commons. It has been accepted for inclusion in Psychology Theses & Dissertations by an authorized administrator of ODU Digital Commons. For more information, please contact [digitalcommons@odu.edu](mailto:digitalcommons@odu.edu).

**THE RELATIONSHIP BETWEEN VALUING DIVERSITY AND  
IMPLICIT RACIAL BIAS: A CONSTRUCT VALIDATION STUDY**

by

Rebekka Althouse Gordon  
B.A. May 2002, Franklin & Marshall College  
M.S. August 2006, Old Dominion University

A Dissertation Submitted to the Faculty of  
Old Dominion University in Partial Fulfillment of the  
Requirement for the Degree of

DOCTOR OF PHILOSOPHY

INDUSTRIAL-ORGANIZATIONAL PSYCHOLOGY

OLD DOMINION UNIVERSITY  
August 2008

Approved by:

---

Ivan K. Ash (Director)

---

Donald D. Davis (Member)

---

Robert M. McIntyre (Member)

## **ABSTRACT**

### **THE RELATIONSHIP BETWEEN VALUING DIVERSITY AND IMPLICIT RACIAL BIAS: A CONSTRUCT VALIDATION STUDY**

Rebekka Althouse Gordon  
Old Dominion University, 2008  
Director: Dr. Ivan K. Ash

Two studies examined the construct validity of valuing diversity in relation to both explicit and implicit racial bias. In the first study, participants completed three measures: the Miville-Guzman Universality-Diversity Scale to measure valuing diversity; the Implicit Association Test to assess implicit racial bias; and the Symbolic Racism 2000 Scale to assess explicit racial bias. Results indicated there was a significant relationship between the valuing diversity and implicit racial bias measures as well as between the valuing diversity and explicit racial bias measures. The explicit and implicit racial bias measures accounted for unique variance in the valuing diversity construct. There was not a significant relationship between explicit and implicit racial bias. The second study assessed how priming with counter-stereotypical exemplars affected responses to the same measures. Although it was expected that exposure to counter-stereotypical exemplars would produce decrements in implicit racial bias, the manipulation did not directly affect responses to any of the measures. Together these studies clarify the fundamental nature of valuing diversity and provide further insight into the relationship between explicit and implicit racial attitudes.

This dissertation is dedicated in loving memory of my brother Jesse.

## ACKNOWLEDGMENTS

Thank you to my dissertation chair, Ivan Ash, for taking on an “orphaned” graduate student and helping me design and complete this research. His generous commitment of time, resources, and key advice were invaluable to my success. I feel privileged to be his first graduating doctoral student.

Thank you to my committee members, Robert McIntyre and Donald Davis, for their support and advice throughout this project and for all the valuable lessons they taught me throughout my graduate studies. Thank you to the Human Cognition Lab for their camaraderie and support. Special thanks to David Finch and JoAnn Boyce for their assistance with data collection.

I am grateful to my family and friends for their love and encouragement throughout my graduate studies. To my husband - your unconditional love and support meant the world to me and directly contributed to my success. Thank you for being so kind, patient, and for always keeping me grounded. For this and a million other reasons, I will always love you.

## TABLE OF CONTENTS

	Page
LIST OF TABLES.....	viii
LIST OF FIGURES .....	ix
 Chapter	
I. INTRODUCTION .....	1
SUBTLE RACISM .....	2
MULTICULTURALISM.....	3
VALUING DIVERSITY.....	4
MEASURING VALUING DIVERSITY .....	5
ATTITUDES.....	7
EXPLICIT ATTITUDES .....	8
IMPLICIT ATTITUDES .....	9
RELATIONSHIP BETWEEN IMPLICIT AND EXPLICIT ATTITUDES.....	10
THE IMPLICIT ASSOCIATION TEST .....	10
THE RACE IAT.....	12
THE RACE IAT IN ORGANIZATIONS.....	14
MANIPULATING IMPLICIT ATTITUDES .....	17
PURPOSE AND DESIGN.....	19
 II. METHOD STUDY ONE.....	 21
PARTICIPANTS.....	21
MATERIALS .....	22
THE MIVILLE-GUZMAN UNIVERSALITY-DIVERSITY SCALE – SHORT FORM.....	22
SYMBOLIC RACISM 2000 SCALE .....	22
THE IMPLICIT ASSOCIATION TEST (IAT) .....	23
SCORING ALGORITHM .....	24
PROCEDURE .....	25
STATISTICAL POWER.....	27
 III. RESULTS STUDY ONE.....	 28
DATA PREPARATION .....	28
RELIABILITY OF MEASURES.....	28
DIFFERENCES IN RESPONSE TIME ACROSS DEMOGRAPHIC GROUPS.....	29
RELATIONSHIP BETWEEN MEASURES.....	32
MULTIPLE REGRESSION .....	33
SUMMARY OF RESULTS.....	35

Chapter	Page
IV. METHOD STUDY TWO .....	36
PARTICIPANTS .....	36
MATERIALS .....	37
COUNTER STEREOTYPICAL EXEMPLARS .....	37
CONTROL GROUP EXEMPLARS .....	38
PROCEDURE .....	38
EXPERIMENTAL PRIMING TASK .....	39
CONTROL TASK .....	40
STATISTICAL POWER .....	41
V. RESULTS STUDY TWO .....	42
DATA PREPARATION .....	42
RELIABILITY OF MEASURES .....	42
DIFFERENCES IN RESPONSES ACROSS DEMOGRAPHIC GROUPS .....	42
MANIPULATION EFFECTS .....	45
RELATIONSHIP BETWEEN MEASURES .....	47
SUMMARY OF RESULTS .....	51
VI. GENERAL DISCUSSION AND CONCLUSIONS .....	53
EVALUATION AND DISCUSSION OF RESULTS .....	53
CONSIDERATION OF LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH .....	56
CONCLUSIONS .....	58
REFERENCES .....	60
APPENDICES	
A. MIVILLE-GUZMAN UNIVERSALITY-DIVERSITY SCALE ITEMS .....	74
B. SYMBOLIC RACISM 2000 SCALE ITEMS .....	75
C. IAT STIMULI WORDS .....	76
D. IAT EXAMPLE SCREENSHOTS .....	77
E. PARTICIPANT RECRUITMENT FLYER .....	80
F. INFORMED CONSENT FORM .....	81
G. WELCOME SCRIPT .....	84
H. DEMOGRAPHIC ITEMS .....	85
I. MEASURE INSTRUCTIONS .....	86
J. DEBRIEFING FORM .....	87
K. EXPERIMENTAL TASK EXEMPLARS .....	89
L. CONTROL TASK EXEMPLARS .....	91
M. EXPERIMENTAL TASK SCREENSHOTS .....	92
N. EXPERIMENTAL AND CONTROL TASK INSTRUCTIONS .....	93
O. CONTROL TASK SCREENSHOTS .....	95
VITA .....	96

**LIST OF TABLES**

Table	Page
1. Numbers of Women and Men by Racial Group in Study 1 .....	21
2. Mean Responses on Three Racial Attitude Measures as a Function of Ethnicity in Study 1 .....	31
3. Correlations between the Racial Attitude Measures in Study 1 .....	32
4. Regression Analysis Summary for Racial Bias Variables Predicting Valuing Diversity .....	33
5. Numbers of Women and Men by Racial Group in Study 2 .....	37
6. Mean Responses on Three Racial Attitude Measures as a Function of Ethnicity in Study 2 .....	44
7. Summary Table of Means, Standard Deviations, and Reliabilities by Study and Experimental Condition .....	46
8. Correlations between the Racial Attitude Measures in Experimental Group .....	47
9. Inter-Scale Correlations by Study and Experimental Condition .....	50
10. Correlations between the Racial Attitude Measures in Control Group .....	51



**LIST OF FIGURES**

Figure	Page
1. Unique variance in the Miville-Guzman Universality-Diversity Scale Short Form (M-GUDS-S) accounted for by the Symbolic Racism 2000 Scale (SR2K) and the Race Implicit Association Test (Race IAT) in the Study 1 sample.....	34

## CHAPTER I

### INTRODUCTION

“People who are aware of, and ashamed of, their prejudices are well on the road to eliminating them” (Allport, 1954).

Multiculturalists focus on uniting diverse ethnic and racial groups through fostering appreciation for cultural differences. Valuing diversity initiatives are popular in the workplace due to their potential to positively impact a number of organizational-level outcomes including effectiveness, productivity, and profitability. Unfortunately, research has lagged behind practice in this domain, and psychologists have only begun to study the construct validity of valuing diversity. A relatively new measure from the field of social cognition may provide more insight into the constitution and structure of valuing diversity. No research to date has explored the link between implicit racial attitudes and self-reported valuing diversity. The present research aims to clarify the fundamental nature of valuing diversity by exploring its relationship to both implicit and explicit racial bias.

Although there have been increasingly high standards for tolerance over the past century, racial prejudice remains a significant concern for U.S. organizations. Enforced compliance with the Civil Rights Act has led to a dramatic decrease in overt racism (Schuman, Steeh, Bobo, & Krysan, 1997). Nevertheless, there were still 27,238 complaints alleging race-based discrimination filed under Title VII in the 2006 fiscal year (U.S. Equal Employment Opportunity Commission, 2007). Although there may be a

---

This dissertation adheres to the format of the *Journal of Applied Psychology*.

reticence to openly express prejudice in our society, this statistic clearly indicates that discrimination is occurring on a regular basis.

Even with increased compliance with equal opportunity laws, prejudice may nevertheless affect important employment decisions. Dovidio and Gaertner (2000) discovered that when rating ambiguously qualified job applicants, participants consistently rated White applicants as superior to Black applicants with identical qualifications. The evidence of racism's negative impact and the positive impact that well-managed diversity can have on organizations are both strong motivations to develop more powerful diversity initiatives, better measures, and clearer definitions of diversity constructs.

### *Subtle Racism*

Diversity researchers attribute the majority of modern prejudice to *subtle* forms of racism. This subtle racism manifests itself in individuals who support the principle of racial equality and regard themselves as egalitarian, but simultaneously possess unconscious negative feelings about Blacks (Gaertner & Dovidio, 2005). These attitudes are thought to be pervasive in society, representing the racial attitudes of most well-educated and liberal Whites (Gaertner & Dovidio, 2005).

Often termed *symbolic racists*, these individuals do not believe in the notions at the core of traditional prejudice (Kinder & Sears, 1981). Instead, they exhibit a resistance to change in the "racial status quo" rooted in feelings of social morality. These feelings are based on perceptions that Blacks violate traditional American values such as discipline, self-reliance, and hard work (Kinder & Sears, 1981). Tarman & Sears (2005) define the four defining themes of symbolic racism as:

(1) Racial discrimination is no longer a serious obstacle to Black's prospects for a good life. (2) Black's continuing disadvantages are largely due to their unwillingness to work hard enough. As a result, (3) continuing demands and (4) increased advantages are unwarranted (p. 733).

Symbolic racists are thought to act on their unconscious negative attitudes only when there is a plausible, non-prejudiced explanation available for the prejudiced behavior (McConahay, 1986). Therefore, a symbolic racist aspires to be nondiscriminatory, and believes oneself to be nondiscriminatory, yet under certain circumstances may exhibit discriminatory behavior.

Minority group members are often very sensitive to any negative behaviors displayed by majority group members that might reveal their prejudices (Vorauer & Kumhyr, 2001). The result is that majority group members are inadvertently having a negative effect on minority group members (Holvino, Ferdman, & Merrill-Sands, 2004). Subtle racism is pervasive and contributes to the restriction of opportunities for Blacks and other minorities (Dovidio & Gaertner, 1998).

### *Multiculturalism*

Developing appropriate and effective means to combat prejudice is an important goal for organizational psychologists. Traditionally, diversity initiatives emphasized a *color-blind* perspective where participants learned that race does not matter and should not be discussed. However, research indicates that individuals who hold color-blind racial attitudes are often *more* likely to hold racial and gender prejudices (Nelville, Roderick, Duran, Lee, & Browne, 2000). One alternative to color-blind diversity initiatives are multicultural diversity programs. Multiculturalism proposes that group differences should

not only be acknowledged, but emphasized and celebrated (Takaki, 1993). Holvino et al. (2004) describe organizations that champion multiculturalism:

In the multicultural or inclusive and diverse stage – an ideal stage in the development process – organizations seek and value all differences and develop the systems and work practices that support members of every group to succeed and fully contribute. Inclusion in multicultural organizations means that there is equality, justice, and full participation at both the group and individual levels, so that members of different groups not only have equal access to opportunities, decision-making, and positions of power, but also are actively sought out because of their differences (p. 248).

In addition to these theoretical differences, there are compelling motives to design interventions with multiculturalism in mind. Interventions that stress appreciation for differences have generally been more successful than traditional diversity training (Johnston & Hewstone, 1992; Wolkso, Park, Judd, & Wittenbrink, 2000). Specifically, initiatives that are based on multiculturalism are believed to have a more positive impact on implicit racial bias than color-blind initiatives (Richeson & Nussbaum, 2004).

### *Valuing Diversity*

Individuals differ in their beliefs and attitudes toward diversity (Hostager & DeMeuse, 2002). Valuing diversity refers to an individual's collection of attitudes and behavioral tendencies toward those with different cultural or ethnic backgrounds. Valuing diversity is the central tenet of multicultural initiatives and presumed to be the mechanism of change. An individual high in valuing diversity is more likely to recognize and accept both the similarities and differences of other people and be open to different races, cultures, and ethnic backgrounds (Althouse & Dickinson, 2007). It is widely believed that individuals, groups, and organizations must value diversity in order to reap the many benefits of diversity (Homan, van Knippenberg, Van Kleef, & De Dreu, 2007).

Diversity programs that are designed to increase knowledge and acceptance of cultural differences are often called valuing diversity programs (Gottfredson, 1992).

Usually these programs are based around seminars and small group activities.

Unfortunately, they are seldom evaluated for their effectiveness. As McCauley, Wright, and Harris (2000) indicate, 81% of the universities in their sample employed diversity workshops but none actually evaluated the effect of the training programs. One way to evaluate the effectiveness of these workshops is to measure valuing diversity.

### Measuring Valuing Diversity

One of the best measures of valuing diversity is the Miville-Guzman Universality-Diversity Scale (M-GUDS; Miville et al., 1999); which was developed to assess self-reported universal-diverse orientation in a counseling psychology setting. Miville et al. (1999) define universal-diverse orientation as “an attitude toward all other persons that is inclusive yet differentiating in that similarities and differences are both recognized and accepted; the shared experience of being human results in a sense of connectedness with people and is associated with a plurality or diversity of interactions with others” (p. 292). Although there has not been extensive research on the valuing diversity construct, proper convergent and discriminant validity have been established for the M-GUDS. The following section summarizes validity evidence from recent research.

Althouse and Dickinson (2007) investigated the convergent and discriminant validity of the M-GUDS. They found strong, significant correlations between the M-GUDS, the Attitudes Toward Diversity Scale (ATDS; Montei, Adams, & Eggers, 1996), and the Scale of Ethnocultural Empathy (SEE; Wang et al., 2003). A second-order factor model of valuing diversity offered by Althouse and Dickinson (2007) suggests that the

SEE and M-GUDS can be considered alternate measures of valuing diversity, but the ATDS measures something related but different. Althouse and Dickinson (2007) also found evidence for the discriminant validity of the M-GUDS. A very weak correlation was found between the M-GUDS and the Minnesota Satisfaction Questionnaire (Weiss, Dawis, England, & Lofquist, 1967) as well as between the M-GUDS and the Leader-Member Exchange scale (Graen, Novak, & Sommerkamp, 1982).

Miville et al. (1999) reported additional construct validity evidence. The researchers found a strong positive correlation between the M-GUDS and the Autonomy subscale of the White Racial Identity Attitude Scale in an all-White sample (Helms, 1990). In addition, Miville et al. (1999) found no significant correlation between the M-GUDS and self-reported SAT Verbal scores and a very weak correlation between the M-GUDS and SAT Quantitative scores. Miville et al. (1999) also found that the M-GUDS had a significant negative correlation with both the Homophobia Scale (Hansen, 1982) and the Dogmatism Scale (Troidahl & Powell, 1965).

Research also supports that the M-GUDS is free from social desirability bias. Miville et al. (1999) found no significant relationship between the M-GUDS and the Social Desirability Scale (Crowne & Marlowe, 1964) in racially heterogeneous samples; supporting the discriminant validity of the M-GUDS. Similarly, Althouse and Dickinson (2007) found no significant relationship between the M-GUDS and the Balanced Inventory of Desirable Responding (Paulhus, 1994).

The preceding research provides empirical support that the M-GUDS is reliable and valid across different samples. The M-GUDS measures a social attitude (i.e., universal-diverse orientation) allied with healthy self-perceptions and empathy for others,

low prejudicial attitudes, and positive racial identity. Given the foregoing evidence, the M-GUDS can be considered a useful measure for studying the valuing of diversity in organizations. However, more research needs to be conducted that can further elaborate on the valuing diversity construct. There is a need to develop a nomological net of relationships around valuing diversity to clarify and identify the construct (Cronbach & Meehl, 1955). There is a growing understanding of valuing diversity but there are many questions left to be answered. One of the best ways to expand this understanding is to investigate how valuing diversity measures are similar to or different from other diversity measures. No research to date has examined the relationship between valuing diversity measures and implicit measures of racial attitudes. Implicit attitude measures represent a paradigm shift in research about attitudes. In order to further investigate the construct validity of valuing diversity, the proposed study will examine its relationship with both implicit and explicit racial bias.

### *Attitudes*

A proper investigation into the qualities of attitudes demands concrete definitions of all terms. Definitions of attitudes have wildly fluctuated since Allport's (1935) comprehensive definition:

An attitude is a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related (Allport, 1935).

The literature is full of definitions – varying from theory to theory. Eagly and Chaiken (1993) argue that psychology needs a more inclusive conceptualization and they provide the most recent attempt at an umbrella definition. They describe an attitude as “a



psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor” (Eagly & Chaiken, 1993, p. 1). In general, attitudes can be classified as one of two categories; explicit or implicit.

### Explicit Attitudes

Explicit attitudes are self-reported and are believed to be almost entirely under conscious control (Wilson, Lindsey, & Schooler, 2000). They reflect an evaluation (favorable or unfavorable) of an attitude object and signify the beliefs and intentions that individuals are both willing and able to report. Historically, researchers have been very satisfied with the considerable face validity and ease of administration that characterize explicit measures. However, explicit measures are thought to be biased by social desirability, self-deception, and social norms (Crowne & Marlowe, 1960; Nisbett & Wilson, 1977). Prior to the 1980s, researchers presumed that explicit measures were the only way to measure attitudes (Greenwald & Banaji, 1995). Psychologists believed that all attitudes were consciously accessible and therefore endorsed. However, a paradigm shift in the way we conceptualize attitudes occurred when psychologists recognized that humans can think in ways that contradict self-reported attitudes, and that some mental activities might be unavailable to introspection (Nisbett & Wilson, 1977). The tendency to overestimate the thoughts and behaviors we have control over has often been referred to in the literature as the “illusion of conscious will” (Wegner, 2002). Presently, the field of psychology accepts that attitudes, goals, and stereotypes may indeed operate independently from conscious experience and intent (Greenwald & Banaji, 1995).

## Implicit Attitudes

Following this paradigm shift, researchers began outlining theories of implicit attitudes; attitudes that exist outside awareness and conscious control (Greenwald & Banaji, 1995; Wilson, et al., 2000). Greenwald and Banaji (1995) defined implicit attitudes as “introspectively unidentified or inaccurately identified traces of past experience that mediate favorable or unfavorable feelings toward an attitude object” (p. 8). Implicit or automatic attitudes are considered to be important because immediate evaluative responses might affect behavior just as much, if not more, than introspectively available responses (Fazio, 1990). Researchers have developed several implicit measures of attitudes including: the automatic activation measure (Fazio, Jackson, Dunton, & Williams, 1995); the attributional measure (von Hippel, Sekaquaptewa, & Vargas, 1997); the semantic priming task (Wittenbrink, Judd, & Park, 1997); and finally the most popular, the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998). Implicit attitude measurement has many advantages over explicit measurement. First of all, implicit measures are thought to avoid the social desirability, self-deception, and social norm concerns that plague explicit measures. Secondly, implicit measures are indirect measures, so they may reveal information individuals are either unwilling or unable to report (Greenwald & Banaji, 1995). Participants are not necessarily aware of what implicit measures are assessing or may be unable to control responses. Therefore, implicit measures are also much less susceptible to any deliberate modification (Fazio et al., 1995).

### Relationship between Implicit and Explicit Attitudes

Questions concerning the nature of the relationship between explicit and implicit attitudes have not been simple to answer. There are at least three distinct hypotheses about the relationship. Some researchers assert that the constructs are completely independent; some believe they tap the same underlying attitudinal construct; and others believe they are distinct but related constructs. Several studies demonstrate that explicit and implicit measures account for wholly unique variance (e.g., Karpinski & Hilton, 2001), while others show evidence of significant correlations between implicit and explicit measures (e.g. Banse, Seise, & Zerbis, 2001). Blair (2001) reviewed 25 studies and found that observed correlations between explicit and implicit attitudes were typically low (median .13) but occasionally substantial (maximum .60). After years of study, the prominent implicit attitude scholars believe that the constructs are distinct but related (Nosek, Greenwald, & Banaji, 2006; Nosek & Symth, 2007). Nosek (2005) has proposed that the relationship between explicit and implicit attitudes may be moderated by self-presentation, evaluative strength, dimensionality, and distinctiveness. Structural analyses of implicit and explicit attitudes show they do have components in common but retain unique elements that cannot be attributed to the mode of measurement (Cunningham, Preacher, & Banaji, 2001; Greenwald & Farnham, 2000).

#### *The Implicit Association Test*

The most researched and controversial implicit attitude measure is the Implicit Association Test (IAT; Greenwald et al., 1998). The IAT has generated enormous interest in both the scientific community and the general public. Specifically, there is a lot of interest around *what* exactly the IAT measures. Essentially, the IAT is a measure of how

closely associated an attitude object is with an evaluative attribute. This association is measured by the length of time it takes participants to categorize positive/negative words and sort photos representing two conceptual categories using the same response modality (Greenwald et al., 1998). The assumption is that responses will be facilitated (both faster and more accurate) when categories more closely associated by the respondent share a response key (Lane, Banaji, Nosek, & Greenwald, 2007). Larger IAT effects denote stronger associations between the mapped concepts (McConnell & Leibold, 2001). Robust and easy to administer, the IAT produces widespread effects across different groups of people (Greenwald et al., 1998; Nosek et al., 2007). The IAT also has excellent internal consistency (Dasgupta & Greenwald, 2001; Greenwald & Nosek, 2001; Greenwald & Farnham, 2000) and strong test-retest reliability (Blair, 2001; Lane et al., 2007; Bosson, Swann, & Pennebaker, 2000). It produces large effect sizes in comparison to other implicit measures (Greenwald et al., 1998) and is rather insensitive to methodological factors, such as the number of trials (Nosek, Greenwald, & Banaji, 2005; Greenwald et al., 1998). Most importantly, the IAT meaningfully predicts a wide range of criterion variables including physiological responses, behaviors, and attitudes (Poehlman, Uhlmann, Greenwald, & Banaji, 2005). These effects are difficult to fake (Kim, 2003) and awareness of performance on an IAT while completing it will not affect scores (Ashburn-Nardo, Voils, & Monteith, 2001).

Some researchers have criticized the fundamental nature of the IAT. Major criticisms include claims that the IAT measures familiarity bias (Brendl, Markman, & Messner, 2001), asymmetries in perceptual salience (Rothermund & Wentura, 2004), or cultural knowledge (Arkes & Tetlock, 2004; Karpinski & Hilton, 2001; Olsen & Fazio,

2004). Although healthy deliberations frequently appear in the literature, supporters of the IAT have consistently and successfully rejected these criticisms as follows.

The most cited criticism of the IAT is that responses are confounded with familiarity bias. Greenwald & Nosek (2001) explain that familiarity is not a substantial source of artifact unless extremely unfamiliar stimuli are utilized. They recommend using caution when interpreting results of an IAT incorporating unfamiliar nonsense words. When task stimuli do not fall into an existing category, the IAT may not operate as desired (Greenwald & Nosek, 2001).

Rothermund and Wentura (2004) claim that IAT effects are dependent on perceptual salience. Specifically, they assert that salience asymmetries account for common variance in the IAT effect. Greenwald, Nosek, Banaji, and Klauer (2005) agree that perceptual asymmetries may influence responses on the IAT but that they are not stronger influences than the all-important association strengths.

Many researchers have asserted that the IAT measures something about the culture as opposed to the respondent (Arkes & Tetlock, 2004; Karpinski & Hilton, 2001; Olsen & Fazio, 2004). As indicated previously, the IAT successfully measures individual differences in many criterion variables. The ability of the IAT to measure individual differences suggests the IAT measures something in the person as opposed to the culture (Poehlman et al., 2005).

### The Race IAT

Researchers have developed IATs to measure attitudes related to age, gender, religion, disability, sexual orientation, and weight among many others (Nosek, Banaji, & Greenwald, 2002). However, the most researched is the Race IAT. This instrument is

designed to measure implicit racial bias against Black individuals. The Race IAT requires participants to categorize words and photos of people using two response keys. The stimulus words all have an evaluative component (e.g., can easily be classified as “good” or “bad”). If participants respond faster when *White* faces and *good* words are classified with the same response key than when *Black* faces and *good* words are classified with the same response key, this implies an unconscious or automatic prejudice against Blacks (Greenwald et al., 1998; McConnell & Leibold, 2001). Response latencies are typically longer for making counter-stereotypical associations (Poehlman et al., 2005).

Research has shown that nearly all White participants (over 90%) have an implicit racial bias preferring Whites to Blacks (Greenwald et al., 1998). This outcome is dependable and has been replicated in most subsequent IAT research. Implicit racial attitudes, like all implicit attitudes, are generally considered separate but related to explicit racial attitudes. There are weak to moderate relationships between explicit and implicit measures of racial attitudes (Greenwald et al., 1998; McConnell & Leibold, 2001; Wittenbrink et al., 1997). Poehlmann et al. (2005) found that the Race IAT predicted criterion behaviors significantly better than explicit measures of prejudice and stereotypes.

Implicit racial bias is an attitude that remains constant across different age groups. Baron and Banaji (2006) found that implicit racial bias as measured by the IAT remains constant across 6 year olds, 10 year olds, and adults. However, explicit racial bias appears to decrease with increasing age, with adults typically reporting no bias. Researchers have also studied the brain activity of participants engaged in a Race IAT task. Phelps et al. (2000) found that the degree of preference for White versus Black faces was related to

differential activation of the amygdala. This difference in activation was significantly correlated with implicit racial bias as measured by the IAT. However, no similar relationship was found with explicit racial bias measures. Since the amygdala is often thought of as the emotional center of the brain, this suggests the IAT is measuring something affective as opposed to purely cognitive.

Many critics have attacked the fundamental nature of the Race IAT. Chugh (2004) is troubled by the idea of measuring racial bias with response time. She challenges “how can societal justice come down to 5% of 1 second?” (Chugh, 2004, p. 208).

Karpinski and Hilton (2001) assert that the IAT may not measure attitudes at all, but may only tap into different components of the environment and culture of the respondent.

Redding (2004) argues that implicit prejudice may simply be a measure of stereotype knowledge and nothing else. Finally, Arkes and Tetlock (2004) assert that having a

comparatively better attitude toward one’s own race is not the same as being prejudiced against other races. Proponents of the IAT combat these criticisms by attributing them to the mistaken belief that humans can exert control over stereotypes and prejudice, when in reality there is no reason to believe that we can easily control these types of feelings and beliefs (Bargh, 1999).

### The Race IAT in Organizations

Industrial-organizational psychologists have not yet tapped the potential of the Race IAT as a tool for combating the ill effects of racial prejudice in organizations. The fact that participants are consistently surprised by their IAT scores suggests that the Race IAT taps attitudes not available to conscious introspection (Monteith, Ashburn-Nardo, Voils, & Czopp, 2002; Monteith, Voils, & Ashburn-Nardo, 2001). The IAT effect can be

very disconcerting for participants because the available data often contradict personal, presumed attitudes. Discomfort or feelings of guilt result from the awareness of “an evaluative disparity between conscious attitudes and unconscious evaluations and (b) a lack of control over one’s responses on a task that has personal meaning and value” (Banaji, 2001, p. 136). As discussed earlier, modern conceptualizations of prejudice suggest that individuals may hold prejudiced attitudes that they are *unwilling* to express. However, it may actually be the case that individuals hold prejudiced attitudes they are *unable* to express (e.g., Greenwald & Banaji, 1995). People with the best intentions will still experience great difficulty trying to avoid responses that are not accessible to conscious awareness (Bargh, 1997). For this reason, the Race IAT could make an excellent tool for self-insight into subtle racism. It could give individuals an unparalleled opportunity to take a look “underground” at their racial biases (Monteith et al., 2001).

Blair (2002) indicates that “highly motivated individuals can modify the automatic operation of stereotypes and prejudice” when made aware of implicit biases (p. 247). Therefore, individuals and institutions need to be aware of implicit biases and how they operate in order to have any hope of changing them. Although it is wildly premature to use the Race IAT for decisions that have any kind of direct, personal consequences for employees (i.e., screening, selection); the measurement of implicit racial bias does have its place in organizations (Nosek et al., 2006). The IAT could be administered as a preliminary exercise for diversity training. With proper feedback about IAT performance, participants could quickly and easily have a palpable experience of their own implicit racial biases (Monteith, Voils, & Ashburn-Nardo, 2001). This experience might influence



the effectiveness of the subsequent training by increasing individual identification with the training content.

There are considerable costs to ignoring the effects of implicit racial bias in organizations. Reskin (2002) asserts that “micro-acts of discrimination,” those taking place outside conscious awareness, can actually compound into macro-patterns of injustice with cumulative effects. Implicit attitudes may not be explicitly endorsed but are nevertheless important because they represent attitudes that can influence perceptions, judgments, and ultimately actions (Banaji, Nosek, & Greenwald, 2004). Even when individuals harbor unconscious biases, their resultant actions can still have powerful effects (Dovidio & Gaertner, 1998). Richeson and Shelton (2003) found that implicit racial bias predicts how well participants process information; predicting executive function better than an explicit measure. Implicit bias can also directly affect performance in teams. Dovidio (2001) found that the most efficient dyads on a problem-solving task were pairs of participants with low explicit and implicit racial bias.

Implicit racial bias, as measured by the IAT, predicts individual differences in judgments and behaviors as well as cognitive events. McConnell and Leibold (2001) found that greater implicit bias against Blacks predicted more negative nonverbal behaviors when communicating with a White experimenter than in identical interactions with a Black experimenter. These behaviors included smiling, extemporaneous comments, friendliness, speech errors and speech hesitation. Implicit prejudice also predicted lower levels of visual contact and higher rates of blinking in the responses of White participants to Black partners (Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997). Stronger implicit bias toward Blacks covaried with more negative judgments of

ambiguous actions by Black targets (Rudman & Lee, 2002). Finally, in a very compelling study, Green et al. (2007) found that doctors with stronger implicit racial bias against Blacks were less likely to prescribe certain medications to Black patients with identical conditions to White patients.

Implicit racial bias also predicts cognitive and perceptual events. When asked to categorize racially ambiguous faces as Black or White, participants who were high in implicit racial bias tended to categorize faces with more hostile expressions as Black (Hugenberg & Bodenhausen, 2003). There is a growing research literature on cognitive performance related to prejudice. Richeson and Shelton (2003) found that participants with higher implicit racial bias showed significantly more cognitive decrement (as measured by performance on the Stroop test) after interactions with a Black confederate compared to those with low racial bias. Implicit racial bias also predicted greater activation in the amygdala when participants were presented with Black faces; suggesting an emotional component to automatic associations (Phelps et al., 2000). These results suggest that implicit bias may result in an involuntary neural response when encountering members of certain groups. There may be neural circuitry involved in the control of spontaneously activated negative attitudes (Cunningham, Johnson, Gatenby, Gore, & Banaji, 2003).

### *Manipulating Implicit Attitudes*

If the goal of diversity training is to change attitudes and ultimately behaviors, researchers must understand how attitudes can be manipulated. Initially, researchers believed that implicit attitudes were trait characteristics and could not be altered.

However, recent research suggests that automatically activated racial attitudes can be manipulated.

Implicit racial attitudes can shift in relation to changes in the situation and new learning (Dasgupta & Greenwald, 2001). The following summarizes the research on manipulating implicit attitudes. Implicit attitudes can be affected by: manipulating the race of the experimenter (Lowery, Hardin, & Sinclair, 2001); priming with positive exemplars (Bodenhausen, Schwartz, Bless, & Wanke, 1995); listening to misogynistic rap music (Rudman & Lee, 2002); engaging in counter-stereotypical mental imagery (Blair, Ma, & Lenton, 2001); manipulating relative privilege and situational power (Guimond, Dif, & Aupy, 2002; Dambrun & Guimond, 2004; Richeson & Ambady, 2003); manipulating facial expressions of participants (Ito, Chiao, Devine, Lorig, & Cacioppo, 2006); climate for racial bias (Ziegert & Hanges, 2005); the presence of explicit egalitarian attitudes (Cunningham, Neslek, & Banaji, 2004); and the availability of cognitive resources (Richeson & Shelton, 2003).

Of these manipulations, priming with counter-stereotypical exemplars is one of the strongest and most enduring influences on implicit racial attitudes. Dasgupta and Greenwald (2001) found that respondents who were primed with photos and descriptions of admired Black individuals and infamous White individuals responded with significantly less implicit racial bias than a control group. Explicit racial bias was not significantly affected by the same manipulation. Dasgupta and Greenwald (2001) used exemplars from both racial groups because they suspected that exposure to exemplars from both groups is necessary to manipulate implicit attitudes. They explain that attitudes toward Blacks may be partially determined by attitudes toward other reference groups,

such as Whites (Dasgupta & Greenwald, 2001). The counter-stereotypical primes used in their study produced a significant decrement in implicit racial bias that endured for at least 24 hours. The durability of this effect beyond 24 hours is unknown as no further measurements were taken.

### *Purpose and Design*

The previous research highlights the malleability of implicit racial bias. To date, there has been no similar research on the malleability of valuing diversity attitudes. There are many important and unanswered research questions regarding valuing diversity, implicit, and explicit racial attitudes. These include: What is the relationship between valuing diversity, explicit racial bias, and implicit racial bias? How much of the variance in valuing diversity can be explained by implicit and explicit racial bias? What would happen to valuing diversity if we manipulate a variable known to affect implicit racial bias? How might these constructs be affected by counter-stereotypical priming? Would they be affected in similar ways? And finally: What would that tell us about the valuing diversity construct?

Two studies aim to answer these questions and explore the fundamental nature of valuing diversity. To this end, participants in the first study completed a valuing diversity measure (M-GUDS), an explicit racial bias measure (Symbolic Racism 2000 Scale; Henry & Sears, 2002), and an implicit racial bias measure (Race IAT). Together, these measures provide construct validity information for the valuing diversity measure (M-GUDS).

The second study utilized a method previously shown to manipulate implicit racial bias. The researchers examined the effect of this manipulation on both valuing

diversity, explicit, and implicit racial bias. All participants completed the same three measures as in the first study. However, participants in an experimental group were primed with counter-stereotypical exemplars. The experimental group was primed by completing a task based on the procedures described in Dasgupta and Greenwald (2001). It was expected that implicit racial bias in the experimental group would be significantly lower than in the control group, but it was unknown how the manipulation might affect valuing diversity and explicit racial bias. Results will provide further clarification of the valuing diversity construct and provide insight into the ways it might be manipulated.

## CHAPTER II

### METHOD STUDY ONE

The first study investigates the nature and structure of valuing diversity by comparing it with both explicit and implicit racial bias. All three measures used in this study have been independently validated and have excellent reliability. However, no published studies have previously administered them in concert. The M-GUDS has not been validated against either an explicit or implicit measure of racial bias until now.

#### *Participants*

A convenience sample of 219 undergraduate students participated in the study. All participants were at least 18 years of age and enrolled in introductory psychology courses at Old Dominion University. See Table 1 for the complete racial and gender breakdown of the sample. The mean age of the sample was 19.99 years.

Table 1

#### *Numbers of Women and Men by Racial Group in Study 1*

Ethnicity	Men		Women		Total	
	<i>n</i>	Percentage of row	<i>n</i>	Percentage of row	<i>n</i>	Percentage of total
White	31	24.41	96	75.59	127	57.99
Black	6	10.53	51	89.47	57	26.03
Hispanic/Latino	1	8.33	11	91.67	12	5.48
Native American	0	0	3	100	3	1.37
Asian/Pacific Islander	3	23.08	10	76.92	13	5.94
Other	0	0	7	100	7	3.20
Total	41	18.72	178	81.28	219	

The participants received 1 psychology department research credit for their participation. The proposed research was reviewed within the university to ensure that all participants were treated in accordance with ethical guidelines endorsed by the American Psychological Association and the Institutional Review Board.

### *Materials*

#### The Miville-Guzman Universality-Diversity Scale – Short Form

Shortly after the 45-item M-GUDS (Miville et al., 1999) was introduced, Fuertes, Miville, Mohr, Sedlacek, and Gretchen (2000) developed a 15-item short form (M-GUDS-S). The M-GUDS-S preserves the structure of the M-GUDS and strongly correlates with the long form ( $r = .77$ ). Due to its more clearly delineated factor structure, use of the short form allows for analysis of the overall construct as well as the individual subscale factors. The M-GUDS-S employs a 6-point Likert-type scale ranging from *strongly disagree* (1) to *strongly agree* (6) (Fuertes et al., 2000). Five items make up each subscale. Example items are as follows: Relativistic Appreciation subscale—“Knowing about the different experiences of other people helps me understand my own problems better”; Diversity of Contact subscale—“I attend events where I might get to know people from different racial backgrounds”; and Comfort with Differences subscale—“Getting to know someone of another race is generally an uncomfortable experience for me.” Of the 15 items, only the 5 items on the Comfort with Differences subscale are reverse-scored. See Appendix A for a complete list of M-GUDS-S items.

#### Symbolic Racism 2000 Scale

The Symbolic Racism 2000 Scale (SR2K; Henry & Sears, 2002) is an explicit measure of racial bias, designed to measure symbolic racism in contemporary society.

The SR2K is intended to improve upon and replace outdated scales such as the Modern Racism Scale (McConahey, 1986). The SR2K is internally consistent and has excellent construct, predictive, and discriminant validity (Henry & Sears, 2002). The SR2K includes 8 items with varying response formats. Higher scores indicate stronger symbolic racist attitudes. Example items include, “Irish, Italian, Jewish, and many other minorities overcame prejudice and worked their way up. Blacks should do the same,” and “Over the past few years, Blacks have gotten less than they deserve.” Of the 8 items, 4 are reverse-scored. See Appendix B for a complete list of items.

#### The Implicit Association Test (IAT)

The IAT used in this study replicates the standard Race IAT (Greenwald et al., 1998) and was programmed and presented using “E-Prime” experimental programming software (Version 1.2; Schneider, Eschman, & Zuccolotto, 2002). All of the IAT stimuli were created by Nosek, Banaji, and Greenwald (2002) and used with permission. The 12 grayscale photographs include 6 Black (3 male, 3 female) and 6 White (3 male, 3 female) young faces cropped to show only the center portion of the face. The 12 positive and negative stimuli target words are listed in Appendix C.

The IAT design consisted of two single-category classifications followed by two configurations of double categorizations. Category labels appeared at the upper left and upper right corners of the screen and respondents were asked to appropriately categorize the four types of stimuli that appeared in the middle of the screen using the “E” and “I” keys. Error feedback was provided in the form of a red “X” that appeared following any incorrect responses. In the event an incorrect response was made, the “X” would appear on the screen until the correct response is keyed. The order each stimuli appeared during



each block of trials was always chosen randomly without replacement by the E-Prime program.

Respondents were asked to classify positive and negative words as either “Good” or “Bad” during the first block of 24 practice trials (See Appendix D for example screenshots). Respondents were asked to classify photographs of Black and White faces as either “Black American” or “White American” during the second block of 24 practice trials.

Following these two blocks of practice trials, the remaining four blocks of trials consisted of double category configurations. During these trial blocks, positive words, negative words, photographs of Black faces, or photographs of White faces could appear as target stimuli. Respondents were asked to classify these stimuli as either “Black American” and “Bad,” or “White American” and “Good”. The third block of 24 trials was designed as a “practice” trial block while the fourth block of 48 trials was designed as a “critical” trial block.

In the second combined pairing, respondents are asked to classify photographs of faces and target words as either “Black American” and “Good,” or “White American” and “Bad.” Again, the fifth block of 24 trials was designed as a “practice” block while the sixth block of 48 trials was designed as a “critical” block.

In order to properly counterbalance the presentation of the double configurations within the IAT, two versions of the IAT were created. Each version corresponded to an order of the double configuration categories within the IAT.

#### Scoring Algorithm

IAT scores were calculated using the *D* scoring algorithm (Greenwald, Nosek, &

Banaji, 2003). This procedure replaces the scoring procedures described in the original IAT research (Greenwald et al., 1998) with a scoring procedure more similar to Cohen's  $d$ , a well-known effect size measure.  $D$  is computed as the difference in average response latency between the two combined tasks, divided by the inclusive standard deviation of response latencies in the two combined tasks (Greenwald et al., 2003). Calculations of Cohen's  $d$  use a within treatment pooled standard deviation, whereas calculations of  $D$  use an *inclusive* pooled standard deviation. Calculations of inclusive pooled standard deviation include all response latencies in the two combined tasks (Greenwald et al., 2003). The benefits of using the  $D$  scoring algorithm include: greater sensitivity to IAT effects; improved magnitude of correspondence between implicit and explicit measures; greater resistance to contamination due to response speed and general processing speed differences; greater resistance to effects of past IAT experience; greater resistance to order effects; and less contamination from extraneous variables (Greenwald et al., 2003). Use of the  $D$  scoring algorithm is also associated with elimination of cognitive skill confounds (Cai, Sriram, & Greenwald, 2004).

### *Procedure*

This study was announced to participants in the Psychology Department's research pool. A flyer was posted in the psychology department to inform eligible participants of the study (See Appendix E) and the online participant recruitment system also provided this information.

Participants completed all scales and tasks on a computer in an on-campus computer laboratory. E-Prime recorded and compiled participant responses to all three measures. Upon arrival, participants were asked to read and sign an informed consent

form. They were advised of their right to cease participation at any time and for any reason without penalty (see consent form, Appendix F). A copy of the welcome script the researchers used is found in Appendix G. Identifying information was collected only for the purposes of assigning research credit appropriately. In order to ensure anonymity of responses, this information was collected separately from the study data and could not be linked to it in any way.

Following the introductory briefing and collection of the signed informed consent forms, the participants were randomly assigned to one of two versions of the study program and seated at a computer. The two versions of the program corresponded to the two orders of IAT double configurations. Of the 219 participants, 122 received stereotype congruent blocks first and 97 received the stereotype incongruent blocks first. All participants answered demographic questions before proceeding with the rest of the study (See Appendix H). E-Prime presented the three measures of interest using random selection without replacement. For the M-GUDS and SR2K measures, participants were instructed that the scales measured their opinions and that items had no right or wrong answers. For the IAT task, participants were instructed to classify photographs of Black and White faces as well as pleasant and unpleasant words as quickly as possible using the appropriate response keys. For complete instructions see Appendix I.

The completion of the three measures took participants approximately 45 minutes. Following the completion of the measures, participants were debriefed and received a copy of the debriefing form (See Appendix J). They were then given the opportunity to ask questions. At no point during or after the experiment did participants receive any indication of their performance on any of the measures.

*Statistical Power*

It was estimated that approximately 127 White participants would be necessary to achieve statistical power of .80. This was calculated based on prior research on the relationship between explicit and implicit racial bias measures. In the Blair (2001) meta-analysis, the average correlation between explicit and implicit attitudes was significant but low (median .13). This effect size was used to calculate a conservative estimated sample size for this study. In order to reliably detect a medium-sized correlation, as defined by Cohen (1988), with .80 power and alpha set at .05, a minimum sample size of 127 would be required. The researchers were able to secure exactly 127 White participants.

## CHAPTER III

### RESULTS STUDY ONE

#### *Data Preparation*

The following procedures described in Greenwald et al. (2003) were used to calculate *D* scores for each participant. Practice trials from blocks 3 and 5 were included as useful data per the algorithm procedures. Two participants were excluded from the database due to an overabundance of anticipatory responses (more than 10% of response trials with less than 300 msec response latencies). Next, individual trial responses less than 300 msec and greater than 10,000 msec were deleted from the database. Trial responses less than 300 msec indicate anticipatory responses and responses greater than 10,000 msec indicate inattention. Incorrect trial responses were penalized by replacing response latencies with individual block means plus a penalty of 500 msec. After recalculating block means to include the penalty response trials, inclusive pooled standard deviations were calculated for all of the trials in blocks 4 and 6 together (critical blocks), as well as blocks 3 and 5 together (practice blocks). Difference scores were calculated by subtracting the stereotype congruent block mean from the stereotype incongruent block mean ( $M_{\text{Block6}} - M_{\text{Block4}}$  and  $M_{\text{Block5}} - M_{\text{Block3}}$ ). This provided two difference scores. Each difference score was then divided by its associated inclusive standard deviation. The *D* score for each participant was the equal weight average of the resulting ratios.

#### *Reliability of Measures*

While internal consistency reliability estimates of IAT measures are often reported in studies, details of how researchers arrive at these calculations are seldom

provided. In this research, difference scores were calculated for each of the 24 unique stimuli that appeared during the Race IAT. These scores represented the difference between response latencies for each stimulus during stereotype congruent and incongruent blocks. For trial blocks during which individual stimuli appeared more than once, average response latencies across block appearances were used in the calculation of difference scores. When calculating coefficient alpha, each difference score was treated as an individual item.

All three measures demonstrated acceptable internal consistency reliability. The coefficient alphas for the IAT were high for critical trials ( $\alpha = .86$ ) and practice trials ( $\alpha = .73$ ). The coefficient alpha for the combination of the IAT practice and critical trials ( $\alpha = .81$ ) also indicated adequate internal consistency. The coefficient alphas for the M-GUDS-S ( $\alpha = .76$ ) and its subscales were acceptable: Relativistic Appreciation subscale ( $\alpha = .59$ ); Diversity of Contact subscale ( $\alpha = .75$ ); and Comfort with Differences subscale ( $\alpha = .72$ ). Finally, the coefficient alpha for the SR2K ( $\alpha = .78$ ) indicated adequate internal consistency reliability.

#### *Differences in Responses across Demographic Groups*

There were significant differences in responses to the three measures by race of participant. There were significant mean differences in implicit racial bias as measured by the IAT,  $F(5, 213) = 7.46, p \leq .01, \eta^2 = .18$ . White participants responded with significantly more implicit racial bias than either Black or Hispanic participants (See Table 2). Asian participants responded with significantly more implicit racial bias than Black participants. There were also differences in the percentage of participants in each

racial category with implicit bias against Blacks, indicated by a D score greater than zero (See Table 2). These percentages are on par with those reported in previous research.

There were significant mean differences in explicit racial bias across races as measured by the SR2K,  $F(5,213) = 14.86, p \leq .01, \eta^2 = .35$ . White participants responded with significantly more explicit racial bias than either Black or Other participants (See Table 2). Asian participants responded with significantly more implicit racial bias than Black participants. There were no significant differences in responses to the M-GUDS-S or its subscales across races.

There were no significant mean differences between men and women on any of the measures. There were also no significant interaction effects for the combination of race and gender on any of the measures. The Race IAT error rates were on par with those reported in previous research (See Table 2).

Previous research on implicit racial bias has concentrated on the bias of Whites against Blacks. Since the present research is building upon this research, the following analyses were performed only on the portion of the sample that selected the White/Caucasian racial category when responding to the demographic questions.

Table 2

*Mean Responses on Three Racial Attitude Measures as a Function of Ethnicity in Study 1*

Ethnicity	<i>n</i>	M-GUDS-S		SR2K		Race IAT		IAT Error Rate <sup>a</sup>		Participants responding with implicit racial bias <sup>b</sup>
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
White (1)	127	68.07	8.38	19.91	3.83	.03	.02	4.46%	3.46	89%
Black (2)	57	70.49	7.33	15.00	3.53	.01	.02	4.41%	3.78	72%
Hispanic/Latino (3)	12	70.63	12.25	17.63	3.93	.01	.02	4.75%	3.46	58%
Native American (4)	3	75.00	10.58	17.17	4.86	.02	.04	4.05%	3.90	67%
Asian/Pacific Islander (5)	13	66.77	7.65	20.08	2.40	.03	.02	5.13%	2.13	85%
Other (6)	7	74.71	8.44	15.71	5.35	.03	.01	1.75%	1.49	100%
Total	219	69.07	8.44	18.35	4.31	.03	.02	4.41%	3.45	
Post hoc				1 > 2		1 > 2				
				1 > 6		1 > 3				
				5 > 2		5 > 2				

*Note.* The numbers in parentheses are used to illustrate significant mean differences in Post hoc comparisons. M-GUDS-S = Miville-Guzman Universality-Diversity Scale Short Form; SR2K = Symbolic Racism 2000 Scale; and Race IAT = Race Implicit Association Test.

<sup>a</sup>Percentage of incorrect responses in the combined tasks.

<sup>b</sup>Percentage of participants responding with implicit racial bias denotes the percentage of respondents in each racial group responding with implicit racial bias on the Race IAT ( $D > 0$ ).



### *Relationship between Measures*

There were significant correlations between the valuing diversity measure and both the explicit and implicit racial bias measures (See Table 3). The M-GUDS-S significantly correlated with both the IAT and the SR2K. All of the M-GUDS-S subscales significantly correlated with the IAT and SR2K. However, there was no significant correlation found between the IAT and the SR2K. When corrected for unreliability in the measures using the Spearman correction for attenuation formula, the correlation between valuing diversity and implicit racial bias was estimated at  $-.34$ , the correlation between valuing diversity and explicit racial bias was estimated at  $-.49$ , and the correlation between explicit and implicit racial bias was estimated at  $.14$ .

Table 3

#### *Correlations between the Racial Attitude Measures in Study 1*

Measure	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	Alpha
1. M-GUDS-S	68.07	8.38	--						.76
2. M-GUDS-S RA	23.42	3.23	.63**	--					.59
3. M-GUDS-S DC	20.97	4.16	.76**	.25**	--				.75
4. M-GUDS-S CD	23.67	4.33	.76**	.24**	.34**	--			.72
5. Race IAT	.03	.02	-.27**	-.19*	-.18*	-.22*	--		.81
6. SR2K	19.91	3.83	-.38**	-.23*	-.31**	-.28**	.11	--	.78

*Note.*  $N = 127$ . \*Significant at  $p \leq .05$ . \*\*Significant at  $p \leq .01$ . M-GUDS-S = Miville-Guzman Universality-Diversity Scale Short Form; M-GUDS RA = M-GUDS Relativistic Appreciation subscale; M-GUDS DC = M-GUDS Diversity of Contact; M-GUDS CD = M-GUDS Comfort with Differences; SR2K = Symbolic Racism 2000 Scale; and Race IAT = Race Implicit Association Test.

### *Multiple Regression*

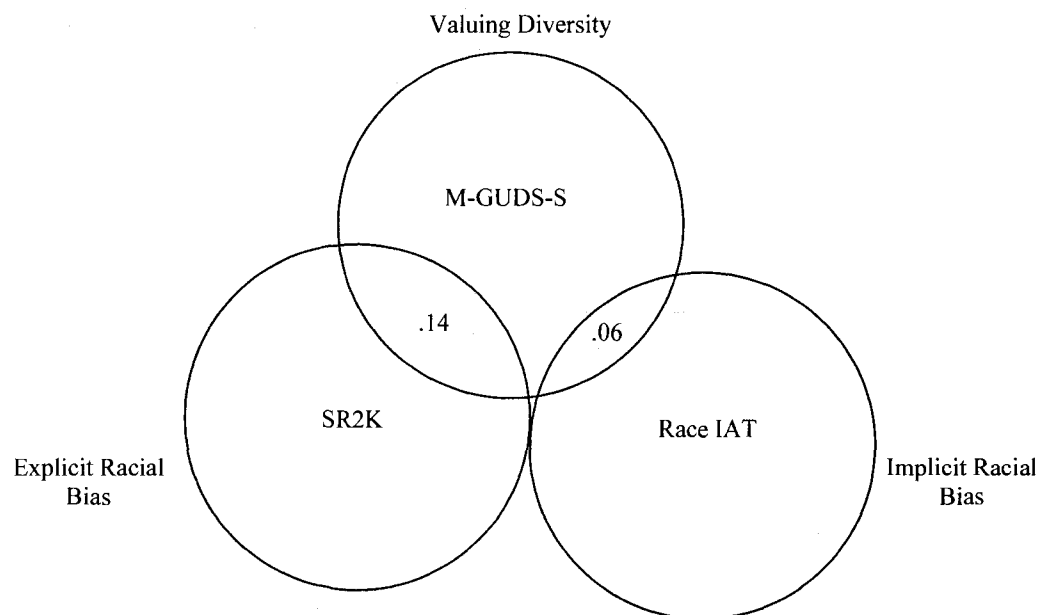
The combination of explicit and implicit racial bias significantly predicted valuing diversity,  $F(2,124) = 15.35, p \leq .001, R^2 = .20$  (See Table 4). Explicit racial bias was the best predictor of valuing diversity and accounted for 14% of the variance in valuing diversity. Implicit racial bias accounted for a significant 6% of the variance. See Figure 1 for a diagram depicting the unique variance that each predictor explains in the valuing diversity construct.

Table 4

#### *Regression Analysis Summary for Racial Bias Variables Predicting Valuing Diversity*

Variable	Measure	<i>B</i>	<i>SEB</i>	$\beta$	$sr_i^2$
Implicit Racial Bias	Race IAT	-100.99	34.58	-.24**	.06
Explicit Racial Bias	SR2K	-.772	.177	-.35**	.12

*Note.*  $N = 127$ . \*\*Significant at  $p \leq .01$ . SR2K = Symbolic Racism 2000 Scale and Race IAT = Race Implicit Association Test.



*Figure 1.* Unique variance in the Miville-Guzman Universality-Diversity Scale Short Form (M-GUDS-S) accounted for by the Symbolic Racism 2000 Scale (SR2K) and the Race Implicit Association Test (Race IAT) in the Study 1 sample.

*Summary of Results*

The results of the first study revealed the nature of the relationship between the valuing diversity, implicit racial bias, and explicit racial bias measures. There was a significant negative relationship between the valuing diversity and implicit racial bias measures and also between the valuing diversity and explicit racial bias measure. There was no significant relationship between the explicit racial bias and implicit racial bias measures. Correcting the correlations for attenuation due to unreliability accentuated these relationships.

## CHAPTER IV

### METHOD STUDY TWO

The second study investigated whether repeated exposure to counter-stereotypical exemplars could produce decrements in measurements of valuing diversity, explicit racial bias, and implicit racial bias. The methodology replicates the manipulation from Dasgupta and Greenwald (2001). They found that exposure to photos of admired Black and disliked White individuals produced significant decrements in implicit racial bias but did not affect explicit racial bias. The current study tested the same manipulation's effect on valuing diversity in addition to implicit and explicit racial bias.

#### *Participants*

A convenience sample of 196 undergraduate students participated in the study. All participants were at least 18 years of age and enrolled in introductory psychology courses at Old Dominion University. See Table 3 for the complete racial and gender breakdown of this sample. The mean age of this sample was 20.6 years.

Table 5

*Numbers of Women and Men by Racial Group in Study 2*

Ethnicity	Men		Women		Total	
	<i>n</i>	Percentage of row	<i>n</i>	Percentage of row	<i>n</i>	Percentage of total
White	35	31.53	76	68.47	111	56.63
Black	6	10.71	49	87.50	56	28.57
Hispanic/Latino	1	16.67	5	83.30	6	3.06
Native American	0	0	2	100	2	1.02
Asian/Pacific Islander	5	45.45	6	54.55	11	5.61
Other	3	30.00	7	70.00	10	5.10
Total	50	25.51	146	74.49	196	

The participants received 1 psychology department research credit for their participation.

The proposed research was reviewed within the university to ensure that all participants were treated in accordance with ethical guidelines endorsed by the American

Psychological Association and the Institutional Review Board.

*Materials*

All participants completed the M-GUDS-S, SR2K, and Race IAT. See Study 1 for specific detail about these measures.

Counter Stereotypical Exemplars

The experimental task required the collection of 20 exemplars. These exemplars included photographs and descriptions of 10 admired Black (e.g., Tiger Woods) and 10 notorious White (e.g., Charles Manson) individuals. Exemplars were based on the counter-stereotypical exemplars used in the Dasgupta and Greenwald (2001) study. Some

dated exemplars were replaced with more current exemplars. Dasgupta and Greenwald (2001) used only male exemplars in their study because they were unable to produce a sufficient number of famous disliked Black women for their second experimental condition. Since that experimental condition was not being duplicated in this research, both genders were represented in the exemplars. All photos were converted into a standard format of 150 X 200 pixels and 256-color grayscale. Both true and false descriptions were generated for each exemplar. All false descriptions matched true descriptions in valence. See Appendix K for a complete list of exemplars and descriptions.

#### Control Group Exemplars

Photographs of 10 flowers (e.g., orchid) and 10 insects (e.g., mosquito) were collected for use in the control task. Again, these exemplars were generated based on the control exemplars used in Dasgupta and Greenwald (2001). All photos were converted into a standard format of 150 X 200 pixels and 256-color grayscale. Both true and false names were generated for each photograph. See Appendix L for a complete list of flowers and insects.

#### *Procedure*

The procedure for Study 2 was identical to that of Study 1 with the addition of the experimental and control priming tasks that participants were asked to complete prior to the administration of the three target measures. Participants were randomly assigned to either the control or experimental groups. Of the 196 participants, 88 were randomly assigned to the control group, and 108 to the experimental group. The procedures for both the experimental and control tasks were identical to procedures outlined by Dasgupta and

Greenwald (2001). Of the 196 participants, 98 received stereotype congruent IAT blocks first and 98 received the stereotype incongruent IAT blocks first.

### Experimental Priming Task

The experimental task was presented to participants as a test designed to assess general knowledge about famous and infamous individuals. See Appendix L for complete instructions. Each photograph appeared in the center of the screen along with the name of the individual in the photograph. In the upper left and right corners of the screen, both a correct and an incorrect description appeared. For example, a photograph of Martin Luther King appeared along with a correct description, “Leader of the Black Civil Rights movement in the 1960s,” as well as an incorrect description, “Former Vice President of the United States” (See Appendix M for example screenshots).

Participants were asked to identify the correct description by pressing the “E” key to select the description on the left and the “I” key to select the description on the right. If a participant selected an incorrect description, a red “X” appeared on the screen. The “X” remained visible until the correct response was made (See Appendix N for complete instructions).

During the first block of trials, each target photograph was randomly presented twice for a total of 40 trials. E-Prime randomly selected the order of stimuli presentation. Half of the correct and incorrect descriptions appeared on each side of the screen.

During the second block of trials, only the exemplar names appeared in the center of the screen. Participants were asked to classify the race of the name as either “Black” or “White”. Each name appeared twice for a total of 40 trials. Again, E-Prime randomly selected the order of presentation. For approximately half of the participants, the “E” key



( $N = 49$ ) was used to classify Black exemplars and “I” for White exemplars; and for the rest of the participants ( $N = 60$ ) “E” was used to classify White exemplars and “I” for Black exemplars. Participants were randomly assigned to one of these category configurations.

### Control Task

The control task instructions described the task as a test designed to assess general knowledge about flowers and insects. See Appendix N for complete instructions. E-Prime randomly selected target photographs to appear in the center of the screen. Each photograph appeared without a name. In the upper left and right corners of the screen, both a correct and an incorrect name appeared. For example, a photograph of an orchid appeared along with a correct name, “Orchid” as well as an incorrect name, “Hydrangea” (See Appendix O for example screenshots).

Participants were instructed to identify the appropriate name by pressing the “E” key to select the name on the left and the “I” key to select the name on the right. When a participant selected an incorrect name, a red “X” appeared on the screen. The “X” remained visible until the correct response was made.

During the first block of trials, each target photograph appeared twice for a total of 40 trials. E-Prime randomly selected the order of presentation for the photographs. Half of the correct and incorrect names appeared on each side of the screen.

During the second block of trials, only the names of the flowers and insects appeared in the center of the screen. Participants were asked to classify the exemplars as either “flowers” or “insects” (See Figure 6). Each name appeared twice for a total of 40 trials. Again, E-Prime randomly selected the order of presentation for the names. For

approximately half of the participants, the “E” key ( $N = 43$ ) was used to classify Insect stimuli and “I” for Flower stimuli; and for the rest of the participants ( $N = 47$ ) “E” was used to classify Flower stimuli and “I” for Insect stimuli. Participants were randomly assigned to one of these category configurations.

#### *Statistical Power*

The estimated sample size for this study was calculated based on an approximation of the effect size (.18) drawn from Study 1 of Dasgupta and Greenwald (2001). To reliably detect the effect of the manipulation with .80 power and alpha set at .05, the researchers calculated that a minimum sample size of 24 in each group was required (Cohen, 1988). The researchers secured many more than the minimum of 48 participants, and the total sample size of 111 White participants was very satisfactory.

## CHAPTER V

### RESULTS STUDY TWO

#### *Data Preparation*

IAT and survey data were prepared following the same procedures described in Study 1. No participants had to be excluded from the data due to an overabundance of anticipatory responses on the IAT.

#### *Reliability of Measures*

All three measures demonstrated acceptable internal consistency reliability. The coefficient alphas for the IAT were high for critical trials ( $\alpha = .83$ ) and practice trials ( $\alpha = .83$ ). The coefficient alpha for the combination of the IAT practice and critical trials ( $\alpha = .88$ ) indicated excellent internal consistency. The coefficient alphas for the M-GUDS-S ( $\alpha = .78$ ) and its subscales were acceptable: Relativistic Appreciation subscale ( $\alpha = .62$ ); Diversity of Contact subscale ( $\alpha = .76$ ); and Comfort with Differences subscale ( $\alpha = .65$ ). Finally, the coefficient alpha for the SR2K ( $\alpha = .71$ ) indicated adequate internal consistency reliability.

#### *Differences in Responses across Demographic Groups*

There were significant differences in responses to the three measures by race of participant. There were significant mean differences in implicit racial bias across races as measured by the IAT,  $F(5, 190) = 7.13, p \leq .001, \eta^2 = .18$  (See Table 6). White participants responded with significantly more implicit racial bias than Black participants. There were also differences in the percentage of participants in each racial category with implicit bias in their responses (See Table 6). These percentages are on par with those reported in previous research.

There were significant mean differences in explicit racial bias (SR2K) across racial groups,  $F(5, 190) = 11.43, p \leq .001, \eta^2 = .30$  (See Table 6). White participants responded with significantly more explicit racial bias than Black participants. Asian participants responded with significantly more implicit racial bias than Black participants. There were no significant differences in responses to the M-GUDS-S or its subscales across races.

There were no significant mean differences between males and females on any of the measures. There were also no significant interaction effects for the combination of race and gender on any of the measures. The Race IAT error rates were on par with those reported in previous research (See Table 6).

Previous research on implicit racial bias has concentrated on the bias of Whites against Blacks. The present research is building upon this research and power analyses were calculated using effect sizes from previous research. Therefore, the following analyses were performed only on the portion of the sample that selected the White/Caucasian racial category when responding to the demographic questions.

Table 6

*Mean Responses on Three Racial Attitude Measures as a Function of Ethnicity in Study 2*

Ethnicity	<i>n</i>	M-GUDS-S		SR2K		Race IAT		IAT Error Rate <sup>a</sup>		Participants responding with implicit racial bias <sup>b</sup>
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
White (1)	111	68.02	7.83	19.24	3.64	.03	.02	4.52%	3.71	90%
Black (2)	56	65.71	9.77	15.24	2.73	.01	.02	3.76%	3.76	58%
Hispanic/Latino (3)	6	71.83	9.33	16.83	3.19	.03	.02	5.21%	6.38	83%
Native American (4)	2	76.00	7.07	13.50	2.12	.01	.02	0%	0	50%
Asian/Pacific Islander (5)	11	72.00	7.43	19.64	2.94	.02	.01	5.75%	3.78	100%
Other (6)	10	70.70	10.63	18.50	4.93	.03	.02	4.38%	2.80	90%
Total	196	67.93	8.70	17.97	3.86	.02	.02	4.34%	3.63	
Post hoc				1 > 2						
				5 > 2						

*Note.* The numbers in parentheses are used to illustrate significant mean differences in Post hoc comparisons. M-GUDS-S = Miville-Guzman Universality-Diversity Scale Short Form; SR2K = Symbolic Racism 2000 Scale; and Race IAT = Race Implicit Association Test.

<sup>a</sup>Percentage of incorrect responses in the combined tasks.

<sup>b</sup>Percentage of participants responding with implicit racial bias denotes the percentage of respondents in each racial group responding with implicit racial bias on the Race IAT ( $D > 0$ ).

### *Manipulation Effects*

The experimental manipulation of priming with counter stereotypical exemplars did not have any direct effect on valuing diversity, explicit racial bias, or implicit racial bias (See Table 7). On average, the mean score of the White participants on the M-GUDS-S was higher in the experimental group but was not significantly different from the mean score of the control group,  $t(109) = -.91, n.s.$  The mean score of the White participants on the SR2K was lower in the experimental group but was not significantly different from the mean score of the control group,  $t(109) = .89, n.s.$  The mean  $D$  score of the White participants on the IAT was not significantly different from the control group,  $t(109) = -.47, n.s.$  This indicates that this study failed to replicate the effect on implicit racial bias that was reported in Dasgupta and Greenwald (2001). There were also no significant mean differences found between the experimental group, control group, or Study 1 sample on any of the measures (See Table 7).

Table 7

*Summary Table of Means, Standard Deviations, and Reliabilities by Study and Experimental Condition*

Study	Group	<i>N</i>	Scale	<i>M</i>	<i>SD</i>	Alpha
One	N/A	127	M-GUDS-S	68.07	8.38	.76
			Race IAT	.031	.02	.81
			SR2K	19.91	3.83	.78
Two	Control	51	M-GUDS-S	67.27	8.30	.79
			Race IAT	.028	.02	.95
			SR2K	19.57	3.48	.63
Two	Experimental	60	M-GUDS-S	68.64	7.42	.67
			Race IAT	.029	.02	.83
			SR2K	18.97	3.79	.74
Two	Combined	111	M-GUDS-S	68.02	7.83	.78
			Race IAT	.029	.02	.88
			SR2K	19.24	3.65	.71

*Note.* Summary data shown for White participants only. M-GUDS-S = Miville-Guzman Universality-Diversity Scale Short Form; Race IAT = Race Implicit Association Test; SR2K = Symbolic Racism 2000 Scale.

### *Relationship between Measures*

Correlations between the measures were calculated for the two experimental conditions (See Table 8). Among the participants in the experimental group, the M-GUDS-S significantly correlated with the IAT but not the SR2K. The Relativistic Appreciation subscale of the M-GUDS-S significantly correlated with the IAT. There was no significant correlation between the IAT and the SR2K. When corrected for unreliability in the measures using the Spearman correction for attenuation, the correlation between valuing diversity and implicit racial bias was estimated at  $-.36$ , the correlation between valuing diversity and explicit racial bias was estimated at  $-.34$ , and the correlation between explicit and implicit racial bias was estimated at  $.05$ .

Table 8

### *Correlations between the Racial Attitude Measures in Experimental Group*

Measure	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	Alpha
1. M-GUDS-S	68.63	7.49	--						.67
2. M-GUDS-S RA	23.77	2.91	.52**	--					.55
3. M-GUDS-S DC	21.13	4.56	.75**	.19	--				.76
4. M-GUDS-S CD	23.73	4.05	.63**	.03	.12	--			.62
5. Race IAT	.03	.02	-.27*	-.32*	-.19	-.07	--		.83
6. SR2K	18.95	3.82	-.24	-.19	-.09	-.21	.04	--	.74

*Note.*  $N = 60$ . \*\*Significant at  $p \leq .01$ . \*Significant at  $p \leq .05$ . M-GUDS-S = Miville-Guzman Universality-Diversity Scale Short Form; M-GUDS RA = M-GUDS Relativistic Appreciation subscale; M-GUDS DC = M-GUDS Diversity of Contact; M-GUDS CD = M-GUDS Comfort with Differences; SR2K = Symbolic Racism 2000 Scale; and Race IAT = Race Implicit Association Test.



The experimental group data replicates the same pattern of relationships established in the Study 1 sample, even though the correlation between the SR2K and M-GUDS-S was not found to be significant (See Table 9). Fisher r-to-z transformation revealed that the magnitude of the relationship between the M-GUDS-S and the IAT in this sample was not statistically different from the relationship observed in the Study 1 sample,  $z = 0, p \leq .05$ . Similarly, the magnitude of the relationship between the M-GUDS-S and the SR2K in this sample was not statistically different from the relationship in the Study 1 sample,  $z = -0.97, n.s.$ . Finally, the relationship between the SR2K and IAT in this sample was not statistically different in magnitude from the Study 1 sample,  $z = .44, n.s.$ .

For the participants in the control group, the M-GUDS-S did not significantly correlate with either the IAT or the SR2K (See Table 10). None of the M-GUDS-S subscales significantly correlated with the IAT or the SR2K. There was also no significant correlation between the IAT and the SR2K.

The control group did not replicate the pattern of results from the Study 1 and Study 2 experimental group samples. In fact, the magnitudes of the relationships observed in the control group sample were statistically different from the magnitudes observed in the other two samples. The magnitude of the relationship between the M-GUDS-S and the IAT in this sample was statistically different from the magnitude of the relationship observed in the Study 1 sample,  $z = -1.75, p \leq .05$ , but not the Study 2 experimental group,  $z = 1.52, n.s.$ . Similarly, the magnitude of the relationship between the M-GUDS-S and the SR2K in this sample was statistically different from the relationship in the Study 1 sample,  $z = -2.59, p \leq .01$  but not the Study 2 experimental

group,  $z = 1.45$ , *n.s.*. Finally, the relationship between the SR2K and IAT in this sample was not statistically different in magnitude from either the Study 1 sample,  $z = 0.83$ , *n.s.*, or the Study 2 experimental group,  $z = -0.36$ , *n.s.*.

There were also no significant correlations found between the valuing diversity measure and either the explicit or implicit racial bias measures when the experimental and control group samples were combined (See Table 9). The M-GUDS-S did not significantly correlate with either the IAT or the SR2K. None of the M-GUDS-S subscales significantly correlated with the IAT or SR2K. There was again no significant correlation between the IAT and the SR2K.

Table 9

*Inter-Scale Correlations by Study and Experimental Condition*

Study	Group	N	Scale	1	2	3
One	N/A	127	M-GUDS-S	--		
			IAT	-.27**	--	
			SR2K	-.38**	.11	--
Two	Control	51	M-GUDS-S	--		
			IAT	.02	--	
			SR2K	.04	-.03	--
Two	Experimental	60	M-GUDS-S	--		
			IAT	-.27*	--	
			SR2K	-.24	.04	--
Two	Combined	111	M-GUDS-S	--		
			IAT	-.11	--	
			SR2K	-.12	-.003	--

*Note.* Correlations shown for White participants only. \*Significant at  $p \leq .05$ .

\*\*Significant at  $p \leq .01$ . M-GUDS-S = Miville-Guzman Universality-Diversity Scale Short Form; IAT = Implicit Association Test; SR2K = Symbolic Racism 2000 Scale.

Table 10

*Correlations between the Racial Attitude Measures in Control Group*

Measure	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	Alpha
1. M-GUDS-S	67.27	8.30	--						.79
2. M-GUDS-S RA	22.75	3.23	.74**	--					.60
3. M-GUDS-S DC	20.61	4.11	.83**	.47**	--				.72
4. M-GUDS-S CD	23.92	3.55	.71**	.27	.36*	--			.73
5. Race IAT	.03	.02	.02	-.02	.12	-.08	--		.95
6. SR2K	19.57	3.48	.04	.11	.01	-.03	-.03	--	.63

*Note.*  $N = 51$ . \*Significant at  $p \leq .05$ . \*\*Significant at  $p \leq .01$ . M-GUDS-S = Miville-Guzman Universality-Diversity Scale Short Form; M-GUDS RA = M-GUDS Relativistic Appreciation subscale; M-GUDS DC = M-GUDS Diversity of Contact; M-GUDS CD = M-GUDS Comfort with Differences; SR2K = Symbolic Racism 2000 Scale; and Race IAT = Race Implicit Association Test.

*Summary of Results*

The results of the second study further inform the nature of the relationship between the valuing diversity, implicit racial bias, and explicit racial bias measures. The experimental treatment was unsuccessful in manipulating responses to any of the measures. There was no significant change in valuing diversity, explicit racial bias, or implicit racial bias responses as a result of the treatment.

In the experimental group, there was a significant negative relationship between the valuing diversity and implicit racial bias measures and a negative non-significant relationship between the valuing diversity and explicit racial bias measures. There was no

significant relationship between the explicit racial bias and implicit racial bias measures. Correcting the correlations for attenuation accentuated the strong negative relationship between valuing diversity and explicit racial bias as well as strengthened the negative relationship between valuing diversity and implicit racial bias. The pattern of relationships observed in the experimental group was not statistically different from the pattern of relationships observed in the study 1 sample. The control group did not show the same pattern of relationships observed in the experimental group and study 1 sample. There were no significant correlations found among the target measures in the control group. The relationships observed in the control group were statistically different from those observed in the experimental group and study 1 sample. The following section will discuss the meaningfulness of these results.

## CHAPTER VI

### GENERAL DISCUSSION AND CONCLUSIONS

This research was designed to elucidate and refine the fundamental understanding of the valuing diversity construct. Valuing diversity was studied by exploring its relationship to two measures of racial bias. Two studies investigated the relationship between valuing diversity, explicit racial bias, and implicit racial bias and examined how a manipulation might affect these constructs. The results of these studies provide important information about the construct validity of valuing diversity.

#### *Evaluation and Discussion of Results*

The results of Study 1 indicated that explicit and implicit racial bias measures both predicted valuing diversity and, in fact, accounted for unique variance in the valuing diversity measure. This pattern was replicated in the Study 2 experimental group. This result reveals that the valuing diversity construct was significantly related to both explicit and implicit racial bias in this sample. No significant relationship was found between explicit and implicit racial bias in either study. The error rates, reliabilities, and effect sizes in these studies were all in line with what has been published in previous attitudinal research. In addition, the percentages of participants with implicit racial bias in their responses were on par with previous research.

Valuing diversity has previously been linked to positive attitudes toward diversity, ethnocultural empathy, positive racial identity, lack of homophobia and lack of dogmatism (Althouse & Dickinson, 2007; Miville et al., 1999). Previous research also has demonstrated valuing diversity is significantly distinct from social desirability, job satisfaction, leader-member exchange quality, and verbal and quantitative skills

(Althouse & Dickinson, 2007; Miville et al., 1999). The present research contributes to the construct validity evidence for valuing diversity by confirming that valuing diversity is significantly related to explicit racial bias and implicit racial bias. The two bias measures predicted unique variance in the valuing diversity measure. Study 1 showed there were significant negative relationships between valuing diversity and explicit racial bias as well as valuing diversity and implicit racial bias. Together these constructs explained 20% of the variance in valuing diversity. After these correlations were corrected for attenuation due to unreliability in the measures, the relationships of the bias measures with valuing diversity measure were even stronger.

The pattern of relationships between the valuing diversity measure and the implicit and explicit racial bias measures seen in Study 1 was replicated in the Study 2 experimental group. In fact, the correlations observed in the two samples were not significantly different in magnitude. This suggests that the relationship between the three constructs observed in Study 1 replicates in a new sample. This same pattern of relationships was not replicated in the Study 2 control group. In fact, there were no significant correlations among any of the target measures in Study 2. This unexpected result suggests that something about the control task may have changed the pattern of relationships among the three target measures. Although similar in design to the experimental task, the content of the control task may have appeared easier and more simple to participants. It is important for participants to feel their responses are meaningful. Perhaps the nature of the control stimuli and the ease of the task trivialized participant's subsequent responses to the target measures.

The priming manipulation attempted in Study 2 was unsuccessful in significantly affecting responses to any of the target measures. Although it was unknown how this manipulation would affect responses to the explicit racial bias and valuing diversity measures, it was expected that the results observed in Dasgupta & Greenwald (2001) would be replicated. The counter stereotypical primes should have affected the responses of the experimental group and resulted in the experimental group responding with significantly less implicit bias in their subsequent responses. The manipulation should have caused a significant, lasting decrease in implicit racial bias. In the present study, however, there were no observable effects on implicit racial bias, or on the other two measures as a result of the manipulation. Our sample was many times larger than the sample in the Dasgupta and Greenwald (2001) study so any genuine effect should have been replicated here. Future research needs to examine whether or not this particular manipulation can reliably affect racial attitudes in other samples.

Previous research has suggested that explicit and implicit racial biases are unique but related constructs. Nosek & Smyth (2007) found that a correlated two-factor model with explicit and implicit racial bias as the two factors was the best fit for their data. Research on the predictive validity of explicit and implicit measures has supported this relationship. Implicit and explicit measures enjoy superiority of prediction for different criterion variables and domains (Poehlman et al., 2005). The present study reinforces this conceptualization of the relationship. The fact that explicit and implicit racial biases explain unique variance in the valuing diversity construct and yet are not significantly related to one another provides additional evidence for the distinct but related conceptualization of this relationship.



### *Consideration of Limitations and Directions for Future Research*

Due to the fact that the pattern of results seen in Study 1 and the Study 2 experimental group was not replicated in the Study 2 control group sample, these findings must be interpreted with caution until they can be replicated in other samples. Although the correlations were statistically different in magnitude between the control group and the Study 1 samples, these studies took place sequentially and not concurrently. Therefore, participants were not randomly assigned to participate in one of these two studies. As a result, the validity of these differences is in question.

The second study did not replicate the manipulation effect described in Dasgupta and Greenwald (2001). It is possible that their particular method of priming with counter-stereotypical exemplars does not affect implicit racial bias as their results would suggest. It is also possible that their small sample was unusual in some important way. Prior research has shown that priming has been an effective strategy for racial attitude manipulation. Bodenhausen et al. (1995) found that activating thoughts about specific examples of successful Black individuals did result in more favorable evaluations of that group. However, future research needs to confirm that implicit attitudes can be manipulated in this manner. Specifically, future research should examine whether priming with counter-stereotypical exemplars under the guise of a knowledge task can successfully affect racial attitudes.

The manipulation used in Study 2 was a direct duplication of Dasgupta and Greenwald's (2001) procedure with the exception that the present study used both female and male exemplars. It is unlikely but possible that the incorporation of female exemplars may have had an impact on the effectiveness of the manipulation. In future research

examining these types of priming manipulations, participants should be randomly assigned to all-male and all-female exemplar conditions. Researchers should examine whether gender of the exemplars affects responses to the target measures. Future research should randomly assign participants to the control task and no task to see if the control task does, in fact, manipulate responses to the target measures. Although the manipulation was presented as a knowledge test, the task was quite face-valid and it is likely that participants deduced the nature of the manipulation. As a result participants could have consciously resisted the manipulation. Future research could also examine whether subliminally presented primes are more effective than more overt priming strategies. Providing participants an opportunity to process the manipulation could increase the chances they resist the treatment.

Finally, the composition of the sample may have contributed to error in this study. Undergraduate college students, the most common participants in attitude research, may not be the most appropriate audience for investigations of racial bias measures. There are, however, conflicting viewpoints regarding this matter. College students often have more tolerant worldviews and may be less likely to harbor negative attitudes toward minorities (Judd, Park, Ryan, Brauer, & Kraus, 1995). Therefore, using samples of college students may actually underestimate the correspondence between implicit and explicit correspondence due to the minimization of outward expressions of social-group biases in university cultures (Nosek, 2007). On the other hand, Banaji & Bhasker (2000) posit that college students are the theoretically appropriate population to study the relationship between implicit and explicit bias precisely because they are likely to consciously hold egalitarian beliefs and simultaneously harbor implicit biases. Previous research has

universally relied on college student participants. Therefore, any error due to the use of college student participants could not explain why previous research was not replicated in this study.

The present research confirms that valuing diversity is related to implicit and explicit racial bias. Although this research does clarify the concept of valuing diversity, there is significant variance in the valuing diversity construct left to explain. Past research has shown that valuing diversity is also related to ethnocultural empathy, positive attitudes toward diversity, and positive racial identity. Future research should investigate how much of the variance in valuing diversity can be explained using a combination of the variables known to be related to the construct. Now that the understanding around the valuing diversity construct is growing, there is a need to study the relationship of valuing diversity, implicit racial bias, and explicit racial bias with actual discriminatory work behaviors. It is important to determine what criteria valuing diversity can effectively predict. Future research should examine the predictive validity of valuing diversity and whether or not interventions designed to foster more positive attitudes toward diversity can also predict reductions in discriminatory work behaviors (both subtle and overt racism). Similarly, researchers should establish whether implicit and explicit racial bias measures provide incremental validity to valuing diversity measures when predicting negative behaviors in the workplace. It is possible that a combination of these measures may be the best way to effectively evaluate the success of diversity training programs.

### *Conclusions*

The significant relationship found between valuing diversity and explicit racial bias suggests that valuing diversity measures share many characteristics with explicit

attitudinal measures. They are both self-report measures that are easy to administer, cost-effective, and have considerable face validity. The significant relationship found between valuing diversity and implicit racial bias suggests that valuing diversity measures may also share characteristics with implicit attitudinal measures. Ranganath, Smith, and Nosek (2008) found that certain direct, self-report measures can actually capture components of implicit attitudes. Since both explicit and implicit racial bias can reliably predict discriminatory behaviors and attitudes, valuing diversity interventions concentrating on appreciation of differences may represent a holistic approach to racial attitude change. The present studies represent a successful cross-disciplinary research venture. Further research should be completed using techniques and measures from social cognition to inform the understanding of concepts from other domains.

## REFERENCES

- Allport, G.W. (1935). Attitudes. In C. Murchison (Ed.) *Handbook of social psychology* (pp. 798-844). Worcester, MA: Clark University Press.
- Allport, G.W. (1954). *The nature of prejudice*. Cambridge, MA: Addison-Wesley.
- Althouse, R.A., & Dickinson, T.L. (2007, May). *Measurement of valuing diversity*. Paper presented at the Annual Convention of the Association for Psychological Science, May 24-27, Washington, DC.
- Arkes, H. & Tetlock, P.E. (2004). Attributions of implicit prejudice, or Would Jesse Jackson fail the Implicit Association Test? *Psychological Inquiry, 15*, 257-278.
- Ashburn-Nardo, L., Voils, C.I., & Monteith, M.J. (2001). Implicit associations as the seeds of intergroup bias: How easily do they take root? *Journal of Personality and Social Psychology, 81*, 789-799.
- Banaji, M.R. (2001). Implicit attitudes can be measured. In H.L. Roediger, III, J.S. Nairne, I. Neath, & A. Surprenant (Eds.), *The nature of remembering: Essays in honor of Robert G. Crowder* (pp. 117-150). Washington, DC: American Psychological Association.
- Banaji, M.R., & Bhaskar, R. (2000). Implicit stereotypes and memory: The bounded rationality of social beliefs. In D.L. Schacter & E. Scarry (Eds.), *Memory, brain, and belief* (pp. 139-175). Cambridge, MA: Harvard University Press.
- Banaji, M.R., Nosek, B.A., & Greenwald, A.G. (2004). No place for nostalgia in science: A response to Arkes and Tetlock. *Psychological Inquiry, 15*, 279-310.

- Banase, R., Seise, J., & Zerbes, N. (2001). Implicit attitudes towards homosexuality: Reliability, validity, and controllability of the IAT. *Zeitschrift für Experimentelle Psychologie*, 48, 145-160.
- Bargh, J.A. (1997). The automaticity of everyday life. *Advances in Social Cognition*, 1, 1-61.
- Bargh, J.A. (1999). The cognitive monster: The case against controllability of automatic stereotype effects. In S. Chaiken & Y. Trope (Eds.), *Dual process theories in social psychology* (pp. 361-382). New York: Guilford.
- Baron, A.S., & Banaji, M.R. (2006). The development of implicit attitudes: Evidence of race evaluations from ages 6 and 10 and adulthood. *Psychological Science*, 17, 53-58.
- Blair, I.V. (2001). Implicit stereotypes and prejudice. In G. Moskowitz (Ed.), *Cognitive social psychology: The Princeton symposium on the legacy and future of social cognition* (pp. 359-374). Hillsdale, NJ: Erlbaum.
- Blair, I.V. (2002). The malleability of automatic stereotypes and prejudice. *Personality and Social Psychology Review*, 6, 242-261.
- Blair, I.V., Ma, J.E., & Lenton, A.P. (2001). Imagining stereotypes away: The moderation of implicit stereotypes through mental imagery. *Journal of Personality and Social Psychology*, 81, 828-841.
- Bodenhausen, G.V., Schwartz, N., Bless, H., & Wänke, M. (1995). Effects of atypical exemplars on racial beliefs: Enlightened racism or generalized appraisals? *Journal of Experimental Social Psychology*, 31, 48-63.

- Bosson, J.K., Swann, W.B., & Pennebaker, J.W. (2000). Stalking the perfect measure of self-esteem: The blind men and the elephant revisited? *Journal of Personality and Social Psychology, 79*, 631-643.
- Brendl, C.M., Markman, A.B., & Messner, C. (2001). How do indirect measures of evaluation work? Evaluating the inference of prejudice in the Implicit Association Test. *Journal of Personality and Social Psychology, 81*, 760-773.
- Cai, H., Sriram, N., & Greenwald, A.G. (2004). The Implicit Association Test's D measure can minimize a cognitive skill confound: Comment on McFarland and Crouch (2002). *Social Cognition, 22*, 673-684.
- Chugh, D. (2004). Societal and managerial implications of implicit social cognition: Why milliseconds matter. *Social Justice Research, 17*, 203-222.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates.
- Cronbach, L.J., & Meehl, P.E. (1955). Construct validity in psychological tests. *Psychological Bulletin, 52*, 281-302.
- Crowne, D.P., & Marlowe, D.A. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology, 24*, 349-354.
- Crowne, D.P., & Marlowe, D.A. (1964). *The approval motive*. New York: Wiley.
- Cunningham, W.A., Johnson, M.K., Gatenby, J.C., Gore, J.C., & Banaji, M.R. (2003). Neural components of social evaluation. *Journal of Personality and Social Psychology, 85*, 639-649.

- Cunningham, W.A., Nezlek, J.B., & Banaji, M.R. (2004). Implicit and explicit ethnocentrism: Revisiting the ideologies of prejudice. *Personality & Social Psychology Bulletin, 30*, 1332-1346.
- Cunningham, W.A., Preacher, K.J., & Banaji, M.R. (2001). Implicit attitude measures: Consistency, stability, and convergent validity. *Psychological Science, 12*, 163-170.
- Dambrun, M., & Guimond, S. (2004). Implicit and explicit measures of prejudice and stereotyping: Do they assess the same underlying knowledge structure? *European Journal of Social Psychology, 34*, 663-676.
- Dasgupta, N., & Greenwald, A.G. (2001). On the malleability of automatic attitudes: Combating automatic prejudice with images of admired and disliked individuals. *Journal of Personality and Social Psychology, 81*, 800-814.
- Dovidio, J.F. (2001). On the nature of contemporary prejudice: The third wave. *Journal of Social Issues, 57*, 829-849.
- Dovidio, J.F., & Gaertner, S.L. (1998). On the nature of contemporary prejudice: The causes, consequences, and challenges of aversive racism. In J.L. Eberhardt, & S.T. Fiske (Eds), *Confronting racism: The problem and the response* (pp. 3-32). Thousand Oaks, CA: Sage.
- Dovidio, J.F., & Gaertner, S.L. (2000). Aversive racism and selection decisions: 1989 and 1999. *Psychological Science, 11*, 315-319.
- Dovidio, J.F., Kamakami, K., Johnson, C., Johnson, B., & Howard, A. (1997). On the nature of prejudice: Automatic and controlled processes. *Journal of Experimental Social Psychology, 33*, 510-540.



- Eagly, A.H., & Chaiken, S. (1993). *The psychology of attitudes*. Fort Worth, TX: Harcourt, Brace, Jovanovich.
- Fazio, R.H. (1990). Multiple processes by which attitudes guide behavior: The MODE model as an integrative framework. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 23, pp. 75-109). New York: Academic Press.
- Fazio, R.H., Jackson, J.R., Dunton, B.C., & Williams, C.J. (1995). Variability in automatic activation as an unobtrusive measure of racial attitudes: A bona fide pipeline? *Journal of Personality and Social Psychology*, *69*, 1013-1027.
- Fuertes, J.N., Miville, M.L., Mohr, J.J., Sedlacek, W.E., & Gretchen, D. (2000). Factor structure and short form of the Miville-Guzman Universality-Diversity Scale. *Measurement and Evaluation in Counseling and Development*, *33*, 157-169.
- Gaertner, S.L., & Dovidio, J.F. (2005). Understanding and addressing contemporary racism: From aversive racism to the Common Ingroup Identity Model. *Journal of Social Issues*, *61*, 615-639.
- Gottfredson, L.S. (1992). Dilemmas in developing diversity programs. In S.E. Jackson & Associates (Eds.), *Diversity in the workplace* (pp. 279-305). New York: The Guilford Press.
- Graen, G.B., Novak, M.A., & Sommerkamp, P. (1982). The effects of leader-member exchange and job design on productivity and satisfaction: Testing a dual attachment model. *Organizational Behavior and Human Performance*, *30*, 109-131.

- Green, A.R., Carney, D.R., Pallin, D.J., Ngo, L.H., Raymond, K.L., Iezzoni, L.I., & Banaji, M.R. (2007). Implicit bias among physicians and its prediction of thrombolysis decisions for Black and White patients. *Journal of General Internal Medicine*, 22, 1231-1238.
- Greenwald, A.G., & Banaji, M.R. (1995). Implicit social cognition: Attitudes, self-esteem, and stereotypes. *Psychological Review*, 102, 4-27.
- Greenwald, A.G., & Farnham, S.D. (2000). Using the Implicit Association Test to measure self-esteem and self-concept. *Journal of Personality and Social Psychology*, 79, 1022-1038.
- Greenwald, A.G., McGhee, D.E., & Schwartz, J.L.K. (1998). Measuring individual differences in implicit cognition: The Implicit Association Test. *Journal of Personality and Social Psychology*, 74, 1464-1480.
- Greenwald, A.G., & Nosek, B.A. (2001). Health of the Implicit Association Test at age 3. *Zeitschrift für Experimentelle Psychologie*, 48, 85-93.
- Greenwald, A.G., Nosek, B.A., & Banaji, M.R. (2003). Understanding and using the Implicit Association Test: I. An improved scoring algorithm. *Journal of Personality and Social Psychology*, 85, 197-216.
- Greenwald, A.G., Nosek, B.A., Banaji, M.R., & Klauer, K.C. (2005). Validity of the salience asymmetry interpretation of the IAT: Comment on Rothermund and Wentura (2004). *Journal of Experimental Psychology: General*, 134, 420-425.
- Guimond, S., Dif, S., & Aupy, A. (2002). Social identity, relative group status and intergroup attitudes: When favourable outcomes change intergroup relations . . . for the worse. *European Journal of Social Psychology*, 32, 739-760.

- Hansen, G.L. (1982). Measuring prejudice against homosexuality (homosexism) among college students: A new scale. *Journal of Social Psychology, 117*, 233-236.
- Helms, J.E. (Ed.). (1990). *Black and White racial identity: Theory, research, and practice*. New York: Greenwood Press.
- Henry, P.J., & Sears, D.O. (2002). The symbolic racism 2000 scale. *Political Psychology, 23*, 253-283.
- Holvino, E., Ferdman, B.M., & Merrill-Sands, D. (2004). Creating and sustaining diversity and inclusion in organizations: Strategies and approaches. In M.S. Stockdale & F.J. Crosby (Eds.), *The psychology and management of workplace diversity* (pp. 245-276). Malden, MA: Blackwell.
- Homan, A.C., van Knippenberg, D., Van Kleef, G.A., & De Dreu, K.W. (2007). Bridging faultlines by valuing diversity: Diversity beliefs, information elaboration, and performance in diverse work groups. *Journal of Applied Psychology, 92*, 1189-1199.
- Hostager, T.J., & De Meuse, K.P. (2002). Assessing the complexity of diversity perceptions: Breadth, depth, and balance. *Journal of Business and Psychology, 17*, 189-206.
- Hugenberg, K., Bodenhausen, G.V. (2003). Facing prejudice: Implicit prejudice and the perception of facial threat. *Psychological Science, 14*, 640-643.
- Ito, T.A., Chiao, K.W., Devine, P.G., Lorig, T.S., & Cacioppo, J.T. (2006). The influence of facial feedback on racial bias. *Psychological Science, 17*, 256-261.

- Johnston, L. & Hewstone, M. (1992). Cognitive models of stereotype change: III. Subtyping and the perceived typicality of disconfirming group members. *Journal of Experimental Social Psychology, 28*, 360-386.
- Judd, C.M., Park, B., Ryan, C.S., Brauer, M., & Kraus, S. (1995). Stereotypes and ethnocentrism: Diverging interethnic perceptions of African American and White American youth. *Journal of Personality and Social Psychology, 69*, 460-481.
- Karpinski, A., & Hilton, J.L. (2001). Attitudes and the Implicit Association Test. *Journal of Personality and Social Psychology, 81*, 774-788.
- Kinder, D.R., & Sears, D.O. (1981). Prejudice and politics: Symbolic racism versus racial threats to the good life. *Journal of Personality and Social Psychology, 40*, 414-431.
- Kim, D.Y. (2003). Voluntary controllability of the Implicit Association Test (IAT). *Social Psychology Quarterly, 66*, 83-96.
- Lane, K.A., Banaji, M.R., Nosek, B.A., & Greenwald, A.G. (2007). Understanding and using the Implicit Association Test: IV: Procedures and validity. In B. Wittenbrink & N.S. Schwarz (Eds.), *Implicit measures of attitudes: Procedures and controversies* (pp. 59-102). New York: Guilford Press.
- Lowery, B.S., Hardin, C.D., & Sinclair, S. (2001). Social influence effects on automatic racial prejudice. *Journal of Personality and Social Psychology, 81*, 842-855.
- McCauley, C., Wright, M., & Harris, M. (2000). Diversity workshops on campus: A survey of current practice at U.S. colleges and universities. *College Student Journal, 34*, 100-114.

- McConahay, J.B. (1986). Modern racism, ambivalence, and the Modern Racism Scale. In J. Dovidio & S. Gaertner (Eds.), *Prejudice, discrimination, and racism* (pp. 91-124). New York: Academic Press.
- McConnell, A.R., & Leibold, J.M. (2001). Relations among the Implicit Association Test, discriminatory behavior, and explicit measures of racial attitudes. *Journal of Experimental Social Psychology, 37*, 435-442.
- Miville, M.L., Gelso, C.J., Pannu, R., Liu, W., Touradji, P., Holloway, P., & Fuertes, J. (1999). Appreciating similarities and valuing differences: The Miville-Guzman Universality-Diversity Scale. *Journal of Counseling Psychology, 46*, 291-307.
- Montei, M.S., Adams, G.A., & Eggers, L.M. (1996). Validity of scores on the Attitudes Toward Diversity Scale (ATDS). *Educational and Psychological Measurement, 56*, 293-303.
- Monteith, M.J., Ashburn-Nardo, L., Voils, C.I., & Czopp, A.M. (2002). Putting the brakes on prejudice: On the development and operation of cues for control. *Journal of Personality and Social Psychology, 83*, 1029-1050.
- Monteith, M.J., Voils, C.I., & Ashburn-Nardo, L. (2001). Taking a look underground: Detecting, interpreting and reacting to implicit racial biases. *Social Cognition, 19*, 395-417.
- Nelville, H.A., Roderick, L.L., Duran, G., Lee, R.M., & Browne, L. (2000). Construction and initial validation of the Color-Blind Racial Attitudes Scale. *Journal of Counseling Psychology, 47*, 59-70.
- Nisbett, R., & Wilson, T. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review, 84*, 231-259.

- Nosek, B.A. (2005). Moderators of the relationship between implicit and explicit evaluation. *Journal of Experimental Psychology: General*, *134*, 565-584.
- Nosek, B.A. (2007). Implicit-explicit relations. *Current Directions in Psychological Science*, *16*, 65-69.
- Nosek, B.A., Banaji, M.R., & Greenwald, A.G. (2002). Harvesting implicit group attitudes and beliefs from a demonstration website. *Group Dynamics*, *6*, 101-115.
- Nosek, B.A., Greenwald, A.G., & Banaji, M.R. (2005). Understanding and using the Implicit Association Test: II. Method variables and construct validity. *Personality and Social Psychology Bulletin*, *31*, 166-180.
- Nosek, B.A., Greenwald, A.G., & Banaji, M.R. (2006). The Implicit Association Test at age 7: A methodological and conceptual review. In J.A. Bargh (Ed.), *Automatic processes in social thinking and behavior* (pp. 265-292). Psychology Press.
- Nosek, B.A., & Smyth, F.L. (2007). A multitrait-multimethod validation of the Implicit Association Test: Implicit and explicit attitudes are related but distinct constructs. *Experimental Psychology*, *54*, 14-29.
- Nosek, B.A., Smyth, F.L., Hansen, J.J., Devos, T., Lindner, N.M., Ranganath, K.A., Smith, C.T., Olson, K.R., Chugh, D., Greenwald, A.G., & Banaji, M.R. (2007). Pervasiveness and correlates of implicit attitudes and stereotypes. *European Review of Social Psychology*, *18*, 36-88.
- Olsen, M.A., & Fazio, R.H. (2004). Reducing the influence of extrapersonal associations on the Implicit Association Test: Personalizing the IAT. *Journal of Personality & Social Psychology*, *86*, 653-667.

- Paulhus, D.L., (1994). *Balanced Inventory of Desirable Responding: Reference manual for BIDR Version 6*. Unpublished manuscript, University of British Columbia, Vancouver, Canada.
- Phelps, E.A., O'Connor, K.J., Cunningham, W.A., Funayama, E.S., Gatenby, J.C., Gore, J.C., & Banaji, M.R. (2000). Performance on indirect measures of race evaluation predicts amygdale activation. *Journal of Cognitive Neuroscience*, *12*, 729-738.
- Poehlman, T.A., Uhlmann, E., Greenwald, A.G., & Banaji, M.R. (2005). *Understanding and using the Implicit Association Test: 3. Meta-analysis of predictive validity*. Manuscript submitted for publication.
- Ranganath, K.A., Smith, C.T., & Nosek, B.A. (2008). Distinguishing automatic and controlled components of attitudes from direct and indirect measurement methods. *Journal of Experimental Social Psychology*, *44*, 386-396.
- Redding, R.E. (2004). Bias on Prejudice? The politics of research on racial prejudice. *Psychological Inquiry*, *15*, 289-293.
- Reskin, B. (2002). Rethinking employment discrimination and its remedies. In M.F. Guillen, R. Collins, P. England, & M. Meyer (Eds.), *New directions in economic sociology* (pp. 218-244). New York: Sage.
- Richeson, J.A., & Ambady, N. (2003). Effects of situational power on automatic racial prejudice. *Journal of Experimental Social Psychology*, *39*, 177-183.
- Richeson, J.A., & Nussbaum, R.J. (2004). The impact of multiculturalism versus colorblindness on racial bias. *Journal of Experimental Social Psychology*, *40*, 417-423.

- Richeson, J.A., & Shelton, J.N. (2003). When prejudice does not pay: Effects of interracial contact on executive function. *Psychological Science, 14*, 287-90.
- Rothermund, K., & Wentura, D. (2004). Underlying processes in the Implicit Association Test: Dissociating salience from associations. *Journal of Experimental Psychology: General, 133*, 139-165.
- Rudman, L.A., & Lee, M.R. (2002). Implicit and explicit consequences of exposure to violent and misogynous rap music. *Group Processes and Intergroup Relations, 5*, 133-150.
- Schuman, H., Steeh, C., Bobo, L., & Krysan, M. (1997). *Racial attitudes in America: Trends and interpretations*. Cambridge, MA: Harvard University Press.
- Schneider, W., Eschman, A., & Zuccolotto, A. (2002). *E-Prime User's Guide*. Pittsburgh: Psychology Software Tools, Inc.
- Takaki, R. (1993). *A different mirror: A history of multicultural America*. Boston, MA: Little Brown and Company.
- Tarman, C., & Sears, D.O. (2005). The conceptualization and measurement of symbolic racism. *The Journal of Politics, 67*, 731-761.
- Troidahl, V.C., & Powell, F.A. (1965). A short-form dogmatism scale for use in field studies. *Social Forces, 44*, 211-214.
- U.S. Equal Employment Opportunity Commission. (2007, January). *Race-based charges FY 1997 - FY 2006*. Retrieved March 1, 2008 from <http://www.eeoc.gov/stats/race.html>



- von Hippel, W., Sekaquaptewa, D., & Vargas, P. (1997). The Linguistic Intergroup Bias as an implicit indicator of prejudice. *Journal of Experimental Social Psychology*, 33, 490-509.
- Vorauer, J. D., & Kumhyr, S. (2001). Is this about you or me? Self-versus other-directed thoughts and feelings in response to intergroup interaction. *Personality and Social Psychology Bulletin*, 27, 706-719.
- Wang, Y.-W., Blier, J.K., Davidson, M.M., Savoy, H.B., Tan, J.A., & Yakushko, O.F. (2003). The Scale of Ethnocultural Empathy: Development, validation, and reliability. *Journal of Counseling Psychology*, 50, 221-234.
- Wegner, D.M. (2002). *The illusion of conscious will*. Cambridge, MA: MIT Press.
- Weiss, D., Dawis, R., England, G., & Lofquist, L. (1967). *Manual for the Minnesota Satisfaction Questionnaire*. Minneapolis, MN: Work Adjustment Project, Industrial Relations Center, University of Minnesota.
- Wilson, T.D., Lindsey, S., & Schooler, T. (2000). A model of dual attitudes. *Psychological Review*, 107, 101-126.
- Wittenbrink, B., Judd, C.M., & Park, B. (1997). Evidence for racial prejudice at the implicit level and its relationship with questionnaire measures. *Journal of Personality and Social Psychology*, 72, 262-274.
- Wolkso, C., Park, B., Judd, C.M., & Wittenbrink (2000). Framing interethnic ideology: Effects of multicultural and color-blind perspectives on judgments of groups and individuals. *Journal of Personality and Social Psychology*, 78, 635-654.

Ziegert, J.C., & Hanges, P.J. (2005). Employment discrimination: The role of implicit attitudes, motivation, and a climate for racial bias. *Journal of Applied Psychology*, *90*, 553-562.

## APPENDIX A

## MIVILLE-GUZMAN UNIVERSALITY-DIVERSITY SCALE (SHORT FORM) ITEMS

Subscale	Item Number	Item Description	Scoring
<b>Relativistic Appreciation</b>			
	1	Persons with disabilities can teach me things I could not learn elsewhere.	
	2	I can best understand someone after I get to know how he/she is both similar and different from me.	
	3	Knowing how a person differs from me greatly enhances our friendship.	
	4	In getting to know someone, I like knowing both how she/he differs from me and is similar to me.	
	5	Knowing about the different experiences of other people helps me understand my own problems better.	
<b>Diversity of Contact</b>			
	1	I would like to join an organization that emphasizes getting to know people from different countries.	
	2	I would like to go to dances that feature music from other countries.	
	3	I often listen to music of other cultures.	
	4	I am interested in learning about the many cultures that have existed in this world.	
	5	I attend events where I might get to know people from different racial backgrounds.	
<b>Comfort with Differences</b>			
	1	Getting to know someone of another race is generally an uncomfortable experience for me.	R
	2	I am only at ease with people of my own race.	R
	3	It is really hard for me to feel close to a person of another race.	R
	4	I often feel irritated by persons of a different race.	R
	5	It is very important that a friend agrees with me on most issues.	R

*Note.* From Miville et al., 1999.

## APPENDIX B

## SYMBOLIC RACISM 2000 SCALE ITEMS

Item Number	Item Description	Answer Options
1	It's really a matter of some people not trying hard enough; if Blacks would only try harder they could be just as well off as whites. (R)	Strongly Agree Somewhat Agree Somewhat Disagree Strongly Disagree
2	Irish, Italian, Jewish and many other minorities overcame prejudice and worked their way up. Blacks should do the same. (R)	Strongly Agree Somewhat Agree Somewhat Disagree Strongly Disagree
3	Some say that Black leaders have been trying to push too fast. Others feel that they haven't pushed fast enough. What do you think?	Trying to push much too fast Going too slowly Moving at about the right speed
4	How much of the racial tension that exists in the United States today do you think Blacks are responsible for creating? (R)	All of it Most Some Not much at all
5	How much discrimination against Blacks do you feel there is in the United States today, limiting their chances to get ahead?	A lot Some Just a little None at all
6	Generations of slavery and discrimination have created conditions that make it difficult for Blacks to work their way out of the lower class.	Strongly Agree Somewhat Agree Somewhat Disagree Strongly Disagree
7	Over the past few years, Blacks have gotten less than they deserve.	Strongly Agree Somewhat Agree Somewhat Disagree Strongly Disagree
8	Over the past few years, Blacks have gotten more economically than they deserve. (R)	Strongly Agree Somewhat Agree Somewhat Disagree Strongly Disagree

*Note.* From Henry & Sears, 2002.

**APPENDIX C**  
**IAT STIMULI WORDS**

---

Positive	Negative
Cheerful	Awful
Excitement	Brutal
Fabulous	Disaster
Friendly	Evil
Pleasure	Horrible
Smiling	Terrible

---

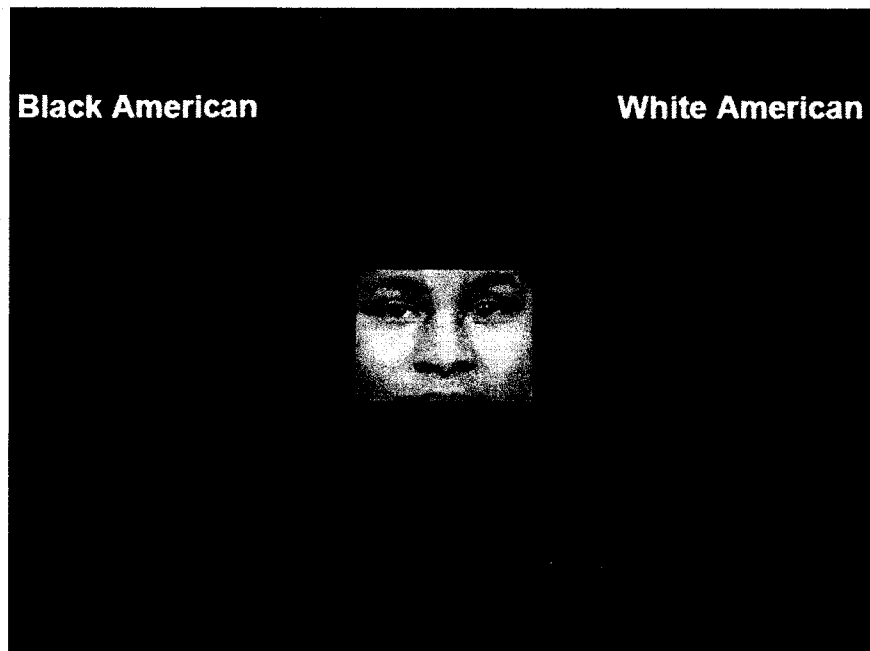
*Note.* From Nosek et al., 2002

**APPENDIX D****IAT EXAMPLE SCREENSHOTS**

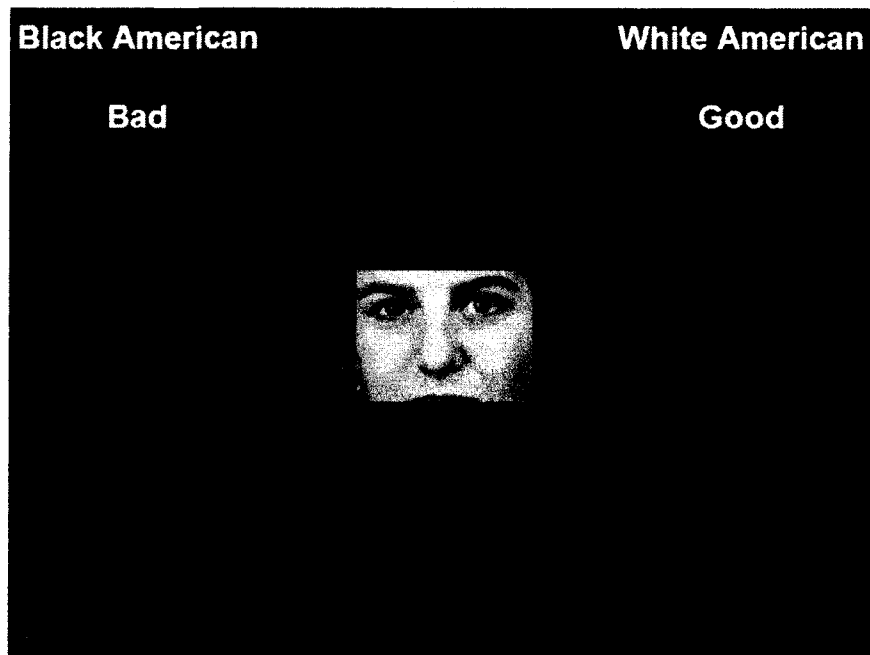
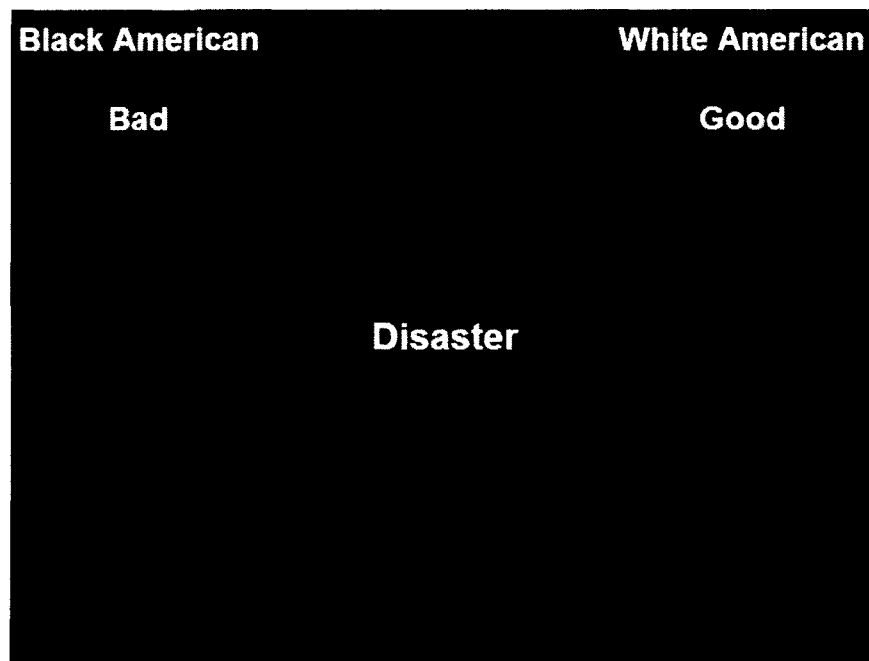
Screenshot from Race IAT Block 1: Words Only (Practice, 24 trials):



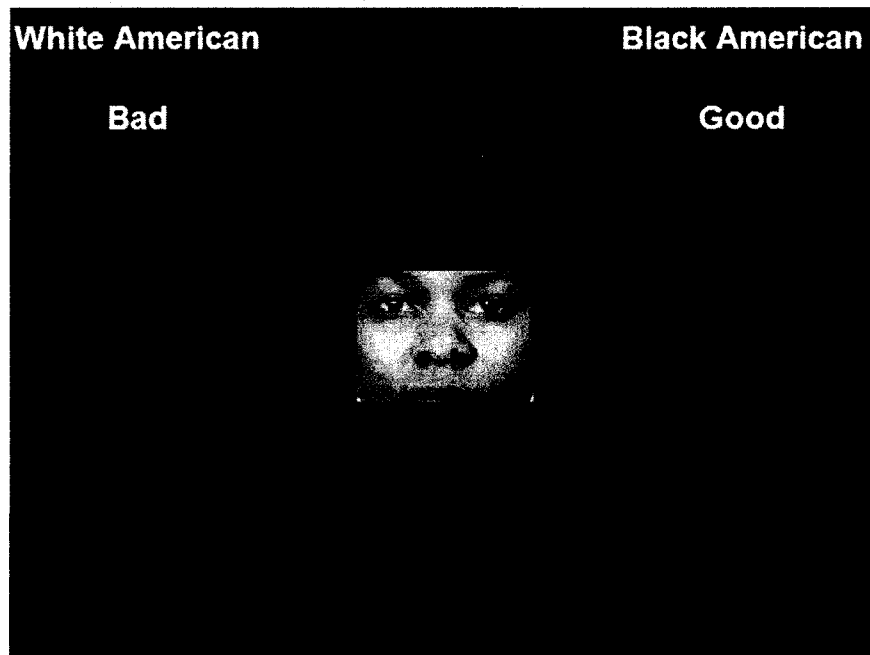
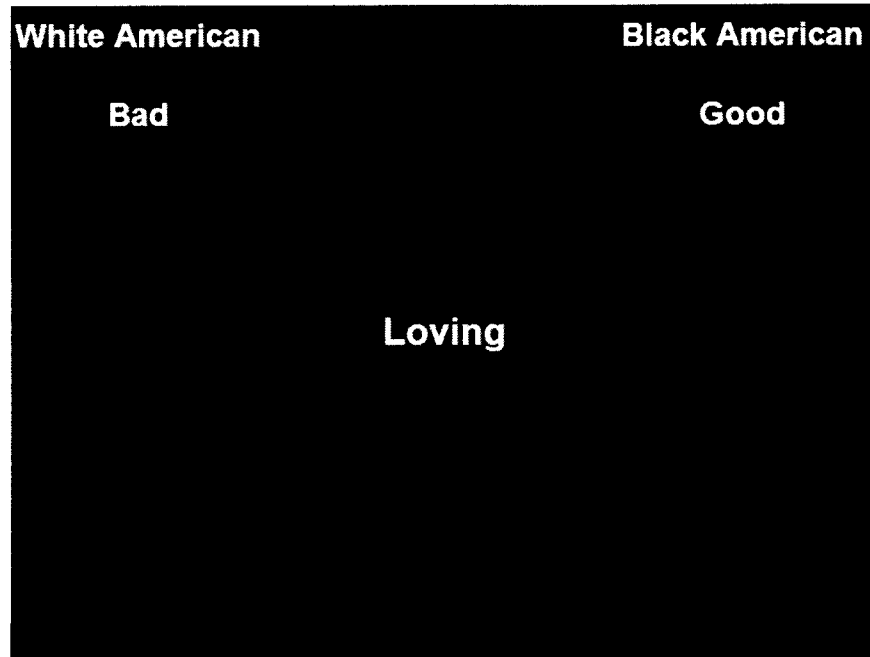
Screenshot from Race IAT Block 2: Faces Only (Practice, 24 trials):



Screenshots from Race IAT Blocks 3 and 4: Words and Faces #1 (Practice, 24 trials; Critical, 48 trials):



Screenshots from Race IAT Blocks 5 and 6: Words and Faces #2 (Practice, 24 trials; Critical, 48 trials):





**APPENDIX E**

Date Posted: October 2, 2007

IRB #: 07-070

**PROJECT IMPLICIT**

- Description:** This is an (approximately) one-hour computer-based onsite study that measures social attitudes along with performance in sorting and knowledge tasks.
- Participants:** This study is open to all students in the Psychology Participant Pool ages 18 and up.
- Time Requirements:** This study should take approximately one-hour to complete.
- Sign-up Information:** To find and sign up for open sessions visit the Psychology Department on-line participant sign-up system at <http://oduppsychology.sona-systems.com/>
- Research Participation Credits:** You will receive one (1) Participation Experience Credit (PEC) for your participation.
- Additional Information:**
- Researcher and Contact Information:**
- Faculty Supervisor:** Ivan Ash, Ph.D., Assistant Professor  
Department of Psychology, ODU  
Room 132E, Mills Godwin Building  
Phone: 757.683.4446  
Email: [iash@odu.edu](mailto:iash@odu.edu)

## APPENDIX F

PROJECT IMPLICIT  
Informed Consent to Participate in Research  
Old Dominion University  
College of Sciences  
Department of Psychology

**Introduction:** The purposes of this form are to give you information that may affect your decision whether to say YES or NO to participation in Project Implicit, and to record the consent of those who say YES.

**Principal Investigator:**

Ivan Ash, Ph.D.  
Assistant Professor  
College of Sciences  
Department of Psychology  
Old Dominion University  
e-mail: [iash@odu.edu](mailto:iash@odu.edu)  
phone: 757.683.4446

**Description of Research:** This experiment investigates social attitudes and measures performance on sorting procedures. All responses are anonymous. Should you decide to participate you will respond to a number of questions and complete a series of tasks using a computer. The tasks will require you to sort words and photos into different categories. Afterwards you will be debriefed by the researchers and before leaving you will have an opportunity to ask any questions you may have about this experiment. If you say YES, then your participation will last for approximately 1 hour.

**Exclusionary Criteria:** You must be at least 18 years of age.

**Risks and Benefits:** *RISKS:* There are no substantial risks for participants in this study. However, as with any research, there is always the possibility that you may be subject to risks that have not yet been identified. If at any point during the course of the experiment you feel uncomfortable, remember that your participation is voluntary and you may end your participation at any time without penalty. *BENEFITS:* If you decide to participate in this study, you will receive 1 Psychology Department research credit, which may be applied to course requirements or extra credit in certain Psychology courses. Equivalent credits may be obtained in other ways. You do not have to participate in this study, or any Psychology Department study, in order to obtain this credit

**Costs and Payments:** All participants will receive 1 Psychology Department Research Credit for participation in this study.

**Confidentiality:** All information obtained about you in this study is strictly confidential unless disclosure is required by law. The results of this study may be used in reports, presentations and publications. All results will be reported in the aggregate, and the researcher will not identify you. Although your name and email were used to make your appointment and will be used to assign research credit, you will be assigned a participant number which cannot be connected to this information. This number will be used to organize all your responses. Therefore, your identity can never be associated with your questionnaire responses or performance data. Your responses will be completely anonymous, in accordance and observation with ethical guidelines established by the American Psychological Association (A.P.A.).

**Withdrawal Privilege:** It is OK for you to say NO. Even if you say YES now, you are free to say NO later, and walk away or withdraw from the study at any time. Your decision will not affect your relationship with Old Dominion University, or otherwise cause a loss of benefits to which you might otherwise be entitled. Also, the investigators reserve the right to withdraw your participation at any time throughout this investigation.

**Compensation for Illness and Injury:** If you say YES, then your consent in this document does not waive any of your legal rights. It is highly improbable and unlikely that any illness or injury will result from your participation with this research project. However, in the event of any harm arising from this study, neither Old Dominion University nor the researchers are able to give you any money, insurance coverage, free medical care, or any other compensation for such injury. In the event that you suffer harm as a result of participation in this research project, you may contact Dr. Ivan Ash at 757.683.4446 or Dr. George Maihafer, the current IRB chair at 757.683.4520 at Old Dominion University, who will be glad to review the matter with you.

**Voluntary Consent:** By signing this form, you are saying several things. You are saying that you have read this form or have had it read to you, that you are satisfied that you understand this form, the research study, and its risks and benefits. The researchers should have answered any questions you may have had about the research. If you have any questions later on, please contact the Principal Investigator, Dr. Ivan Ash, at 757.683.4446.

If at any time you feel pressured to participate, or if you have any questions about your rights or this form, then you should call Dr. George Maihafer, the current IRB chair, at 757.683.4520, or the Old Dominion University Office of Research, at 757.683.3460.

And importantly, by signing below, you are telling the researcher YES, that you agree to participate in this study. The researcher should give you a copy of this form for your records.

\_\_\_\_\_ I agree to participate in Project Implicit

\_\_\_\_\_  
Participant's Printed Name

\_\_\_\_\_  
Participant's Signature

\_\_\_\_\_  
Date

**Investigator's Statement:** I certify that I have explained to this participant the nature and purpose of this research, including benefits, risks, costs, and any experimental procedures. I have described the rights and protections afforded to human subjects and have done nothing to pressure, coerce, or falsely entice this subject into participating. I am aware of my obligations under state and federal laws, and promise compliance. I have answered the participant's questions and have encouraged him/her to ask additional questions at any time during the course of this study. I have witnessed the above signature on this consent form.

\_\_\_\_\_  
Investigator's Printed Name

\_\_\_\_\_  
Investigator's Signature

\_\_\_\_\_  
Date

## APPENDIX G

### WELCOME SCRIPT

Good Morning/Good Afternoon/Good Evening.

My name is \_\_\_\_\_, and on behalf of Old Dominion University I would like to thank you for participating in Project Implicit.

The first thing we need to go over is the informed consent form in front of you. Please sign it only after you have read it in full, and please let me know if you have any questions.

~ ~ ~

Do you have any questions about this form?

You should know that your participation in Project Implicit is strictly voluntary. If for any reason you become uncomfortable during participation you may let me know and you will be free to stop participating without penalty.

This experiment will take approximately one hour. You will respond to a series of tasks and answer questions on the computer. Your name and UIN will not be linked to your responses in any way. All your responses are completely anonymous. It is very important that you read ALL instructions on your computer screen before proceeding with each task. It is also very important that when you finish the experiment you wait quietly in your seats until the rest of the group finishes. Please be patient because any noise or disruption could contaminate the data we are recording. There is no reward for finishing early. After EVERYONE finishes we will have an opportunity to talk about the experiment before you leave. At that time you will have an opportunity to ask any questions that you may have about this experiment. I will then sign your receipts and dismiss you.

It's very important that you are at least 18 years old. There is of course no penalty for this and you will receive research credit in compensation for keeping this appointment. Again if you become uncomfortable at any time during this experiment and do not feel like continuing, please let me know. If you have any other questions, please let me know before we begin...

Please watch the screen, carefully read all the directions, and respond at your own pace...

Thank you. You may begin now.

**APPENDIX H**  
**DEMOGRAPHIC ITEMS**

---

Item Number	Question	Answer Options
1	What is your age?	
2	What is your gender?	Female Male
3	Which racial category do you identify with the most?	White/Caucasian Black/African-American Hispanic/Latino Native American/Alaska Native Asian/Pacific Islander Other _____
4	Please indicate your current citizenship status	U.S. Citizen Permanent U.S. Resident Foreign Citizen
5	Please indicate your marital status	Single Married Divorced/Widowed

---

## APPENDIX I

### MEASURE INSTRUCTIONS

Measure	Instructions Text
Implicit Association Test	<p>Words or images that represent the categories at the top of the screen will appear one at a time in the middle of the screen. Your task is to classify these words and images. When an item appears that belongs in the category on the left, press the "e" key; when an item appears that belongs in the category on the right, press the "i" key. Items can only belong to one category. If you make an error you will see a red "X". Please press the correct key and the experiment will continue. This is a timed test, GO AS FAST AS YOU CAN while making as few mistakes as possible. Accuracy and speed are both important. Pay close attention to the category labels at the top of the screen. They will change from block to block. Please direct any questions to the experimenter. When you are ready to continue please place your middle fingers on the "e" and "i" keys of your keyboard and press the SPACEBAR to begin.</p>
Miville-Guzman Universality-Diversity Scale Short Form	<p>The following survey measures your opinions. Items have no right or wrong answers. Please rate how strongly you agree or disagree with each of the following statements by pressing the appropriate number on the keyboard. Please read each item carefully and respond at your own pace. Once you respond to an item you cannot change your answer. When you are ready to continue please press the SPACEBAR to begin.</p>
Symbolic Racism 2000 Scale	<p>The following survey measures your opinions. Items have no right or wrong answers. Please choose a response to the following statements by pressing the appropriate number on the keyboard. Please read each item carefully and respond at your own pace. Once you respond to an item you cannot go back and change your answer. When you are ready to continue please press the SPACEBAR to begin.</p>

## APPENDIX J

### DEBRIEFING FORM

Dr. Ash and his research team would like to thank you for participating in this study. We appreciate your diligence and patience.

The experiments you participate in as part of the Psychology Experience Credit program are meant to serve as educational opportunities, which allow you to learn a little about how psychologists study the nature of behavior, beliefs, emotions, and cognition. Please read the following debriefing that will explain the purpose of the study in which you participated.

The sorting procedure that you participated in is called an Implicit Association Test, or IAT. The IAT procedure is used to measure the nature of people's mental representations of different concepts. Often people are not fully aware of some of the underlying mental associations they make. This is because the process by which we form and access these associations may largely be involuntary or "implicit". The test you participated in sought to measure your implicit racial bias. The test works by measuring differences in reaction time for categorization tasks. The basic idea is that if participants were to respond faster when *White* faces and *good* words are classified with the same response key than when *Black* faces and *good* words are classified with the same response key, this implies an unconscious or automatic racial prejudice.

The surveys you were asked to complete measured explicit racial bias as well as attitudes related to valuing diversity. We hope to use the data collected in this study to investigate the relationship between explicit and implicit racial attitudes, as well as attitudes related to valuing diversity.

Some of you may have been asked to complete a knowledge task prior to completing the IAT procedure. This task was designed to prime participants using counter-stereotypical exemplars. The data from participants who completed this task will be compared to a control group in order to investigate how attitudes related to racial bias may be manipulated using priming.

We assure you that your scores on the IAT and all other measures you completed cannot be linked to your identifying information in any way. Your responses will be stored anonymously. There is no way for you to obtain information related to your personal performance on any of the measures. All reports, presentations and publications of the results of this study will report data analyzed at the group level. No individual responses will be reported.

As you can see from the nature of the IAT test, it is very important that participants are unaware about what we are trying to measure while they are completing the study. Therefore, we ask you not to discuss the experiment with anyone in the university



participant pool. We ask that you continue to refrain from discussing this study with anyone who may be in your psychology classes this semester. This will help ensure that the data we collect in this study are uncontaminated and that everyone's time spent participating in this experiment was worthwhile.

If you have any questions or concerns about this study, or just want to learn more about the IAT test, feel free to contact the principal investigator Ivan K. Ash, Ph.D. Assistant Professor of Psychology at [iash@odu.edu](mailto:iash@odu.edu) or 757.683.4446.

Thank you again for your participation.

## APPENDIX K

## EXPERIMENTAL TASK EXEMPLARS

Name	True Description	False Description
Admired Black Exemplars		
Martin Luther King	Leader of the Black Civil Rights movement in the 1960s.	Former Vice President of the United States.
Colin Powell	Former Chairman, Joint Chiefs of Staff for the U.S. Department of Defense.	U.S. Ambassador to the United Nations.
Denzel Washington	Famous actor who played a leading role in the movie <i>The Manchurian Candidate</i> .	Famous American tennis player.
Michael Jordan	One of the world's best basketball players.	Lead singer of a popular rock band.
Tiger Woods	Professional golf champion.	Famous country music star.
Nelson Mandela	Former president of South Africa.	Famous TV talk show host.
Condoleezza Rice	Secretary of State under President George W. Bush.	CEO of major financial services corporation.
Oprah Winfrey	Emmy award-winning TV talk show host.	Inventor of the digital camera.
Maya Angelou	Famous American author.	Former Senator from Mississippi.
Halle Berry	Oscar-winning actress.	News anchor for NBC.
Disliked White Exemplars		
Al Capone	Famous American gangster who terrorized Chicago in the 1920s.	Leader of an antigovernment militia in the 1930s.

Name	True Description	False Description
Timothy McVeigh	Bombed the federal building in Oklahoma City.	Member of the mafia, arrested for drug trafficking.
Charles Manson	Serial killer who operated in Los Angeles in the late 1960s.	Embezzled millions of dollars of taxpayer's money in the 1980s.
Scott Peterson	Convicted of murdering his pregnant wife.	Member of an international terrorist association.
Dennis Rader	Serial killer known as the BTK killer.	Convicted pedophile.
Adolf Hitler	Responsible for the genocide of millions during WWII.	Put on trial for poisoning schoolchildren.
Mary Kay Letourneau	Convicted of statutory rape for having a sexual relationship with an underage student.	Responsible for the crash of TWA Flight 800.
Aileen Wuornos	Convicted serial killer and prostitute.	Convicted for a series of bank robberies.
Andrea Yates	Killed her five young children in 2001.	Attempted to assassinate President Ronald Reagan.
Susan Smith	Sentenced to life in prison for murdering her two sons.	Famous arsonist.

*Note.* Based on experimental exemplars in Dasgupta & Greenwald, 2001.

**APPENDIX L**  
**CONTROL TASK EXEMPLARS**

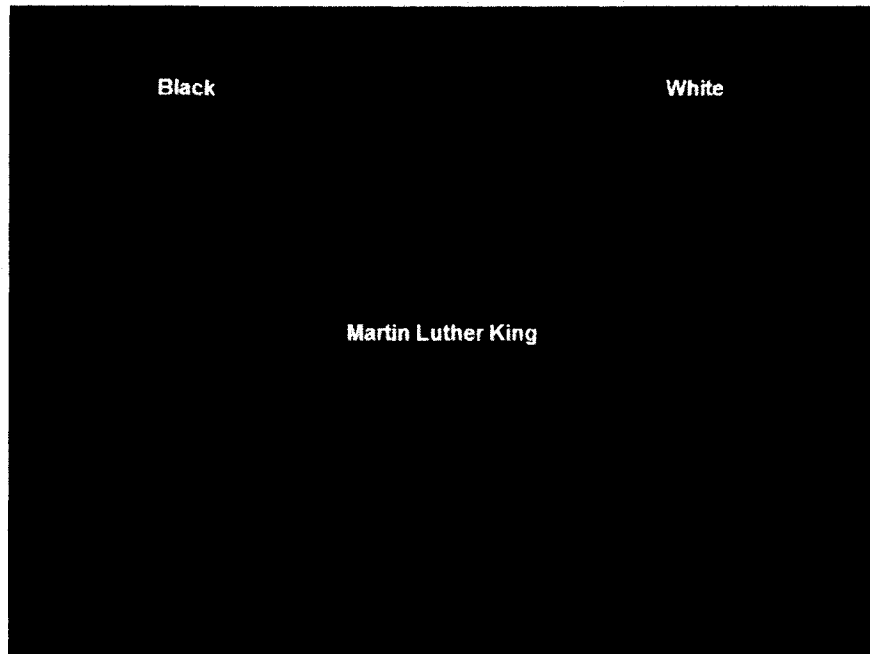
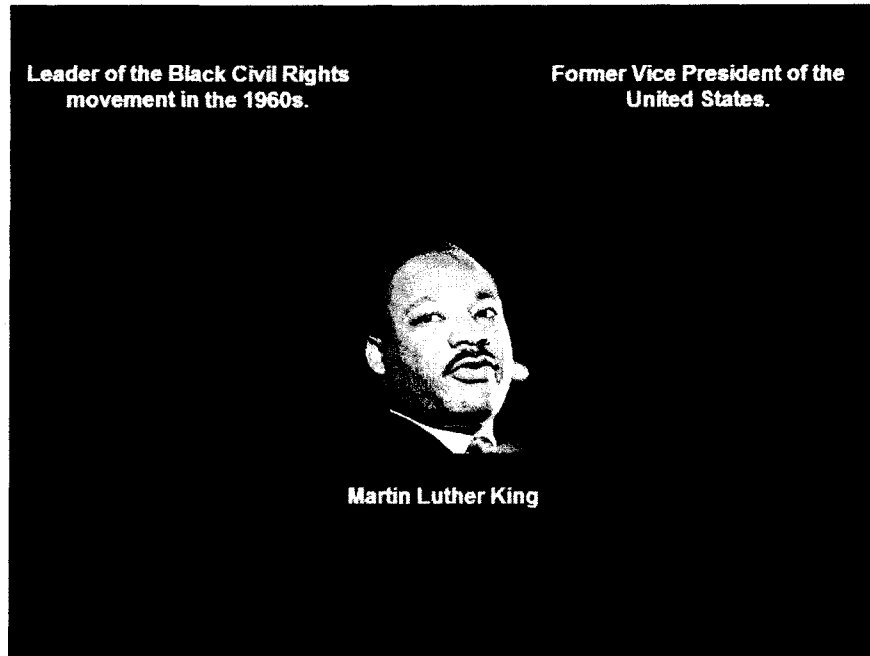
	True Name	False Name
Insects	Centipede	Millipede
	Cockroach	Potato beetle
	Deer fly	Dung fly
	Dragonfly	Horse fly
	Flea	Chigger
	Grasshopper	Cicada
	Honey bee	Hornet
	Japanese beetle	Ground beetle
	Ladybird beetle	Rove beetle
	Mosquito	Mayfly
Flowers	Carnation	Dahlia
	Daisy	Snapdragon
	Hibiscus	Amaryllis
	Iris	Peony
	Lily	Hyacinth
	Orchid	Hydrangea
	Marigold	Poppy
	Rose	Pansy
	Sunflower	Chrysanthemum
	Tulip	Daffodil

*Note.* Based on control exemplars in Dasgupta & Greenwald, 2001.

## APPENDIX M

### EXPERIMENTAL TASK SCREENSHOTS

Screenshots from Experimental Priming Task: Block 1 (40 trials) and Block 2 (40 trials):



## APPENDIX N

### EXPERIMENTAL AND CONTROL TASK INSTRUCTIONS

Measure	Instructions Text
Control Task	
Block One	The following is a general knowledge test designed to assess your familiarity with insect and flower types. Photographs of insects and flowers will appear one at a time in the middle of the screen. There will be two names at the top of the screen; one correct and one incorrect. Your task is to identify the correct name. If you believe the name on the left is correct, press the "e" key; if you believe the name on the right is correct, press the "i" key. If you make an error you will see a red "X". Please select the correct description and the experiment will continue. Please direct any questions to the experimenter. When you are ready to continue please place your middle fingers on the "e" and "i" keys of your keyboard and press the SPACEBAR to begin.
Block Two	In the following section, your task is to identify the correct category for the name that appears in the center of the screen. If you believe the category on the left is correct, press the "e" key; if you believe the category on the right is correct, press the "i" key. If you make an error you will see a red "X". Please select the correct category and the experiment will continue. Please direct any questions to the experimenter. When you are ready to continue please place your middle fingers on the "e" and "i" keys of your keyboard and press the SPACEBAR to begin.
Experimental Task	
Block One	The following is a general knowledge test designed to assess your familiarity with famous and infamous individuals. Photographs of individuals will appear one at a time in the middle of the screen. There will be two descriptions of the individuals at the top of the screen; one correct and one incorrect. Your task is to identify the correct description. If you believe the description on the left is correct, press the "e" key; if you believe the description on the right is correct, press the "i" key. If you make an error you will see a red "X". Please select the correct description and the experiment will continue. Please direct any questions to the experimenter. When you are ready to continue please place your middle fingers on the "e" and "i" keys of your keyboard and press the SPACEBAR to begin.

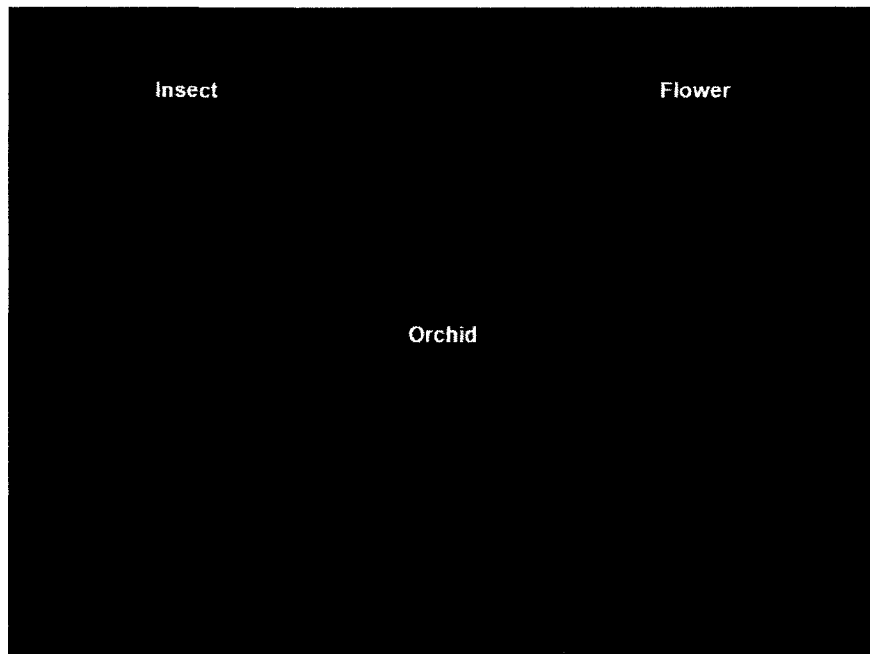
---

Measure	Instructions Text
Experimental Task (cont.)	<p data-bbox="431 304 1400 667">Block Two In the following section, your task is to identify the correct racial category for the name that appears in the center of the screen. If you believe the category on the left is correct, press the "e" key; if you believe the category on the right is correct, press the "i" key. If you make an error you will see a red "X". Please select the correct category and the experiment will continue. Please direct any questions to the experimenter. When you are ready to continue please place your middle fingers on the "e" and "i" keys of your keyboard and press the SPACEBAR to begin.</p>

---

**APPENDIX O****CONTROL TASK SCREENSHOTS**

Screenshots from Control Task: Block 1 (40 trials) and Block 2 (40 trials):





## VITA

### REBEKKA ALTHOUSE GORDON, PH.D.

---

ODU Psychology Department, 250 Mills-Godwin Building, Norfolk, VA 23529

#### EDUCATION

- Old Dominion University, Norfolk, VA  
**Doctor of Philosophy**, Industrial-Organizational Psychology August 2008  
 Major: Personnel Psychology Minor: Organizational Psychology
- Old Dominion University, Norfolk, VA  
**Master of Science**, Industrial-Organizational Psychology August 2006
- Franklin & Marshall College, Lancaster, PA  
**Bachelor of Arts**, Presidential Scholar May 2002  
 Double Major: Psychology and English Literature

#### PROFESSIONAL EXPERIENCE

- **Consultant**, Cresting Wave Solutions, Virginia Beach, VA (2005–2008)
- **Organizational Development Consultant**, AIDS Care Center for Education and Support Services, Norfolk, VA (2007-2008)
- **Program Evaluation Consultant**, AIDS Care Center for Education and Support Services, Norfolk, VA (2005-2008)
- **Project Coordinator**, Personnel Decisions International, New York, NY (2002-2003)

#### PAPERS, PROFESSIONAL PRESENTATIONS

- Althouse, R.A., & Dickinson, T.L. (2007). Measurement of valuing diversity: A second-order factor analysis. Manuscript submitted for publication.
- Althouse, R.A., & Dickinson, T.L. (2007, May). Measurement of valuing diversity. Paper presented at the Annual Convention of the Association for Psychological Science, May 24-27, Washington, DC.
- Althouse, R.A., & McIntyre, R.M. (May, 2004). Evaluating attitudes toward diversity: An initial analysis of the Scale of Ethnocultural Empathy and the Diversity Appreciation Scale. Paper presented at the 82nd Annual Meeting of the Virginia Academy of Sciences, Richmond, VA.