CHANGING ATTITUDES ABOUT STEREOTYPED GROUPS

AND CRITICAL THINKING ABILITY

A Dissertation by

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Master of Arts, Wichita State University, 2005

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Submitted to the College of Liberal Arts and Sciences
and the faculty of the Graduate School of
Wichita State University
in partial fulfillment of
the requirements for the degree of
Doctor of Philosophy

May 2006
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To my family for their love and support. Thank you for allowing me to complete this journey, and for accompanying me along the way. Our future is before us.
ABSTRACT

The goal of this study was to examine the relationship between a change in stereotype rating of photographs and the critical thinking skill of the rater. The groups rated for the study were Black, Middle Eastern/Arab, and Skinhead, each represented by three photographs of male group members.

Using an adjective checklist rating system, participants rated a photograph of a member of one of the three groups. The participants were administered the Watson Glaser Critical Thinking Inventory (S) short form, and then presented with a biographical sketch relating to the initial photograph. The sketch was engineered to develop a middle class American identity for the person in the photograph, and the photograph was rated again.

Results indicated that providing the biographical sketch significantly lowered the negative stereotype rating of the photograph for the second presentation. Additional analysis identified that a higher critical thinking ability was associated with a lower amount of overall change in the negative stereotype rating score. When the adjectives were separated into positive and negative adjectives, a higher critical thinking score had a stronger association with a change in the positive adjective scores, such that the photograph was viewed as more “likeable” the second time it was presented.

Implications of the relationship between critical thinking and improved likeability of negatively stereotyped group members is discussed.
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CHAPTER 1

INTRODUCTION AND LITERATURE REVIEW

Individuals will express different levels of prejudicial attitudes toward people based on perceiving them as members of different groups. Past studies have examined several individual differences that may have an effect on the attitudes that someone might express, but none have examined the cognitive skill that is known as critical thinking. Critical thinking affects the way that an individual utilizes information that he or she receives, acknowledging assumptions, evaluations, and interpretations of that information. The current study examines the relationship between critical thinking skill and expressed levels of negative attitudes toward persons from often stereotyped groups.

Why do people utilize automatic processes of stereotype activation and application when assessing members of highly charged social or cultural groups? Is it possible to provide individuals the opportunity to utilize a controlled, considered process in assessing a member of a group that results in new decisions made about the group member? And how does the individual’s relative skill at synthesizing information, or using critical thinking, relate to a shift between stereotyping as an automatic to a controlled process?

Stereotypes and Attitude Change

Stereotypes are viewed as cognitive categories that contain general knowledge, beliefs and expectations used when thinking about a social group (Fiske & Neuberg, 1990; Jussim, Nelson, Manis, & Soffin, 1995; Kunda, 1999). Largely, researchers have found that stereotypes are activated as an automatic process when individuals are presented with members of a stereotyped group (Aronson & Mills, 1959; DeSterno, Dasgupta, Bartlett & Cajdric 1991; Kunda, 1999; Nisbett & Wilson, 1977). The International Encyclopedia of the Social and
Behavioral Sciences (2001) suggests that “(a) utomatic responses to people and groups may be based on stereotypes – characterizations of persons based on their membership of a particular group…” (pp 992). Since these ideas are often so well learned, they automatically pop into mind, without willful control, or even awareness of their activation. Bem & Bem (1971) refer to these automatically activated beliefs as a type of “non-conscious ideology”, and Jussim et al. (1995) suggest that “(s)ome sort of cognitive process leads people to interpret, judge and perceive individuals from different groups differently” (pp 228). Research has indicated that stereotyping or prejudice is present at the automatic level well beyond the level indicated on explicit measures such as questionnaires (Blair & Banaji, 1996; Devine, 1989).

Hamilton (1981) suggests that these automatically generated stereotypes are based on the accumulation of information received on a daily basis. The presentation necessary for activation of stereotype or social categorization need not be an actual person. It is easy to activate these automatic stereotypes with exposure to a photograph of a category exemplar, or a category label either written or spoken (Bargh, 1996; Kawakami, Dovidio, Moll, Hermsen & Russin, 2000). Hamilton and colleagues (see Sherman, Castelli, & Hamilton, 2002; Hamilton & Sherman, 1996; Hamilton, Sherman & Maddox, 1999) have investigated the way that these stereotypes or categories affect the processing of information about groups and group members. Their work suggests that individuals utilize two types of processing when evaluating information about groups versus individuals. They refer to the group information processing as “integrative processing” and the individual information processing as “retrospective processing.” Further study (Hamilton et al., 1999; Sherman, Hamilton & Lewis, 1999; Yzerbyt, Rogier & Fiske, 1998) concludes that individuals will begin processing of information by identifying the group characteristics of the identified category, then process additional information against these
identified characteristics. Thus, group categorization or stereotype is utilized as an organizing principle in both activation of stereotype as well as memorization of information for future access (Macrae, Milne & Bodenhausen, 1994; Sherman et al., 2002).

There is some debate in social psychology regarding the activation of stereotyped categories and the application of these stereotypes, with some researchers suggesting that stereotyping is an automatic behavior, while others suggest it can be controlled by the perceiver. Kunda & Spencer (2003) highlight the difference, indicating that category activation does not automatically lead to judgment and decision making about the group or the group member presented (see also Bruner, 1957). However, Hamilton, Stroesner, & Driscoll (1994) identified that stereotypes activated have an effect on how individuals receive, encode and use social information they receive. Specifically, that stereotypes affect what information we pay attention to, how we interpret that information, and how we process that information. In much the same way as an analogue is utilized to focus individuals toward heuristics or patterns for problem solving (Keane, 1987), the stereotypes activated focus the individual’s pattern of information use and storage. As Kawakami, Dovidio, Moll, Hermsen & Russin (2000) suggests, stereotype activation drives the individual’s ability to apply or use stereotypes “in perceptual or evaluative operations” (pp 871).

Additional studies have focused on changing stereotype activation from group-focused to individual focused. Bless, Schwartz, Bodenhausen & Thiel (1999) examined the way that individuals categorize group membership when evaluating atypical members of the group. The motivation for processing information about a group member was manipulated by the researchers. Different motivations had different effects, either increasing stereotypic judgments or attenuating categorization, when an atypical member of the group was presented. Cernat
(2001) reminded individuals of historical events that disconfirmed traditional stereotypes of
groups and found a decrease in stereotype application.

Other researchers argue that individuals can be motivated or primed in such a way that
they will choose to NOT apply stereotypes (Devine, 1989; Fiske, 1989; Fiske, 2004) and not act
on the stereotype information that they automatically access (Barden, Maddux, Petty & Brewer,
indicated that it is possible to not use stereotypical information when properly motivated to do
so. Others identify that individuals will avoid using a stereotype when a goal is presented to find
out unique information about a group member (Erber & Fiske, 1984; Fiske & Neuberg, 1990;
Kawakami, Spears & Dovidio, 2002), which relates back to Hamilton and colleagues’
introspective and retrospective processing. Additionally, Macrae, Shepherd & Milne (1992)
examined the use of individuating information on judgment tasks, and found that the credibility
of the source of the information has an effect on stereotype-disconfirmation for the participants.
This will then affect how the stereotype information is used.

Kawakami, Dovidio, Moll, Hermsen & Russin (2000) examined the effect of training to
negate stereotype associations with groups and its subsequent reduction in activation of
automatic stereotypes. Utilizing simple pairing of group categories with “new” characteristics
that negate stereotyped representations can reduce the likelihood of automatic activation of the
original stereotypes. This approach emphasized the relationship between learning and stereotype
development. Without this initial learning, it is unlikely that the non-conscious ideology of
stereotype or category development would occur.

As Duckitt, Wagner, du Plessis, & Birum (2002) indicate, the study of prejudice has
focused largely on the group phenomenon of prejudice and stereotype, such that the in-group
identity of the perceiver is seen as central to the activation and use of stereotypes of members of "other" groups (see Pettigrew, 1958; Tajfel & Turner, 1979). Recent research by Medvene, Grosch & Swink (in press) examines the relationship between an individual's role category, and the constructs that the individual defines when describing others in health care settings. This process is referred to as cognitive complexity, and is based on the RCQ or Role Category Questionnaire. The assessment inventory requires the respondent to list constructs, similar to adjectives, which he or she associates with a particular person that is liked, and a particular person that is not liked by the individual. Taking a count of the constructs listed provides a measure of the individual's cognitive complexity regarding his role category and perception of others (Tardy, 1988). Social roles were also examined for the possibility of their moderation of racial bias when non-typical exemplars were presented (Barden, Maddus, Petty & Brewer, 2004; Dasgupta & Greenwald, 2001; Lowery, Hardin & Sinclair, 2001, Paolini, Hewstone, Rubin & Pay, 2004). Results indicate that some automatic stereotype activations can be adapted when taking into account the group exemplars that are available. Zimbardo and Leippe (1991) identify that adaptation of these stereotype activations can produce a shift in attitude about members of the group being rated or judged.

**Individual Differences and Stereotyping**

Recently, the initiation and application of stereotype behavior has been examined as an individual difference between people in general, as opposed to members of a particular group, specifically looking at personality types (Altemeyer, 1981; Pratto, 1999). Duckitt, Wagner, du Plessis & Birum (2002) measured the individual difference of personality characteristics, such as authoritarianism, toward prejudice activation and use. This examination opens the door to
additional modes of assessing individual differences and their relationship to stereotype or
prejudice activation and application.

The new focus on individual differences of perceivers as modifying the way that
stereotypes are activated and applied to members of groups is developing. Initial studies have
focused on personality as a trait, and its relationship to automatic stereotype activation. New
emphases on skills have increased the recognizability of critical thinking as a skill to modify the
activation and application of stereotyped beliefs. This is theorized because individuals who
engage in critical thinking use “analysis, interpretation, inference, explanation, evaluation, and
self-regulation” in order to form, monitor and improve judgment abilities (Facione, Sanchez,
Facione & Gainen, 1995, p. 3). The current study focuses on the relationship between an
individual’s critical thinking skill and the evaluation of group exemplars, or representatives, from
often stereotyped groups. The exemplars utilized in the current study are initially defined
typically, with the presentation of a photograph of an obvious member of the charged group.
The second presentation of the exemplars is tempered by the presentation of a biographical
sketch utilized to negate typical negative stereotypes from the group presented.

**Critical Thinking as Individual Difference**

Critical thinking is an important skill. Increasingly, goal statements of universities and
nursing school have identified that the graduates from their respective programs should have the
ability to think critically (Bailin, Case, Coombs, & Daniels, 1999; Facione, Sanchez, Facione, &
Gainen, 1995; Rapps, Riegel & Glaser, 2001). In 1990, President George H.W. Bush addressed
the nation in conjunction with the governors of the 50 states and identified five national
educational goals. The fifth goal states that “adult Americans will possess the knowledge and
skills necessary to compete in a global economy and exercise the rights and responsibilities of
citizenship” (Facione et al., 1995). President George H.W. Bush suggested that to achieve this goal “the proportion of college graduates who demonstrate an advanced ability to think critically, communicate effectively, and solve problems will increase substantially” (quoted in Facione et al., 1995, p. 2). Accordingly, Congress adopted this as a national educational goal in “Goals 2000: Educate America Act” (Facione et al., 1995). Additionally, the National League for Nursing requires that schools of nursing “quantify their ability to produce critical thinkers” (Rapps, Riegel, & Glaser, 2001), and Pithers (2000) suggests that the skill “needs to be taught at all levels of the educational systems in Australia, Great Britain and North America” (p. 2) as it can be defined as a major generic competency.

Critical thinking skills have been linked with competition in global economies (Facione, Sanchez, Facione & Gainen, 1995), the ability to solve problems generally faced at work and in life (Pithers, 2000), and the ability to reject information that has no evidence of credibility (Halpern, 1998). Being able to analyze information and make reasoned judgments about them, associated with reasoned action, is associated with the nursing profession’s insistence on the production of critical thinkers from nursing programs (Rapps, Riegel, & Glaser, 2001). Halpern (1998) examines some of the social tolls of a lack of critical thinking, citing an abundance of over-reliance on daily horoscopes by individuals who utilized the information for advice on matters ranging from trivial matters of daily life to decisions about whether or not to keep a loved one on life support. Gullibility, she argues, is an expensive and even dangerous weakness of those individuals who lack critical thinking skills. Critical thinking is also vital in the age of information from multiple sources via the Internet. Individuals need the ability to sort through all of the data and select the most appropriate information for their purposes, rejecting other information (Halpern, 1998). This is associated with making judgments about others, as well.
Individuals with critical thinking skills are more highly sought after by employers because of their flexibility and adaptability upon entering the workforce (Pithers & Soden, 2000), have more desirable outcomes than those with less critical thinking skills with regard to career, financial, or personal choices (Halpern, 1998), and are able to communicate more effectively with others (Pithers & Soden, 2000; Li, Long & Simpson, 1999).

Bailin, Case, Coombs & Daniels (1999b) propose that the ability of a critical thinker be conceptualized in terms of “intellectual resources,” which they define as “background knowledge, operational knowledge of the standards of good thinking, knowledge of key critical concepts, heuristics and habits of mind” (p. 290). Rapps, Riegel & Glaser (2001) suggest four variables make up the model of critical thinking: “knowledge base, critical thinking skills, critical thinking dispositions, and experience” (p. 610). And the 1990 culmination of research sponsored by the American Philosophical Association, titled the Delphi project, identified that an individual who engages in critical thinking uses a set of cognitive skills which includes “analysis, interpretation, inference, explanation, evaluation, and self-regulation” in order to form, monitor and improve judgment abilities (Facione, Sanchez, Facione & Gainen, 1995, p. 3).

These judgment abilities can be conceptualized as controlled processes, which are deliberate and which take in the maximum amount of information to be considered before a decision is made on a topic. As demonstrated earlier with the studies of Macrae, Shepherd & Milne (1992), Bless, Schwarz, Bodenhausen & Thiel (1999) and Cernat (2001) automaticity of stereotype activation can be modified by the introduction of atypical information of a group member. This atypical information can be understood to force the perceiver to attend to more information than the automatically activated stereotype that is recalled, possibly resulting in a decrease in stereotype application when making judgments. It is believed that critical thinking
skills will be related to what information is attended to, and how it is utilized to make judgments. As McGuire (1976) indicates, the information must be presented, be attended to and comprehended by the receiver, and the receiver must yield to the content and retain its meaning in order for behavior to change. Critical thinking skills would be associated with the comprehension, yielding, and retention of the information by the receiver.

The individual skills associated with critical thinking are not altogether defined, but many scholars will agree that there are certain components that together indicate an individual has a high level of critical thinking skill. These skills include inference, which is the conclusion that can be drawn from both observed and supposed facts; recognition of assumptions, which examines the information that an individual takes for granted when making decisions; deduction, which is the logical association between information received and conclusions made from that information; interpretation, which measures the reasonableness of conclusions drawn from statements; and evaluation of arguments, which measures how strong or weak arguments about an issue are perceived to be. Most researchers in the field of critical thinking will agree that these components are necessary for adequate critical thinking, and those with high levels of critical thinking are better able to gather and use information from their environment to make decisions and draw conclusions. Individuals with low critical thinking scores will rely on past knowledge, which may include stereotypes and past experiences, more readily than the information that is available to make their decisions.

Hypotheses and Questions of the Study

Following the lead of Jussim, Nelson, Manis, & Soffin (1995) and Duckitt, Wagner, du Plessis, & Birum (2002), the current study focuses on individual differences to explain different application of stereotype information. Specifically, the study hypothesizes that a change in the
perception of a group exemplar, or photographic representative, will occur between the presentation of a photograph of a group exemplar and an engineered biographical sketch presented with the photograph. Using the adjective checklist developed for the study, a higher negative stereotyping score will occur for the photo only condition, and lower negative stereotyping score will occur in the photo plus biographical sketch condition. Additionally, it was hypothesized that critical thinking skill will be negatively correlated with this shift between conditions, with a higher critical thinking skill associated with a lower shift, due to a relatively lower initial negative score endorsed by persons with a high critical thinking skill. Because social desirability has been indicated to represent a set bias in some self report measures (Tanaka-Matsumi & Kameoka, 1986; Zimmerman & Coryell, 1990), the present study measured the participant’s level of social desirability need in order to control for the effect if it was found to exist.

An examination of the defined individual difference as critical thinking skill and its possible moderating effect on stereotype endorsement has not been undertaken the current literature. Critical thinking has, however, been studied in relationship to change in perceptions for students in Psychology classrooms (Kowalski & Taylor, 2005). Thus, this study can be considered to be exploratory in nature, and additional hypotheses may be generated through the process of researching the questions above.
Determining Groups and Group Representations

The initial study was developed to determine which of the proposed four groups would yield the most negative stereotyping scores on the adjective check list. High negative scores on the adjective check list indicate more negatively stereotyped groups which would more likely be affected by the manipulations in the second phase of the study. Four photographs represented each of four groups for the initial phase of the study.

Participants

Twenty-four participants were recruited from general psychology courses at a Midwestern university. Participants were told of the opportunity for participation by presentation in their classrooms, and asked to sign up during that class period or after on the Sona-system website administered by the Psychology department. At the discretion of the instructors, participants were given participation or extra credit points for their part in the study.

Instrument

An abbreviated adjective rating scale was taken from an equal number of items with negative and positive valence from the Adjective Check List (Gough & Heilbrun, 1983). The words were presented in alphabetical order to minimize the possible bias from order effects. The four point Likert-type scale was developed with anchors for the instrument as “Very Like,” “Somewhat Like,” “Somewhat Unlike,” and “Very Unlike.” Participants responded by placing a mark on the line immediately preceding the choice of how the adjective described the individual in the photograph (see Appendix A).
**Procedures**

Participants were randomly assigned to view photographs from one of the four groups analyzed for inclusion in the study: African American, Arab/Middle Eastern, Asian, and Skinhead.

Each participant was shown four photographs of male individuals who represented the group, with order of photographs between participants randomized. Upon presentation, the participant was asked to “Please look at this photograph. Please answer the following questions about your opinions of this person.” An adjective rating sheet was presented with each photograph and the participants were asked to complete one rating sheet for each photograph.

**Analysis**

The instrument was scored with “Very Like” as 1, and “Very Unlike” as 4 for the positive adjectives, such as “Kind.” Scores for the negative adjectives, such as “Prejudiced,” were scored with “Very Like” 4, and “Very Unlike” as a 1. An overall negative stereotype score was derived by summing the scores from the instrument, as described above. This yielded an overall negative stereotype score for each photograph, which was utilized in subsequent analyses.

**Results**

The overall negative stereotype scores for each photograph were summed across their representative groups to compute an overall negative stereotype score for each of the four groups. The Asian group received the lowest overall negative stereotype score, indicating least negative attitudes toward the group, and was eliminated. This resulted in three groups consisting of four representative photographs each. The three groups utilized in the final phase of the study were: Arab, Black, and Skinhead.
Within each group the overall negative stereotype score for each photograph was calculated and compared. The photograph with the lowest negative stereotype score was removed from each group, in order to maximize the opportunity to produce change in the next phase of the study, resulting in a three photograph representation of the group for further analysis. (See Appendix B for photographs utilized in the study)
CHAPTER 3

STUDY TWO

Negative Stereotypes and Critical Thinking

This study was developed to examine any change in negative stereotype score of a photograph when the individual rating the photograph was provided with additional biographical information about the individual in the photograph. The three groups of three photographs each represented the Arab, Black, and Skinhead categories.

Participants

Participants were recruited from General Psychology courses, via the Sona-system participant sign up program, and flyers on bulletin boards across campus at a large, Midwestern university. At the discretion of the instructor, students received points for participation or extra credit for participating. As an additional incentive, the researcher provided participants with the opportunity of winning $25 drawn from the roster of participants at the end of the study. A total of 54 participants completed the study.

Eighteen percent of the participants were male, and 82% female. The ages of the participants ranged from 18 to 47, with a mean of 25 and a mode of 22. Sixty-five percent of the participants had visited another country outside of the United States, with over 70% having stayed abroad one month or less. Forty-six percent of the participants reported speaking a language other than English, though most self-reported that they knew words in another language, but would be unable to communicate effectively in that language. Only 24% of the participants reported that they did not have at least one close friend from another country. The majority of the participants reported their major source of news from either local (20.4%) or national (29.6%) television news shows, with National Public Radio (14.8%) as the third most
common source of news. Seventy-four percent of the participants identified their political orientation as Liberal.

**Instruments**

The Watson-Glaser Critical Thinking Appraisal was designed to measure the participant’s level of skill in using critical thinking skills. The assessment was a timed administration totaling 30 minutes. There are five subscale scores calculated, and a full scale score. The five subscales are: Inference, Recognition of Assumptions, Deduction, Interpretation, and Evaluation of Arguments. This scale was identified to have an internal consistency of alpha = .73 (Watson & Glaser, 1994). Scale reliability coefficients are not provided in the manual, and were calculated for this study. Loo and Thorpe (1999) found unstable reliability within the subscales, ranging from .17 to .74, and an overall reliability alpha of .65 for the short scale. The current study resulted in the following alphas (Loo and Thorpe alphas): Inference alpha = .28 (.42), Recognition of Assumptions alpha = .75 (.74), Deduction alpha = .56 (.52), Interpretation alpha = .53 (.17), Evaluation of Arguments alpha = .59 (.25), and Overall alpha = .68 (.65).

The Wonderlic (Wonderlic, 1977) was chosen for administration as an additional cognitive measure between administrations of the photograph for rating. This assessment has timed administration totaling 12 minutes for completion. The Wonderlic was chosen due to its brevity, but requirement of concentration. Internal consistency for the Wonderlic was acceptable at an alpha = .87 for an academic setting (McKelvie, 1989), and alpha = .94 for a long-term study in a general population (Dodrill, 1983). In the current study, the Wonderlic was significantly correlated with all five of the Watson-Glaser scale scores as well as the overall score.
The Marlowe Crowne Social Desirability Scale (Crowne & Marlowe, 1960) was developed to measure an individual’s need to appear socially desirable. This 33 question assessment was utilized to determine the participant’s need for social desirability for the present study. Marlowe and Crown reported an internal reliability alpha coefficient of .88 for their Social Desirability Scale. (Marlowe & Crowne, 1964). Very low correlations were found for the Marlowe Crowne Social Desirability Scale and the dependent measures in the current study.

Additionally, the Attitudes Toward Diversity scale was administered. This scale was developed from the Hellriegel, Slocum, Woodman & Bruning (1998). This scale was created to measure how positively the participants rated diversity. It is scored as a self-assessment tool, with higher scores indicating increased value of diversity, and has high face validity for the participants. No reliability scores are available for this measure, but instructions for the measure identify that a higher score is indicative of a higher value for diversity in life. Additional demographic questions were developed to assess the participant’s past experiences with people from other groups. No significant correlations were found for the ATD and the dependent measures in the current study.

A Biographical Sketch was engineered for the study. This sketch included information identified to be about the subject of the photograph, with the same sketch utilized for all photographs, regardless of group. The sketch included information about place of birth, occupation, family life, and community activities that the researchers identified as belonging to individuals of “middle class America.” (See Appendix C) Because the study was developed to identify the change in stereotype endorsement achieved by the presentation of this information, details specific to the group stereotype was deliberately managed in a systematic way. The use of
one sketch for the entire study eliminated the potential confounds that using three different sketches might have introduced.

An abbreviated adjective rating scale was taken from an equal number of items with negative and positive valence from the Adjective Check List (Gough & Heilbrun, 1983). The words were presented in alphabetical order to minimize the possible bias from order effects. Choices for the instrument included “Very Like,” “Somewhat Like,” “Somewhat Unlike,” and “Very Unlike.” Participants responded by placing a mark on the line immediately preceding the choice of how the adjective described the individual in the photograph. Initial positive stereotype, negative stereotype, and overall negative stereotype scores were computed from the adjective rating sheets for each group.

To produce the positive stereotype score, data from three photographic representations of a group were combined to produce an overall group score. As in the initial study, adjectives were rated from “Very Like” to “Very Unlike.” The positive stereotype score was produced by scoring the adjectives identified as positive, such as “Kind”, as “Very Like” scored with a 4, and “Very Unlike” scored with a 1. The scores were added together to create the positive stereotype score. A coefficient alpha run on the positive stereotype score scale resulted in alpha = .886 for time one and alpha = .917 for time two, indicating that the positive adjectives were reliably consistent in their endorsement.

A negative stereotype score was computed from the endorsement of the negatively valenced adjectives, with “Very Like” scored as a 4 and “Very Unlike” scored as a 1. As with the positive stereotype score, ratings were summed across the group to produce a negative stereotype score. An internal consistency analysis run on the score scale resulted in alpha = .795
for time one and alpha = .893 for time two, indicating that the negative adjectives were reliably consistent in their endorsement.

An overall negative stereotype score was computed by reversing the scoring of the positive adjectives to “Very Like” scored with a 1 and “Very Unlike” scored as a 4. This scoring assumes that a rejection (i.e. “Very Unlike” score) of a positive adjective is considered a negative score. This score was summed with the negative adjective score to produce an overall negative stereotype score. An internal consistency analysis indicated that the combination of these two scales in this manner produced a reliable indication of an overall negative stereotype score, with alpha = .894 for time one and alpha = .939 for time two. Additionally, correlations computed for positive stereotype score with negative stereotype score supports the combination of the two, with positive reversed, as a reliable overall negative score, with r = -.609.

Finally, a change score was calculated by subtracting the second overall negative score from the first overall negative score, in order to examine the magnitude of the shift in stereotype endorsement.

**Procedures**

Participants were randomly assigned to view one photograph exemplar from one of the three groups: Black, Arab/Middle Eastern, and Skinhead. A total of nine photographs were utilized in the study, three representing each of the three groups. A random number table was utilized to create the order that the photographs were presented to the participants. Each participant was shown only one photograph and asked to make decisions about the individual in that photo.

When the participants arrived for the study, they were greeted by a researcher and escorted to a private office to complete the study. Each measure was administered by a
researcher to ensure that it was completed prior to beginning the next component. All participants were asked to complete a consent form.

Each participant was presented with one photographs used as a group exemplar. Upon presentation, the researcher identified the group, with the following script, “Please remove the photograph from the envelope you have been given. Take a moment to examine the photograph and make a determination regarding the individual that is shown in it. Then, look at the check list that I have given you. For each of the adjectives listed, please think of a person you know that embodies that adjective. Now, think of the person in the photograph. Is he Like or Unlike the person you have recalled? Mark the sheet accordingly.” The participant was then requested to complete the adjective rating scale for that photograph.

Each participant was administered the Watson-Glaser Critical Thinking Appraisal described above. The administration of this was timed at 30 minutes.

Because an additional cognitive task was required to delay the re-administration of the initial adjective rating scale on the second introduction of the photograph, the Wonderlic, was chosen for administration. The administration of the Wonderlic was timed at 12 minutes.

The participant was presented the engineered biographical sketch, along with the initial photograph again. The sketch identified that the information was descriptive of the individual in the photograph. The participant was requested to complete the adjective rating scale for that individual.

The Marlowe-Crowne Social Desirability scale, described above, and the Attitudes Toward Diversity scale were administered. Additional demographic questions were developed to assess the participant’s past experiences with people from other groups.
Once all of the components were completed, the participants were de-briefed, and any questions were answered.

**Results**

**Group Stereotype**

Initially, to explore whether one group was more negatively stereotyped than another, we analyzed the group means of the overall negative stereotype score for the photograph presentation, and found that a difference was evident (F (2) = 3.004, p = .058, see table 1). A follow up Tukey’s analysis indicates the Arab group was most negatively stereotyped (X = 102.4, SD = 13.6), followed by the Skinhead group (X = 95.7, SD = 10.9), and the Black group had the least negative stereotype score (X = 90.1, SD = 19.4). This difference did not hold true when we examined the overall negative stereotype score for the photograph and biographical sketch presentation (F (2) = 1.102, p = .340). This indicates that the biographical sketch has an overall nullifying effect on the Negative Stereotype Endorsement scores, regardless of group. Interestingly, the lowest change in Negative Stereotype Endorsement score was for the Skinhead group, with an overall mean change of only 19.78 points. The highest change was for the Arab group, with an overall mean change of 29.56 points. The Black group had an overall mean change of 21.39 points (see table 2). Analysis of the deviations indicated that there was not a significant difference between the variance of any of the group scores (Fmax (3,17) = 2.05, p > .05).
Table 1

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
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<td>680.389</td>
<td>3.004</td>
<td>.058</td>
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<td>.340</td>
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Table 2

Mean Group Rating Scores

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<tr>
<th>Group</th>
<th>Photo Alone Mean</th>
<th>Photo Alone SD</th>
<th>Photo +Bio Mean</th>
<th>Photo +Bio SD</th>
<th>Difference Mean</th>
</tr>
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<tbody>
<tr>
<td>Arab</td>
<td>102.39</td>
<td>13.55</td>
<td>72.83</td>
<td>17.68</td>
<td>29.56</td>
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<tr>
<td>Black</td>
<td>90.11</td>
<td>19.39</td>
<td>68.72</td>
<td>16.23</td>
<td>21.39</td>
</tr>
<tr>
<td>Skinhead</td>
<td>96.06</td>
<td>15.61</td>
<td>76.28</td>
<td>15.31</td>
<td>19.78</td>
</tr>
</tbody>
</table>

Negative Stereotype Score and Critical Thinking Ability

The next question for the research was the effect of a participant’s critical thinking score on their stereotyping decisions. A mixed ANOVA was run with overall negative stereotype scores from time one (Photo Alone) and time two (Photo + Biographical Sketch) as the within subjects factor and level of Critical Thinking and Group as the between subjects factors.

Critical Thinking level was calculated using z-scores of the Watson-Glaser Critical Thinking Appraisal, and dividing the resultant scores into three groups, High (z-score > .4), Average (-.4 < z-score > .4) and Low (z-score < -.4). This resulted in a roughly even distribution of scores with Low n=19, Average n = 20, and High n = 15.
Group was determined by summing all negative adjective rating scores for each of three photographs representing the groups of Arab, Black, and Skinhead. The overall group scores were used in the analysis.

Results indicated that a significant main effect existed for the lowering of the overall negative stereotype score from the presentation of the photograph alone to the presentation of the photograph and biographical sketch (F (1) = 109.407, p < .001. Partial eta square = .709). The presentation of a biographical sketch accounts for approximately 71% of the decrease in stereotype rating between the two conditions. No significant contrasts were found for the between subjects measures of Critical thinking group (F (2) = .574, p > .5) or of Group (F (2) = 1.655, p > .2, see table 3).
Table 3

Analysis of Variance for Stereotype Score, Critical Thinking Score, and Group

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
<th>η</th>
</tr>
</thead>
<tbody>
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<td><strong>Between subjects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical Thinking Group (A)</td>
<td>391.48</td>
<td>2</td>
<td>195.74</td>
<td>0.574</td>
<td>0.567</td>
<td>0.025</td>
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<tr>
<td>Group (B)</td>
<td>1128.44</td>
<td>2</td>
<td>564.22</td>
<td>1.655</td>
<td>0.203</td>
<td>0.069</td>
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<tr>
<td>A X S</td>
<td>688.55</td>
<td>4</td>
<td>172.14</td>
<td>0.505</td>
<td>0.732</td>
<td>0.043</td>
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<td>S within-group error</td>
<td>15343.13</td>
<td>45</td>
<td>340.96</td>
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<td></td>
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</tr>
<tr>
<td><strong>Within subjects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Photo Presentation Block (C)</td>
<td>13603.42</td>
<td>1</td>
<td>13603.42</td>
<td>109.407</td>
<td>&lt;.000</td>
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<td>C X A</td>
<td>429.23</td>
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<td>C X B</td>
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<td>192.16</td>
<td>1.545</td>
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<tr>
<td>C X A X B</td>
<td>682.77</td>
<td>4</td>
<td>170.69</td>
<td>1.373</td>
<td>0.258</td>
<td>0.109</td>
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<tr>
<td>C X S within-group error</td>
<td>5595.22</td>
<td>45</td>
<td>124.34</td>
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</table>
Correlation of Critical Thinking Scores with Change Score

Researchers next turned to the hypothesis that critical thinking skill was correlated with the overall change in stereotype endorsement between conditions. The raw scores for the Overall Watson Glaser Critical Thinking Appraisal were correlated with the change score described above. A significant correlation was found ($r = -.338, p = .013$), indicating that the overall critical thinking score was inversely related to the amount of change, such that lower scores on Critical Thinking were correlated with higher changes in stereotype endorsement. This accounted for approximately 10% of the variance.

To understand the nature of the change in overall negative change score, we examined the two components of this score, namely the positive adjective change score and the negative adjective change score. A significant correlation was found between the negative adjective change score and the Overall Watson Glaser Critical Thinking Appraisal score ($r = -.281, p = .04$). This indicated that a higher Watson Glaser score was correlated with a lower change in the negative ratings, accounting for approximately 8% of the variance of these scores. In addition, a significant correlation was found with the Overall Watson Glaser score and the positive change score ($r = .326, p = .016$), indicating that higher Watson Glaser scores were correlated with higher changes in the ratings of the positive adjectives, and accounting for approximately 11% of the variance. This indicated that the change to a more positive rating in the positive adjectives was responsible for somewhat more of the shift in the overall negative adjective ratings.

The researchers then turned to the subscales for the Watson Glaser Inventory, and found significant correlations between two of the subscales and the overall negative change score. A significant correlation was found for the Inference subscale ($r = -.317, p = .02$), accounting for approximately 9% of the variance. This subscale followed the pattern viewed in the overall
negative ratings correlations as the change score for the positive adjectives was responsible for a large percentage of this shift ($r = .325$, $p = .016$). Correlations were not significant for the negative adjective change score ($r = -.245$, $p = .074$).

A significant correlation was found for the Evaluation of Arguments subscale of the Watson Glaser and the overall negative rating change score ($r = -.351$, $p = .009$), accounting for approximately 12% of the variance. However, examination of the negative adjective change score and the positive adjective change score revealed a reversal of the trend noted above. Specifically, that the change in the negative adjective change score was responsible for more of the overall negative change score ($r = -.338$, $p = .012$) than the positive change score ($r = .291$, $p = .033$, see table 4).

Table 4

Correlations of Watson Glaser Subscales and Adjective Rating Change Scores

<table>
<thead>
<tr>
<th>Watson Glaser Subscale</th>
<th>Overall Adjective Change Score</th>
<th>Negative Adjective Change Score</th>
<th>Positive Adjective Change Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inference ($\alpha = .278$)</td>
<td>-.317*</td>
<td>-.245</td>
<td>.325*</td>
</tr>
<tr>
<td>Recognition of Assumptions ($\alpha = .746$)</td>
<td>-.184</td>
<td>-.143</td>
<td>.190</td>
</tr>
<tr>
<td>Deduction ($\alpha = .560$)</td>
<td>-.257</td>
<td>-.221</td>
<td>.240</td>
</tr>
<tr>
<td>Interpretation ($\alpha = .533$)</td>
<td>-.225</td>
<td>-.234</td>
<td>.168</td>
</tr>
<tr>
<td>Evaluation of Arguments ($\alpha = .578$)</td>
<td>-.351**</td>
<td>-.338*</td>
<td>.291*</td>
</tr>
<tr>
<td>Overall WG Score</td>
<td>-.338*</td>
<td>-.281*</td>
<td>.326*</td>
</tr>
</tbody>
</table>

* $p < .05$, ** $p < .01$. 

25
Adjective Ratings and Attitude Change

The present study explored the malleability of prejudicial attitudes toward members of negatively charged social or racial groups. As hypothesized, we found that we could significantly change an initially negative attitude to a more positive attitude by presenting information about the group member. The biographical sketch created for the study was engineered to negate some of the typical stereotypes found in the literature for the groups of interest, namely Arab, Black, and Skinhead. The sketch deliberately manipulated the impression of the group member in a favorable way by referencing family and social relationships that individuated the person, and promoted a singular view of him. The effect was strong, accounting for approximately 71% of the variance between the presentation and rating of a photograph and the presentation and rating of the same photograph after reading the biographical sketch. This reflects the early theories of social psychologists regarding reference group theory, and specifically Kelley’s (1952) distinction between comparative and normative reference groups. Initially, the participant is rating the photo as a member of a negatively stereotyped group, and would utilize the comparative orientation to make decisions about the group in comparison to themselves. As the individual in the photograph is perceived as more similar to the individual who is rating them, the reference becomes one of norms, or similarities between the two people.

This shift in reference, and increase in the perception of the person in the photograph as an individual who may be similar to the person making judgments about him, follows the history of social psychology’s studies about attitude change. Individuation and attention to similarities reduces negative attributions of group members, and improves the person’s “likeability” to
members of other groups (Bless, Schwartz, Bodenhausen & Thiel, 1999; Sherif, Sherif, & Nebergall, 1965; Sherif, 1961)

Relationship to Critical Thinking

The hypothesis that the amount of change in stereotype ratings was related to the rater’s level of Critical Thinking skill was supported. Specifically, the greater change in negative adjective ratings were correlated with lower levels of critical thinking, as hypothesized. However, we failed to find support for the belief that this negative correlation was due to a difference in negative stereotyping behavior between low and high level critical thinkers. When examined, no significant difference could be found between the low and high critical thinkers regarding their level of negative stereotype ratings of any photographs.

When we examined the positive stereotype adjectives separately from the negative stereotype adjectives, we found an interesting trend. Individuals with higher overall critical thinking skill had larger changes in the positive adjective ratings, such that scores became more “like” the photograph. This trend was stronger in the positive direction than in the opposite direction, where the negative adjectives became less like the photograph. These findings suggest, providing the information from the biographical sketch may have a larger effect on improving the “likeability” of an individual than it does on decreasing how much they are disliked.

Scale Scores

Further examination the overall Watson Glaser Critical Thinking Appraisal Scale Score indicated that two of the subscale scores appeared to “drive” the relationship observed between the change scores and the Watson Glaser scores. Specifically, the Inference subscale and the Evaluation of Arguments subscale produced significant correlations for the overall negative
adjective change score, the positive adjective change score, and the negative adjective change score.

The Inference subscale score is designed to measure an individual’s ability to deduce information from a source where that information is not explicitly stated. In our study, the biographical sketch was designed to imply certain “middle-class America” characteristics about the individuals in the photographs, without being explicit. It follows, therefore, that an individual with a higher Inference subscale is more sensitive to these implicit characteristics from the biographical sketch, and thus related to a more positive regard for the individual in the photograph after reading the sketch. This can be seen in the larger shift for the positive endorsement of the positive adjectives than in the opposite shift toward rejection of the negative adjectives. The reason that the correlation is relatively low is possibly due to the low alpha coefficient of the Inference scale, and may improve with improved reliability of the subscale.

The Evaluation of Arguments subscale is designed to measure an individual’s ability to make a decision about the relative importance of an argument they are presented with. They are asked to accept or reject that argument, based on the decision. As opposed to the overall and Inference subscale, which were driven by the overall change in the positive adjectives, this subscale was more influenced by the change in the negative adjectives. As the Evaluation of Arguments subscale score increased, the relative amount of change to the negative adjectives decreased, resulting in a significant correlation. The biographical sketch was designed to implicitly negate some popular stereotypes, so it makes sense that individuals better able to make a decision about the importance of an argument, as illustrated by a higher score on this subscale, would be more discerning about the information within the sketch. This could lead to the
participants finding the information from the sketch less important, and less crucial to making a
decision about the photograph, resulting in a lower amount of change in stereotype endorsement.

**Group Differences**

In the presentation of the photograph alone, the Arab group was the most negatively rated
group. This follows from the attacks of 9-11, and the subsequent profiling and stereotyping of
this group, and particularly of Arab men. After presentation of the biographical sketch, the
negative rating of the Arab group was reduced, and was no longer the highest relative negatively
rated group. Presentation of the biographical sketch was also instrumental in reducing the
negative rating of the Black group, which was rated the most positive among the three groups
both with the presentation of the photograph alone, and after the presentation of the sketch.
However, the Skinhead group negative ratings did not decrease as much after the presentation of
the biographical sketch as the other two groups.

The decrease in Arab and Black group negative ratings is important, as it supports the
assertion in the literature that presentation of individuating information can negate group
stereotypes. In particular, the Arab group is one that most people may not be intimately familiar
with, but have been exposed to via the media, which is charged with negative stereotype
presentations. Presenting information with the biographical sketch it can be argued, brings the
familiar into the understanding of the person in the photograph.

Much of the literature on stereotype examined the negative feelings toward the Black
community in the United States. The findings of this study provide some evidence that the
negative stereotype of Blacks has diminished, and that this may be the trend toward inclusion of
this minority group within the mainstream culture of the United States. This is a positive
finding, and one that provides encouragement for the removal of barriers for Blacks in the workplace and other places of prejudicial treatment in the past.

The Skinhead group is different in this study, as it does not constitute a readily recognized minority group, but membership is assumed via dress and posture or action of the group exemplar. In the case of the present study, only the dress and posture was available for the decision regarding group membership. The negative rating of the group was second highest for the presentation of the photograph alone, but did not have as large of a drop in negative rating after the biographical sketch was presented. This resulted in the Skinhead group having the highest negative rating after the biographical sketch. This may be attributed to the belief that negative feelings toward a group whose members are self-selected, as opposed to being members by birth, are more justified. This may be particularly true in the case of Skinheads as the self-selected group membership centers on attitudes and behaviors toward other groups, and thus the negative ratings may be more closely associated with the behaviors of the group members, rather than the characteristics of the group members as may drive the racial group ratings. This may also be driven by the rater’s past experiences with the Skinhead group. One participant, who identified herself as an international student from Spain, was particularly negative toward the Skinhead group photograph, and the negative stereotype score provided for the photograph alone was only two points higher than the score provided after the presentation of the biographical sketch. One may attribute this to the higher prevalence and public censure of the Skinhead group within the European community.

**Limitations**

The present study is limited by the relatively low alpha coefficients produced by the Watson Glaser Critical Thinking Appraisal Short Form. Not many inventories are available for
the appraisal of critical thinking skill, and time constraints supported the use of a short form of
the available inventory. The development of a reliable short inventory to test the important sub-
categories identified in the Watson Glaser Critical Thinking Appraisal would strengthen the
hypothesis that a person’s skill with thinking critically is associated with their ratings of
individuals. The study could be replicated using the more reliable long form of the Watson
Glaser, to examine the findings of the current study. Despite these low alphas, however, the fact
that significant correlations were found provides support for the hypothesis that critical thinking
and stereotyping behavior are related. The low alphas are likely to be related to the relatively
low effect sizes found for these significant correlations, and the effect sizes and correlation
coefficients may improve with increased reliability of the scales.

The study had an unequal balance of men and women participants, with women making
up 82% of the sample. As the ratings were of male exemplars of the groups, this could be
confound the results. A post-hoc examination of the results of the mixed ANOVA separating out
the male and female participants yielded similar results, however, suggesting that this may not
have occurred. Future studies should seek to balance the number of male and female participants
as much as possible.

Additionally, a larger sample size would contribute to a better understanding of the
phenomenon identified of increasing the positive adjective ratings and decreasing the negative
adjective ratings toward group members. This could produce a more detailed picture of the
relationship between critical thinking skill and attitudinal adjustment on these two scales.

The present study examined the individual difference of critical thinking skill as it relates
to stereotyping of group members. This critical thinking individual difference is not found in the
literature, while other individual differences such as personality variables have been studied.
This suggests a mode of stereotype intervention involving a skill which can be learned to reduce stereotyping behavior. Teaching critical thinking skills may reduce stereotyping behavior or increase the “likeability” of group members, a goal present in the prejudice literature since the 1940’s. This frames the stereotyping behavior differently and produces a positive spin on the behavior of stereotyping from one of reducing a negative belief to improving a positive belief. Many studies are looking at this so called Positive Psychology, and the relationship of critical thinking skills to the improvement of positive beliefs about others is another aspect of this field to explore.
REFERENCES


APPENDICES
Appendix A
Adjective Rating Sheet

<table>
<thead>
<tr>
<th>Adjective</th>
<th>Very Like</th>
<th>Somewhat Like</th>
<th>Somewhat Unlike</th>
<th>Very Unlike</th>
</tr>
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<tbody>
<tr>
<td>Aggressive</td>
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<td></td>
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</tr>
<tr>
<td>Attractive</td>
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<td></td>
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<td>Calm</td>
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<tr>
<td>Careless</td>
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<tr>
<td>Helpful</td>
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Immature
___ Very Like ___ Somewhat Like ___ Somewhat Unlike ___ Very Unlike

Impulsive
___ Very Like ___ Somewhat Like ___ Somewhat Unlike ___ Very Unlike

Intelligent
___ Very Like ___ Somewhat Like ___ Somewhat Unlike ___ Very Unlike

Kind
___ Very Like ___ Somewhat Like ___ Somewhat Unlike ___ Very Unlike

Lazy
___ Very Like ___ Somewhat Like ___ Somewhat Unlike ___ Very Unlike

Modest
___ Very Like ___ Somewhat Like ___ Somewhat Unlike ___ Very Unlike

Nervous
___ Very Like ___ Somewhat Like ___ Somewhat Unlike ___ Very Unlike

Obnoxious
___ Very Like ___ Somewhat Like ___ Somewhat Unlike ___ Very Unlike

Pleasant
___ Very Like ___ Somewhat Like ___ Somewhat Unlike ___ Very Unlike

Practical
___ Very Like ___ Somewhat Like ___ Somewhat Unlike ___ Very Unlike

Prejudiced
___ Very Like ___ Somewhat Like ___ Somewhat Unlike ___ Very Unlike

Responsible
___ Very Like ___ Somewhat Like ___ Somewhat Unlike ___ Very Unlike

Rigid
___ Very Like ___ Somewhat Like ___ Somewhat Unlike ___ Very Unlike

Selfish
___ Very Like ___ Somewhat Like ___ Somewhat Unlike ___ Very Unlike

Sensitive
___ Very Like ___ Somewhat Like ___ Somewhat Unlike ___ Very Unlike

Sexy
___ Very Like ___ Somewhat Like ___ Somewhat Unlike ___ Very Unlike

Sly
___ Very Like ___ Somewhat Like ___ Somewhat Unlike ___ Very Unlike

Strong
___ Very Like ___ Somewhat Like ___ Somewhat Unlike ___ Very Unlike
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<th>Somewhat Like</th>
<th>Somewhat Unlike</th>
<th>Very Unlike</th>
</tr>
</thead>
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<tr>
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<td>Wise</td>
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Appendix B

Photographs Utilized in Study

<table>
<thead>
<tr>
<th>Group</th>
<th>Photograph 1</th>
<th>Photograph 2</th>
<th>Photograph 3</th>
<th>Photograph 4</th>
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<tr>
<td>Asian</td>
<td><img src="image1" alt="Image" /></td>
<td><img src="image2" alt="Image" /></td>
<td><img src="image3" alt="Image" /></td>
<td><img src="image4" alt="Image" /></td>
</tr>
<tr>
<td>Black</td>
<td><img src="image5" alt="Image" /></td>
<td><img src="image6" alt="Image" /></td>
<td><img src="image7" alt="Image" /></td>
<td><img src="image8" alt="Image" /></td>
</tr>
<tr>
<td>Arab/Middle Eastern</td>
<td><img src="image9" alt="Image" /></td>
<td><img src="image10" alt="Image" /></td>
<td><img src="image11" alt="Image" /></td>
<td><img src="image12" alt="Image" /></td>
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<tr>
<td>Skinhead</td>
<td><img src="image13" alt="Image" /></td>
<td><img src="image14" alt="Image" /></td>
<td><img src="image15" alt="Image" /></td>
<td><img src="image16" alt="Image" /></td>
</tr>
</tbody>
</table>

Asian group not included in Experiment 2

Photograph 4 for Black, Arab/Middle Eastern, and Skinhead groups not included in Experiment 2. Photos from [www.google.com/image](http://www.google.com/image) under the group names listed above.
Appendix C

Biographical Sketch

The following information represents details about the individual pictured in the photograph you have in front of you.

J____ is married to S___ and is the father of two young children, ages 6 and 10. He works in a local office, attends local religious services on a regular basis and owns his 3 bedroom home in a quiet, residential neighborhood.

J____ was born in the United States and educated in public schools through high school. He attended a state university and graduated with a bachelor’s degree. J____ and his family live in the Midwest, and his children attend the local public elementary school. His wife has a professional job, and the family takes annual vacations to visit family throughout the US and internationally.