

The Influence of Mindfulness and Attributional Complexity on Implicit Attitudes

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## Abstract

Two research studies investigated the relationship between mindfulness, attributional complexity and implicit attitudes, which are unconscious associations and preferences. Mindfulness is an awareness of and attentiveness to one's experience of the present and attributional complexity is the degree to which one considers a variety of factors when looking to explain the behavior of others. In Study 1, 66 undergraduate students were randomly assigned to either an experimental condition to take part in a 10-minute mindfulness induction or a control condition to listen to a 10-minute control audio recording. After the manipulation, participants completed the black/white Implicit Association Test (IAT) and the Attributional Complexity Scale (ACS). Results revealed a non-significant difference in IAT performance between conditions, as well as a non-significant interaction between condition and attributional complexity. In Study 2, 202 participants recruited through Amazon's Mechanical Turk completed the Mindful Attention Awareness Scale (MAAS), the ACS, the Marlowe Crowne Social Desirability Scale (MC-SDS), the Racial Argument Scale (RAS) and the Symbolic Racism 2000 Scale (SR2K). Scores on the ACS were negatively correlated with scores on both the RAS and the SR2K, and scores on the MAAS were negatively correlated with RAS scores. Additionally, a regression model with ACS and MAAS scores significantly predicted scores on the RAS and SR2K while controlling for social desirability. Dispositional levels of attributional complexity and mindfulness can be used to predict both directly- and indirectly-measured prejudice toward African Americans.

### The Influence of Mindfulness and Attributional Complexity on Implicit Attitudes

Social behavior is driven by a variety of factors. In order to understand why individuals behave the way they do in social contexts, it is necessary to consider the role of unconscious or implicit attitudes that exist outside one's awareness in addition to conscious decision making based on explicitly-held attitudes and beliefs. Implicit attitudes play a role in explaining the presence of discrimination on a societal level in the United States (Greenwald, Banaji & Nosek, 2015). Evidence exists to support the notion that implicit attitudes influence the biased policing of minority populations, specifically African Americans (e.g., more frequent traffic stops, use of non-lethal force and shootings of unarmed men), in the United States (Spencer, Charbonneau & Glaser, 2016). Previous research has linked implicit bias among healthcare providers to disparities in treatment decisions, health outcomes and the perception of treatment quality between black and white patients (Hall et al., 2015). Additionally, Ziegert and Hanges (2005) found that implicit bias predicted discrimination against African Americans in hiring recommendations for employment.

Implicit attitudes are formed through previous experience and exist on an unconscious level (Greenwald & Banaji, 1995). That is, the very people who hold them may not be aware of their presence. Implicit preferences can influence an individual's behavior and judgements even if the individual is not aware of this process (Greenwald & Banaji, 1995). This may occur in the way one interacts with and processes information about the members of different racial and ethnic groups. For example, white participants with stronger own-race implicit preferences, as measured by an IAT, tend to display more nonverbal nervousness, as rated by observers, when interacting with black experimenters compared to white experimenters (Dovidio, Kawakami, Johnson, Johnson & Howard, 1997; McConnell & Leibold, 2001). Additionally, numerous

studies have provided evidence for the contribution that implicit preferences make to disparities in shooting at black target suspects relative to white ones in a simulated shooting task (Mekawi and Bresin, 2015). Specifically, in a meta-analysis of 42 studies on the subject, results indicated that participants were less hesitant to shoot at armed black targets, more hesitant to not shoot at unarmed black targets and more likely overall to shoot at black targets compared to white targets.

The nature of the aforementioned behavioral differences toward people of different races and how they relate to implicit preferences resides, in part, in one's familiarity with racial stereotypes (Charbonneau & Glaser, 2016). Being aware of stereotypes that associate African Americans with violence and criminality and being exposed to stimuli that reinforce them (e.g., news reports about crimes or acts of violence committed by black men and stereotype-congruent media portrayals of black men) can develop the unconscious association between crime/violence and skin color, regardless of whether or not individuals explicitly endorse these stereotypes (Greenwald & Banaji, 1995; Spencer, Charbonneau & Glaser, 2016). Considering the power implicit attitudes have in driving behavior on an unconscious level and how research has demonstrated that implicit attitudes can bias decision making on the basis of internalized racial stereotypes, it is important to research strategies that can contribute to their reduction.

Researchers have investigated methods of reducing own-race implicit preferences and have found evidence for the effectiveness various strategies. Implicit preference reductions occurred as a result of taking part in a virtual reality activity where participants inhabited a virtual world within the body of an individual of a different race (Banakou, Hanumanthu & Slater, 2016; Maister, Slater, Sanchez-Vives & Tsakiris, 2015). Other successful methods included blurring boundaries between the ingroup and the outgroup (Hall, Crisp & Suen, 2009) and training white participants to identify black target individuals as members of their ingroup

based on a pre-established commonality (Woodcock & Monteith, 2012). Devine, Forscher, Austin and Cox (2012) developed a 12-week intervention in which participants used the strategies of stereotype replacement, counter-stereotypic imaging, individuation, perspective taking and increasing opportunities for contact to weaken automatic preferences for white over black. Each of these methods demonstrates the malleability of implicit preferences in how they are subject to change over time. The method of Devine and colleagues placed emphasis on being aware of the presence of one's own implicit attitudes and their effects. With this in mind, the present research focused on the practice of mindfulness, which is a state of being aware of and attentive to one's experience of the present, as a strategy to reduce the strength of implicit preferences.

Research has revealed lower levels of cognitive rigidity among those who practice mindfulness meditation (Greenberg, Reiner & Meiran, 2012), demonstrating how mindfulness can allow one to overcome cognitive barriers to problem solving which have formed through previous experience. Additionally, participants who have taken part in a brief mindfulness induction display greater adaptability to activities that contradict previous habits (e.g., using a computer mouse that responds in the reverse direction) compared to participants in a control condition (Chong, Kee & Chaturvedi, 2015). This finding highlights the association between state mindfulness and the ability to overcome previously-formed habits.

Because implicit preferences are formed through experience (e.g., exposure to stereotypes and biased depictions of racial and ethnic groups) achieving a state of mindfulness and thus being attentive to one's experience of the present, exclusively, should inhibit the strength of preferences formed through past experience. Lueke and Gibson (2015) found weaker racial preferences, as measured by an IAT, among participants who completed a 10-minute

mindfulness exercise compared to controls. This finding is promising, but further research is needed to fully understand the relationship between mindfulness and implicit attitudes.

In addition to mindfulness, attributional complexity may be related to implicit preferences on an individual level. Attributional complexity is a trait-like characteristic referring to the extent to which an individual prefers complex rather than simple explanations for behavior, is motivated to understand the behavior of others, and considers a variety of factors (e.g., situational, dispositional, behavioral, affective, attitudinal) when looking to explain the behavior of others (Fletcher, Danilovics, Fernandez, Peterson, & Reeder, 1986). For example, there are many reasons why one person might “cut-off” another person in traffic. Being late for work, having a family emergency or nearly missing an exit are situational factors that might cause a driver to cut someone off. Additionally, the driver may have been in an irritable mood, might tend to drive aggressively or might think of themselves before others (affective, dispositional and attitudinal explanations, respectively). The more factors considered, the more complex an explanation of behavior becomes. Attributing behavior to one reason in isolation (e.g., “He cut her off because he is aggressive”) would be a simple explanation.

Previous research has shown that attributional complexity is positively associated with perspective taking and empathetic concern (Joireman, 2004). Additionally, attributional complexity is associated with racial complexity, which is the ability to see past the belief that racism is no longer a prominent issue in the U.S. (Reid & Foels, 2010). Being that previous intervention research has shown that perspective taking can reduce implicit preferences (Devine et al., 2012) and considering how attributional complexity relates to a more comprehensive understanding of the role of racism in modern America (Reid & Foels, 2010), individual differences in attributional complexity should relate to differences in implicit race preferences.

Specifically, more attributionally complex individuals should demonstrate more neutrality in their implicit attitudes on average, compared to those with simpler attributional styles. Stewart, Latu, Kawakami and Myers (2009) found weaker implicit preferences on a race IAT among participants who underwent attributional training. Participants who were told to select situational over dispositional explanations to describe black individuals' behavior (e.g., "Arrived at work an hour late" because "The power went out and reset his alarm" or "He is a particularly irresponsible person") had weaker automatic white preferences on the IAT compared to participants in the control condition, who were told to count the number of nouns and verbs in each behavior description. This finding demonstrates the potential for reductions in implicit preference strength as a result of a complex, situation-oriented attribution style rather than a simple, disposition-oriented attribution style.

The research discussed thus far has provided evidence for the contribution of both mindfulness and attributional complexity to reductions in IAT scores; however, these constructs may be related in their effect on implicit associations. A study conducted by Hopthrow, Hooper, Mahmood, Meier and Weger (2016) found evidence for an association between mindfulness and attributional complexity in that participants who took part in a mindfulness induction demonstrated lower levels of correspondence bias, which is the tendency to attribute behavior to dispositional rather than situational factors, compared to controls. Additionally, Kelley and Lambert (2012) have linked greater dispositional mindfulness to a lower likelihood of making hostile attributions (assuming the motivation for others' behavior is hostile in nature). Mindfulness seems to extend explanations of behavior to include less obvious situational factors and reduce reliance on personality or dispositional factors entirely. In this sense, attributional complexity could act as a moderator in the relationship between mindfulness and implicit

attitudes. Specifically, if being in a mindful state leads to reductions in the strength of implicit preferences, this reduction should be greater for individuals low in attributional complexity and not as substantial for individuals high in attributional complexity.

The effects of state mindfulness on implicit prejudice have been discussed thus far, but the relationship between dispositional mindfulness and implicit prejudice has yet to be examined. In the studies conducted by Lueke and Gibson (2015; 2016) trait mindfulness was used as a covariate when examining the effects of a mindfulness induction on both IAT performance and discriminatory behavior, but its direct relation to these constructs was not examined. In addition to investigating the effects of a mindfulness induction on IAT scores for individuals with different levels of attributional complexity, this research examined how trait mindfulness and attributional complexity relate to both directly- and indirectly-measured levels of prejudice toward African Americans. To account for potential response bias on the indirect and direct measures of prejudice, social desirability was used as a covariate (Crowne & Marlowe, 1960).

In the present research, two studies were conducted to investigate the relationship between mindfulness, attributional complexity and implicit attitudes. The first study utilized an experimental design with a mindfulness condition and a control condition in order to evaluate the effects of taking part in a brief mindfulness induction on implicit preferences. The role of attributional complexity as a moderator was examined. The second study involved a series of self-report measures assessing mindfulness, attributional complexity, and prejudice (both direct and indirect).

Study 1 examined the following hypothesis:

1. Participants who take part in a mindfulness induction will demonstrate lower scores on an IAT compared to participants in a control group.



- a. Attributional complexity will moderate the effect of state mindfulness on IAT scores. The difference in IAT scores between conditions will be greater for participants low in attributional complexity than it will for participants high in attributional complexity.

Study 2 addressed the following hypothesis:

1. Dispositional mindfulness and attributional complexity will be negatively correlated with scores on both an indirect and direct measure of prejudice toward African Americans.
  - a. Attributional complexity and trait mindfulness will predict prejudice toward African Americans (measured both directly and indirectly) while controlling for social desirability.

### **Study 1: Mindfulness Induction Experiment**

#### **Method**

**Participants.** Participants were 74 undergraduate students from Stockton University, who were recruited through the University's online SONA student participant pool. Before testing began, the study was piloted on a small sample ( $n = 10$ ) to ensure the procedure ran as intended.

Additionally, data from 8 participants were not used in the subsequent analyses due to either methodological error (participant proceeded to the next phase of the study without being told) or technological error (computer tasks did not run or record data) during testing. The final sample size for the study was 66 participants (*females* = 52). Participants were between the ages of 18 and 41 years ( $M = 20.38$ ,  $SD = 3.70$ ), and 7 (10.6%) were black or African American, 44 (66.7%) were white, non-Hispanic, 4 (6.1%) were Hispanic or Latino/a, 7 (10.6%) were Asian or Asian American, 1 (1.5%) was Hawaiian Native or Pacific Islander, 2 (3%) were multiracial and

1 (1.5%) identified as other (See Table 1). The procedure was approved by the Stockton University IRB before testing began.

*Measures.*

**Implicit Association Test (IAT; Greenwald, McGhee & Schwartz, 1998; See Appendix A).** The IAT is a 7-block computerized task where participants sort words and images to either the right or left portions of the screen. The race-IAT consists of images of African American and European American faces as well as words describing either good (i.e., beautiful, joyous) or bad (i.e., gross, horrible) attributes (Nosek et al., 2007). During each block, each set of words is paired with a set of images to form either a congruent pair (good attributes with European American faces and bad attributes with African American faces) or an incongruent pair (good attributes with African American faces and bad attributes with European American faces), and participants sort the stimuli from these pairs to the same side of the screen. Implicit preferences are represented by a d-score, which is calculated by subtracting the mean reaction time for congruent trials from the mean reaction time for incongruent trials divided by the standard deviation of reaction times for these trials. Faster reaction times for sorting the stimuli within the congruent trials relative to the incongruent trials are indicative of automatic preference for white over black and are represented by a positive d-score. Faster reaction times for sorting the stimuli within the incongruent trials relative to the congruent trials indicate implicit preference for black over white and are represented by a negative d-score.

Previous correlational research investigating the relationship between the race-IAT and explicit prejudice measures (i.e., self-report questionnaires) has demonstrated that the IAT is distinct in its measure of implicit attitudes ( $r = .14$ ). Additionally, the race-IAT has been shown

to correlate with discriminatory behavior (Dovidio et al., 1997; McConnell & Leibold, 2001; Mekawi & Bresin, 2015).

**Attributional Complexity Scale (ACS; Fletcher et al., 1986; See Appendix A).** The ACS is a 28-item scale that measures individual differences in the way participants prefer to explain the behavior of others. Participants responded to survey items using a 7-point Likert scale (strongly disagree, disagree, somewhat disagree, neither agree nor disagree, somewhat agree, agree, strongly agree). Items include “I don’t usually bother to analyze and explain people’s behavior” and “To understand a person’s personality/behavior I have found it is important to know how that person’s attitudes, beliefs, and character traits fit together.” Half the items reflect a complex attribution style and the other half reflect a simple attribution style. Items reflecting a simple attribution style were reverse scored so higher scores indicated more complex attribution styles. Previous research has shown that the ACS is internally consistent ( $\alpha = .85$ ) and has high test-retest reliability ( $r = .80$ ) in measuring attributional complexity (Fletcher et al., 1986). In the present research, Cronbach’s alpha was .89 for the ACS.

**Toronto Mindfulness Scale (TMS; Lau et al., 2006; See Appendix A).** The TMS is a 13-item scale which measures state mindfulness. Items include “I was curious about what I might learn about myself by taking notice of how I react to certain thoughts, feelings or sensations” and “I was more concerned with being open to my experiences than controlling or changing them.” Participants rated the extent to which they agreed or disagreed with each statement using a 5-point Likert scale (not at all, a little, moderately, quite a bit, very much). All items were scored in the positive direction so that higher scores indicated higher levels of state mindfulness. Previous research has demonstrated the scale’s internal consistency ( $\alpha = .95$ ) in

measuring state mindfulness (Lau et al., 2006). In the present study, Cronbach's alpha for the TMS was .86.

**Demographics and Additional Information (See Appendix A).** Participants were asked to provide demographic information including age, gender (male, female or other), race/ethnicity (Black or African American, White, non-Hispanic, Hispanic or Latino/a, Asian or Asian American, Hawaiian Native or Pacific Islander, Native American or other) and socioeconomic status (working class, lower middle class, middle class, upper middle class, upper class or other). Additional questions included "Do you know what implicit attitudes are? If yes, please explain" and "Have you ever taken an Implicit Association Test? If yes, please specify what type(s) (e.g., age, race, gender) and how many times." Participants were also asked if they practice yoga or meditation, and if so, to indicate the type (e.g., mindfulness meditation, Anusara yoga, loving kindness meditation, Ashtanga yoga) and frequency of practice.

**Procedure.** The experiment was advertised as a study "investigating the relationship between attention, reaction time and categorization." Participants were randomly assigned to either the mindfulness condition ( $n = 33$ ) or control condition ( $n = 33$ ) prior to their arrival for the experiment. Each session took place in a computer lab and all participants were seated at desks and given headphones. All self-report measures were administered via Stockton's Qualtrics system. Qualtrics is used for the administration of computerized questionnaires and allows the electronic collection of response data.

After providing their informed consent, participants in the mindfulness condition listened to a 10-minute mindfulness induction recording as described by Kabat-Zinn (1990; see Appendix A) and implemented by Arch and Craske (2006). Participants in the control condition listened to a 10-minute recording about natural history taken from White (1789; see Appendix A), and

implemented by Lueke and Gibson (2015). Immediately after listening, all participants completed the TMS as a manipulation check. Participants then completed the race-IAT as a measure of implicit preference followed by the ACS. To conclude the session, participants provided demographic information and answered the additional information questions. Before leaving, all participants were given a debriefing form and were given an opportunity to ask questions about the study. The experimenter also verbally explained the nature of the research.

### **Results**

**Data.** Scores on the IAT, TMS and ACS were screened for outliers and violations of normality. As indicated by stem-and-leaf plots, no cases were more than three standard deviations from the mean for any of these 3 measures. The skewness levels were within the acceptable range of -0.5 to 0.5 for all, indicating univariate normality for each distribution of scores.

**Manipulation Check.** Before testing for the effect of the mindfulness induction on IAT scores, an independent samples t-test was conducted to evaluate the effectiveness of the manipulation on state mindfulness. Scores on the TMS were compared between the control and experimental conditions. Results failed to indicate a significant difference in scores on the TMS between participants in the control condition ( $M = 3.01, SD = .74$ ) and the experimental condition ( $M = 3.10, SD = .63$ ),  $t(64) = -.55, p = .58$ . The mindfulness induction did not significantly affect state mindfulness between conditions.

**Main Effect on IAT Performance.** An independent-samples t-test was conducted to compare the mean d-scores between participants in the experimental and control conditions. Results failed to indicate a significant difference in d-scores between participants in the control condition ( $M = .49, SD = .61$ ) and the experimental condition ( $M = .43, SD = .64$ ),  $t(64) = .351, p$

= .73. A second independent-samples t-test was conducted to compare the absolute value of d-scores between the experimental and control conditions. When taking the absolute value of d-scores, higher values indicate more implicit bias in either direction, and lower values indicate less implicit bias. Results failed to reveal a significant difference in the absolute values of d-scores between participants in the experimental condition ( $M = .61, SD = .47$ ) and control condition ( $M = .63, SD = .45$ ),  $t(64) = .181, p = .86$ . Performance on the IAT did not differ significantly between participants in the experimental and control conditions.

Because there was no main effect on IAT performance, the mean d-score of the sample was examined across conditions. A single-sample t-test was conducted comparing the mean d-score of the sample to zero, which indicates no implicit preference in either direction. Results indicated a significant difference between the sample mean ( $M = .46, SD = .62$ ) and zero,  $t(65) = 6.02, p < .001$ . Participants in the sample demonstrated significant implicit preference for white over black.

***Interaction with Attributional Complexity.*** Although the main effect of the manipulation on IAT performance was not significant, a factorial-ANOVA was conducted to investigate a possible interaction with scores on the ACS. ACS scores were recoded into a dichotomous nominal variable using a median split, with participants above the median in the high ACS group ( $n = 32$ ) and participants at or below the median in the low ACS group ( $n = 34$ ). A 2 X 2 between-groups ANOVA was conducted with condition (experimental versus control) and ACS group (high versus low) as the independent variables and IAT d-score as the dependent variable. Results failed to indicate a significant interaction between condition and attributional complexity,  $F(1, 62) = .45, p = .51$ . The results of a second 2 X 2 ANOVA conducted with the

absolute values of d-scores as the dependent variable also failed to indicate a significant interaction between condition and attributional complexity,  $F(1, 62) = .22, p = .64$ .

### **Discussion**

The results of the comparisons of IAT scores indicated that the difference in IAT performance between conditions was not significant. This result is inconsistent with the hypothesis, which stated that participants in the experimental condition would demonstrate less implicit bias than those in the control condition. If state mindfulness does influence the strength of implicit preferences, a more effective mindfulness induction would be needed to demonstrate this effect. Because the manipulation was ineffective, the question of whether state mindfulness influences the strength of implicit preferences remains unanswered.

The role of attributional complexity as a moderator between mindfulness and implicit attitudes was examined by dividing participants into high and low ACS groups. The interaction between condition and attributional complexity level on IAT performance was not significant. The manipulation did not have a stronger effect for individuals lower in attributional complexity, as originally hypothesized. Regardless of whether participants were high or low in attributional complexity and regardless of the condition they were assigned to, performance on the IAT did not differ significantly between groups. Additionally, IAT performance was in-line with previous research being that the participants in this sample, as a whole, demonstrated implicit preference for white over black.

### **Study 2: Correlations between Mindfulness, Attributional Complexity and Prejudice**

This study explored the strength and direction of associations between attributional complexity, dispositional mindfulness and prejudice toward African Americans. In addition,

attributional complexity and mindfulness were examined as predictors of prejudice toward African Americans.

## **Method**

**Participants.** Participants were 202 participants (*females* = 86) from Amazon's Mechanical Turk (MTurk) who were selected on a first-come first-serve basis. All participants were between the ages of 20 and 65 years ( $M = 33.91$ ,  $SD = 10.02$ ). Of the total number of participants, 22 (10.9%) were Black or African American, 144 (71.3%) were white, non-Hispanic, 20 (9.9%) were Hispanic or Latino/a, 10 (5%) were Asian or Asian American, 2 (1%) were Native American and 4 (2%) were multiracial (See Table 2). Participants were compensated \$2.00 each for their time. The procedure was approved by the Stockton University IRB before testing began.

**Measures. Attributional Complexity Scale (ACS).** Attributional complexity was measured using the same scale described for Study 1 (Fletcher et al., 1986). Cronbach's alpha for the ACS in Study 2 was .95.

**Mindful Attention Awareness Sale (MAAS; Brown & Ryan, 2003; See Appendix A).** The MAAS is a 15-item scale which assesses trait mindfulness, specifically the tendency to consistently be aware of and pay attention to one's experience of the present. Items include "I find it difficult to stay focused on what's happening in the present" and "It seems I am 'running on automatic' without much awareness of what I'm doing." Participants rated how frequently they experience each item (1 = almost always, 2 = very frequently, 3 = somewhat frequently, 4 = somewhat infrequently, 5 = very infrequently, and 6 = almost never). The scale was reverse scored so higher scores indicate higher levels of trait mindfulness. This measure has been demonstrated to have high internal consistency ( $\alpha = .82$  among student sample;  $\alpha = .87$  among



general adult sample) and high test-retest reliability ( $r = .81, p < .0001$ ) in measuring dispositional mindfulness (Brown & Ryan, 2003). In this study, Cronbach's alpha for the MAAS was .93.

**Racial Argument Scale (RAS; Saucier & Miller, 2003; See Appendix A).** The RAS contains 16 sets of arguments and conclusions which either positively or negatively reflect African Americans and their experience. Participants rated the extent to which the argument supports the conclusion on a 5-point Likert scale (1 = not at all; 5 = very much). Because individuals tend to consider arguments that support their existing attitudes and beliefs as more valid than those that oppose them, the ratings act as a measure of attitudes toward African Americans. Higher ratings of positive arguments and lower ratings of negative arguments are indicative of lower levels of prejudice, while the reverse are indicative of higher levels of prejudice. The RAS acts as an indirect measure of prejudice because participants are not asked to rate their own personal level of agreement but rather the efficacy of each argument in supporting each conclusion. Ratings for the positive arguments were reverse scored so that higher total scores indicated higher levels of prejudice. This scale has demonstrated good internal consistency ( $\alpha = .74$ ) and high test-retest reliability ( $r = .81, p < .001$ ). Cronbach's alpha was .83 for the RAS in this study.

**Symbolic Racism 2000 Scale (SR2K; Henry & Sears, 2000; See Appendix A).** The SR2K is an 8-item scale that directly assesses prejudice toward African Americans. Items include "How much discrimination against blacks do you feel there is in the United States today, limiting their chances to get ahead?" and participants selected their response from a set of choices (1 = a lot, 2 = some, 3 = just a little, 4 = none at all). The scale was scored so higher scores indicate higher levels of prejudice. Previous research has demonstrated good internal

consistency ( $\alpha = .79$ ) for this measure (Henry & Sears, 2000). In the present study, Cronbach's alpha was .90 for the SR2K.

**Marlowe-Crowne Social Desirability Scale (MC-SDS; Crowne & Marlowe, 1960; See Appendix A).** The MC-SDS is a 33-item scale evaluating the need for social approval. Items include "I am always courteous, even to people who are disagreeable," and "I'm always willing to admit it when I make a mistake." Participants made a selection (true or false) to indicate whether or not each statement described their attitudes and behavior. One point is given for each statement where the participant's response is consistent with the socially desirable response. Scores can range from zero to 33 with higher scores indicating higher levels of social desirability. The scale has good internal consistency ( $\alpha = .88$ ) and high test-retest reliability ( $r = .89$ ) (Crowne & Marlowe, 1960). In this study, Cronbach's alpha was .89 for the MC-SDS.

**Demographics and Additional Information (See Appendix A).** Participants in Study 2 were asked to provide the same demographic information as those in Study 1, with the addition of indicating how many years of education they completed. Participants were also asked to indicate whether they practice yoga or meditation, the type of yoga or meditation they practice, and the frequency with which they practice.

**Procedure.** The research was advertised as a study investigating "the relationship between personal characteristics and personal views." All measures were administered online through Stockton's Qualtrics system via MTurk. Participants began by providing their informed consent and verifying that they were at least 18 years old. From there, participants completed the MAAS, which was used as a measure of trait mindfulness, the ACS, which was used as a measure of attributional style, the MC-SDS which was used as a measure of social desirability, the RAS which was used as an indirect measure of prejudice, and the SR2K which was used as a

direct measure of explicit prejudice. These 5 scales were presented randomly for each participant to control for possible order effects. Once all measures were completed, all participants provided demographic information and answered the additional information questions regarding yoga and meditation. To conclude the study, all participants were debriefed and provided with information regarding the aims of the research.

## Results

*Data.* Scores on the ACS, MAAS, MC-SDS, RAS and SR2K were screened for univariate normality and outliers (see Table 3). As indicated by stem-and-leaf plots, there were no cases that were more than three standard deviations from the mean for any of the measures used. The skewness levels of the distributions of scores were between -0.25 and 0.25 for all 5 measures, indicating univariate normality for all measures. One participant failed to correctly respond to two attention check items, which were placed within the self-report measures to ensure genuine responding. This case was excluded from subsequent analyses. Multivariate outliers were evaluated using Mahalanobis distance. Two cases had Mahalanobis Distance values greater than the chi-square critical value of 11.34 with 3 degrees of freedom. These cases were not used in the subsequent regression analyses.

*Correlational Analyses.* A series of Pearson bivariate correlations were conducted to investigate the associations between scores on the ACS, MAAS, RAS and SR2K (see Table 4). As predicted, scores on the ACS were positively correlated with scores on the MAAS,  $r(200) = .256, p < .001$ . Higher levels of trait mindfulness were associated with higher levels of attributional complexity. Additionally, scores on the ACS were negatively correlated with scores on both the RAS,  $r(200) = -.421, p < .001$ , and the SR2K,  $r(200) = -.376, p < .001$ , as predicted,

demonstrating that higher levels of attributional complexity were associated with lower levels of indirectly- and directly-measured prejudice toward African Americans.

**Multiple Regression.** Two multiple regression analyses were conducted to investigate attributional complexity and trait mindfulness as predictors of both indirectly- and directly-measured levels of prejudice toward African Americans while controlling for social desirability. First, a multiple regression was conducted with ACS score, MAAS score and MC-SDS score as the predictor variables and RAS score as the outcome variable. Results indicated a significant model,  $F(3, 196) = 12.06, p < .001$ , which accounted for 15.6% of the variance in RAS scores (adjusted  $R^2 = 0.14$ ). ACS score was a significant predictor ( $t = -5.13, p < .001$ ), but MAAS score was not ( $t = -1.06, p = .29$ ). Scores on the MC-SDS did not significantly contribute to the variance explained in RAS scores ( $t = 0.90, p = .37$ ). (see Table 5).

A second multiple regression was conducted with ACS score, MAAS score and MC-SDS score as the predictor variables and SR2K score as the outcome variable. Results indicated a significant regression model,  $F(3, 196) = 9.39, p < .001$ , which accounted for 12.6% of the variance in SR2K scores (adjusted  $R^2 = 0.11$ ). ACS score was a significant predictor of SR2K score ( $t = -4.60, p < .001$ ), but MAAS score was not ( $t = -0.12, p = .91$ ). Scores on the MC-SDS did not significantly contribute to the variance explained in SR2K scores ( $t = 1.38, p = .17$ ; see Table 6).

## Discussion

The results of the correlational analyses indicated an association between attributional complexity and trait mindfulness as well as an association between these constructs and levels of prejudice toward African Americans. Higher levels of attributional complexity were associated with lower levels of prejudice toward African Americans, measured both indirectly and directly.

This result was consistent with the hypothesis and provides evidence for the relationship between the way in which one explains the behavior of others and how much prejudice they hold.

Individuals who are motivated to understand behavior and take a variety of factors into consideration when explaining the behavior of others are more likely to demonstrate lower levels of prejudice toward African Americans than are those who are more attributionally simple when it comes to thinking about the behavior of others. When considering the results of this research, no causality can be inferred regarding the effects of attribution style on prejudice or vice versa because the analyses conducted were correlational in nature.

The results also indicated an association between trait mindfulness and indirectly-measured levels of prejudice toward African Americans, which was consistent with the hypothesis. Those who reported higher levels of mindfulness were more likely to demonstrate lower levels of indirectly-measured racism. There is evidence for the role mindfulness might have as a preventative factor against implicit prejudice; however, no causality can be inferred because of the correlational nature of the analysis being discussed. The correlation between trait mindfulness and directly-measured prejudice toward African Americans was not significant, which was inconsistent with the hypothesized relationship between these constructs.

Regarding the results of the regression analyses, attributional complexity was a significant predictor of both indirectly- and directly-measured prejudice toward African Americans, but trait mindfulness was not. This result is partially consistent with the hypothesis, which stated that both attributional complexity and trait mindfulness would be significant predictors of indirectly and directly measured racism. Both regression models were significant, although ACS score was the only significant predictor in each. It may be the case that there is an overlap in the proportion of the variance in RAS and SR2K scores accounted for by scores on the

ACS and scores on the MAAS. Because individuals who are higher in attributional complexity tend to be higher in mindfulness, scores on the ACS might account for dispositional mindfulness as measured by the MAAS, resulting in MAAS scores being insignificant predictors when entered the same regression model as ACS scores.

### **General Discussion**

Because of the ineffectiveness of the mindfulness manipulation in Study 1, the relationship between state mindfulness and implicit attitudes remains undefined. This highlights a clear limitation of this research, the unsuccessful manipulation of state mindfulness, which does not allow for a reliable conclusion regarding the way in which mindfulness affects the strength of implicit preferences and how attributional complexity might moderate this effect. As demonstrated by Lueke and Gibson (2015), a successful manipulation of state mindfulness resulted in significant reductions in the strength of implicit bias. Future research should seek to replicate this effect through the use of a proven and effective mindfulness manipulation.

In addition to the reliability of the mindfulness induction itself, state mindfulness may have been affected by the research design. Because of the way the manipulation and measures were administered through e-prime and Qualtrics, participants' progress through the session required switching between different programs on the computer. Participants were instructed to alert the experimenter, who was in a separate room, after they completed each stage of the session (audio recording, TMS, IAT, ACS) so that the experimenter could open the proper program for them to move on. It is possible that the manipulation may have been more effective if participants were able to progress through the session uninterrupted, without having to leave their seats. Future research could utilize a single program that allows for the administration of the

audio recording and each of the aforementioned measures in sequence to control for the interruptions which took place in the present method.

The results of the second study provide evidence for the association of both attributional complexity and trait mindfulness with indirectly-measured prejudice toward African Americans. The RAS was used to measure implicit racism by having participants rate the extent to which conclusions support either positive or negative arguments regarding African Americans in the United States. Because participants rate the accuracy of each conclusion and not the extent to which they personally agree with each argument, the scale acts as an indirect measure of prejudice, sidestepping the explicit opinions of those who take it. In this sense, we can consider how attributional complexity and trait mindfulness relate to implicit race attitudes. Because the model using these two factors to predict RAS scores was significant, it is important to consider how these constructs can be considered in a larger context. Implicit preferences have been associated with discriminatory behavior toward the members of stereotyped outgroups (Dovidio, Kawakami, Johnson, Johnson & Howard, 1997; McConnell & Leibold, 2001; Mekawi and Bresin, 2015). Strategies aimed at increasing individual levels of attributional complexity and mindfulness can be examined as methods to reduce the strength of implicit biases and prevent their potentially harmful effects. Practicing mindfulness meditation to increase overall levels of dispositional mindfulness may prove useful in preventing implicitly driven discriminatory behavior toward African Americans. In addition, taking part in training to increase the amount of factors one considers when explaining behavior may result in reduced instances of discrimination, whether that discrimination was rooted in conscious or unconscious attitudes.

Study 2 was limited in that it was an online study and the program needed to run the IAT could not be administered remotely. The black/white IAT was not used in Study 2, so the RAS

was used in its place. As mentioned earlier, the RAS is a consistent and reliable measure, but it is not as widely used as the IAT is for measuring implicit race attitudes. Future research could examine the association between mindfulness, attributional complexity and implicit race attitudes as measured by an IAT to further clarify the ways in which these constructs relate. Further limitations include the correlational nature of Study 2, which prevents the assumption of causality when interpreting the results, and the platform through which the study was administered. MTurk is an online system through which anonymous data can be collected. There is no way to know where and under what conditions participants completed the study, making it difficult to control for any influence the environment may have had on responses. In addition, because all measures in Study 2 were self-report questionnaires, there is no way to account for any response bias that may have occurred during the administration of the surveys.

Although this research was focused primarily on racial attitudes, the findings may generalize to biases regarding other groups. Implicit preferences can pertain to age group, gender, sexual orientation and religion, among other factors. Across these other categories, stronger implicit preferences for one group over another may result in increased discriminatory behavior toward the less preferred group. Leuke and Gibson (2015) found evidence for reductions in both implicit race and age bias after a mindfulness induction, but as the present studies suggest, further research is necessary to clarify the roles mindfulness and attributional complexity play in shaping implicit attitudes regarding a variety of different groups.



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Table 1

*Study 1 Demographic Information*

Factor	Values	N (%)	Mean	SD
Gender				
	Male	14 (21.2%)		
	Female	52(78.8)		
Age			20.38	3.70
Race				
	Black/African American	7 (10.6%)		
	White, non-Hispanic	44 (66.7%)		
	Hispanic or Latino/a	4 (6.1%)		
	Asian or Asian American	7 (10.6%)		
	Hawaiian Native or Pacific Islander	1 (1.5%)		
	Multiracial	2 (3%)		
	Other	1 (1.5%)		
SES				
	Working class	14 (21.2%)		
	Lower middle class	9 (13.6%)		
	Middle Class	32 (48.5%)		
	Upper middle class	11 (16.7%)		
	Upper class	0 (0%)		

*Note. Demographic information including number of participants (N), mean and standard deviation (SD), collected from participants in Study 1 is displayed in this table.*

Table 2

*Study 2 Demographic Information*

Factor	Values	N (%)	Mean	SD
Gender				
	Male	115 (56.9%)		
	Female	86 (42.6%)		
	Other	1 (0.5%)		
Age			33.91	10.02
Race				
	Black/African American	22 (10.9%)		
	White, non-Hispanic	144 (71.3%)		
	Hispanic or Latino/a	20 (9.9%)		
	Asian or Asian American	10 (5%)		
	Native American	2 (1%)		
	Multiracial	4 (2%)		
Years of Education			14.55	3.47
SES				
	Working class	48 (23.8%)		
	Lower middle class	47 (23.3%)		
	Middle Class	85 (42.1%)		
	Upper middle class	19 (9.4%)		
	Upper class	1 (0.5%)		
	Other	2 (1%)		

*Note.* Demographic information including number of participants (N), mean and standard deviation (SD), collected from participants in Study 2 is displayed in this table.

Table 3

*Descriptive Statistics for Study 2 Measures*

Measure	N	Mean	SD
ACS	202	4.65	0.99
MAAS	202	4.28	0.93
RAS	202	2.65	0.74
SR2K	202	0.41	0.24
MC-SDS	202	15.49	7.26

*Note.* This table displays the number of respondents (N), the mean and the standard deviation (SD) for each of the 5 self-report measures used in Study 2.

Table 4

*Correlation Matrix for Study 2 Measures*

	ACS	MAAS	RAS	SR2K
ACS	1	.256***	-.421***	-.386***
MAAS		1	-.155*	-.069
RAS			1	.785***
SR2K				1

*Note.* A series of Pearson bivariate correlations were conducted to obtain the results displayed in this table.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table 5

*Predictors of RAS Scores*

Variable	B	Std. Error	<i>t</i>	Sig.
Constant	4.10	0.30	13.50	.000
ACS	-0.28	0.05	-5.13	.000
MAAS	-0.06	0.06	-1.06	0.29
MC-SDS	0.01	0.01	0.90	0.37

*Note. The predictors of RAS scores are displayed in this table along with their unstandardized beta-coefficients (B), standard errors, t-values (t) and significance levels (sig).*

Table 6

*Predictors of SR2K Scores*

Variable	B	Std. Error	<i>t</i>	Sig.
Constant	3.19	0.30	10.69	.000
ACS	-0.25	0.05	-4.60	.000
MAAS	-0.01	0.06	-0.12	0.91
MC-SDS	0.01	0.01	1.38	0.17

*Note. The predictors of SR2K scores are displayed in this table along with their unstandardized beta-coefficients (B), standard errors, t-values (t) and significance levels (sig).*



## Appendix A

### Control Audio Recording

Please listen and pay attention to the following audio recording.

*The parish of Selborne lies in the extreme eastern corner of the county of Hampshire, bordering on the county of Sussex, and not far from the county of Surrey; is about fifty miles south-west of London, in latitude fifty-one, and near mid-way between the towns of Alton and Petersfield. Being very large and extensive it abuts on twelve parishes, two of which are in Sussex, viz., Trotton and Rogate. If you begin from the south and proceed westward, the adjacent parishes are Emshot, Newton Valence, Faringdon, Harteley Mauduit, Great Ward le ham, Kingsley, Hadleigh, Bramshot, Trotton, Rogate, Lyffe, and Greatham. The soils of this district are almost as various and diversified as the views and aspects. The high part of the south-west consists of a vast hill of chalk, rising three hundred feet above the village, and is divided into a sheep-down, the high wood and a long hanging wood, called The Hanger. The covert of this eminence is altogether beech, the most lovely of all forest trees, whether we consider its smooth rind or bark, its glossy foliage, or graceful pendulous boughs. The down, or sheep-walk, is a pleasing park-like spot, of about one mile by half that space, jutting out on the verge of the hill-country, where it begins to break down into the plains, and commanding a very engaging view, being an assemblage of hill, dale, woodlands, heath, and water. The prospect is bounded to the south-east and east by the vast range of mountains called the Sussex Downs, by Guild-down near Guildford, and by the Downs round Dorking, and Ryegate in Surrey, to the north-east, which altogether, with the country beyond Alton and Farnham, form a noble and extensive outline.*

*At the foot of this hill, one stage or step from the uplands, lies the village, which consists of one single straggling street, three quarters of a mile in length, in a sheltered vale, and running parallel with The Hanger. The houses are divided from the hill by a vein of stiff clay (good wheat-land), yet stand on a rock of white stone, little in appearance removed from chalk; but seems so far from being calcareous, that it endures extreme heat. Yet that the freestone still preserves somewhat that is analogous to chalk, is plain from the beeches which descend as low as those rocks extend, and no farther, and thrive as well on them, where the ground is steep, as on the chinks. The cart-way of the village divides, in a remarkable manner, two very incongruous soils. To the south-west is a rank clay, that requires the labour of years to render it mellow; while the gardens to the north-east, and small enclosures behind, consist of a warm, forward, crumbling mould, called black malm, which seems highly saturated with vegetable and animal manure; and these may perhaps have been the original site of the town; while the woods and coverts might extend down to the opposite bank.*

*At each end of the village, which runs from south-east to northwest, arises a small rivulet: that at the north-west end frequently fails; but the other is a fine perennial spring, little influenced by drought or wet seasons, called Well-head. This breaks out of some high grounds joining to Nore Hill, a noble chalk promontory, remarkable for sending forth two streams into two different seas. The one to the south becomes a branch of the Arun, running to Arundel, and so sailing into the British Channel: the other to the north. The Selborne stream makes one branch of the Wey; and, meeting the Black-down stream at Hedleigh, and the Alton and Farnham stream at Tilford-bridge,*

*swells into a considerable river, navigable at Godalming; from whence it passes to Guilford, and so into the Thames at Weybridge; and thus at the Nore into the German Ocean.*

*Our wells, at an average, run to about sixty-three feet, and when sunk to that depth seldom fail; but produce a fine limpid water, soft to the taste, and much commended by those Avho drink the pure element, but which does not lather well with soap.*

*To the north-west, north and east of the village, is a range of fair enclosures, consisting of what is called white malm, a sort of rotten or rubble stone, which, when turned up to the frost and rain, moulders to pieces, and becomes manure to itself.*

*Still on to the north-east, and a step lower, is a kind of white land, neither chalk nor clay, neither fit for pasture nor for the plough, yet kindly for hops, which root deep in the freestone, and have their poles and wood for charcoal growing just at hand. The white soil produces the brightest hops. As the parish still inclines down towards Wolmer Forest, at the juncture of the clays and sand the soil becomes a wet, sandy loam, remarkable for timber, and infamous for roads. The oaks of Temple and Blackmoor stand high in the estimation of purveyors, and have furnished much naval timber; while the trees on the freestone grow large, but are what workmen call shaky, and so brittle as often to fall to pieces in sawing. Beyond the sandy loam the soil becomes a hungry lean sand, till it mingles with the forest; and Avill produce little without the assistance of lime and turnips.*

*In the court of Norton farm-house, a manor farm to the north- west of the village, on the white malm, stood within these twenty years a broad-leaved elm, or wych hazel, *ilnius folio latissinio scabro* of Ray, which, though it had lost a considerable leading bough in the great storm in the year 1703, equal to a moderate tree, yet, when felled, contained eight loads of timber; and, being too bulky for a carriage, was sawn off at seven feet above the butt, where it measured near eight feet in the diameter. This elm I mention to show to what a bulk planted elms may attain; as this tree must certainly have been such from its situation.*

*In the centre of the village, and near the church, is a square piece of ground surrounded by houses, and vulgarly called "The Plestor." In the midst of this spot stood, in old times, a vast oak, with a short squat body, and huge horizontal arms extending almost to the extremity of the area. This venerable tree, surrounded with stone steps, and seats above them, was the delight of old and young, and a place of much resort in summer evenings; where the former sat in grave debate, while the latter frolicked and danced before them. Long might it have stood, had not the amazing tempest in 1703 overturned it at once, to the infinite regret of the inhabitants, and the vicar, who bestowed several pounds in setting it in its place again : but all his care could not avail ; the tree sprouted for a time, then withered and died. This oak I mention to show to what a bulk planted oaks also may arrive : and planted this tree must certainly have been, as will appear from what will be said farther concerning this area, when we enter on the antiquities of Selborne.*

*On the Blackmoor estate there is a small wood called Losel's, of a few acres, that was lately furnished with a set of oaks of a peculiar growth and great value; they were tall and taper like firs, but standing near together had very small heads, only a little brush without any large limbs.*

*About twenty years ago the bridge at the Toy, near Hampton Court, being much decayed, some trees were wanted for the repairs that were fifty feet long without bough, and would measure twelve inches diameter at the little end. Twenty such trees did a purveyor find in this little wood, with this advantage, that many of them answered the description at sixty feet. These trees were sold for twenty pounds apiece.*

### **Mindfulness Audio Recording Transcript**

Please follow the directions provided in this audio recording.

*Assume a comfortable sitting posture. Do your best to keep your spine straight and let your shoulders drop.*

*Allow your eyes to close if it feels comfortable to you.*

*Allow your attention to gently settle on your belly. Feel your belly rise or expand gently each time you inhale and fall or recede each time you exhale.*

*As best you can, maintain your focus on the various sensations associated with breathing: being with each inbreath for its full duration and being with each outbreath for its full duration, as if you were riding the waves of your own breathing.*

*Every time you notice that your mind has wandered off the breath, notice what it was that carried you away, and then gently bring your attention back to your belly and the sensations associated with the breath coming in and with the breath going out.*

*If your mind wanders away from the breath, then simply notice what is on your mind the moment you realize it is no longer on your breathing, and bring your attention back to the breath, no matter what your mind becomes preoccupied with. As best you can, continually rest in the awareness of the feeling of the breath moving in and out of the body, or come back to it over and over again.*

*For the next few minutes, this audio will be silent. Please take this time to focus your attention on your breathing until the audio resumes.*

*Remember, if you notice that your mind has wandered off the breath, simply notice what is on your mind the moment you realize it is no longer on your breathing, and bring your attention back to the breath, no matter what your mind becomes preoccupied with.*

*Once again, please take the next few minutes of silence to focus your attention on your breathing until the audio resumes.*

*That concludes this audio recording. Thank you.*

**Toronto Mindfulness Scale**

Instructions: We are interested in what you just experienced. Below is a list of things that people sometimes experience. Please read each statement. Next to each statement are five choices: “not at all,” “a little,” “moderately,” “quite a bit,” and “very much.” Please indicate the extent to which you agree with each statement. In other words, how well does the statement describe what you just experienced, just now?

1. I experienced myself as separate from my changing thoughts and feelings.

0	1	2	3	4
Not at all	A little	Moderately	Quite a bit	Very much

2. I was more concerned with being open to my experiences than controlling or changing them.

0	1	2	3	4
Not at all	A little	Moderately	Quite a bit	Very much

3. I was curious about what I might learn about myself by taking notice of how I react to certain thoughts, feelings or sensations.

0	1	2	3	4
Not at all	A little	Moderately	Quite a bit	Very much

4. I experienced my thoughts more as events in my mind than as a necessarily accurate reflection of the way things ‘really’ are.

0	1	2	3	4
Not at all	A little	Moderately	Quite a bit	Very much

5. I was curious to see what my mind was up to from moment to moment.

0	1	2	3	4
Not at all	A little	Moderately	Quite a bit	Very much

6. I was curious about each of the thoughts and feelings that I was having

0	1	2	3	4
Not at all	A little	Moderately	Quite a bit	Very much

7. I was receptive to observing unpleasant thoughts and feelings without interfering with them.

0	1	2	3	4
Not at all	A little	Moderately	Quite a bit	Very much

8. I was more invested in just watching my experiences as they arose, than in figuring out what they could mean.

0                      1                      2                      3                      4  
 Not at all          A little              Moderately        Quite a bit        Very much

9. I approached each experience by trying to accept it, no matter whether it was pleasant or unpleasant.

0                      1                      2                      3                      4  
 Not at all          A little              Moderately        Quite a bit        Very much

10. I remained curious about the nature of each experience as it arose.

0                      1                      2                      3                      4  
 Not at all          A little              Moderately        Quite a bit        Very much

11. I was aware of my thoughts and feelings without overidentifying with them.

0                      1                      2                      3                      4  
 Not at all          A little              Moderately        Quite a bit        Very much

12. I was curious about my reactions to things.

0                      1                      2                      3                      4  
 Not at all          A little              Moderately        Quite a bit        Very much

13. I was curious about what I might learn about myself by just taking notice of what my attention gets drawn to.

0                      1                      2                      3                      4  
 Not at all          A little              Moderately        Quite a bit        Very much

**Implicit Association Test**

<i>Category</i>	<i>Items</i>
<b>Black</b>	
<b>White</b>	
<b>Good</b>	JOY, LOVE, WONDERFUL, PLEASURE, LAUGHTER, HAPPY
<b>Bad</b>	TERRIBLE, HORRIBLE, EVIL, AWFUL, AGONY, HURT



**Attributional Complexity Scale (Studies 1 and 2)**

This questionnaire has been designed to investigate the different ways that people think about themselves and other people. The questionnaire is anonymous, so there is no need to put your name on it. There are no right or wrong answers. We are interested in your own perceptions. Please answer each question as honestly and accurately as you can, but don't spend too much time thinking about each answer.

In front of each of the items below, please write a whole number ranging from -3 to +3 to indicate how much you agree with the item, according to the following scale:

-3	-2	-1	0	+1	+2	+3
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

1. \_\_\_ I don't usually bother to analyze and explain people's behavior.
2. \_\_\_ Once I have figured out a single cause for a person's behavior I don't usually go any further.
3. \_\_\_ I believe it is important to analyze and understand our own thinking processes.
4. \_\_\_ I think a lot about the influence that I have on people's behavior.
5. \_\_\_ I have found that relationships between a person's attitudes, beliefs, and character traits are usually simple and straightforward.
6. \_\_\_ If I see people behaving in a really strange or unusual manner, I usually put it down to the fact that they are strange or unusual people and don't bother to explain it any further.

7. \_\_\_ I have thought a lot about the family background and personal history of people who are close to me in order to understand why they are the sort of people they are.
8. \_\_\_ I don't enjoy getting into discussions where the causes for people's behavior are being talked about.
9. \_\_\_ I have found that the causes for people's behavior are usually complex rather than simple.
10. \_\_\_ I am very interested in understanding how my own thinking works when I make judgments about people or attach causes to their behavior.
11. \_\_\_ I think very little about the different ways that people influence each other.
12. \_\_\_ To understand a person's personality/behavior I have found it is important to know how that person's attitudes, beliefs, and character traits fit together.
13. \_\_\_ When I try to explain other people's behavior I concentrate on the other person and don't worry too much about all the existing external factors that might be affecting them.
14. \_\_\_ I have often found that the basic cause for a person's behavior is located far back in time.
15. \_\_\_ I really enjoy analyzing the reasons or causes for people's behavior.
16. \_\_\_ I usually find that complicated explanations for people's behavior are confusing rather than helpful.
17. \_\_\_ I give little thought to how my thinking works in the process of understanding or explaining people's behavior.
18. \_\_\_ I think very little about the influence that other people have on my behavior.
19. \_\_\_ I have thought a lot about the way that different parts of my personality influence other parts (e.g., beliefs affecting attitudes or attitudes affecting character traits).
20. \_\_\_ I think a lot about the influence that society has on other people.
21. \_\_\_ When I analyze a person's behavior I often find the causes form a chain that goes back in time, sometimes for years.
22. \_\_\_ I am not really curious about human behavior.
23. \_\_\_ I prefer simple rather than complex explanations for people's behavior.

24. \_\_\_ When the reasons I give for my own behavior are different from someone else's, this often makes me think about the thinking processes that lead to my explanations.
25. \_\_\_ I believe that to understand a person you need to understand the people who that person has close contact with.
26. \_\_\_ I tend to take people's behavior at face value and not worry about the inner causes for their behavior (e.g., attitudes, beliefs, etc.).
27. \_\_\_ I think a lot about the influence that society has on my behavior and personality.
28. \_\_\_ I have thought very little about my own family background and personal history in order to understand why I am the sort of person I am.

### **Demographic Information**

Please provide the following information about yourself.

1. What is your age? \_\_\_\_\_
2. What is your gender?
  - a. Male
  - b. Female
  - c. Other (Please Specify): \_\_\_\_\_
3. What is your race/ethnicity? (Select all that apply)
  - a. Black or African American
  - b. White, non-Hispanic
  - c. Hispanic or Latino/a
  - d. Asian or Asian American
  - e. Hawaiian Native or Pacific Islander
  - f. Native American
  - g. Other (Please Specify): \_\_\_\_\_
4. Which best describes your socioeconomic status?
  - a. Working class
  - b. Lower middle class
  - c. Middle class
  - d. Upper middle class
  - e. Upper class
  - f. Other (Please Specify): \_\_\_\_\_

### **Additional Questions**

Please answer the following questions.

5. Do you practice yoga or meditation? If yes, please specify what type(s) (e.g. mindfulness meditation, Anusara yoga, lovingkindness meditation, Ashtanga yoga).



- a. No
- b. Yes: \_\_\_\_\_

6. If you answered “Yes” to the previous question, please indicate how many times per week you meditate and/or practice yoga: \_\_\_\_\_

**Additional Questions (Study 1 Only)**

Please answer the following questions.

- 7. Do you know what implicit attitudes are? If yes, please explain.
  - a. No
  - b. Yes: \_\_\_\_\_
  
- 8. Have you ever taken an Implicit Association Test? If yes, please specify what type(s) (e.g. age, race, gender) **and** how many times.
  - a. No
  - b. Yes: \_\_\_\_\_

*Study 2 Materials*

**Attributional Complexity Scale**

Same as study 1.

**Mindful Attention Awareness Scale**

Instructions: Below is a collection of statements about your everyday experience. Using the 1-6 scale below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what really reflects your experience rather than what you think your experience should be. Please treat each item separately from every other item.

1	2	3	4	5	6
Almost Always	Very Frequently	Somewhat Frequently	Somewhat Infrequently	Very Infrequently	Almost Never

- 1. \_\_\_ I could be experiencing some emotion and not be conscious of it until some time later.
  
- 2. \_\_\_ I break or spill things because of carelessness, not paying attention, or thinking of something else.
  
- 3. \_\_\_ I find it difficult to stay focused on what’s happening in the present.
  
- 4. \_\_\_ I tend to walk quickly to get where I’m going without paying attention to what I experience along the way.
  
- 5. \_\_\_ I tend not to notice feelings of physical tension or discomfort until they really grab my attention.

6. \_\_\_ I forget a person's name almost as soon as I've been told it for the first time.
7. \_\_\_ It seems I am "running on automatic," without much awareness of what I'm doing.
8. \_\_\_ I rush through activities without being really attentive to them.
9. \_\_\_ I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there.
10. \_\_\_ I do jobs or tasks automatically, without being aware of what I'm doing.
11. \_\_\_ I find myself listening to someone with one ear, doing something else at the same time.
12. \_\_\_ I drive places on 'automatic pilot' and then wonder why I went there.
13. \_\_\_ I find myself preoccupied with the future or the past.
14. \_\_\_ I find myself doing things without paying attention.
15. \_\_\_ I snack without being aware that I'm eating.

**Marlowe-Crowne Social Desirability Scale**

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to you personally.

1. Before voting I thoroughly investigate the qualifications of all the candidates.
2. I never hesitate to go out of my way to help someone in trouble.
3. It is sometimes hard for me to go on with my work if I am not encouraged.
4. I have never intensely disliked anyone.
5. On occasion I have had doubts about my ability to succeed in life.
6. I sometimes feel resentful when I don't get my way.
7. I am always careful about my manner of dress.
8. My table manners at home are as good as when I eat out in a restaurant.
9. If I could get into a movie without paying and be sure I was not seen I would probably do it.

10. On a few occasions, I have given up doing something because I thought too little of my ability.
11. I like to gossip at times.
12. There have been times when I felt like rebelling against people in authority even though I knew they were right.
13. No matter who I'm talking to, I'm always a good listener.
14. I can remember "playing sick" to get out of something.
15. There have been occasions when I took advantage of someone.
16. I'm always willing to admit it when I make a mistake.
17. I always try to practice what I preach.
18. I don't find it particularly difficult to get along with loud mouthed, obnoxious people.
19. I sometimes try to get even rather than forgive and forget.
20. When I don't know something I don't at all mind admitting it.
21. I am always courteous, even to people who are disagreeable.
22. At times I have really insisted on having things my own way.
23. There have been occasions when I felt like smashing things.
24. I would never think of letting someone else be punished for my wrongdoings.
25. I never resent being asked to return a favor.
26. I have never been irked when people expressed ideas very different from my own.
27. I never make a long trip without checking the safety of my car.
28. There have been times when I was quite jealous of the good fortune of others.
29. I have almost never felt the urge to tell someone off.
30. I am sometimes irritated by people who ask favors of me.
31. I have never felt that I was punished without cause.

- 32. I sometimes think when people have a misfortune they only got what they deserved.
- 33. I have never deliberately said something that hurt someone's feelings.

**Racial Argument Scale**

Please indicate the extent to which each argument supports the conclusion that follows it by selecting a number from 1 (not at all) to 5 (very much).

- 1. Because the world is a diverse place with many different cultures and people, requiring college students to take courses such as African American studies is a benefit to them. These courses provide students with better understandings of other ethnic groups, cultures, and value systems. This educational experience can enrich students’ lives through cultural awareness.

**Conclusion:** Courses like African American studies should be required in the education of all college students.

1	2	3	4	5
Not at all		Neutral		Very much

- 2. Articles written about athletes consistently describe White athletes as “intelligent,” “hardworking,” and “crafty” and describe African American athletes as “talented,” “flashy,” and “athletic.” These biased descriptions serve to promote the stereotype that African American athletes are not as intelligent as White athletes and fail to credit African American athletes for their intelligence, discipline, and work ethics.

**Conclusion:** Biased descriptions of athletes should be avoided to stop perpetuating the stereotype that African American athletes are less intelligent than White athletes.

1	2	3	4	5
Not at all		Neutral		Very much

- 3. The U.S. government is built on a representative democracy that means that politicians are elected to represent their constituents in making the country’s decisions. However, the political construction of power in the United States does not allow adequate representation of African Americans, as shown by the few African American politicians who have attained political positions in the highest levels of our government.

**Conclusion:** The political parties should allow and support the rise of African American politicians within the parties to guarantee fair representation of African Americans in the government of this country.

1	2	3	4	5
Not at all		Neutral		Very much

4. Sickle cell anemia is a disease that is inherited by many African American children. The disease is potentially fatal, but research to combat the disease has not been as well-funded as research concerning ailments that influence Whites as well. The differences in funding are inexcusable, especially since sickle cell anemia is a deadly disease, killing many African Americans every year.

**Conclusion:** Research to combat sickle cell anemia needs to be as well-funded as research for other diseases.

1                      2                      3                      4                      5  
 Not at all                      Neutral                      Very much

5. *Waiting to Exhale* and other major motion pictures starring primarily African American casts have been too infrequent in U.S. theaters. Too often, African American actors and actresses have been relegated to minor roles in Hollywood productions, or to roles as villains, and it is about time that African Americans like Angela Bassett and Denzel Washington can achieve starring roles.

**Conclusion:** African Americans should be represented in motion pictures in starring roles more frequently than they were in the past.

1                      2                      3                      4                      5  
 Not at all                      Neutral                      Very much

6. Recent educational studies have shown that African Americans who do poorly in school may do so because of language difficulties and cultural differences. It has been argued that the use of familiar language and relevant cultural examples in the education of African American children can help to improve the performances that African American children show in school.

**Conclusion:** School systems should incorporate material into their curricula that is sensitive to African American culture in order to better educate African Americans.

1                      2                      3                      4                      5  
 Not at all                      Neutral                      Very much

7. Experts have argued that SAT scores for African Americans may be lower than for Whites due to the poorer opportunities available to African Americans for education. However, the SAT is a valid predictor of college performance and no concessions should be made for African Americans. Lower scores mean poorer performance, and a sliding scale would only promote future failure for African Americans with low SAT scores regardless of why they get low SAT scores.

**Conclusion:** African Americans should not be given leniency for low SAT scores in the college admissions process.

1                      2                      3                      4                      5  
 Not at all                      Neutral                      Very much

8. Rodney King was the African American motorist who was beaten by police officers in Los Angeles in an incident captured on video. The incident was broadcast as an unmotivated racial assault on King by the police, but this may not be entirely accurate. King was beaten following a long car chase and resisted arrest upon his capture, and the physical response by the police may have been somewhat warranted.

**Conclusion:** Rodney King may have at least partially provoked the beating he received from the Los Angeles police officers.

1                      2                      3                      4                      5  
 Not at all                      Neutral                      Very much

9. It has been argued that welfare programs are too often exploited by African Americans in this country. Welfare offices in every state appear packed with African Americans applying for and collecting welfare benefits. These high numbers of African American welfare recipients are disproportionate for their numbers in the general population and other racial groups are suffering because they cannot receive benefits.

**Conclusion:** The numbers of African Americans receiving welfare should be limited to provide benefits for others.

1                      2                      3                      4                      5  
 Not at all                      Neutral                      Very much

10. President Bill Clinton issued an apology to African Americans for the institution of slavery that existed in this country more than 130 years ago. Clinton’s apology was inappropriate because he and the present government have no connection with the long-abolished practice of slavery and the apology may instead incite current tension in race relations.

**Conclusion:** President Clinton should not have apologized to African Americans for slavery.

1                      2                      3                      4                      5  
 Not at all                      Neutral                      Very much

11. Christians celebrate Christmas, the Jewish celebrate Hanukkah, and some African Americans celebrate Kwanzaa, a holiday originating from African culture, during the winter “holiday season.” Many people had never heard about Kwanzaa until recently and suggest that since it appears to be a “new” holiday, it must be a second-tier holiday seeking to emulate Christmas without much inherent significance.

**Conclusion:** Kwanzaa is not a holiday on the same level of importance as Christmas.

1                      2                      3                      4                      5  
 Not at all                      Neutral                      Very much

12. It has been shown that White Americans score 15 points higher on IQ tests than African Americans. This difference in IQ scores has even been shown when other variables such as education levels and socioeconomic status are taken into account.

**Conclusion:** Whites are more intelligent than African Americans.

1                      2                      3                      4                      5  
 Not at all                      Neutral                      Very much

13. The United Negro College Fund helps to pay the tuition and expenses that allow African Americans to go to college. While no doubt benefiting African American students, this organization is unconstitutionally biased in that it does not offer financial assistance to White students as well. Meanwhile, thousands of White students continue to miss out on furthering their education due to financial limitations.

**Conclusion:** The United Negro College Fund should be forced, by law, to provide financial resources to both White and African American students.

1                      2                      3                      4                      5  
 Not at all                      Neutral                      Very much

### Symbolic Racism 2000 Scale

Please select the option that best describes your feelings toward each statement.

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.
  - (1) Strongly agree
  - (2) Somewhat agree
  - (3) Somewhat disagree
  - (4) Strongly disagree
  
2. Irish, Italian, Jewish and many other minorities overcame prejudice and worked their way up. Blacks should do the same.
  - (1) Strongly agree
  - (2) Somewhat agree
  - (3) Somewhat disagree
  - (4) 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?
  - (1) Trying to push very much too fast
  - (2) Going too slowly
  - (3) 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?
  - (1) All of it
  - (2) Most
  - (3) Some
  - (4) 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?
  - (1) A lot
  - (2) Some
  - (3) Just a little
  - (4) 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.
  - (1) Strongly agree
  - (2) Somewhat agree
  - (3) Somewhat disagree
  - (4) Strongly disagree
  
7. Over the past few years, blacks have gotten less than they deserve.
  - (1) Strongly agree
  - (2) Somewhat agree
  - (3) Somewhat disagree
  - (4) Strongly disagree
  
8. Over the past few years, blacks have gotten more economically than they deserve.
  - (1) Strongly agree
  - (2) Somewhat agree
  - (3) Somewhat disagree
  - (4) Strongly disagree

**Demographic Information and Additional Information**

This section will be the same as in study 1, with the addition of 1 question.

1. How many years of education have you completed? \_\_\_\_\_