

EXPLICIT AND IMPLICIT BIAS MEASURES: THEIR RELATION AND UTILITY AS
PREDICTORS OF CRIMINAL VERDICT TENDENCY.

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ABSTRACT

The relations between explicit and implicit racial bias measures were examined in the present study, along with the predictive validity of these measures for juror verdict tendency for criminal case summaries as a function of case type and defendant ethnicity. Participants completed a general implicit racial bias measure, the Implicit Association Test (IAT), and two explicit measures of racial bias, of which the Modern Racism Scale (MRS) was a general measure and of which the Racial Bias Scale (PJBQ-RB) of the Pretrial Juror Bias Questionnaire (PJBQ) was a legal specific measure. Participants read two criminal case summaries, the first of which was an assault case and the second of which was a robbery case. Defendant ethnicity (African American or European American) was varied between participants through the presentation of defendant photographs. Results demonstrated that explicit and implicit bias measures are related with one another, although the relations do not always emerge between the different types of bias measures or only between bias measures assessing the same construct. The more general MRS and IAT were significantly related to one another, while the more specific PJBQ-Race did not relate to the IAT. Additionally, the IAT measure was significantly related to several other legal bias measures that were not direct assessments of racial bias, indicating that perhaps implicit measures are not measuring an individual's beliefs about racial bias so much as perhaps the degree to which an individual is aware of societal attitudes towards ethnic minority members. Both the PJBQ scales and the IAT predicted verdict tendency, although the specific results varied depending on both case type and defendant ethnicity. Predictive validity for the assault case was poor. The PJBQ scales displayed predictive validity for the robbery case across defendant ethnicity conditions, while the IAT had predictive utility

solely when examining verdict tendency for specific defendant-case combinations. These findings demonstrate that although explicit and implicit measures are not entirely independent of each other, they do appear to be assessing largely independent constructs. Similarly, both explicit and implicit bias measures displayed evidence of their potential utility as predictors of juror verdict tendency for criminal cases.

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INTRODUCTION

Bias

At the core of social psychology lies the study of attitudes and stereotypes. These phenomena include different types of bias. Although bias is most often thought of as a prejudice, that is a negative bias, it is possible to hold a positive bias towards someone or something. This is reflected in the fact that bias has been defined as, “prejudice in favor of or against one thing, person, or group compared with another, usually in a way considered to be unfair” (The New Oxford American Dictionary, 2001). Essentially, bias is a cognitive phenomenon, although a phenomenon that may be influenced by the social environment of an individual or group. However, given that bias is a cognitive phenomenon, it cannot be studied directly and most research on bias actually focuses on studying certain behaviors (e.g., responses on questionnaires, reaction times, proximity to another individual, etc.) that are believed to result from an underlying cognitive bias. Before bias can fully be discussed, an understanding of the different behavior categories commonly studied is useful.

Distinctions between Behavioral Categories

Conscious behavior is largely that behavior of which we are aware and can control. The term control is used here to indicate that an individual has the ability to influence or direct their behavior or thoughts (The New Oxford American Dictionary, 2001). Indeed, one of the most distinguishing features of consciousness is awareness. Defined as, “the fact of awareness by the mind of itself and the world” (The New Oxford American Dictionary, 2001), consciousness, as well as its cognitive and behavioral subcomponents, has become a well studied area of psychological research. For instance, the words we speak, the food we eat, the routes we take to work, the opinions we side with, etc., are all conscious behaviors because we can change or

influence them. All behaviors that a person chooses to exhibit are conscious. However, not all conscious behavior need be volitional.

Automated behaviors are given little consideration in day to day life and generally operate below the level of consciousness. However, despite the fact that these automated or nonconscious behaviors usually occur below the level of consciousness, some evidence suggests that automated behaviors can be drawn into consciousness if an individual attends to them (Miller, 1978). For instance, automated behaviors, such as breathing and heart rate, are not sensations of which people are usually aware. Most often, they operate without a person's knowledge or control. Yet evidence indicates that sometimes a person may become aware of, monitor, and exert influence on such functions as heart rate and blood pressure (Miller, 1978). Thus, automated behavior may be either conscious or unconscious, although the default for this type of behavior appears to be set at an unconscious level of processing.

Unconscious behavior constitutes another large category of behaviors. Unconscious behavior, or cognition, refers to those behaviors, or thoughts, of which a person is not aware. The term unconscious, as used in this paper, should be interpreted in line with the concept of the cognitive unconscious, rather than its popular Freudian association. Many unconscious behaviors occur at a very low level of processing that is not controllable and these behaviors include those automated responses which cannot be drawn into awareness. An example of unconscious behavior is memory encoding. The encoding of stimuli into memory occurs, yet individuals are not generally aware of the steps in the encoding process. Additionally, priming research also indicates that cognitive processes often operate below the level of consciousness and that it may not be possible to draw such information into consciousness. For example, individuals may not be able to identify a prime, yet will be quicker to respond to prime-related

words relative to non-prime related words after the presentation of a brief prime (Masson & Borowsky, 1998). Although the individual is not consciously aware of the prime, their brain must have processed this information, and thus be aware of it, in order to have hastened their response. Such evidence clearly argues for the existence of cognition and subsequent behavioral responses that are not conscious. The aspects of cognition that a person is not, and appears unable to become, aware of have been alternately referred to as unconscious, nonconscious, or implicit (Greenwald & Banaji, 1995).

Ethnic Bias: Its Importance to the Legal Realm

A very heavily studied area of social psychological research is ethnic bias. Over the years, ethnic bias has remained a heavily studied research area, yet the manner in which it has been researched has broadened in recent years to include both self-report measures of bias and perceptual measures of bias (Greenwald & Banaji, 1995; Greenwald, McGhee, & Schwartz, 1998). This paper will often focus on research findings that focus on ethnic bias, relative to other areas of bias (e.g., gender, religious, political bias, etc.), with particular emphasis on how such research may have implications for the occurrence of and detection of ethnic bias among jurors. However, most of the concepts discussed herein are equally applicable to other biases, as well as to research and applied contexts outside the legal realm.

Recent research has increasingly focused on ethnic stereotypes and the notion of implicit racism (Greenwald et al., 1998; Ottaway, Hayden, & Oakes, 2001). Such research yields important implications for the legal system. The legal system processes a substantial number of minority defendants and the differential treatment of minority defendants by juries with regard to sentencing is well-noted (e.g., Fukurai, Butler, & Krooth, 1993). Several hypotheses can be constructed to explain this differential sentencing: (a) jurors are influenced

and biased by defendant ethnicity and this ethnic bias ultimately influences sentencing decisions, (b) certain crimes with severe mandatory sentences are more prevalent among minority populations (e.g., disparities in sentences for possession of crack cocaine versus cocaine), or (c) other factors relevant to sentencing decisions vary with defendant ethnicity and account for the disparity. All three factors may be involved in the sentencing disparity, but the fact that one explanation involves the notion of ethnic bias is indisputable. Thus, this example illustrates how ethnic bias research may be useful when applied in a legal context. Much of the bias research discussed in this paper specifically references the research dealing with ethnic attitudes, biases, and stereotypes, as these are often implicated as issues in criminal trials.

Explicit versus Implicit Bias

Just as there are different types of behaviors, different types of cognition, or biases, are presumed to underlie them. Explicit biases are those beliefs that individuals are aware that they possess and are, quite often, those biases most strongly associated with racism. For example, individuals who belong to the Ku Klux Klan or who actively discriminate against minority members are conscious of the discriminatory views that they hold. However, open expression of and knowledge of such beliefs is not necessary for bias to exist. Given the advent of political correctness, many individuals may censor the expression of their conscious beliefs and behaviors, in order to appear in line with social norms. The fact that these individuals may not act upon or express their biases does not preclude them either from being biased or from knowing that they are biased.

Alternately, implicit biases are those biases that a person may not know or believe that they possess. Implicit biases refer to biases that a person may possess but that she may not be aware that she possesses. Thus, implicit biases have generally been hypothesized to occur at an

unconscious, or at least automated, level of processing. Although implicit biases have often been assumed to function outside of a person's awareness, this does not preclude them from influencing behavior. Indeed, implicit bias may potentially impact an individual's behavior just as explicit bias may. Yet, implicit bias has been less studied than explicit bias (Greenwald and Banaji, 1995), despite the fact that, although explicit bias is likely more involved with overt discrimination (e.g., racial violence), both types of bias have equal potential for contributing to discriminatory behavior. Given the different types of biases, different types of assessments have been developed to measure them.

An early method employed to detect biases was self-report attitude questionnaires, such as those developed by Thurstone (Thurstone, 1928; Thurstone & Chave, 1929), that were designed to assign the attitudes that individuals stated they held. These questionnaires were developed years ago, yet more recent incarnations are still used today as explicit assessments and self-report measures are still more frequently used than implicit bias measures (Greenwald & Banaji, 1995). Self-report measures usually consist of a battery of questions designed to tap attitudes relevant to a given concept. These measures can be appropriate from measuring explicit biases, as individuals are presumably aware of these biases and would be able to report them.

However, explicit measures are vulnerable to an important flaw. When many explicit questionnaires assessing ethnic bias were first developed and heavily used, the civil rights movement either had not yet occurred or was just blossoming. The notion of civil rights was still a relatively new concept and individuals may not have felt undue pressure to be circumspect in their answers on such measures. Now, however, ethnic prejudice is neither considered socially acceptable, nor legal, under any circumstances and individuals who have ethnic biases may feel

compelled to moderate these beliefs when completing self-report questionnaires due to social desirability concerns. Given the current political and legal climate surrounding issues involving ethnicity, self-report questionnaires may no longer be the most accurate means of assessing ethnic bias due to the possible reactivity invoked by social desirability concerns.

Implicit Association Test (IAT)

The potentially limited ability of self-report questionnaires to accurately assess certain controversial biases, as well as these measures' reactivity to social desirability concerns, has led to the development of alternative methods of bias assessment. Researchers focused on developing assessments that might circumvent such reactivity. One such approach that was developed is the Implicit Association Test (IAT; Greenwald et al., 1998). As the name suggests, the IAT assesses how quickly associations between different target concepts and different pleasant or unpleasant words are made, using the difference in association speed as a measure of the implicit attitudes that a person possesses towards those target categories. The IAT rests on the notion that people will display faster reaction times when asked to link two related ideas than when asked to link two unrelated, or noncompatible, ideas. This assumption has been substantiated by evidence that people display quicker reaction times when asked to link flower names with positive words than they will when asked to link weapon-related words with positive words (Greenwald et al., 1998). Similarly, individuals display quicker reaction times when linking young names with positive words (e.g., good) versus negative words and are quicker to link older names with negative words (e.g., bad) than with positive words (Rudman, Greenwald, Mellott, & Schwartz, 1999). The decreased reaction time for stereotype consistent word pairing is presumably occurs due to these pairings' frequent association in prevalent stereotypes (i.e., in this case, the young versus old person stereotypes). The more frequent association of stereotype

consistent pairings relative to that of stereotype inconsistent pairings results in the quicker processing of stereotype consistent information and, thus, faster response times for these pairings.

The influence of implicit bias on behavior may be less conscious than that of explicit bias, yet may still result in discriminatory outcomes. Examples wherein individuals' decisions are influenced by factors of whose influence the individuals appear to be unaware abound. Greenwald and Banaji (1995), in their review of research on implicit attitudes and stereotypes, reference several studies that indicate how the subtle influence of implicit cognition may affect individual's judgments and decisions. One experiment noted in the review details halo effects, where individuals judged a teacher who acted either standoffish or friendly as less attractive when reserved than when friendly, yet when asked, participants denied that their judgments were affected by the professor's personality (Nisbett & Wilson, 1977). Clearly, the only difference that could account for the differential attractiveness ratings was the professor's demeanor, yet the influence of this factor apparently occurs at a nonconscious level of processing, such as that believed to account for implicit biases (Greenwald & Banaji, 1995). Similarly, another study illustrated that individuals respond faster to White related primes for positive traits and Black related primes for negative traits (Gaertner & Dovidio, 1986). Such a contrast can be found in most individuals, including those who deny having negative feelings towards African Americans (Greenwald et al., 1998). Additionally, individuals exposed to subliminal primes of words associated with African Americans rate unknown individuals as more hostile than do participants who were not exposed to such primes (Devine, 1989). Clearly, the subliminal nature of primes argues for a nonconscious or, at minimum, automated path for the stronger pejorative ratings of the unknown target after presentation of Black related primes. Thus, there is evidence

suggesting implicit cognition does influence judgments and evaluations, which, in turn, seem likely to influence decision making. The implications of this research are worrisome for a legal system that requires jurors to come to decisions in an impartial manner.

An applied example illustrates how both explicit and implicit biases may impede impartiality and support similar outcomes in a decision making process. Consider how two managers, one with explicit biases and another with implicit biases regarding ethnicity, may arrive at the same decision during an employment interview. The manager with an explicit bias against minority members may choose not to hire a minority member based on the belief that such individuals do not have a good work ethic, are not intelligent, or whatever other prejudiced rationale with which they support their decision. This discrimination in this instance would be conscious and overt. The implicitly biased manager, however, may also be influenced to hire a White applicant rather a minority member applicant. The often subjective nature of many decision making processes, such as resume review, may allow biases to subtly influence decisions, such as whom to offer an interview. Job applications do not always provide definitive proof of an applicant's ethnicity, but requisite parts of a resume, such as educational background (e.g., listing a degree from a historically Black college) and the applicant's name (e.g., a name common among members of an ethnic minority group), often provide indications as to an applicant's ethnicity. An implicit bias against ethnic minority members might lead a manager to conclude, based on a review of all applicants' resumes, that a presumed minority applicant does not have appropriate experience relative to other White applicants. It is conceivable that this negative evaluation of the applicant's experience might have been more positive if the applicant was not a minority member. Thus, a minority applicant might not be offered an interview due to "inexperience" and, in the absence of an interview, will likely not be hired. In such a case,

implicit bias would result in the same discriminatory outcome as explicit bias—loss of a job for which an applicant was qualified. Disturbingly, a recent study found evidence suggesting that the aforementioned scenario related to interview offers is quite plausible. Researchers submitted four resumes, varying the traditional ethnicity of applicant name (either traditionally White or Black names) and the strength of the applicant’s qualifications (highly qualified and poorly qualified), to a variety of employers in different fields. White applicants received significantly more callbacks than their minority counterparts. Additionally, stronger qualifications substantially increase White applicants chances of a callback, there is a much smaller increase in callbacks for highly qualified Black applicants relative to their less qualified Black counterparts (Bertrand & Mullainathan, 2004). Thus, Black applicants appear to be at a strong disadvantage during a job search regardless of the strength of their qualifications.

It is important to note that the existence of bias in an individual does not mean that the bias is volitional. In fact, implicit biases seem theoretically unlikely to be volitional, given that they are presumed to be either automated or nonconscious. A commonly noted implicit bias finding is that individuals demonstrate a quicker association between majority faces, or names, and positive words relative to the association speed between minority faces, and names, and positive words (Banaji, Greenwald, & Rosier, 1997; Nosek, Banaji, Greenwald, 2002). This pattern often emerges even among individuals who report that they have no biases towards members of a particular ethnicity. Additionally, this pattern of reaction times has been demonstrated with both African American and European American participants, although the preference appears weaker among African Americans (Banaji et al., 1997; Nosek et al., 2002), as would seem logical. It is difficult to imagine why an ethnic group would be intentionally biased against its own members, suggesting again that the IAT does not reflect a volitional bias. If

individuals can be biased yet believe they are unbiased, it becomes imperative to ensure that any unconscious biases present are not contributing to important decisions, such as hiring decision or, in the case of the legal system, verdict decisions.

While the differential reaction time to pairings of different ethnicities with either a positive or negative valenced category has been well noted, difficulties arise in interpreting what exactly this difference actually reflects. Quicker response latencies when pairing European American names or faces, as opposed to those of African Americans, with positive words have been commonly interpreted as indicative of a preference for majority groups (i.e., European Americans) over minority groups (i.e., African Americans) (Greenwald et al., 1998). However, this difference could alternatively be interpreted as a bias against minority members—that is, implicit racism (Greenwald et al., 1998; Nosek et al., 2002). Additionally, the IAT effect could also represent a simultaneous preference for European Americans and a prejudice against minority members. Finally, the IAT may represent any one of these options, depending on the individual whose biases are in question. Similarly, the strength of one bias versus the other may vary as a function of the individual. Regardless of the ultimate cognitive associations underlying the IAT effect, the data patterns suggest that the IAT does reflect some form of bias. There is a clear difference between the reaction times for pairings of different ethnicity stimuli categories with either positive or negative words, yet exactly how to interpret this difference remains unclear. The original proposition was that the ethnic IAT effect reflects implicit racism (Greenwald et al., 1998). However, in recent years, this interpretation has increasingly been questioned in the literature (Ashburn-Nardo, Voils, & Monteith, 2001; Brendl, Markman, & Messner, 2001; Karpinski & Hilton, 2001). Regardless, the IAT's use in the present study will allow for some limited interpretation of the appropriateness of this interpretation.

Returning to the example involving the managers, the most unfortunate aspect of implicit bias, in contrast with explicit bias, is that because individuals are unaware that they are biased, they may have no motivation, or opportunity, to remedy the influence that these biases may have on their behavior, particularly their decision making. In the case of explicit bias, stronger societal sanctions against discrimination may, at least, force individuals with such biases to control them.

Explicit and Implicit Bias: Are the Two Related?

Given the difference between explicit and implicit behaviors, explicit bias can be considered largely conscious and implicit bias to be largely unconscious. Thus, on the surface, it appears the two factors should be unrelated as they are conceptually distinct. Several experiments have provided support for a weak or nonexistent relation between explicit and implicit measures (Greenwald et al., 1998; Karpinski & Hilton, 2001; Ottaway et al., 2001). These findings support the notion that the IAT, along with other implicit measures, may tap attitudes that operate independently of explicit attitudes.

However, other experiments have also found evidence of moderate relations between explicit and implicit bias measures, suggesting that perhaps the two types of bias are not, in fact, unrelated (Greenwald et al., 1998; Rudman et al., 1999; Monteith, Voils, & Ashburn-Nardo, 2001). Cunningham and colleagues have demonstrated that a priming window technique and the Implicit Association Test (IAT), both implicit bias measures, demonstrate moderate relations with the Modern Racism Scale, an assessment of bias against African Americans (Cunningham, Preacher, & Banaji, 2001).

This conflicting evidence as to the degree of relation between implicit and explicit bias measures can emerge even within the same study, as implicit measures often end up significantly

related to some explicit bias measures, yet unrelated to others (e.g., Greenwald et al., 1998).

This inconsistency is problematic when attempting to ascertain the nature of the relation between explicit and implicit bias. In light of the contradictory findings in the literature, the issue of what, if any, relation exists between explicit and implicit bias measures remains unresolved.

While the finding of some relation between the two types of bias measures implies some degree of overlap between explicit and implicit bias, the two bias categories may still be largely independent. For example, relations between implicit bias measures tend to be much stronger than the relations between the implicit and explicit bias measures, supporting the notion that the two types of measures assess independent constructs (Cunningham et al., 2001)

It is also important to note that there is no definitive answer to the issue of which type of bias, explicit or implicit, precedes the development of the other. Perhaps the two develop at similar stages in development. While this issue remains largely unanswered, there is reason to believe that explicit attitudes may perhaps eventually become implicit attitudes. It is a well-known fact that many complex behaviors, if they are practiced enough over time, will eventually become automated. The commonly used example is that of driving a car. An individual who is first learning to drive will be conscious of all the different tasks they are completing and information they are processing when trying to control an automobile. However, over time, most people become relatively unaware of the behaviors they perform while driving because driving has become an automated behavior (Bargh & Chartrand, 1999). Thus, the commonly noted transition between explicit and automated behaviors can be seen as supporting the theory that explicit biases may, like driving, become automated and shift into a more implicit form over time, such that a person may demonstrate a particular bias on implicit measures. If a person consistently shows a preference for one type of stimuli over other stimuli (e.g. European

American names over African American names), it stands to reason that, over time, the brain may become wired with these preferences. Thus, the brain may more quickly associate preferred stimuli and positive words (e.g., good, pleasant, happy) than when pairing less-preferred stimuli and positive words because this is the pattern that has developed in that individual's conscious cognition. There are problems with such a hypothesis, however, because while it may explain the implicit bias in individuals with strong explicit bias, it has more difficulty explaining implicit bias in individuals who do not display explicit bias on relevant measures. These individuals should not have developed a strong association between one ethnic group and any particular set of words or attributes. Consequently, the presence of implicit bias in the absence of explicit bias on measures assessing these attitudes may mean one of two things: (a) the individual harbors no explicit bias and they developed their implicit biases independently, or, (b) the explicit measures simply failed to accurately assess explicit bias that an individual does possess. As discussed earlier, the susceptibility of explicit bias assessments to socially desirable responding suggests that the latter explanation may, in fact, be quite plausible. Regardless, for the purposes of this paper, the relation between the two types of biases is one issue under examination, so the order in which the two develop is not of central importance. However, future research should attempt to shed light on the nature of bias development.

Individuals frequently report no explicit bias yet demonstrate sizable implicit bias. In fact, most individuals tend to report minimal, if any, explicit bias against African Americans, yet demonstrated a clear difficulty in implicitly associating African Americans with positive words as illustrated by large average response latencies for such pairings (Greenwald et al., 1998). Given the conflicting findings in the literature regarding the relation between explicit and

implicit bias measures, future research should seek to reexamine this issue as well as any factors that may account for the varied findings.

Social Desirability: An Obstacle for Bias Detection

Why is there often a discrepancy between the scores of individuals on explicit and implicit bias measures? On one hand, the two measures could be assessing different constructs (Greenwald & Banaji, 1995; Greenwald et al, 1998). Alternately, perhaps individuals are not exactly candid when reporting their biases on explicit assessments. Use of face valid explicit bias measures to accurately assess ethnic biases during or before the 1960s may not have been terribly problematic because, at that time, overt racial prejudice was more prevalent and the concept of civil rights was, to many, still a radical idea. Thus, social norms, and laws requiring equitable treatment, did not pressure individuals to regulate the expression of any racist beliefs they may have held and people may have been quite forthcoming when reporting their ethnic biases on explicit assessments. Some forty years later, however, social norms regarding ethnic prejudice have become more stringent, such that people who hold ethnic biases today and are aware of these beliefs may not accurately report these biases on self-report questionnaires. This includes those measures, such as the Modern Racism Scale (MRS; McConahay, 1986; McConahay, Hardee, & Batts, 1981), that have attempted to modify themselves to be less face valid. In fact, there is evidence to suggest that explicit measures may influence the findings of ethnic bias in a sample (Sigall & Page, 1971).

That is, social desirability concerns, among other things, may motivate an individual to moderate their responses (i.e., report less extreme biases than they really hold) or even make them change such biases to the opposite of what they really are when completing explicit racial bias measures. As such, self-report questionnaires may not be accurate measures of bias for

socially sensitive issues, particularly for individuals who score high on measures of social desirability such as the Marlowe-Crowne Social Desirability Scale (MCSD; Crowne & Marlowe, 1960). The advent of political correctness has likely created problems for the continued study of ethnic bias with the use of face valid, explicit bias measures.

Given that explicit bias measures may be seen as subject to social desirability concerns and, in the presence of such concerns, are perhaps not very accurate at assessing bias, it is possible that the literature's conflicting findings regarding the relation between explicit and implicit bias measures may be explained by measuring participant's responsiveness to social desirability concerns. That is, the relation between explicit and implicit bias measures may vary as a function of social desirability. Thus, the conflicting findings may not really be contradictory, but rather due to differential susceptibility of explicit measures, relative to implicit measures, to socially desirable responding. This determination was not possible in previous research as studies in this area have usually not included a measure of social desirability. The present study will examine this possibility.

Implicit Association Test (IAT) Research

The IAT was introduced in 1998 and produced evidence of an automated preference for stereotype consistent paired stimuli as opposed to stereotype inconsistent paired stimuli. This preference was inferred from significantly shorter response latencies when European American names were paired with positive connotation words relative to when European American names were paired with negative connotation stimuli (Banaji et al., 1997; Greenwald et al., 1998). This preference has been interpreted as supporting the notion of implicit racism (Greenwald et al., 1998; Ottaway et al., 2001). The effect sizes demonstrated in the original study utilizing the IAT methodology are generally substantial (i.e., $d=.8$ or greater) and have been found rather

consistently in subsequent studies (Nosek et al., 2002; Ottaway et al., 2001; Rudman et al., 1999).

The IAT methodology has likewise been repeatedly used to examine a variety of attitudes that may be subject to social desirability concerns, particularly those biases that seem intuitively likely to develop given the common stereotyping of certain groups (e.g., individuals of an ethnic minority, elderly individuals, women, etc.). As previously noted, the assessment of ethnic attitudes is likely very subject to social desirability concerns given current social norms. However, the presumed automated nature of implicit bias measures would suggest implicit bias measures may be resistant to social desirability concerns and, therefore, a more discerning measure of bias and stereotypes than explicit measures of ethnic bias. This notion has been supported in instances where the IAT indicates a person does possess some degree of racial bias, yet their performance on explicit bias measures does not reflect racial bias (Greenwald et al., 1998). Given the common negative stereotypes of minorities, the findings are perhaps not surprising. The overwhelming majority of participants in this study were European American, thus the implication of these findings is that European Americans hold implicit negative attitudes towards African Americans. However, African American performance on the IAT in a few studies has demonstrated that African Americans often also hold implicit negative attitudes towards African Americans (Banaji et al., 1997; Nosek et al., 2002). Thus, the implicit racism indicated by IAT findings appears to be pervasive, cutting across ethnic categories, suggesting that the effect may reflect more of a societal racial bias than an individual racial bias (Olson & Fazio, 2004).

Alternative Explanations for the IAT Effect

There is the possibility that the IAT owes a great deal of its success to two flaws present in the original study presenting the utility of the IAT (Greenwald et al., 1998). The two flaws in the original study were that the researchers did not account for differences in the familiarity or frequency of target words used. These confounds may have accounted for a large portion of the effect associated with the IAT. The familiarity of target words on the IAT is of paramount importance. Research indicates that stimuli familiarity exerts a strong effect on response latencies in perceptual research such as priming or IAT studies (e.g., Zajonc, 1968). Quicker responses are expected for more familiar stimuli and longer response latencies are expected for unfamiliar stimuli. Thus, for the IAT, differences in the familiarity of target category stimuli (i.e., African American names versus European American names) may explain the IAT effect independently of any type of bias towards a certain ethnic group. For example, many European Americans have little interaction with African Americans and thus, being unfamiliar with them, may base character judgments on the interactions they have had with African American individuals (which may be largely negative, for example, due to exaggerated media attention on African Americans incarcerated in correctional facilities). Thus, an unfamiliarity effect may be the reason for the rather consistent IAT findings regarding so-called implicit racism. Empirical support for this hypothesis does exist (Rudman et al., 1999). Indeed, given that participants in IAT studies have tended to be Caucasian undergraduates, it is likely they are more familiar with Caucasian names than they are with names of other ethnic heritage. The fact that familiar stimuli are preferred in reaction time research (Zajonc, 1968) suggests that differential familiarity of the names in different racial categories might have artificially enhanced the IAT effect. Thus, it

could be vitally important to match stimuli from different target categories on familiarity to ensure that familiarity is responsible for any effects found with the IAT.

However, research has demonstrated that neither familiarity nor frequency (Rudman et al., 1999) accounts for the differential reaction times measured by the IAT. To test the extent to which familiarity influenced the effect size of the IAT, researchers had students rate the degree to which they were familiar with over 300 names of various ethnic heritages, including those names used in the original Greenwald study (Ottaway et al., 2001). The students' ratings indicate that, of the names used in the original study, students were less familiar with the African-American names than with the European American names. This finding appears to initially support the hypothesis that familiarity is responsible for the IAT effects found in the literature. Additionally, the researchers examined the frequency of names in the US Census in order to create target category stimuli (i.e., names) that occurred with equal frequency in the general population. The African American names used in the original study also occurred less frequently than did the European American names (Ottaway et al., 2001).

In order to examine the influence of word familiarity on the IAT, Ottaway and colleagues (2001) chose 20 words each for a flower word and an insect word category. Within each category, words were divided into familiar and unfamiliar words. For this IAT design, category words were paired with a word from one of two attribute categories: ten each of pleasant and unpleasant words. Additionally, the researchers attempted to match for word length across the target categories. Their results yielded the same positive implicit attitude for flowers, relative to insects, as was obtained in the original study by Greenwald and colleagues (1998). Moreover, the effect was still large when the stimulus words were equally familiar. While word familiarity had a significant effect (familiar words result in faster reaction times) on response latencies, the

IAT still demonstrated a substantial effect even when the effect of familiarity of words was controlled. Additionally, frequency also did not appear to account for the IAT effect.

Similarly, another recent study found that the preference for European American individuals, as measured by the Implicit Association Test (IAT), remained strong even after the familiarity (of faces and names) was controlled (Dasgupta, McGhee, Greenwald, & Banaji, 2000). Additionally, as noted previously, African American participants have also demonstrated the IAT effect (Banaji et al., 1997; Nosek et al., 2002), suggesting that familiarity with target name categories is not the factor responsible for the effect as there is little reason to assume that minority members would be differentially familiar with European American names relative to African American names. So while minority target stimuli are generally less familiar and less frequent in common usage, the IAT effect is still substantial even when controlling both target stimuli familiarity and frequency (Ottaway et al., 2001; Dasgupta et al., 2000). Thus, target word familiarity and frequency cannot account for the IAT effect, although these factors increase the magnitude of the effect.

In-Group and Out-Group Bias: IAT Research Support

Two forms of prejudice that have also been well documented in the social psychological literature are in-group and out-group bias. In-group bias refers to the tendency of individuals to hold favorable attitudes about individuals similar to themselves, while out-group bias refers to the tendency for individuals to hold more negative attitudes towards individuals who are dissimilar from themselves (Brewer, 1979). Individuals may not be aware that they hold such biases and, thus, these biases may go unchecked and influence behavior in a manner that suggests this is an implicit bias. One way of examining the potential impact of these biases is to consider the extent to which the individual is aware of them.

Clearly the possibility of an in-group or similarity bias may present problems in trials that involve a minority defendant and European American juror. It is feasible that jurors may judge the defendant more harshly the more dissimilar he or she is from them. In fact, a recent study did in fact support this hypothesis. Both African Americans and European Americans were more likely to convict and recommend harsher sentences for a defendant who was a member of another ethnic category (Sommers & Ellsworth, 2000). What remains unclear is whether or not individuals can control for favorable biases they may hold towards similar people when they are aware of their biases. There is evidence to suggest that, in some cases, awareness of possible bias may lead to elimination of bias. Indeed, in the aforementioned study, when defendant ethnicity was salient, European Americans displayed no significant differences in conviction or sentencing tendencies towards European American versus African American defendants (Sommers & Ellsworth, 2000). The apparent bias of African American jurors, however, was not eliminated by defendant race saliency. Recently, the IAT methodology has been used to examine implicit religious bias (Rudman et al., 1999). Jewish and Christian participants were expected to demonstrate directional differences in IAT effects, but both groups were expected to demonstrate an in-group preference. Controlling for familiarity, response latencies for the IAT were compared between the religious groups. Each religious group displayed an in-group bias, with quicker response latencies for when the in-group was paired with positive stimuli than when the out-group was and the differences in response latencies yielded moderate to large effect sizes. Similar effects sizes supporting the incidence of implicit biases regarding age, nationality, and gender have been found (Rudman et al., 1999). It is notable that the minority group, Jewish individuals, had a more moderate effect size than Christians. This might indicate that, for religious minority members, the in-group bias is strong enough to override the

familiarity bias towards the majority Christian group (gained from a Christian slanted media, country, etc.). Thus, members of a minority faith still demonstrate an in-group bias, but a weaker one than do Christians. For Christian participants, they belong to society's prevailing in-group, so the combination of the in-group bias with the familiarity bias at the implicit level may account for their more pronounced IAT effect.

As the IAT research discussed previously illustrates, the IAT allows researchers to survey a variety of attitudes and stereotypes. The IAT is a sensitive measure, consistently displaying large effect sizes across a variety of attitude areas. Additionally, the IAT may not be susceptible to the reactivity that self-report measures may experience. Additionally, evidence suggests that the IAT may be useful at assessing in-group biases.

Justification for Continued Research

Clearly, the implications of the research on both explicit and implicit bias are compelling for individuals studying juror bias. Despite this fact, while explicit bias has been examined in a legal context, little examination has been paid to whether or not implicit attitude measures demonstrate any predictive validity with regard to verdicts in criminal trials. Additionally, the possibility of implicit attitudes exerting influence on juror and jury deliberations is especially troubling, as the unconscious nature of these attitudes leave individuals unable to accurately indicate to the judiciary what biases they may possess. An individual who is unaware of these biases may not be able to correct for them when evaluating evidence and testimony or deliberating, as they could correct for their explicit biases. Given statistical evidence indicating racial disparities in the treatment of defendants by the criminal justice system, generally in the form of an increased probability of an African American defendant being convicted or receiving a harsh sentence relative to a European American defendant (for a review, see Fukurai et al.,

1993), an examination of how the predictive validity of bias measures is influenced by defendant ethnicity is prudent. Despite the evidence suggesting such an examination is warranted, it has been noted that such research regarding race effects in the legal system has been minimal and is largely in its infancy (Sommers & Ellsworth, 2000). Additionally, as noted earlier in this paper, implicit biases may also influence legal outcomes, so an examination of the possible relations between implicit bias and verdict tendency is prudent. However, it is acknowledged that, as little is known about how implicit attitudes relate to juror decision making, any examination of the relation between implicit bias and juror behavior will be more difficult and exploratory than a similar examination of the relations between explicit biases and juror behavior when defendant ethnicity is examined (Sommers & Ellsworth, 2000).

The Faulty Assumptions of Voir Dire

Logically, the easiest way to determine a person's opinion about a given issue would simply be to ask them about it. This direct approach is simple, economical, and clear. However, an explicit approach, such as this, is predicated on three assumptions: (a) an individual has no reason to be deceptive in their response, (b) an individual is able to answer about that attitude (i.e., the individual is self-aware), and (c) an individual understands what is being asked (Burisch, 1984). If any assumption cannot reasonably be expected to exist, then an explicit approach may be unsound.

In the case of assessing juror bias, the courts have long utilized an explicit approach known as voir dire, whereby a potential juror takes an oath to tell the truth and is then questioned regarding his or her personal beliefs, knowledge, and relation to individuals involved in a specific case. Attorneys are allowed to remove jurors from the jury panel by two means: (a) An unlimited number of challenges for cause, whereby the attorney must convince the judge that the

juror is unacceptably biased, or (b) using one of a limited number of peremptory challenges, whereby an attorney may excuse a juror without explanation (subject to certain restrictions). The voir dire process, however, is fraught with problems (Lecci, Snowden, & Morris, 2004). One problem is that the main source of information regarding potential bias during voir dire comes directly from the juror, so the efficacy of voir dire rests on the extent to which the three requirements of an explicit approach hold true. Regrettably, there is ample reason to believe that these requirements are not met in the voir dire process.

The first requirement for an effective explicit voir dire proceeding is that jurors must have no motivation to lie about potential biases. It is possible that an individual may refuse to disclose certain biases in order to remain seated on a jury, yet it is not likely and, in most cases, jurors probably do answer attorneys' questions with some degree of candor. However, in many cases, such as when there is a minority defendant, questions asked during voir dire may evoke socially desirable responding. An individual may not wish to disclose that they hold certain socially frowned upon ethnic beliefs in front of the rest of a jury panel and in a forum that is public record. Thus, a juror may not always be comfortable disclosing information that is very relevant to a determination of whether that juror is biased. If jurors are motivated to withhold relevant information from the court, voir dire will not be effective.

Additionally, in order to accurately provide the court with information regarding their biases, jurors must be aware of what biases they possess. Motivated reasoning research suggests that motivation may unconsciously alter cognitive processes, including memory search and stereotype activation, such that an individual is often unaware of the influence that their beliefs have on their reasoning and decision making abilities (Kunda, 1990; Kunda & Sinclair, 1999). For example, heuristics appear to be influenced by motivation. A person's interpretation of the

probability of an event varies depending on whether they wish or do not wish the outcome to occur. Heuristics likely play an important role in criminal trials, where jurors are left to decide whether the evidence against the defendant has been proven true beyond a reasonable doubt. For individuals with a prosecution bias, a small amount of evidence may meet this standard, whereas, for defense biased individuals, even a large amount of evidence may not meet this standard. Thus, if cognitive processes are affected by biases, such as motivational biases, at a subconscious level, jurors likely are unaware of many of their biases that will be important at trial. Additionally, past research has clearly indicated that verbal reports of mental processes (i.e., biases) should be relied upon warily, as these reports often appear to be inaccurate (Nisbett & Wilson, 1977), and that individuals may not be aware of their biases (Moran & Cutler, 1991; Simon & Eimermann, 1971). If jurors are not aware of their biases, they will be unable to report them even if they wish to be candid (Carroll, Kerr, Alfini, Weaver, MacCoun, & Feldman, 1986).

Within the voir dire process used to select jurors, two of the three assumptions required for using an explicit approach have been shown to be untenable by scientific research, suggesting that continued use of the voir dire as a means of identifying and controlling juror bias may be unsound. However, to be fair, there is some evidence to suggest that voir dire may have some benefit. Some research has suggested that when individuals make a prediction about their future negative behavior (e.g., littering-I do not litter), they are less likely to engage in that behavior in the future than those individuals who do not make self-predictions (Sherman, 1980). A 1984 study illustrated that individuals tend to complete actions they predict they will take. In one sample, participants were asked to predict whether they were going to vote in an upcoming election. All participants who were asked for their prediction about voting predicted they would

vote, while a smaller majority of individuals who were not asked for a prediction also indicated they would vote (Greenwald, Carnot, Beach, & Young, 1984). The higher proportion of reported voters in the first category may be due to the desire to avoid dissonance. In America, the right to vote is highly valued and individuals are largely expected to exercise this privilege. Results indicated that participants making a prediction were significantly more likely to have actually voted in the following election than were those not making a prediction (Greenwald et al., 1984). People who make predictions may feel compelled to back up what they have earlier asserted—thus, this compulsion may allow individual's prosocial behaviors to be increased to fall in line with the beliefs they espouse due to social desirability demands.

The finding that individuals present themselves in a socially desirable manner and, after predicting their behavior, show an increased tendency to behave in a manner consistent with these socially desirable beliefs is a potentially useful finding for the legal system. All venire members are questioned rather extensively about their personal beliefs and biases during the voir dire process and all those who are eventually chosen as jurors have indicated that they believe themselves capable of being fair and impartial. Given that jurors are in the rather unique situation of having to later justify their verdict to the community, jurors may be especially motivated to act in a fair and impartial manner to the best of their abilities, consistent with the oaths they swore, and may attempt to control their biases.

However, jurors may be motivated to control their biases after voir dire, yet still be unable to eliminate the influence of all biases on their decision making. For example, if implicit biases do exert influence on verdicts, voir dire would be an especially inaccurate means of identifying biased jurors, as voir dire has no ability to assess implicit bias and jurors would be largely unable to eliminate the influence of biases of which they are unaware. Thus, even with

the motivational benefit it may create in jurors, voir dire is still likely to be problematic and an inaccurate means of assessing and eliminating biased jurors, particularly those who are implicitly biased. While there has been extensive research on the contribution of explicit juror bias to verdicts, to date, there have been only a few studies examining the potential influence of implicit bias on verdicts. These studies have suggested that the IAT does relate to legal judgments of minority defendants, such that minority defendants were more likely to be judged guilty and receive severe criminal sentences from individuals displaying an IAT bias against minority members (Florack et al., 2001 and Livingston, 2001, as referenced in Vedantam, 2005). Thus, further examination of the predictive validity of implicit bias measures for verdict tendencies is warranted.

Explicit Assessment of Juror Bias

Like most past research on attitudes, research on juror bias began with a reliance on assessing demographic variables and relevant personality traits, such as authoritarianism, locus of control, and just world beliefs, with individual juror verdicts (Bray & Noble, 1978; Gerbasi, Zuckerman, & Reis, 1977). All of these measures relied upon self-reports of attitudes and their relation to verdicts. Largely, the literature indicates that such attitudinal scales have been relatively poor predictors of verdicts.

More recent research has utilized self-report questionnaires to assess the legal attitudes of jurors. Such explicit legal attitudes measures have also met with limited success in predicting verdicts (Boehm, 1968; Kaplan & Miller, 1978; Ostrom, Werner, & Saks, 1978). A commonly used measure of pretrial juror bias, the Legal Attitudes Questionnaire (LAQ), assesses an individual on three attitudinal dimensions: Antiauthoritarianism, Authoritarianism, and Egalitarianism (Boehm, 1968). While the authoritarianism scale did seem to predict conviction,

the other scales had ambiguous or conflicting findings. Overall, these measures have been more successful at predicting sentencing outcomes than verdicts. As follows logically, individuals scoring high on the authoritarianism scale exhibited a tendency to return harsher verdicts and individuals scoring high on the antiauthoritarianism scale demonstrated more leniency (Boehm, 1968). A more recent, briefer version of the LAQ, the Revised Legal Attitudes Questionnaire-23 (RLAQ-23) has also been successful in predicting verdicts and has become one of the most commonly used measures of juror bias (Kravitz, Cutler, & Brock, 1993).

However, none of the earliest explicit juror bias measures had a theoretical base in juror decision making. In 1983, Kassin and Wrightsman constructed the first scale that sought to measure bias in areas implicated as being theoretically relevant to juror decision making. The Juror Bias Scale (JBS) consists of 17 items intended to measure juror bias on two dimensions: Probability of commission and reasonable doubt. The probability of commission scale attempts to measure the juror's subjective opinion about the likelihood that the defendant committed the crime with which he or she has been charged. The reasonable doubt scale attempts to measure the threshold, or standard of proof, that the probability of commission must exceed before a juror will vote for conviction. It is important to note that both of the scales refer to a juror's preevidentiary beliefs. Early attempts at validating the JBS illustrated that prosecution biased participants (those participants scoring high) demonstrated a general conviction bias. They voted guilty more frequently than defense biased participants (those participants scoring low) in response to reading short, rather ambiguous case summaries (Kassin & Wrightsman, 1983). However, later validation studies indicated that the JBS predicts verdicts for robbery and conspiracy trials, but not for rape trials (Kassin & Wrightsman, 1983). Rape trials appear to be a unique type of trial, as many juror bias measures have been unable to predict verdicts for rape

cases. This suggests that rape trials may not be very useful in examining the predictive validity of such pretrial juror bias measures, as rape cases appear to involve conceptual areas distinctly different from those relevant to other types of crimes.

The JBS, as proposed by Kassin and Wrightsman, contains two theoretical constructs, probability of commission and reasonable doubt. In 1998, Myers and Lecci sought to empirically confirm these two constructs through factor analysis. However, rather than confirming the JBS's two factor model, factor analysis detected problems with the probability of commission construct. Further examination of the data with exploratory factor analysis indicated that the probability of commission scale appeared to reflect two factors: Confidence in the criminal justice system and cynicism in the criminal justice system (Myers & Lecci, 1998). Moreover, in summarizing the extant research, the reasonable doubt scale of the JBS has proven to be a consistent predictor of verdicts, while the probability of commission scale has been considerably less successful (Kassin & Wrightsman, 1983; Weir & Wrightsman, 1990).

Using a different sample, Myers and Lecci (1998) confirmed that the revised three factor structure of the JBS, referred to as the Revised Juror Bias Scale (RJBS), fit the data significantly better than did the original two factor theoretical model. The RJBS constructs demonstrated significantly greater predictive validity than the JBS constructs, with regard to verdict tendencies, even though the RJBS had fewer items (Myers & Lecci, 1998). Further research by Lecci and Myers confirmed the superiority of this revised factor structure over the JBS when predicting verdict tendencies for three case summaries for violent crimes (i.e., murder, rape, and robbery) in a demographically representative community sample (Lecci & Myers, 2002).

Thus, reasonable doubt was a tenable factor that could consistently predict verdict tendencies and probability of commission was not. Instead, other factors, including but not limited to confidence and cynicism in the criminal justice system, may contribute to the prediction of verdict tendencies. Subsequent research refined the RJBS by creating new items to replace problematic items original to the probability of commission scale (Lecci & Myers, 2002; Myers & Lecci, 1998). Replacement items were generated using a modified act-frequency approach to scale construction (Buss & Craik, 1983). Thirty items with the highest ratings were examined further, both by exploratory and confirmatory factor analyses. The factor analytic procedures resulted in the development and refinement of five scales in addition to the original reasonable doubt scale, which was renamed the conviction proneness scale. The new scales were: (a) confidence in the criminal justice system, (b) cynicism in the defense, (c) racial bias, (d) social injustice, and (e) innate criminality (Lecci & Myers, 2005). The reasonable doubt scale was renamed the conviction proneness scale. Collectively, the six scales form the Pretrial Juror Bias Questionnaire (PJBQ). The PJBQ scales are not combined to yield a composite score, as was the case with the JBS, but are considered as individual measures and predictors of bias and verdict tendencies. Preliminary analyses conducted on separate college and community samples indicate that the PJBQ out predicts the JBS, the RJBS, and the RLAQ-23 with regard to verdict tendencies (Lecci & Myers, 2002; Lecci, Myers, Wirth, Alford, & Snowden, 2001). Thus, explicit biases have predictive validity for juror verdict tendencies.

Hypotheses

The present study will primarily examine the relation between implicit and explicit measures of racial bias in an attempt to further clarify the nature of the relation between the two types of bias. Additionally, explicit bias measures have been previously demonstrated to be

successful predictors of verdict tendencies, yet little attention has been paid to the potential utility of implicit bias measures as predictors of decisions. This study is likely the first study examining the potential contributions of implicit biases to verdict decisions. As such, the relation of explicit and implicit bias with verdict tendency will be examined to determine if both types of bias are useful predictors across two criminal cases (robbery and assault). Finally, the influence of racial biases on outcome measures, such as verdict tendencies, may not be apparent unless race is made salient. Therefore, defendant ethnicity will be manipulated between subjects in order to examine whether the pattern of relations between the bias measures and verdict tendency is influenced.

The explicit measures (PJBQ-Racial Bias, RB, and the Modern Racism Scale, or MRS) are expected to be strongly positively related with one another, whereas they are expected to demonstrate, at best, moderate relations with the implicit measures. The relation between the explicit and implicit measures is expected to vary according to how similar the measures are in terms of the specificity of their assessment. The MRS and the IAT are expected to correlate more strongly than will the PJBQ-RB and the IAT. This prediction is based on the fact that both the IAT and the MRS are more general measures of ethnic bias, whereas the PJBQ-RB assesses ethnic bias specifically within the context of the legal system (Ajzen & Fishbein, 1977).

The PJBQ scales are expected to predict verdict tendency as in past research (Lecci, Myers, Wirth, Alford, & Snowden, 2001; Lecci & Myers, 2002; Snowden, Lecci, Lee, Lee, & Smaldone, 2002). Historically, the PJBQ scales have demonstrated positive relations with verdict tendencies, such that higher scores on a given scale indicate a higher likely of voting guilty for a given case summary. This same pattern of relations between the scales and verdict tendency is expected for the case summaries across defendant ethnicity. However, when the

relations for the two case summaries are examined by defendant ethnicity, the PJBQ scales are also expected to display significant direct relations with verdict tendency for both case summaries, with a few exceptions. For a summary of the hypothesized direction of the relations between scale scores and verdict tendency in the different case and defendant conditions, please refer to Table 1. Notably, the relations between verdict tendency and the PJBQ scales are not expected to differ in direction or significance between the defendant ethnicity conditions, with the exception of the racial bias and social injustice scales. All PJBQ scales that display significant predictive validity for verdict tendency are expected to be directly related to verdict tendency in the African American defendant condition. However, due to the fact that the attitudes assessed by the racial bias scale may not be perceived as relevant to European American defendants, the racial bias scale is only expected to relate to verdict tendency when the defendant is an African American (i.e., when race is salient) and this relation is expected to be direct. Similarly, high scores on the social injustice scale indicate conviction proneness, as well as a belief that unfair advantages to privileged members of society that help them get acquitted are acceptable. For the European American defendant, participant's scores on this scale are expected to be either unrelated or inversely related to verdict tendency. Thus, high social injustice and racial bias scores on the PJBQ would be expected to directly relate to the African American defendant. In the event that these two scales do predict verdict tendency for the European American defendant, any significant relations that emerge would be expected to be the opposite of the significant direct pattern for the African American defendants—i.e., if any, inverse relations would be expected to emerge for the European American defendants between verdict tendency and scores on the racial bias and social injustice scales. The IAT is not expected to significantly relate to verdict tendency at the aggregate level, but is expected to

significantly predict verdict tendency for the separate defendant ethnicity conditions. Given there is little previous research clarifying whether the IAT reflects a proWhite preference, an antiBlack bias, or a combination of the two, the

Table 1.

The hypothesized pattern of relations between PJBQ scales scores and verdict tendency, by case and defendant ethnicity.

PJBQ Scale	ASSAULT		ROBBERY	
	European	African	European	African
	American	American	American	American
CP	+	+	+	+
CON	+	+	+	+
CYN	+	+	+	+
SI	N/S (or -)	+	N/S (or -)	+
RB	N/S (or -)	+	NS (or -)	+
IC	+	+	+	+

Note. The + symbol indicates that a significant positive (direct) relation is expected to emerge, the – symbol indicates that a significant negative (inverse) relation is expected to emerge, and N/S indicates that a nonsignificant coefficient correlation is expected.

hypotheses regarding the direction of the IAT's predictive validity for verdict tendency in the different defendant ethnicity conditions are tentative. While a primary hypothesis is proposed, there are two alternate patterns of relations between the IAT and verdict tendency that could emerge when defendant ethnicity is examined. For a brief summary of the directional nature of the relational patterns, please refer to Table 2. The first hypothesized pattern is the one favored to emerge. Historically, there has been evidence of legal bias against African Americans, especially in the context of legal decisions (see Fukurai et al., 1993 for a review). This hypothesis is supported by the fact that the few studies examining the predictive validity of the IAT for legal outcomes have found that higher IAT scores predict adverse legal outcomes for minority defendants (Florack et al., 2001 and Livingston, 2001, as referenced in Vedantam, 2005). Therefore, the IAT is expected to directly relate to verdict tendency (i.e., predict conviction) for African American defendants, whereas it is not expected to predict verdict tendency for the European American defendant. However, this hypothesis is largely exploratory. As noted above, two alternate patterns of relations might emerge. Other researchers have previously interpreted the IAT effect as a preference for European Americans, rather than as a bias against African Americans (Greenwald et al., 1998). Thus, it is conceivable that significant inverse relations indicating a leniency (i.e., acquittal) bias would emerge between the IAT and verdict tendency when the defendant is European American. Such a hypothesis would be consistent with research regarding the in-group bias (Devine, 1989), whereas the out-group bias would argue for the hypothesized direct relation between the size of the IAT effect and conviction tendencies for only the African American defendant. Additionally, recent research has suggested that both a preference for European Americans and a bias against African Americans might be responsible for the IAT effect (Dasgupta & Greenwald, 2001). Similarly,

Table 2.

The hypothesized patterns of relations between IAT scores and verdict tendency, by case and defendant ethnicity.

	ASSAULT		ROBBERY	
IAT Pattern	European	African	European	African
	American	American	American	American
Pattern 1	N/S	+	N/S	+
Pattern 2	-	N/S	-	N/S
Pattern 3	-	+	-	+

Note. The + symbol indicates that a significant positive (direct) relation is expected to emerge, the – symbol indicates that a significant negative (inverse) relation is expected to emerge, and N/S indicates that a nonsignificant coefficient correlation is expected. Pattern 1 is the favored hypothesized pattern.

the combination in-group/out-group effect would argue for the predictive validity of the IAT for both defendant conditions (Brewer, 1979; Brewer & Brown, 1998). As such, it is entirely conceivable that the IAT may predict verdict tendencies for both defendant conditions, albeit in the opposite directions (i.e., inversely for the European American defendant and directly for the African American defendant). This third pattern is favored over the hypothesis in which the IAT would significantly predict verdicts for the European American defendant only. Regardless, whichever one of the above noted patterns of relations does emerge, it will shed light on which specific cognitive biases likely underlie the IAT effect.

One of the main obstacles to determining the influence of socially prohibited biases on an individual's behavior is the concern that an individual may self-monitor their responses. Therefore, the effect of social desirability on the relation between the different bias measures, as well as on the predictive validity of the bias measures for verdict tendency, was examined. Given it is assumed to be measuring an automated bias that would seem impervious to conscious monitoring such as would occur in individuals with strong social desirability tendencies, the IAT was expected to be unrelated to an individual's social desirability tendencies. The only PJBQ scale that was expected to be strongly related to an individual's social desirability tendencies is the PJBQ-RB scale, as the attitudes assessed by the rest of the scales cannot be considered as politically sensitive as racial bias attitudes.

Finally, if, in fact, social desirability relates to both the explicit and implicit bias measures and the bias measures both display predictive validity for verdict tendency, path analyses will be undertaken to examine whether or not this predictive validity increases or decreases when individual social desirability scores are controlled.

METHOD

Participants

The participants were 200 introductory psychology students at the University of North Carolina Wilmington, a regional, 4 year university in the southeastern United States. All participants received either credit towards course requirements, for those recruited from introductory psychology classes, or extra credit if they were drawn from upper-level psychology classes. The majority of participants were drawn from introductory psychology classes and, thus, the modal age was 18 ($M=19.58$, $SD=3.61$), with a range from 18 to 51 years of age. The sample was predominantly female, consisting of 135 females (71.4%) and 54 males (28.6%) (11 participants did not indicate their sex.). Additionally, the sample was predominantly White. Of those participants indicating their ethnicity, 178 participants indicated that they were European American, 10 indicated that they were African American, and 11 individuals specified that they were of other ethnicities. Ninety-eight participants were assigned to the African American defendant condition and 100 were assigned to the European American condition.

Materials

Implicit Association Test (IAT)

The IAT is a task in which two different target word categories (e.g., African-American versus European-American names) are alternately paired with two different attribute word categories (i.e., positive words and negative words) on two keys on a keyboard. For example, African American names and pleasant words might be assigned to key “e” and European American names and unpleasant words might be assigned to key “i” (for a review of the procedure, please refer to Greenwald et al., 1998). After this particular trial block has been completed, the categories that were paired together on the same key will be reversed and another

block of trials will be completed. On each trial, participants are presented with a word that belongs to one of the four categories. The participant must hit the appropriate key that represents the category to which the stimulus word belongs. The IAT effect, or score, refers to the difference in the average response times for pairing European American versus African American names with positive or negative words.

The IAT methodology originally utilized words (e.g., ethnic names), yet it has recently demonstrated similar findings using facial photographs of individuals of different ethnicities (Nosek et al., 2002). In the present study, the word racial IAT, rather than the pictorial IAT, was used to examine racial attitudes because all of the comparison measures were likewise conveyed in written rather than pictorial format. Thus, in order to eliminate any confounds regarding differences among the measures being due to the type of stimuli used, all measures, explicit and implicit, were presented in a written format. The word lists used have been previously used in several studies, including the initial validation study for the IAT (Greenwald et al., 1998; Ottaway et al., 2001) and include words from each of the following categories: pleasant words, unpleasant words, European American names, and African American names.

Participants were instructed on how to complete the IAT as follows: “Try to complete the computer task as quickly as possible, trying not to make many mistakes. Please do not remove your finger from the designated keys once you begin the task. Keeping your fingers on the keys will help you complete the task quickly.”

Participants completed four word comparisons: (a) discrimination task between name categories, (b) discrimination task between attribute categories (i.e., pleasant v. unpleasant), (c) a compatible discrimination task, i.e., European names/pleasant word

pairing versus an African American names/unpleasant word pairing, and (d) a noncompatible discrimination task, i.e., European names/unpleasant word pairing versus an African American names/pleasant word pairing. The order in which the compatible and noncompatible task are completed is counterbalanced to control for possible practice and order effects, such that individuals who were assigned an even subject ID number completed the compatible discrimination task first and those participants who were assigned an odd subject ID number completed the noncompatible discrimination task first. The notable difference between the compatible and noncompatible tasks is that the target categories (i.e., Black and White) are assigned to different keys on the keyboard for these two blocks, which accounts for the opposite target-attribute pairings in these two tests. Participants complete a practice block before both the compatible and noncompatible tests. The first practice task contains 24 trials. The second practice segment was lengthened to contain 36 trials to account for the difficulty in switching key pairings. There was a 200 ms delay between the trial presentations of stimulus words.

At the beginning of each set of trials, participants were instructed that when an attribute word is presented as a stimulus they are to hit a given key for one attribute category (e.g., “e”) and the other key for the other attribute category (e.g., “i”). Similarly, when a target word was presented as a stimulus they were to hit a given key for one target category and the other key for the other target category. Participants completed a set of 40 trials for both the compatible and the noncompatible test block. Over the repeated sets of trials, the mean response latencies for the compatible and noncompatible discrimination tasks were calculated. In the present study, outlier trial latencies that were less than 300 ms or greater than 3000 ms were omitted from the

analyses, as were latencies for trials on which participants made errors. Standard procedures regarding the calculation of the mean response latencies for the two test block were followed.

Pretrial Juror Bias Questionnaire (PJBQ)

The PJBQ is a 30 item questionnaire that is composed of six subscales (Lecci & Myers, 2005). All subscales are coded such that higher scores indicate a greater prosecution bias. The subscales are:

- 1) *System Confidence (CON)*--assesses the individual's confidence in the criminal justice system, with higher scores representing greater confidence in the criminal justice system (e.g., Generally, the police make an arrest only when they are sure about who committed the crime),
- 2) *Cynicism towards the defense (CYN)*--assesses the individual's belief in corruption in the criminal justice system, specifically among agents associated with the defense and defendant, with higher scores denoting greater endorsement of beliefs in corruption with the criminal justice system (e.g., Lawyers will do whatever it takes, even lie, to win a case),
- 3) *Racial Bias (RB)*--assesses the individual's beliefs about the role race plays in the legal system, with higher scores indicating higher endorsement of the idea that race influences outcomes in the legal system (e.g., Minorities use the, "race issue," only when they are guilty),
- 4) *Social Injustice (SI)*--assesses the belief that the criminal justice system is biased in favor of those with resources, with higher scores reflecting endorsement of the idea that privilege influences outcomes in the legal system (e.g., Rich individuals are almost never convicted of their crimes),

- 5) *Innate Criminality (IC)*--assesses the belief that the probability of past criminal activity is the best way to evaluate guilt in the current case, i.e., the extent to which a defendant fits an individual's perception of what a criminal looks like is an accurate and appropriate means of assessing the probability of guilt. Higher scores indicating approval of using assumptions regarding the defendant's past behavior to determine present guilt (e.g., If the defendant is a member of a gang, he/she is definitely guilty of the crime), and,
- 6) *Conviction Proneness (CP)*--refers to the strength of the threshold or standard of proof that must be exceeded before a juror votes for conviction, with higher scores indicating a conviction bias (e.g., A defendant should be found guilty if 11 out of 12 jurors vote guilty).

Case Summaries

Case summaries were used in this study, including an armed robbery case and an assault case. Case summaries have demonstrated similar reliability and validity for verdict tendencies relative to other methods, such as video trials or mock trials, employed in other studies (Kassin & Wrightsman, 1983). The case summaries present evidence in support of both the prosecution and the defense. Evidence was purposely set at a relatively equivocal level to limit the possibility that overwhelming evidence of guilt or innocence will account for verdict tendencies. Ideally, case summaries will have a conviction rate of approximately 50%, which ensures that there is variability across the outcome measure of verdict tendency. Because there has been no demonstrated evidence of any order effects in studies that have involved the examination of multiple cases, participants viewed the case summaries in a fixed order, such that the assault case summary always preceded the robbery case summary.

The assault case summary was modified from a summary presented in a previous study (Sommers & Ellsworth, 2000) and detailed an office party where one coworker makes disparaging remarks about another coworker, culminating in the disparaged individual punching his coworker outside the office. After he is punched, the victim falls and sustains a broken wrist. The robbery case summary involved the robbery of a convenience store clerk by a masked assailant who was armed with a knife. The defendant ultimately charged had a previous drug conviction and came to police attention based on his history with law enforcement. A witness is presented at the trial that identifies the vehicle from the crime scene as one that matches the body style of the vehicle registered to and owned by the defendant.

Attached to each of the case summaries was a photograph stated to be that of the defendant in a given case. There were four photographs used: Two for the assault case and two for the robbery case. The two photographs for each case varied with regard to race between participants. The same two photographs were always used for the assault case and for the robbery case. Each participant was randomly assigned to a defendant ethnicity condition, such that each participant saw either two European American defendants or two African American defendants. Use of a visual medium to present information about defendant ethnicity was chosen because it is a highly salient indicator of ethnicity and is also the medium in which jurors ultimately ascertain a defendant's ethnicity in an actual trial.

Verdict Information Sheets

Each case summary was directly followed by a corresponding verdict information sheet. At the top of each of these pages, participants were presented with a set of instructions regarding the necessary criminal elements that must have been proven true beyond a reasonable doubt in order for them to vote for conviction. These instructions listed three elements of each crime as

specified by North Carolina law. The instructions intended to standardize variability in terms of what participants believed constituted a crime, as well as to increase the external validity of the study.

Participants marked which of the three elements they believed had been proven true beyond a reasonable doubt (they could endorse none to all three elements). Additionally, participants' rendered a verdict for the given case summary, as well as their confidence in that verdict. Verdicts were coded as either -1 (*not guilty*) and +1 (*guilty*). Verdict confidence was coded along a scale from 0 (*not at all confident*) to 10 (*completely confident*).

Verdicts are dichotomous in nature and this limits the extent to which measures, such as those used in this study, may predict verdicts. Thus, verdicts for the individual case summaries were transformed into a continuous verdict tendency score by multiplying a participant's verdict code by their confidence in that verdict for each case summary. Thus, verdict tendency will range from -10 (*completely confident in an acquittal*) to +10 (*completely confident in conviction*).

Evidence Recognition Tests

As an exploratory analysis, for each case summary, participants were asked to rate the impact, or weight, that various facts of information had on their verdict decision, along a scale from 0 (*no impact*) to 4 (*strong impact*). Among the facts presented for each case for the participants to weigh were accurate pieces of evidence that had been presented in the case summaries, as well as facts that were not presented in the case summaries (or inaccurate alterations of facts). In addition, the different facts presented varied in the extent to which, if

true, they would substantiate either the prosecution and/or the defense cases or in the extent to which the facts were consistent with stereotypes of defendants.

Marlowe-Crowne Social Desirability Scale (MCSD)

This 33 item scale is a commonly used measure of assessing the extent to which an individual moderates the behaviors and beliefs he or she expresses in order to seem in line with social norms (Crowne & Marlowe, 1960; Paulhus, 1991). This sort of behavior is referred to as social desirability. The scale reportedly targets the assessment of impression management, which is the tendency to suppress the expression of behaviors or beliefs that will be viewed in a negative light (Paulhus, 1991). Impression management is the type of social desirability monitoring that can be expected when assessing the socially sensitive beliefs of a participant, including their racial biases and their legal biases (as jurors are expected to be fair and impartial). The scale demonstrates acceptable reliability, with internal reliabilities of .73 to .88 and a high test-retest correlation (Crowne & Marlowe, 1960; Paulhus, 1991).

Modern Racism Scale (MRS)

The MRS is a commonly used explicit, self-report measure of the extent to which individuals harbor modern racism beliefs (i.e., racist beliefs targeted against abstract ideas such as affirmative action, rather than individuals) (McConahay, 1986; McConahay et al., 1981). The scale's internal reliability is high, with alpha coefficients of .75-.86 and high test-retest correlation coefficients as well (.72-.93). The MRS is Likert scaled from 1 to 5 and the anchors for the different items vary. The MRS has historically been summed to create the scale scores (McConahay et al., 1981). However, the PJBQ-Racial Bias is the mean of scores on the scale items, so for purposes of comparison, the present study calculated the MRS score by averaging the MRS item scores. Additionally, the scale was modified in the present study, such that one

of the seven items used here was modified slightly to be more relevant to a modern population of students. Specifically, an item previously referencing school segregation plans was changed to “Blacks have more influence on college admissions decisions than they should.” Otherwise, the items were retained in their original format.

Demographic Information Survey

Participants answered several questions about demographic characteristics such as their age, gender, and ethnicity.

General Procedure

Participants were informed that they would be serving as mock jurors in a study examining attitudes towards a variety of factors relevant to the criminal justice system. Participants completed the experiment as individual jurors, rather than juries, as the purpose of this study was to examine the relation between individual pretrial biases and subsequent verdict tendencies.

Participants first completed the ethnic IAT. The IAT was completed first because, as an implicit perceptual task, it has largely been assumed to be immune to social desirability concerns (i.e., active monitoring). Given that racial attitudes were examined in this experiment, the order of task completion was designed to subjectively minimize the possibility that socially desirable responding would be the controlling factor for response patterns on subsequent measures. After completing the IAT, participants completed the PJBQ. The PJBQ and IAT were presented prior to the case summaries, as they are being used as measures of pretrial juror bias. Next, participants were randomly assigned to either the European American or the African American defendant condition and then they read the two case summaries detailing criminal trials, finally rendering an individual verdict and indicating their confidence in that verdict for each case

summary. The ethnicity of the pictured defendants was manipulated between subjects such that participants who read the robbery summary with a European American defendant depicted also read the assault summary with a European American defendant's picture attached. This was done to attempt to eliminate case specific effects, in favor of global findings with regard to verdict tendencies in criminal trials. Next, participants completed the evidence recognition tests. Finally, participants completed the Marlowe-Crowne Social Desirability Scale, the Modern Racism Scale, and the demographic information sheet. The Modern Racism Scale was the last bias measure presented because it is a highly face valid measure. At the end of the study, participants were informed that the case summaries they had read were not actual cases and that the individuals they had seen pictured had not actually been defendants in trials for such charges.

RESULTS

General Characteristics of the Analyses

Due to the continuous nature of all measures in the present study, parametric statistics were employed. Despite the directional nature of the hypotheses, all statistical analyses were performed as two-tailed tests. Many of the a priori hypotheses were based on prior findings that had demonstrated a positive relation between bias scores on the PJBQ and verdict tendency (Lecci & Myers, 2002; Lecci et al., 2001; Myers & Lecci, 1998; Snowden et al., 2002). However, the present study employed, among other things, the manipulation of defendant ethnicity. As noted by this researcher and others (Sommers & Ellsworth, 2000), the current literature on race effects within the legal system is limited. Thus, the examinations of the predictive utility of bias measures within the different defendant conditions and, in particular, the predictive utility of the

implicit bias measures in this regard, are largely exploratory, despite the fact that a priori hypotheses have been stated. Therefore, while the same pattern of relations between verdict tendency and bias scores was expected, two-tailed tests were used to be conservative and to ensure that all significant findings, regardless of their direction, were noted, in the event that a pattern different from the hypothesized pattern emerged. Additionally, hypotheses were made regarding other analyses that were based on oft assumed theoretical underpinnings of relevant phenomena that had not been previously tested. Thus, while hypotheses were made in the present study, the analyses were, by and large, still fulfilling an exploratory role. Collectively, these concerns led to the decision to use two-tailed tests for all analyses, regardless of whether or not hypotheses had been made a priori. All correlations were Pearson's product-moment correlations or point-biserial correlations, unless otherwise noted. In addition to the analyses addressing a priori hypotheses of immediate empirical interest, several other exploratory analyses were run.

Checking for Normality and Outliers: The IAT Procedure

The IAT data cleaning and analysis procedure outlined by Greenwald et al. (1998) was followed in the present study, with one notable exception. The first two trials of each testing block were deleted in accordance with this procedure and all values in excess of 3000 ms or faster than 300 ms were considered outliers. The IAT procedure has historically recoded outlier values to the closest boundary value (e.g., 3,500 ms would be recoded to 3,000 ms). However, this procedure unduly decreases the standard error and could artificially contribute to the significance of the IAT effect. As such, outlier trials were omitted from the analyses rather than being recoded. Recent revisions

to the IAT analysis procedures, which have eliminated this kind of recoding, suggest this decision was appropriate (Greenwald, Nosek, & Banaji, 2003). In addition, the criterion for an individual's data to be included has varied in past studies, ranging between a 75%-80% criterion for correct responding (Greenwald et al., 1998; Cunningham et al., 2001). The present study chose to use the lower criterion of 75%. This means out of the 38 trials being considered for each testing block, the participants could only make errors on 9 trials for any given testing block in order for their data to be considered in the analyses. Failure to meet criterion on either the compatible or noncompatible test block resulted in a participant's data being excluded from the analyses. The majority of participants made very few errors on the IAT blocks, with 85.7% making four or fewer errors on the compatible testing block and 72.4% making four or fewer errors on the noncompatible testing block. Out of the 200 participants, 14 participants had IAT data that was either missing due to computer failure (4 participants) or that was eliminated because they failed to meet the above criterion (10 participants). Additionally, response latencies, after outliers were deleted, were natural log transformed before the test block means were calculated. Log transformation is in accordance with the standard IAT procedure and is common with reaction time data. After these transformations, the IAT distribution was appropriately normal for the compatible testing block ($M=6.6$, $SD=.16$), the noncompatible testing block ($M=6.9$, $SD=.19$), and the IAT effect distribution ($M=.29$, $SD=.18$). The noncompatible testing block response times were significantly longer than those of the compatible testing block, $t(185)=-22.06$, $p<.001$, indicating the presence of a significant positive IAT effect. The pattern of reaction times in the present study (i.e., participants displayed significantly longer reactions for the European

American/unpleasant and African American/pleasant word pairings compared to the reverse pairings) was consistent with past research on the ethnic IAT effect (Greenwald et al., 1998). Only 12 people displayed a negative IAT effect (i.e., easier time completing the noncompatible test block than the compatible test block). This effect was significant, $t(11)=2.589, p=.025$. Of these individuals, 7 were White participants and 5 were minority participants. Thus, 24% of the minority participants had a negative IAT effect, while only 4% of European American participants had a negative IAT effect. Similarly, regression analyses indicate that participant race is a significant predictor of IAT effect size, $\beta=.24, t(183)=3.31, p=.001$. Thus, while the majority of participants had positive IAT effects regardless of their race, the magnitude of the IAT effect does appear to be influenced by participant race such that minority participants tend to display smaller IAT effects, as would be logical.

Checking for Normality and Outliers: Explicit Bias Measures

The explicit measures were also examined for normality and outliers. None of the explicit scales or their component items had skew values in excess of 1.5, with most skew values falling below a value of 1. The only exception to this was the MCSD scale for which each item is dichotomous (true/false). Given only two answer options, several items on this scale had skew values over 1.5. However, the MCSD scale was not skewed. Thus, all of the explicit measures met the assumption of normality necessary for the use of parametric statistics.

All of the explicit bias measures, with the exception of the MCSD, were Likert scaled from 1 to 5, with scores less than 3 indicating levels of disagreement with an item, a score of 3 indicating no opinion with regard to a particular belief, and scores greater than 3 indicating levels of endorsement of a given item. All scales were constructed such that higher scores

indicate greater levels of endorsement for a specific belief. The neutral midpoint for these scales allows some limited interpretation of the population mean scale scores. The MCSD scale consisted of 33 true/false items that were summed to create a continuous scale of measurement. All of the scales displayed appropriate levels of variation, as indicated both by their minimal skew values and interquartile ranges. While the population means tend to be moderate due to the normal distribution of the scales, there is variability among the scale scores for individual participants. Thus, while the population means can clarify the prevalence and strength of certain beliefs in the overall population, it must be remembered that individual variability across such measures can be extreme and caution should be exercised in drawing definite interpretations from these mean values.

The MRS ($M=2.4$, $SD=.73$) and the MCSD ($M=15.10$, $SD=5.60$) had acceptable levels of normality at both the item and the scale level. The MCSD skew value was positive, indicating that lower scores were slightly more prevalent than higher ones. The mean social desirability score does deviate significantly from the validation mean, which was approximately 13.72 ($SD=5.78$; Crowne & Marlowe, 1960), $t(318)=2.11$, $p<.05$. Thus, the present population did have significantly higher MCSD scores than were present in the original validation sample. The mean modern racism score was less than three, accurately reflecting societal disapproval of racially biased beliefs. Similarly, a slight positive skew value indicated that lower scores on the MRS were slightly more prevalent in the sample.

Additionally, overall level of endorsement for bias measures in the sample was examined. The means and standard deviations of scores on the different scales are presented in Table 3. The means and the interquartile ranges for the bias scales demonstrated little support for the notion that the overall jury eligible population holds extreme attitudes on any of the bias measures.

However, as noted earlier, given the normality of the bias scales' distributions, there is a sizable degree of variation among individual scores on bias measures. The means, however,

Table 3.

The means and standard deviations of bias measure scores.

Bias Scale	Mean	Standard Deviation
PJBQ-CP	3.0	.77
PJBQ-CON	3.0	.56
PJBQ-CYN	3.1	.53
PJBQ-RB	2.7	.63
PJBQ-IC	2.3	.57
PJBQ-SI	3.4	.54
MRS	2.4	.73
MCS D	15.1	5.6
IAT	.286	.18

Note. The IAT effect size is presented after natural log transformation of the original latencies.

suggest that the overall jury-eligible population appears to hold very moderate views regarding the criminal justice system and racial bias. The average PJBQ-SI and PJBQ-CYN score were above the midpoint value (3.0), suggesting that the overall jury pool tends to have a slight bias towards belief in prevalent defense corruption and towards endorsing the notion that privilege increase the likelihood of a favorable legal outcome for a defendant. The average PJBQ-CON score fell exactly at the scale midpoint, suggesting that the jury pool has neither a lack of trust nor strong confidence in the efficacy of the criminal justice system—in essence, the jury pool is ambivalent. Similarly, the PJBQ-CP mean was equal to the scale midpoint value, suggesting the jury pool overall displays bias either towards conviction proneness or acquittal proneness. Finally, the PJBQ-RB and PJBQ-IC had means below the scale midpoint value, suggesting that jury-eligible adults are slightly disinclined to endorse either beliefs indicating that race plays a role in the legal system or that the prior criminal history of a defendant is a good means of determining that defendant's guilt.

Confirming Random Assignment to Conditions

In order to evaluate the effectiveness of random assignment, all predictor variables, including the PJBQ scales, the IAT and the MRS, were examined for possible differences between the two defendant conditions. As expected, there were no differences between the scores of participants in the European American and African American defendant conditions on the PJBQ-CP, $t(196)=-1.14, p=.267$, PJBQ-CYN, $t(196)=-.22, p=.823$, PJBQ-CON, $t(196)=.19, p=.849$, PJBQ-SI, $t(182.07)=.35, p=.724$, PJBQ-RB, $t(196)=-1.03, p=.306$, or the PJBQ-IC, $t(196)=-.72, p=.475$, scales. The IAT also did not differ between defendant ethnicity conditions, $t(182)=.14, p=.887$. Additionally, the scores for the MRS did not differ significantly between the defendant ethnicity conditions, $t(196)=.45, p=.651$. The null findings for the measures here

suggest effective random assignment in the present sample. One difference that did emerge was that the participants assigned to the European American defendant condition had significantly higher MCSD scores ($M=15.9$, $SD=6.09$) than did those participants in the African American defendant condition ($M=14.3$, $SD=4.98$), $t(196)=2.05$, $p=.041$. This elevation in the White defendant condition may be accounting for the finding that the present sample had higher social desirability scores than did the original validation participants for the MCSD.

Relations among the Measures of Bias

Three hypotheses were made regarding the relations between the explicit and implicit bias measures. The two explicit ethnic bias measures, the PJBQ-RB scale and the MRS, were hypothesized to be strongly positively correlated with each other, as both assess applied aspects of explicit racial bias. The two explicit bias measures were expected to demonstrate moderate relations with the implicit measure (IAT) given that all the measures assess ethnic bias. The MRS, however, was expected to have a stronger relation with the IAT than would the PJBQ-RB, due to the fact that both the IAT and the MRS are general measures of ethnic bias, whereas the PJBQ-RB assesses ethnic bias solely within the context of juror decision-making (Ajzen & Fishbein, 1977).

Generally, these hypotheses were confirmed. For specific correlations between the bias measures, refer to Table 4. The PJBQ-RB and the MRS were significantly positively related. Additionally, the MRS, as expected, did display a significant relation with the IAT, $r(182)=.19$, $p=.01$. However, the PJBQ-RB failed to demonstrate the hypothesized significant relation with the IAT, $r(182)=.12$, $p=.106$, although the relation trended towards significance. However, the difference between the MRS/IAT and RB/IAT correlations was not significant, $z=.67$, $p>.05$. Thus, the MRS is related to the

Table 4.

The relations between explicit and implicit measures of bias, without controlling social desirability.

Scale	1	2	3	4	5	6	7	8	9
1. IAT	-----	.23**	.28***	.07	.12 ^a	.12	.21**	.19*	-.20**
2. PJBQ-CP		-----	.53***	.31***	.25***	.44***	.52***	.38***	.03
3. PJBQ-CON			-----	.33***	.29***	.43***	.55***	.45***	.03
4. PJBQ-CYN				-----	.30***	.31***	.28***	.31***	-.04
5. PJBQ-SI					-----	.27***	.31***	.10	-.03
6. PJBQ-RB						-----	.48***	.50***	-.01
7. PJBQ-IC							-----	.42***	.01
8. MRS								-----	-.07
9. MCSD									-----

Note. *N* values range from 183 to 199 due to missing values.

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

^a indicates that the relation would have been significant under one-tailed testing.

IAT whereas the PJBQ is not, yet there is no significant difference between the magnitudes of the two correlations.

All of the PJBQ scales were significantly related to one another (see Table 4). The PJBQ scales are designed so that higher scores represent a conviction bias, so positive relations among the measures were expected. However, it is notable that the IAT demonstrated significant positive relations with three of the PJBQ scales (CP, CON, and IC), despite the fact that it did not relate to the PJBQ-RB. However, the relations of the IAT with both the PJBQ-RB, $r(182)=.12, p=.106$, and the PJBQ-SI scales, $r(182)=.12, p=.095$, were marginally significant, so it appears that the IAT relates to most of the explicit measures presented in this study. Social desirability, as measured by the MCSD, only explained a significant portion of the variation in, surprisingly, the IAT, $r(185)=-.20, p=.008$. The MCSD did not account for variation in either the PJBQ or MRS scores. Thus, social desirability does not appear to influence any of the bias measures, so there appears to be little indication that participants were moderating their responses to the bias measures to obscure their true beliefs. As such, social desirability was not examined or controlled further in this study other than to control MCSD scores for analyses involving the IAT.

Path Analyses

Originally, path analyses were going to be undertaken to examine whether or not the variation in the relations among the explicit and implicit measures can be accounted for when the individual's social desirability scores are controlled. However, it does not appear that social desirability exerts any large degree of impact or influence on the bias measures, so these analyses were not conducted.

Instructions on Necessary Criminal Elements

Every crime is defined statutorily with specific component criminal elements which must be proven true beyond a reasonable doubt in order for the defendant to be convicted. A judge provides instructions to the jury as to what elements of a crime must be proven beyond a reasonable doubt in order for the defendant to have committed a crime. In order to control variability among participants as to what constitutes a crime, jurors were presented with three criminal elements for each case summary that were stipulated as being necessary elements for a conviction. Given judges provide instructions in actual criminal trials, this procedural characteristic increases the external validity of the study. Participants were informed that they could only vote for conviction in a case if they believed all three necessary criminal elements had been proven true beyond a reasonable doubt, as required in real criminal trials.

For the assault and battery case, the first criminal element was whether or not the defendant, “had the ability to injure another person or make another person reasonably fear immediate injury.” 158 participants (81%) believed that this first element had been proven true beyond a reasonable doubt. The second element dealt with whether the defendant, “intentionally committed a battery against another person,” where a battery is defined as forceful or violent touching of the person. 130 participants (67%) believed this element had been proven true beyond a reasonable doubt. The third element referred to whether the defendant’s, “mental state was such that his behavior was intentional and he knew the consequences of his actions,” and 109 participants (56%) believed this element had been proven true beyond a reasonable doubt.

In the robbery case, the first element referred to whether the defendant “used or threatened use of any firearms or other dangerous weapon, implement, or means.” This first

element was believed true beyond a reasonable doubt by 66 participants (34%). The second element referred to whether the defendant, “endangered or threatened the life,” of an individual, which was believed proven true beyond a reasonable doubt by 63 participants (32%). The third element referred to whether the defendant, “unlawfully took or attempted to take personal property from another or from any place of business, residence, or banking institution or at any other place where there is a person or persons in attendance.” 70 participants (36%) believed this element had been proven true beyond a reasonable doubt.

In addition, a scale was created that assessed the extent to which participants voted in accordance with the instructions (i.e., did they render verdicts that were legally accurate, or appropriate, given the number of necessary criminal components that they had endorsed as having been proven true beyond a reasonable doubt). Participants had been instructed that they could only vote for conviction if they indicated all three elements of a crime had been proven true beyond a reasonable doubt. Otherwise, they were expected to vote not guilty. There were two ways in which an individual could disregard the instructions: by voting not guilty, even if they felt all the elements had been proven beyond a reasonable doubt, or they could vote guilty, even if they indicated that at least one of the necessary criminal elements had not been proven true beyond a reasonable doubt. The scale ranged from -1 (*voting not guilty if all of the elements were endorsed as true beyond a reasonable doubt*) to 3 (*voting guilty if all three of the elements were not endorsed as having been proven true beyond a reasonable doubt*). A score of 0 on this score indicated that an individual had followed instructions and rendered an accurate verdict given their assessment of what criminal elements had been proven true. The data indicated that for the assault case 168 participants (84.8%) of the sample followed the instructions accurately when rendering their verdicts, 12 participants (6.1 %) inappropriately voted not guilty, and 18

participants (9.1%) inappropriately voted guilty. For the robbery case, 185 participants (93.9%) followed instructions accurately when rendering a verdict, 1 participant (.5%) inappropriately voted not guilty, and 11 participants (5.5%) inappropriately voted guilty.

This information was collected separately from the verdict tendencies, as it reflects distinctly different information. Verdict tendencies reflect whether an individual actually voted for conviction or acquittal for a criminal charge. The verdict instruction information indicates the degree to which individuals disregard the legal guidelines regarding conviction or acquittal for a criminal charge. Unfortunately, this variable did not evidence extensive variability. In the assault case, only 30 (approximately 15%) people rendered verdicts that were inappropriate given the ratings of whether criminal elements had been proven true, while, in the robbery case, only 12 people (approximately 6 %) rendered inappropriate verdicts. Aggregating across cases, this indicates that, of the 396 verdicts rendered in the present study, approximately 11% were inconsistent with the legal guidelines with which the jurors had been provided.

Predicting whether Jurors Follow Case Instructions

The biases of a juror could influence the tendency to follow legal instructions regarding the necessary criminal elements in a case when a juror is rendering a verdict. For instance, a juror who holds a cynical attitudes towards the behavior of defense attorneys may be more likely to vote guilty if two out of three necessary criminal elements had been proven guilty than would a mock juror who was not so biased. Similarly, an individual who is not highly confident in the criminal justice system may vote not guilty, even if they believe that the three necessary criminal elements have been proven guilty beyond a reasonable doubt.

As such, the predictive validity of the bias measures, including the PJBQ scales and the IAT were examined to determine if they relate to a juror's tendency to follow the stipulations

that all necessary criminal elements must have been proven true beyond a reasonable doubt in order to rendering a guilty verdict (see Table 5). Direct relations were expected between all bias measures and the inappropriate verdict rendered. While several correlations approached significance in the hypothesized direction, only the PJBQ-CP and PJBQ-CYN scales actually displayed significant relations with the tendency to follow verdict instructions, although PJBQ-IC would have been a significant predictor under one-tailed testing and both the PJBQ-RB, $r(196)=.10, p=.159$, and PJBQ-SI, $r(196)=.12, p=.102$, trend towards significance as well. Due to the smaller size of the present sample and the minimal variability of the inaccurate verdict variable created, the power of this analysis was limited by the smallest group of participants which was in this case 12 for the assault case and 1 for the robbery case. As such, the power for these analyses is drastically limited and the finding of any significant effects testifies to the likely sizable nature of those effects. All of the significant relations that emerged followed the hypothesized pattern, such that as scores on the bias measures increased, mock jurors who rendered legally inaccurate verdicts were more prone to convict. Similarly, as scores on the bias measures decreased, inappropriate verdicts in favor of acquittal increased.

It is important to note that most of the small number of individuals who rendered inappropriate verdicts, given their assessment of which criminal elements had been proven true beyond a reasonable doubt, voted inappropriately for conviction in both the assault and robbery case. This bias for inaccuracy towards conviction is not surprising given that there are three ways to render an inaccurate verdict for conviction and only one way to render an inaccurate verdict for acquittal. Regardless, this suggests that for those PJBQ scales predicting disregarding verdict instructions, those individuals with higher PJBQ scores on these bias scales are accounting for the pattern here.

Table 5.

The relation between complying with verdict instructions and the bias measures.

Bias Scale	Legally Inaccurate	Legally Inaccurate
	Verdicts: Assault	Verdicts: Robbery
PJBQ-CP	.14*	.12 ^a
PJBQ-CON	.05	.08
PJBQ-CYN	.08	.15*
PJBQ-SI	-.01	.12
PJBQ-RB	.08	.10
PJBQ-IC	.07	.14 ^a
IAT	.08	-.00

Note. *N* values range from 182 to 198 due to missing values. Verdict accuracy values are positive when participants inaccurately voted a defendant guilty and negative when participants inaccurately voted a defendant not guilty. Inaccuracy here refers to a participant rendering a verdict that is inconsistent with their ratings of whether all three necessary criminal elements had or had not been proven true beyond a reasonable doubt (i.e., the juror did not follow verdict instructions).

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

^a indicates that the relation would have been significant under one-tailed testing.

The relation between the bias measure scores and the appropriateness of the rendered verdict was also examined for the two cases by defendant ethnicity. The same power limitations of the analyses are at issue with this examination, although the power here is even smaller. The results of such analyses are presented in Table 6. No predictive validity was displayed for African American defendants in either the assault or the robbery case. Similar direct relational patterns emerged between the bias measures and inappropriate verdict. Additionally, the IAT directly predicts inappropriate verdicts here. The weaker predictive validity for rendering an inaccurate verdict in the African American defendant cases is notable as it suggests that, no matter what the relation between a specific PJBQ scale and an inappropriate verdict tendency, individuals were more likely to render an inappropriate verdict, given their ratings of the extent to which the criminal elements had been proven true beyond a reasonable doubt, when the defendant was European American than when the defendant was African American. Perhaps jurors may be more vigilant in adhering to the verdict instructions when the defendant is a member of an ethnic minority, possibly due to the saliency of defendant ethnicity invoking concern, and subsequent awareness, that personal biases may inappropriately influence verdict decisions and thus leading jurors to correct for their biases in such cases.

Verdict Tendencies and Confidence

Overall, participants displayed an acquittal bias, as this was the most common verdict for both cases. 61.6% of participants voted that the defendant in the assault case was not guilty and 64% of the participants voted that the robbery defendant was not guilty. There was a tendency for individuals in the European American defendant condition ($M=-.94$, $SD=7.77$) to have slightly smaller acquittal tendencies than those in the African American defendant condition ($M=-2.6$, $SD=7.06$), $t(190.83)=1.517$, $p=.131$, although this did not reach significance.

Table 6.

The relation between complying with verdict instructions and the bias measures by ethnicity.

Bias Scale	Legally Inaccurate Verdicts:		Legally Inaccurate Verdicts:	
	Assault		Robbery	
	White	Black	White	Black
PJBQ-CP	.19 ^a	.12	.13	.13
PJBQ-CON	.14	-.03	.09	-.08
PJBQ-CYN	.24*	-.05	.23*	.01
PJBQ-SI	.06	-.06	.08	.18 ^a
PJBQ-RB	.10	.08	.11	.11
PJBQ-IC	.09	.06	.13	.16
IAT	.23*	-.05	.01	-.02

Note. N values range from 87 to 99 due to missing values. Verdict accuracies values are positive when participants inaccurately voted a defendant guilty and negative when participants inaccurately voted a defendant not guilty. Inaccuracy here refers to a participant rendering a verdict that is inconsistent with their ratings of whether all three necessary criminal elements had or had not been proven true beyond a reasonable doubt (i.e., the juror did not follow verdict instructions).

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

^a indicates that the relation would have been significant under one-tailed testing.

However, the overall pattern of verdict decisions across the two cases suggests a slight acquittal bias within the current population. Also, participants were moderately confident that they chose the appropriate verdict for both cases, as the mean confidence rating for the assault case was 7.5 ($SD=1.58$) and for the robbery case was 6.8 ($SD=2.07$). Verdict confidence ratings for the assault and robbery cases were not significantly related, $r(193)=.13$, $p=.081$, but there was a trend towards significance. Additionally, verdicts in the two cases were not significantly related, $r(193)=-.05$, $p=.497$, suggesting that there may be distinctly different factors relevant to the determination of guilt in the two cases. Given the lack of significant relations between either the verdicts or the verdict confidence ratings for the robbery and assault cases, decision making in the two cases appeared to be independent.

As different factors were clearly relevant for the assault case compared to the robbery case, no aggregate verdict tendency was created. Rather, verdict tendencies for each case were created and considered as separate outcome measures. The verdict tendency was calculated by multiplying a participant's rendered verdict for a given case, which ranged from -1 (*not guilty*) to +1 (*guilty*), by their confidence in that verdict, from 0 (*not at all confident*) to 10 (*completely confident*). Thus, verdict tendencies for each case ranged from -10 (*completely confident that the defendant was not guilty*) to +10 (*completely confident that the defendant was guilty*). The average verdict tendency for both the assault ($M=-1.7$, $SD=7.45$) and the robbery ($M=-1.3$, $SD=7.05$) case also suggests that participants in the sample were slightly acquittal prone.

Predictive Validity of the Bias Measures for Verdicts

In order to examine the predictive validity of explicit bias measures for verdicts, correlation coefficients between the PJBQ subscales and the case verdict tendencies were calculated. Similarly, to examine the predictive validity of the implicit bias measure,

correlations between the Implicit Association Test (IAT) and the case verdict tendencies were calculated, controlling MCSD.

At the aggregate level, the PJBQ scales that emerge as significant predictors of verdict tendency were expected to be directly related to verdict tendency. All PJBQ scales were expected to directly predict verdict tendency when race was salient (i.e., for the African American defendant condition, given the majority of participants were European American). For the European American defendant condition, all PJBQ scales except for PJBQ-SI and PJBQ-RB were expected to display direct relations with verdict tendency. PJBQ-SI and PJBQ-RB were expected to either be nonsignificant or inversely related to verdict tendency for the European American defendant. IAT scores were not expected to display predictive validity for the aggregate condition, but were expected to have predictive validity for verdict tendency in the African American condition (i.e., when race is salient), such that larger IAT scores would indicate a greater likelihood of convicting the defendant. While this was the research hypothesis, it was conceded that the IAT scores might predict verdict tendency in the European American condition as well, albeit in the opposite direction. That is, for European American defendants, larger IAT scores may reflect an increased probability of acquitting the defendant. Similarly, the IAT might predict in both defendant conditions, albeit in opposite directions (i.e., directly for the African American defendant and inversely for the European American defendant).

Several of the subscales of the PJBQ did significantly predict verdict tendency at the aggregate level, although this predictive validity was limited to the robbery case. In particular, the PJBQ-CP, PJBQ-RB, and PJBQ-IC subscales displayed significant direct correlations with

the robbery verdict tendency. Additionally, under one-tailed testing, PJBQ-CON and PJBQ-CYN would both be significant direct predictors of verdict tendency and PJBQ-SI trends towards significance for both the assault, $r(194)=-.10, p=.168$, and the robbery case, $r(194)=.11, p=.134$. However, the direction of PJBQ-SI's relation with verdict tendency varies between the cases. The direction of the relations trends indicates that as scores on the explicit bias measure increased, the juror was more likely to vote that the robbery defendant was guilty. Conversely, as the scores on these PJBQ scales decreased, the juror was more likely to vote for acquittal. As hypothesized, the implicit bias measure displayed no predictive validity for either aggregate verdict case tendency, although the IAT did trend towards significance for the assault case, $r(177)=.11, p=.138$. For the specific correlation coefficient values between the bias measures and the verdict tendencies, please refer to Table 7.

Although the bias measures' predictive validity for the verdict tendencies of participants as a whole is of interest, a primary goal of the present study was to examine whether the ethnicity of the defendants influenced the predictive validity of bias measures for verdict tendencies. For this reason, the correlations between the bias measures and verdict tendencies were also examined separately for those participants who had been presented with African American defendants and those who had been presented with European American defendants. Essentially, the findings were the same, except more scales emerged as predictors when examining defendant ethnicity. The PJBQ-CP and IC were still direct significant predictors of verdict tendency. Additionally, the PJBQ-CON and CYN scales emerge as direct predictors of verdict tendency and PJBQ-RB would be a significant predictor for verdict tendency under one-tailed testing. The two most striking patterns among the findings are that, once again, the robbery case is the primary case for which bias measures predict verdict tendency and the

Table 7.

The overall predictive validity of the IAT and PJBQ for verdict tendencies.

Bias Scale	Assault Verdict	Robbery Verdict
PJBQ-CP	.04	.22***
PJBQ-CON	.05	.14 ^a
PJBQ-CYN	-.04	.13 ^a
PJBQ-SI	-.10	.11
PJBQ-RB	-.03	.16*
PJBQ-IC	-.04	.24***
IAT	.11	-.06

Note. *N* values are 179 to 195 due to missing values. Verdict tendency = verdict X confidence rating, with greater values indicating confidence in a guilty verdict.

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

^a indicates that the relation would have been significant under one-tailed testing.

predictive validity of the scales emerges more frequently for the African American defendant. Predictive validity of the scales for the European American defendant's verdict is much more limited. Thus, it is clear that the predictive validity emerging at the aggregate level is largely stemming from the strong predictive utility of the measures when there is an African American defendant. The PJBQ-CP and IC scales appear to be the most robust predictors as they predict verdict tendency for both defendant ethnicity conditions and are among the few scales that have predictive validity for the assault case. Fisher's z calculations determined that the magnitude of the correlations were significantly different between defendant ethnicity conditions in several instances. For the assault case, the predictive validity of the PJBQ-CP and the PJBQ-IC was significantly different between defendant ethnicity conditions. The difference between the correlation coefficients across the defendant ethnicity conditions is also marginally significant for the IAT, $z=-1.41$, $p=.159$, CON, $z=-1.81$, $p=.07$, and RB, $z=-1.49$, $p=.136$. For the robbery case, the only potential difference is a marginally significant difference in the correlation coefficients for the PJBQ-CON scale, $z=-1.65$, $p=.10$.

The IAT effect is such that an increase on this measure reflects an increase in the magnitude of an individual's presumed proWhite or antiBlack bias (or a combination of the two). As hypothesized, the IAT did display significant predictive validity for verdict tendencies, such that, as the IAT effect increased, the probability of voting guilty increased for Black defendants in the assault case. Additionally, there was a marginally significant trend for conviction to decrease for White defendants in the robbery case as IAT scores rose. That is, for those instances in which the IAT did predict verdict tendency, as the IAT increased, the trend was for conviction in the case of a Black defendant and for acquittal in the case of a White defendant.

Contrary to the research hypothesis, social desirability did not appear to influence the relation between bias measures. This determination was made after examining whether MCSD related to the bias measures and the only significant relation that emerged was surprisingly between the MCSD and the IAT. In light of the fact that social desirability does not relate with any of the bias measures except the IAT, it can be concluded that social desirability appears to be largely independent of the variables of interest in this study. For specific correlation coefficients of the relation between bias measures and verdict tendencies as a function of defendant ethnicity, please refer to Table 8.

The Relation between Evidence Impact Ratings and Verdicts

In addition to collecting information regarding verdict tendencies, participants were also asked to indicate the impact that certain pieces of evidence had on their verdict decisions. This data was collected solely for exploratory purposes and no hypotheses were made regarding this data. For both the assault and robbery cases, individuals were presented with 10 pieces of evidence relevant to each case and asked to rate how much impact that piece of evidence had on their verdict decision. The pieces of evidence

presented were either actual pieces of evidence that had been presented in the case summary, inaccurate variations of evidence that had been presented in the case summary, or evidence that had not been presented in the case summary at all (i.e., false evidence).

Additionally, the “facts” participants rated fell into several distinct categories of information: (a) factual information that, were it or had it been true, would favor the defendant (here referred to as exculpatory evidence), (b) factual information that, were it or had it been true, would favor the prosecution and conviction (here referred to as culpatory evidence), (c) evidence regarding prior criminal behavior, and (d) evidence that is consistent with common stereotypes of criminal

Table 8.

The predictive validity of the IAT and the PJBQ for verdict tendencies as a function of defendant ethnicity

Bias Scale	White Defendant		Black Defendant	
	Assault	Robbery	Assault	Robbery
PJBQ-CP	-.10	.22*	.20*	.24*
PJBQ-CON	-.08	.02	.18 ^a	.25*
PJBQ-CYN	-.07	.07	.00	.20*
PJBQ-SI	-.17	.15	-.06	.07
PJBQ-RB	-.13	.13	.08	.19 ^a
PJBQ-IC	-.24*	.20 ^a	.18 ^a	.29**
IAT	-.02	-.14 ^b	.21*	.01

Note: *N* values range between 86 and 98 due to missing values.

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

^a indicates that the relation would have been significant under one-tailed testing.

^b indicates a relation that would be significant if MCSD had not been controlled.

defendants (i.e., belong to a gang, use a public defender, etc.).

The data were analyzed to determine whether the individual items could be grouped into these categories to create variables that may serve as indicators of an individual's biases and verdict tendencies. When creating groupings of the evidence items, all items belonging to a given category (i.e., exculpatory evidence, culpatory evidence, stereotypical evidence, etc.) were combined in a scale, regardless of whether the items were false pieces of evidence or accurate pieces of evidence. Cronbach's alphas, presented in Table 9, were calculated for the different category groupings in order to determine whether the combination of items into scales was psychometrically sound.

The results of the internal consistency analysis using Cronbach's alpha indicate that only some of the items seem to group together and the alpha values are less than desirable for most of the scales. Cronbach's alphas are generally considered acceptable if greater than either .8 or .7. The scales containing culpatory items (PROS-Aggregate, PROS-Robbery), the false evidence items for the individual cases and both cases together (FAL-Assault, FAL-Robbery, TOT-False), the stereotypical items (STEREO), and the robbery (ROBBERY) items collectively met these criteria for acceptability. However, it is noteworthy that scales with lower alpha values are sometimes used and alpha values would fall within a range of .6 to .7. The low reliability estimates for several scales may be due in part to the lower number of items contained within those scales. However, this cannot be the sole reason for the low reliability estimates as one of the scales with the most items (the ASSAULT case evidence impact items) has one of the lowest alpha values. Because these analyses are exploratory, the alpha criterion used to determine which scales were analyzed was the lower .60 criterion, which the TOT-accuracy scale also met.

Table 9.

Cronbach's alphas of the evidence impact rating categorizations.

Category	Cronbach's Alpha
PROS-Robbery	.75 (7)
PROS-Aggregate	.76 (10)
DEF-Aggregate	.20 (6)
ACC-Assault	.58 (4)
FAL-Assault	.76 (6)
ACC-Robbery	.43 (2)
FAL-Robbery	.86 (8)
TOT-Accuracy	.60 (6)
TOT-False	.89 (14)
STEREO	.73 (5)
PRIORCRM	.28 (4)
ASSAULT	.54 (10)
ROBBERY	.77 (10)

Note. *N* values are 195. The values listed in parentheses refer to the number of items in each category. PROS scales refer to items which would be categorized as culpatory evidence, while DEF scales refer to items which would be categorized as exculpatory. ACC scales refer to items that were accurate with regard to the present case, while FAL refers to items that were not actually presented in the case summaries. STEREO includes items which are consistent with prevalent stereotypes of defendants. PRIORCRM includes items that involve the defendant's past criminal history. Finally, the ASSAULT and ROBBERY scales refer to how the evidence ratings for each case hold together as an aggregate scale. TOT-Accuracy and TOT-False refer to the total ratings of accurate evidence and nonpresented and inaccurate evidence.

The evidence scales were examined to determine how they related to the bias measures in order to determine if the biases that an individual possesses influence the recall of the evidence presented in a case, as well as the impact such information has on their verdict decisions. The correlations between the scales and the bias measures are presented in Table 10. As indicated in Table 10, the IAT does not display any predictive validity for the evidence impact ratings. In contrast, several scales of the PJBQ relate to the impact ratings of the evidence scales. The PJBQ-CP scale displays the most widespread predictive validity, accounting for significant amounts of variation in individuals' ratings of evidence impact for most of the evidence impact scale.

The relations between the PJBQ-CP scale and the impact ratings of evidence regarding the stereotype consistency of the defendant and the inaccurate fact regarding both the assault and the robbery case tend to be inverse relations. This is likely a function of recoding false items so that higher endorsement on the original items ends up being a low value (i.e., high impact ratings for false items are actually low accuracy ratings). Interestingly, every PJBQ scale significantly relates to at least one of the evidence impact scales, suggesting that bias plays a role in how evidence is processed and interpreted. The PJBQ-RB is significantly related to the STEREO scale, indicating that strong endorsement of racially biased attitudes corresponds with high endorsement of items that are false in the present case, but consistent with prevalent stereotypes of defendants. Overall, PJBQ-CP predicted the most evidence impact scale ratings, but the TOT-Accuracy scale related to the most bias measures. Another observation of note appears to be that high scores on PJBQ measures tend to endorse false items more than lower PJBQ scores, yet they also appear to attribute more weight to valid pieces of evidence in the cases compared to other participants.

Table 10.

The relations between measures of bias and the evidence impact rating scales.

Scale	IAT	CP	CON	CYN	SI	RB	IC
PROS-Robbery	.00	-.13 ^a	.00	-.02	.07	-.02	.03
PROS-Aggregate	-.03	-.14 [*]	-.04	-.06	.05	-.04	-.03
FAL-Assault	-.07	-.14 [*]	-.04	-.12 ^a	.02	-.07	-.05
FAL-Robbery	.01	-.17 [*]	-.05	-.04	.02	-.07	-.04
TOT-Accuracy	.01	.22 ^{**}	.18 [*]	.07	.14 ^a	.17 [*]	.14 [*]
TOT-False	-.03	-.17 [*]	-.05	-.08	.02	-.08	-.05
STEREO	-.02	-.16 [*]	-.08	-.08	-.09	-.13 ^a	-.11
ROBBERY	.03	-.10	.01	.01	.05	-.03	.02

Note. *N* values range from 184 to 198 due to missing values. PROS scales refer to items that would be categorized as culpatory evidence. The FAL scales refer to items that were not actually presented in the case summaries. STEREO includes items that are consistent with prevalent stereotypes of defendants. Finally, the ROBBERY scale refers to how the evidence ratings for the robbery case hold together as an aggregate scale. TOT-Accuracy and TOT-False refer to the total ratings of accurate evidence and nonpresented and inaccurate evidence.

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

^a indicates that the relation would have been significant under one-tailed testing.

Additionally, the relation between the evidence impact rating scales and verdict tendencies were examined. The scales do relate significantly to verdict tendencies for the different cases, although once again predictive validity is more consistent for the robbery case. How strongly individuals rated the facts that, if accurate, would have supported the prosecution's cases did significantly relate to their verdict in the robbery case, such that higher ratings of this evidence significantly predicted the tendency to vote guilty. For the assault case, the extent to which evidence suggesting that the defendant was a stereotypical defendant was rated as having an impact on the verdict tendency, such that the tendency to vote for conviction increased. This finding suggests that stereotypical defendants may be more likely to be convicted than those who are less stereotypical. The evidence impact of the false evidence items for the robbery case significantly predicted verdict tendency in the robbery case, however the relation was inverse, suggesting that the higher the ratings of false evidence, the more likely the individual was to vote for conviction. However, this finding may be due to the fact that a large number of the false items would have supported the prosecution if true. Additionally, as one might hope, the evidence ratings of accurate information strongly predict verdict tendency, albeit in different directions for the different cases. For the assault case, higher ratings of accurate evidence items are related to acquittal tendencies and, for the robbery case, higher ratings of accurate evidence items predicts conviction. The correlation coefficients between the ratings of the evidence impact scales and verdict tendency are presented in Table 11.

Additionally, t-tests were run on the individual items and scales to see if the defendant ethnicity conditions differed in their weighting of the impact of the evidence recognition test items. Several significant differences emerged, including the finding that individuals in the African American defendants rated evidence that, if true, would have supported the defense as

Table 11.

The predictive validity of the evidence impact rating scales for verdict tendency.

Scale	Assault	Robbery
PROS-Robbery	.09	.11
PROS-Aggregate	.07	-.13 ^a
FAL-Assault	.11	-.07
FAL-Robbery	.11	-.16*
TOT-Accuracy	-.37***	.32***
TOT-False	.12 ^a	-.13 ^a
STEREO	.16*	-.10
ROBBERY	.11	-.08

Note. *N* values are 194 due to missing values. PROS scales refer to items that would be categorized as culpatory evidence were they true. The FAL scales refer to items that were not actually presented in the case summaries. STEREO includes items that are consistent with prevalent stereotypes of defendants. Finally, the ROBBERY scale refers to how the evidence ratings for the robbery case hold together as an aggregate scale. TOT-Accuracy and TOT-False refer to the total ratings of accurate evidence and nonpresented and inaccurate evidence.

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

^a indicates that the relation would have been significant under one-tailed testing.

having significantly less impact than did those in the European American condition, $t(195)=2.05$, $p=.042$. In the assault case, participants in the African American defendant condition were significantly more likely to rate the false evidence that the victim made racial remarks about the defendant as having high impact, $t(195)=-1.78$, $p=.08$, as well as rating that the inaccurate statement that the arresting officer in the robbery case was a racist as significantly more probative, $t(195)=-2.49$, $p=.014$. Additionally, participants in the African American defendant condition rated the inaccurate statement that the victim was taken to hospital by his coworkers as more probative, $t(182.98)=-1.89$, $p=.06$, as well as finding the valid fact that the victim had seven or eight beers on the night of the assault to be significantly more probative, $t(186.93)=-2.46$, $p=.015$, than did individuals in the European American defendant condition.

DISCUSSION

The Role of Social Desirability in Influencing Racial Attitude Reporting

It is notable that social desirability appeared to exert little effect on the bias measures, suggesting that the participants were very candid in reporting their beliefs, that there is little influence of social desirability on such measures, or that the MCSD is not the most appropriate measure of socially desirable responding in this context.

Interestingly, while none of the explicit bias measures demonstrated a significant relation with the MCSD scores, the IAT displayed a significant inverse relation with social desirability. This finding is interesting for two reasons. First, self-report measures have long been criticized for being subject to social desirable reactivity among participants. So, if a relation were to emerge between bias measures and the tendency to engage in socially desirable behavior, one would expect the relation to emerge between the social desirability measures and the explicit bias measure.

The present finding, however, indicates that the IAT scores are related to the individual's social desirability scores, such that the greater the social desirability tendencies, the lower the IAT scores. This pattern does seem to suggest control over IAT scores, such that the more individuals monitor and alter their behavior in accordance with socially desirable norms, the lower their scores are on the IAT. Potentially this might indicate that individuals who are more likely to monitor their opinions to appear in line with social norms are less biased—that is, people who are more inclined to pay attention to and care about social niceties may ultimately be less biased. Regardless, the finding that the IAT is inversely related to the MCSD is somewhat perplexing given that implicit measures have often been assumed to be relatively immune to reactivity, such as monitoring or demand effects. That is, the IAT is often assumed to be automated and, therefore, outside of the individual's control. The fact that the IAT relates to social desirability scores clearly indicates that the IAT's often assumed immunity to the influence of personality variables, such as the propensity for impression management, is not as strong as commonly believed.

This notion is supported by the recent discovery of several external factors that appear to influence the size of the IAT effect, suggesting that the IAT and other implicit measures may not be as impervious to external influence as previously thought (Dasgupta & Greenwald, 2001; Rudman, Ashmore, & Gary, 2001; Wittenbrink, Judd, & Park, 2001). These studies demonstrated that the IAT effect can be altered by varying situational factors, such as experimenter ethnicity, the context in which minority members were encountered (positive or negative), and the race of an instructor in a prejudice course.

Additionally, the measure of reactivity used in the present study may simply not have been the most relevant measure of reactivity. First of all, many of the behaviors which are tapped by the MCSD are not strongly socially prohibited—the items tend to assess the extent to which people try and mind their manners more than the extent to which they avoid violating moral societal standards (i.e., it is wrong to be racist). Thus, high scorers on the MCSD may not behave any differently than low scorers in a legal setting because the social pressure to follow social norms is so strong in such a setting that everyone may engage in a decent amount of monitoring, obscuring the effects of MCSD because of a floor effect in reporting controversial attitudes in a legal setting, even among low scoring individuals who generally who be extremely candid. Additionally, the MCSD scale is likely only to detect reactivity in self-reports of biased behaviors and attitudes that are due to external factors, such as societal disapproval. However, researchers have noted that internal motivations to respond without prejudice might also be important (Plant & Devine, 1998). Internal motivation to respond without prejudice may lead an individual to report attitudes that are not concordant with their actual beliefs, but for a different reason relative to those who are externally motivated to respond without prejudice. Internally motivated individuals may report inaccurate attitudes to avoid cognitive dissonance and deny evidence that they do not live up to their own ideals, while externally motivated people might do so to avoid social disapproval given the current prohibition of ethnic, gender, and religious prejudices. As such, more specific measures of reactivity, such as the Internal and External Motivation to Respond without Prejudice Scales (Plant & Devine, 1998), should be considered in future studies to gain a more detailed understanding of the role of socially desirable behavior in affecting bias reports.

The Relations between Implicit and Explicit Bias Measures

The relations displayed between explicit and implicit measures do provide some new evidence as to what exactly constitutes the basis of the IAT effect and what may constitute the bias being assessed. In particular, the IAT is significantly related to several of the PJBQ scales. One noteworthy exception is the PJBQ-RB, as this scale should relate to the IAT, assuming the IAT measures racial bias (Greenwald et al., 1998), although this relation does approach significance. Indeed, it would seem more logical that the IAT should demonstrate a stronger relation with all measures of racial bias relative to any other scales. However, examination of the present data clearly indicates that the IAT is not significantly related to the PJBQ-RB, while demonstrating significant relations with the PJBQ-CP, PJBQ-CON, and PJBQ-IC scales.

These findings may be better understood in terms of a recently developing theory that the IAT confounds individual attitudes with societal or cultural level attitudes towards ethnic groups (Karpinski & Hilton, 2001; Olson & Fazio, 2004; Vedantam, 2005). If the IAT is tapping into cultural level attitudes regarding ethnic minority members, these broader negative attitudes would likely be related to a variety of more specific attitudes, including those relevant to the criminal justice system. For example, assuming the individual is aware of the oft noted overrepresentation of minority individuals in the legal and correctional systems, an individual who is strongly confident in the criminal justice system's ability to function effectively would likely need to develop some way of justifying this overrepresentation. It is conceivable that implicit racial biases (i.e., minority members=bad) may provide a means for individuals to reconcile this overrepresentation with their beliefs in the criminal justice system while at

the same time allowing them to retain the illusion that they are unbiased. Thus, the relations found between the PJBQ scales and the IAT in this study may indicate that the IAT is tapping into a global, perhaps media propagated, negative attitude towards ethnic minorities, rather than an individual's attitudes or, alternately, that the IAT results from the suppression of negative thoughts and beliefs towards minority members.

Future research might consider examining whether the IAT effects vary as a function of the amount of negative media portrayals of minority exemplars to which an individual is exposed. If indeed media coverage of minority exemplars were to account for the development of the IAT effect, then an increase in effect magnitude should vary directly with the amount of media exposure to which a person has been exposed. Additionally, if the IAT is measuring a biased association that results from media exposure, rather than the actual reflection of an individual's biases against certain ethnic minority groups, then experimenters should be able to reverse the IAT pattern by exposing participants to media exposure, e.g., fake news coverage, presenting European Americans in a negative light and African Americans in a positive light. Future research should consider ways to manipulate these types of exposures in order to determine to what extent media, as a reflection of societal stereotypes and standards, is responsible for the IAT effect.

Differences between the Robbery and the Assault Cases

Historically, the PJBQ and many other general measures of bias have been used to predict verdict tendency, or the tendency of an individual to vote either guilty or not guilty for any particular trial (or more appropriately, across many trials). In this study, the cases appeared to have different relevant factors controlling decisions for the cases, as

the two verdict tendencies and their verdict confidences were not significantly related. Thus, the analyses regarding the relations between the different bias measures and verdict tendency were calculated specific to each trial. This is less than optimal as it limits our ability to generalize to all types of criminal trials.

When the analyses were examined, the PJBQ scales displayed a stronger ability to predict verdict tendency for the robbery case relative to the assault case. This finding was true regardless of whether the case verdict tendency in question dealt with defendants of all ethnicities (i.e., the aggregate verdict tendencies) or just defendants of separate ethnicities.

Given that the predictive utility of the bias measures varies across the case summaries, discussion of differences between the two cases that may account for such a finding is warranted. Since the same differences apply to both the IAT and the PJBQ, the discussion will be couched in terms of the PJBQ. Why does the PJBQ predict weakly for the assault case relative to the robbery case? The PJBQ was constructed as a general measure of juror bias intended to assess factors that predict verdict tendency across cases. The PJBQ was validated and has historically been used to predict verdict tendency for serious violent crime cases, which have included murder, rape, and robbery. Given that it has been previously validated with robbery cases, the predictive validity of the PJBQ for the robbery is not surprising. Yet, the failure of the PJBQ to predict verdict tendency in the assault case condition of the present study, along with its previous difficulty predicting verdict tendency in a burglary case (Snowden et al., 2002), may indicate that the PJBQ is a more case specific measure of bias than previously believed. That is, the factors that the PJBQ assesses and that have been noted to predict verdict tendency may

only be relevant for certain kinds of cases, such as the serious violent crimes with which the PJBQ has generally been used.

There are of course other factors that could explain the difference in predictive validity between the cases. One is the fact that the present study did not vary the order of presentation for the two cases, as the assault case always preceded the robbery case. It is possible that the effect of case order may depend on the change in case severity. Such an explanation could account for a wider variety of findings. It is conceivable that when the first case is a less serious crime than the second crime, the second crime may be perceived more negatively. Similarly, when the first case is more serious, the second case may be judged more leniently (i.e., a contrast effect). If this explanation were true, then no order effects should emerge if the two cases under examination were of similar crime severity. Regardless, the design of the present study precludes a determination of the extent to which order of the cases accounts for the present findings.

Similarly, the disparity in the predictive validity of the bias scales for verdict tendency in the two cases may not be due to case order at all. Rather, the perceived sentence severity may be the controlling factor. A robbery conviction currently and historically has resulted in harsher sentences than an assault conviction. Participants may be well aware of this fact and alter their analysis of case evidence and reasonable doubt threshold accordingly. That is, participants may use a different threshold of evidence for voting guilty in a case that may result in a severe penalty (e.g., a capital murder trial) than in a more minor case (e.g., a larceny trial). This possibility is interesting as it suggests that participants may be using a variable reasonable doubt standard as opposed to a commonly assumed fixed reasonable doubt standard.

Additionally, the case summaries differed in the extent to which the defendant and the victim had an established relationship. In the assault case, the victim and the defendant were coworkers and had known each other for several years. Thus, they were established as known associates of each other and as relatively civil to one another. In contrast, the victim in the robbery case did not have an established relationship with the defendant. The relationship between the defendant and the victim is an extralegal factor that should not, in most legal processes, have any bearing on the verdict for a case. However, this prohibition may not prevent jurors from taking such information into account without permission and incorporating it into their verdict process. Jurors could conceivably view crimes between individuals known to one another differently than those in which the victim and the defendant are strangers. Evidence regarding difficulty in predicting rape trials is consistent with this idea, as rape trials often involve individuals with preexisting relationships. Several studies have found decision making in rape cases to be very different than that in other cases (Kassin & Wrightsman, 1983; Lecci & Myers, 2002). In cases where there is an established relation between the victim and the defendant, the defendant may be treated more leniently than is appropriate. Or, similarly, cases in which there is established relation between the defendant and the victim may lead to harsher judgments of the defendant—for example, people might be outraged when the victim’s family member or friend is the offender and act especially punitive as jurors. It is important to note that these possible influential factors may exert the same influence across all cases. It may be that the relationship between the defendant and victim, if it exerts an effect at all on verdicts, may interact with the severity of the crime to influence verdict tendency.

Also, in almost all criminal cases, both an action (actus reus) and a mental component (mens rea) must be proven in order for an individual to be convicted of a crime. In the present case study, the actus reus of the assault case is not in dispute. The defendant does not deny hitting the victim, but rather proposes justifications for doing so. Additionally, there is no indication given by the defendant that his punch was accidental. The case was not a clear cut case of self-defense. Indeed, two of the necessary criminal elements of assault are not in dispute, even by the defendant himself. Thus, almost all the necessary criminal elements have, objectively, been proven true in the assault case. In the robbery case, however, there is no such clear evidence demonstrating that the defendant committed either component of the crime. This subjectivity is likely to create much more individual variability in their judgments as to whether or not the defendant has been proven, beyond a reasonable doubt, to have committed any of the criminal elements of robbery. Thus, there is a difference in the extent to which characteristics of the jurors, such as bias, are likely to be outweighed by the evidence between the two cases.

Finally, the assault case involves the use of alcohol by both individuals, while the robbery case does not have clear evidence of the role of a pharmacological substance in the commission of the crime. Given the present sample consists of college students, the involvement of alcohol in the assault case may have led them to be more lenient towards the defendant than the evidence would suggest is appropriate. College students are, in general, frequent consumers of alcohol and perhaps may be more likely, than the public at large, to be involved in a dispute among acquaintances that becomes violent when alcohol is present. As such, college students might be more receptive to the defendant's

justification of the situation than the public at large would be. Thus, they might account substantial weight to the defendant's justification when making their verdict decisions. Similarly, students might be more prone to view the crime as being motivated more by the situation (i.e., alcohol use) than by the criminal intentions of the defendant. This does appear to be reflected in the fact that there was a notable decrease in the percentage of students endorsing the element regarding the defendant's intention to cause harm as compared to the element regarding whether the defendant hit the victim as having been proven true beyond a reasonable doubt.

The differences between the cases raise some interesting questions regarding how extralegal factors might influence jurors' decision making that could be pursued in the future. Unfortunately, in this study, it is impossible to determine which, if any, of these factors contributed to the differential predictive validity of the bias measures for verdict tendencies across the two cases.

The Effect of Defendant Ethnicity on the Predictive Validity of Bias Measures

As noted above, with regard to the predictive validity of the PJBQ, the bias measures had more consistent predictive validity for the robbery case than for the assault case at the aggregate level of analysis. This does not change when the predictive validity of the scales for verdict tendency in the cases is examined for each defendant ethnicity separately. The PJBQ-CP and PJBQ-IC scales display the most consistent predictive validity across case types and defendant ethnicity conditions. A notable change in the predictive validity from the aggregate level to the defendant ethnicity level was that the PJBQ-IC scale displays an inverse relation with verdict tendency for the European American assault defendant, suggesting that the higher the innate criminality scores, the less likely the defendant was to be convicted. However, for the Black

defendant in the assault case, higher scores on the IC scale related to conviction tendencies. One explanation is that European Americans may not be perceived as stereotypic defendants and, therefore, high scoring PJBQ-IC individuals may not be able to fully consider the European American as engaging in previous criminal behavior. However, the assault case specifically states that the defendant did not have a prior record, so the inverse relation between PJBQ-IC and verdict tendency is logical given this piece of evidence. What is not clear is why participants in the African American defendant condition did not take this information regarding lack of a prior criminal record into account and display a similar inverse relation. The relation indicates that high scoring PJBQ-IC participants are treating the Black defendant as if he were innately criminal, despite compelling evidence to the contrary. This finding may indicate that although participants are aware that the Black defendant had no prior record, they refuse to believe this—i.e., participants believe that the Black defendant, possibly fitting their image of a stereotypical criminal, merely hasn't been caught yet and for that reason alone, rather than an actual lack of the suspected innate criminality, has no criminal record. Regardless, this finding supports the assertion that minority defendants may not receive the same leniency as European American defendants. Otherwise, the PJBQ scales overall appear to predict similarly at the aggregate and at the defendant ethnicity level of analysis, with more predictors emerging and the pattern of relations often changing when defendant ethnicity is examined. As in the past, the PJBQ scales are useful as predictors of verdict tendency, although in the present study the predictive utility of these scales was limited primarily to the robbery case.

With regard to the IAT, there was no predictive validity at the aggregate level of analysis. However, when defendant ethnicity was considered, the IAT did emerge as a useful predictor of verdict tendency, even without a consistent pattern across all four defendant-case combinations.

When the defendant was African American, the IAT was directly related to the verdict tendency in the assault case, such that as IAT scores grew larger (i.e., the person has more “racial bias”), the defendant was more likely to be convicted. Taken together with the fact that the majority of participants chose to acquit for the case summary, as in the robbery summary, this may indicate that the African American defendant did receive discriminatory treatment, perhaps in terms of the application of reasonable doubt. Conversely, when the defendant was European American, high scores on the IAT were related to a higher likelihood of acquittal for the robbery case, suggesting again that however decision making criteria, e.g., the standard of reasonable doubt, were applied, the European American defendant was likely to be treated more leniently.

Interpretation of the IAT’s predictive validity would have been aided more if one of the hypothesized patterns had emerged consistently across all four defendant-case combination. However, this did not occur. Nevertheless, the pattern that did emerge was consistent with one of the hypothesized pattern of relations. Specifically, the data is most consistent with the third pattern. The third hypothesized pattern was what would be expected were the IAT to occur due to two underlying components: both a preference for European Americans and a bias against African Americans. Thus, this study provides evidence that decision outcomes may be a useful means of identifying the specific factors that compose the IAT effect. Future research should reexamine whether this dual-component hypothesis of the IAT effect, as supported in this study, represents an actual phenomenon that is replicable.

Implications and Future Research

This study has provided evidence that explicit and implicit bias measures are likely assessing different constructs, yet the distinction between them is not likely to be as dramatic as has often been assumed. First, implicit bias measures do not appear to be immune to reactivity

concerns, such as those of social desirability. Additionally, explicit bias measures, which here did not relate to social desirability, may not be inherently flawed due to reactivity concerns. Social desirability scores did relate to the IAT scores, but did not play a role in controlling mock juror's behaviors, beliefs, or decisions. Second, explicit and implicit bias measures do appear to display some degree of overlap. In this study, the general explicit and implicit racial bias measures were significantly related, whereas the IAT and the more specific measure of legal racial bias were unrelated. Additionally, the IAT related to several other explicit bias subscales of the PJBQ, suggesting that perhaps the IAT reflects a more global ethnic bias (i.e., a societal bias that is likely related to perceptions of different aspects of society such as the legal system, rather than solely the individual's personal beliefs regarding racial bias).

Additionally, this study provides evidence that both explicit and implicit bias measures possess predictive validity for verdict tendency, although the specific circumstances under which these measures display predictive validity have not yet been determined. It appears that the PJBQ scales can be used as predictors in situations in which defendant ethnicity is either known or unknown. However, the relations between the IAT and verdict tendency are not likely to emerge unless the defendant's ethnicity is taken into account. Additionally, it is likely that the more salient ethnicity is as an issue during trial, the greater the likelihood that a strong relation will emerge between the IAT and verdict tendency and the greater the number of predictors that will likely emerge among the PJBQ scales. Further, the present study has demonstrated that researchers can use case summary studies, or other decision making tasks involving race, as a means of determining what cognitive components are underlying the IAT effect. In this respect, such studies may be useful in clarifying a current debate in the social psychological literature.

In summary, explicit and implicit biases appear to be related, yet distinct, factors. Each type of bias ultimately contributes to the overall outcome in a decision making process. Legal outcomes, including verdicts, sentencing, parole decisions, etc., are likely to be influenced by both of these types of biases. This study has done a preliminary examination of which biases appear to relate to verdict tendency. However, future research must continue to examine what the exact effects of each of these biases are and to examine under what circumstances they will exert their influence on decisions. Additionally, future research needs to examine the effects of these biases for defendants of different ethnicities, as it appears that the same bias measures may be useful predictors for defendants of all ethnic heritages, with the direction of the relation varying with ethnic background.

Clearly, explicit and implicit biases are playing a role in juror's decisions. The legal system requires that jurors be fair and impartial when rendering a verdict. The only way to determine whether this requirement can ever be met is to continue researching the influence of the different types of biases on juror decision making. Future researchers are advised to continue the process.

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APPENDIX

Appendix A. Pretrial Juror Bias Questionnaire (PJBQ)

Please rate your agreement with the following items according to the 5-point scale where SD=strongly disagree, D=disagree, N=neither agree nor disagree, A=agree, and SA=strongly agree. Please try to make a clear choice for each item (that is, only pick the middle option if you have absolutely no opinion one way or the other).

- | | |
|---|-------------|
| 1. If a suspect runs from the police, then he probably committed the crime. | SD D N A SA |
| 2. A defendant should be found guilty if 11 out of 12 jurors vote guilty. | SD D N A SA |
| 3. Too often jurors hesitate to convict someone who is guilty out of sympathy. | SD D N A SA |
| 4. In most cases where the accused presents a strong defense, it is only because of a good lawyer. | SD D N A SA |
| 5. Out of every 100 people brought to trial, at least 75 are guilty of the crime with which they are charged. | SD D N A SA |
| 6. For serious crimes like murder, the defendant should be found guilty so long as there is a 90% chance that he committed the crime. | SD D N A SA |
| 7. Defense lawyers don't really care about guilt or innocence, they are just in the business to make money. | SD D N A SA |
| 8. Generally, the police make an arrest only when they are sure about who committed the crime. | SD D N A SA |
| 9. Many accident claims filed against insurance companies are phony. | SD D N A SA |
| 10. The defendant is often a victim of his own bad reputation. | SD D N A SA |
| 11. Extenuating circumstances should not be considered; if a person commits a crime, then that person should be punished. | SD D N A SA |
| 12. If the defendant committed a victimless crime, like gambling or possession of marijuana, he should never be convicted. | SD D N A SA |
| 13. Defense lawyers are too willing to defend individuals they know are guilty. | SD D N A SA |
| 14. Police routinely lie to protect other police officers. | SD D N A SA |
| 15. Once a criminal, always a criminal. | SD D N A SA |
| 16. Lawyers will do whatever it takes, even lie, to win a case. | SD D N A SA |
| 17. Criminals should be caught and convicted by "any means necessary." | SD D N A SA |
| 18. A prior record of conviction is the best indicator of a person's guilt. | SD D N A SA |
| 19. Rich individuals are almost never convicted if their crimes | SD D N A SA |
| 20. If the defendant is a member of a gang, he/she is definitely guilty of the crime. | SD D N A SA |
| 21. Minorities use the "race issue" only when they are guilty. | SD D N A SA |

- | | |
|---|-------------|
| 22. When it is the suspect's word against the police officer's, I believe the police. | SD D N A SA |
| 23. Men are more likely to be guilty of crimes than women. | SD D N A SA |
| 24. The large number of African Americans currently in prison is an example of the innate criminality of that subgroup. | SD D N A SA |
| 25. A black man on trial with a predominantly white jury will always be found guilty. | SD D N A SA |
| 26. Minority suspects are likely to be guilty, more often than not. | SD D N A SA |
| 27. If a witness refuses to take a lie detector test, it is because he/she is hiding something. | SD D N A SA |
| 28. Defendants who change their story are almost always guilty. | SD D N A SA |
| 29. Famous people are often considered to be "above the law." | SD D N A SA |
| 30. A prior record of conviction is the best indicator of a person's guilt. | SD D N A SA |

Defendant: Albert Barkley

Charge: Assault

_____ Check here once you
have read this page

The following trial summary is based on a real case. Please read it and then answer the questions that follow as best as you can, remembering to respond as if you were a juror for this case. Make sure you read the *FRONT AND BACK* of both pages. Thank you!!!

Trial # 552441-03

Defendant: Albert Barkley.

Victim: Victor Johnson.

The prosecution charges that the defendant, Albert Barkley, is guilty of assault and battery. On the night of April 11, 2001, Mr. Barkley was at an office party with several of his friends and coworkers, celebrating his recent promotion. The prosecution claims that everyone was drinking and, at around 10:00 pm, Mr. Barkley's coworkers began telling stories about his earlier days with the company. During this "roast," one of Mr. Barkley's coworkers, Victor Johnson, stood up to make a toast. According to witnesses, Mr. Johnson poked fun at Mr. Barkley for a few minutes and then began making jokes about his physique and lack of sexual prowess. Mr. Johnson testifies that Mr. Barkley interrupted him by telling him to sit down, saying, "you know better than to talk that way about a man in front of his friends." According to witnesses, Mr. Johnson continued to make derogatory remarks about Mr. Barkley until Mr. Barkley asked Mr. Johnson to, "come talk to him for a minute." The two men walked outside the office building and several co-workers reported hearing raised voices as the two argued just outside the office building's entrance, but out of sight. Sharon Smith, one of the coworkers, testifies that she heard Mr. Barkley yelling and then Mr. Johnson, "cussing out Mr. Barkley [the defendant]," although she was unable to make out what the defendant had said to Mr. Johnson. Suddenly, she heard a loud crash and then banging against the side of the building, like there was a struggle. So, she and several of the other coworkers ran outside and saw Mr. Johnson lying on the ground against the building, with Mr. Barkley standing several feet away. Mrs. Smith stated Mr. Barkley then walked back into the office and another co-worker called 911, as, "none of us was sober enough to drive Victor [the victim] to the hospital," for treatment of an arm injury he sustained.

Mr. Johnson testifies that Mr. Barkley had immediately become hostile after they walked outside the office, threatening to, "break my jaw and teach me 'not to talk so much shit in the future.'" Mr. Johnson further testifies that when Mr. Barkley had started pushing him towards the building, he told Mr. Barkley he was, "a sorry son of a bitch if you can't even take a joke." Mr. Barkley then punched him and shoved him towards the building again, causing him to trip over a metal trash can near the entrance to the office. Jane Danson, another employee who was crossing the parking lot towards the office as the fight occurred, testifies that she overheard the two men arguing, but couldn't make out what they were saying. But she states Mr. Johnson did not step forward towards Mr. Barkley before Mr. Barkley punched him. From her angle, she could not determine how hard Mr. Barkley had pushed Mr. Johnson. The prosecution reveals that Mr. Johnson suffered a broken wrist from the fall caused by this assault, as well as facial contusions.

The defense attorney asserts that the defendant has no previous criminal record and is not a violent man. The defense alleges that Mr. Johnson's injuries were mostly due the fact that he had too much to drink that night. Adam Mitchell, one of the coworkers present that evening, testifies that Mr. Johnson, "must have had 7 or 8 beers before he started in on Albert [the defendant]." On cross-examination, the defense attorney asked Mrs. Danson, "How well-lit was the area where Mr. Johnson

and Mr. Barkley were standing?” Mrs. Danson conceded the parking lot and the area outside the office was dimly lit, restating that, “I can’t be positive, but I’m pretty sure that Mr. Johnson did not make any movements towards Mr. Barkley.” Mr. Barkley testifies that he did take offense to the comments Mr. Johnson made in front of his friends and that he did tell Mr. Johnson to sit down when he felt Mr. Johnson was taking the jokes too far and making a fool of him. The defendant states that when Mr. Johnson continued to ramble on he asked him to walk outside so he could get, “him [Johnson] to simmer down before rejoining the group”. According to the defendant, when the two men got outside, Mr. Johnson continued to make provocative comments so Mr. Barkley told him that one of these days, “you’re [Johnson] going to get your jaw broken because of talking shit to people.” Mr. Barkley testifies that Mr. Johnson then yelled that, “I [Barkley] was a sorry son of a bitch who never could take a joke,” and moved suddenly towards him, as if Mr. Johnson was going to hit him, “So I punched him [Johnson] once and pushed him away”. Mr. Barkley later states that, in addition to concerns for his own safety, he, “was sort of hoping it [the punch] might sober him [Johnson] up a bit.” Mr. Barkley testifies that he regrets causing Mr. Johnson any injuries, saying, “I apologized to him later and he forgave me.” Additionally, the EMS report stated that Mr. Johnson’s blood alcohol content was .17 when he was brought to the emergency room for medical treatment. Mr. Barkley’s blood alcohol content, the defense attorney pointed out, was much lower at .08. The defense claims that Mr. Barkley’s punch was not a violent one and that Mr. Johnson would not have fallen over the trash can, and thus injured himself, if he had not had so much to drink.

The defendant is charged with assault and battery. In order for Albert Barkley to be found guilty of this crime, you must find that each of the following three elements are true beyond a reasonable doubt:

31. Albert Barkley had the ability to injure another person or make another person reasonably fear immediate injury.

32. Albert Barkley intentionally committed a battery against another person. A battery is defined as forceful or violent touching of the person.

33. Albert Barkley's mental state was such that his behavior was intentional and he knew the consequences of his actions.

Please note whether you believe each of the above elements of the crime was proven true beyond a reasonable doubt ("A") or was not proven true beyond a reasonable doubt ("B") by filling in the appropriate bubble on your scantron, beginning on line 31 and ending on line 33.

34. If you were a juror at the above trial, please indicate what verdict you would render for the charge of assault, based on the evidence you have been presented with.

I find the defendant, Albert Barkley, to be: _____ guilty beyond a reasonable doubt
_____ not guilty

Please fill in, on line 34 of your scantron, "A" if you voted guilty or "B" if you voted not guilty.

For the following question, please circle (on this page) the value that best indicates your confidence in the verdict you rendered for this case.

How confident are you in your verdict?

0 1 2 3 4 5 6 7 8 9 10

not at all

completely

PLEASE CHECK AND MAKE SURE THAT THE LAST ANSWER ON YOUR SCANTRON IS ENTERED ON LINE 34 BEFORE PROCEEDING TO THE NEXT PAGE.

Defendant: Joe Lee Walters

Charge: Armed Robbery

_____ Check here once you
have read this page

The following trial summary is based on a real case. Please read it and then answer the questions that follow as best as you can, remembering to respond as if you were a juror in this case. Make sure you read the *FRONT AND BACK* of both pages. Thank you!!!

Trial # 552442-03

Defendant: Joe Lee Walters.

Victim: Reginald Oakes.

This case involves an armed robbery that took place at a local convenience store in Boone, North Carolina. The prosecution charges that the defendant, Joe Lee Walters, entered a local convenience store on the evening of June 16, 2000, held the store clerk at knifepoint, threatening to, “cut your [store clerk’s] throat if you don’t hand over the money,” and then proceeded to empty the cash register of \$1875 before fleeing from the scene of the crime. The store clerk, Reginald Oakes, immediately called the police after the robbery and gave a description of the assailant. The police did an immediate search of the area, but were unable to locate anyone who fit the assailant’s description. In his statement to police, Mr. Oates reported that he may have seen the assailant in the store some weeks before the robbery, as a customer. Mr. Oates was presented with a photographic lineup consisting of more than 100 photographs, but was unable to make an identification. The defendant, Mr. Walters, who has been convicted on an earlier occasion for possession of cocaine, was presented among those photographs. In his statement to police, given immediately after the robbery, Mr. Oates described the robber as a large man, approximately 6 feet 3 inches tall and weighing approximately 220 pounds. Although the robber was wearing a mask and gloves, Mr. Oates mentioned what looked like the ends of a red fabric was sticking out from underneath the ski mask. Mr. Oates also recalled that he could see the robber had a mustache at one point during the robbery. Mr. Walters, when picked up by the police for questioning, was approximately 6 feet tall, weighed slightly over 200 pounds, and was clean shaven. The robbery occurred while it was raining, so the robber left muddy footprints on the tile floor at the convenience store. Police photographed the footprints and an expert, John Mitchell, testified about comparisons he made between the footprints at the store and a pair of the defendant’s shoes later seized from his residence. The expert testified that the footprints at the store match the tread pattern from a pair of the defendant’s shoes, a size 10 pair of sneakers.

Mr. Walters came to police attention as a possible suspect after Timothy Smith, a police officer who has, on more than one occasion, arrested Mr. Walters, contacted Mr. Walters at his place of residence based on the belief that he vaguely fit the description of the robber. Officer Smith found \$521 on Mr. Walters’ person when he searched him and a subsequent search of Mr. Walters’ house revealed a large knife, “similar” according to Mr. Oates, to the knife he remembered from the robbery and a red bandanna. Additionally, Karen Parsons, who had been driving by the convenience store on her way home from work at the time of the robbery, reported seeing a large male run from the store and get into a dark colored, older model four-door domestic vehicle. Additionally, her description of the man she saw stated that he was tall and looked like he weighed at least 200 pounds. She was unable to obtain the license plate off the vehicle as it sped out of the convenience store parking lot. Department of Motor Vehicles records list Joe Lee Walters as the owner of a navy 1993 Chevy Lumina [this model of car is a four-door sedan].

The defendant claims that he was home on the evening of the robbery, but that no one was with him and thus his alibi cannot be verified. Mr. Walters claimed that the money found on his person was

money that had been owed to him by a friend, Javier Ortez, who had recently paid back the money. Javier, he testified, traveled a lot doing odd jobs and migrant work in the different towns he passed through. The police were unable to locate the friend and verify the source of the money. In addition, Mr. Walters reported that Officer Smith, who arrested him for the robbery, has been harassing him for years and was just looking for a reason to arrest him. During cross-examination by the defense attorney, Karen Parsons admits that it was raining the night of the robbery, so she did not have ideal conditions under which to view the vehicle that left the convenience store after the robbery. However, she states that she could still see the vehicle clearly because it had pulled out so close in front of her. The defense attorney also called the manager of a local shoe store to the stand to testify to the popularity of the defendant's shoes. The manager testified that size 10 is a common men's shoe size and that the type of sneaker that the defendant owned had been a best-selling style for the two months prior to the robbery. No other witnesses testified at the trial.

The defendant is charged with armed robbery. In order for Joe Lee Walters to be found guilty of this crime, you must find that each of the following elements are true beyond a reasonable doubt:

35. Joe Lee Walters used or threatened use of any firearms or other dangerous weapon, implement, or means.

36. Joe Lee Walters endangered or threatened the life of Oakes.

37. Joe Lee Walters unlawfully took or attempted to take personal property from another or from any place of business, residence, or banking institution or at any other place where there is a person or persons in attendance.

Please note whether you believe each of the above elements of the crime was proven true beyond a reasonable doubt (“A”) or was not proven true beyond a reasonable doubt (“B”) by filling in the appropriate bubble on your scantron, beginning on line 35 and ending on line 37.

38. If you were a juror at the above trial, please indicate what verdict you would render for the charge of armed robbery, based on the evidence you have been presented with.

I find the defendant, Joe Lee Walters, to be: _____ guilty beyond a reasonable doubt
_____ not guilty

Please fill in, on line 38 of your scantron, “A” if you voted guilty or “B” if you voted not guilty.

*For the following question, please circle (**on this page**) the value that best indicates your confidence in the verdict you rendered for this case.*

How confident are you in your verdict?

0 1 2 3 4 5 6 7 8 9 10

not at all

completely

PLEASE CHECK AND MAKE SURE THAT THE LAST ANSWER ON YOUR SCANTRON IS ENTERED ON LINE 38 BEFORE PROCEEDING TO THE NEXT PAGE.

Appendix C. Evidence Impact Rating Sheets

INSTRUCTIONS

Next you will be asked to complete several questionnaires about your general attitudes, as well as indicating the impact that evidentiary factors have on your verdict decisions. Please complete each questionnaire, making sure to enter each response on the appropriate line of your scantron.

ASSAULT CASE: EVIDENCE IMPACT

For the following evidence, please indicate how much weight/impact the following facts or evidence from the assault case had on your verdict decision, on a scale from 0 (no impact on your decision) to 4 (strong impact on your decision). Please enter the appropriate response for each item on your scantron, beginning on line 39 and ending on line 48. The assault case was the one involving an altercation between two coworkers at an office party.

0	1	2	3	4
(no impact)				(strong impact)

- 39. The defendant's blood alcohol level was .17.
- 40. The defendant had a prior conviction for assault.
- 41. Testimony from Ms. Danson that the victim did not move towards the defendant before he was punched.
- 42. The victim was taken to the hospital by his co-workers and treated for his injuries.
- 43. The victim made racial remarks about the defendant.
- 44. The victim had seven or eight beers on the night of the assault.
- 45. The victim later forgave the defendant.
- 46. The defendant only punched the victim once.
- 47. The victim suffered a broken ankle as the result of his fall.
- 48. The victim tripped over a planter and fell after he was punched.

Please answer the following question on this piece of paper.

What factors (e.g., evidence) did you find most influential when deciding on a verdict in this case?

ARMED ROBBERY CASE: EVIDENCE IMPACT

For the following evidence, please indicate how much weight/impact the following facts or evidence from the robbery case had on your verdict decision, on a scale from 0 (no impact on your decision) to 4 (strong impact on your decision). Please enter the appropriate response for each item on your scantron, beginning on line 49 and ending on line 58. The robbery case was the one that involved a convenience store clerk being held at knifepoint.

0	1	2	3	4
(no impact)				(strong impact)

- 49. The defendant had a prior conviction for robbery.
- 50. The defendant had a prior drug conviction.
- 51. Karen Parson's recollection of the license plate number matched DMV records identifying Mr. Walters' as the owner of that license plate and vehicle.
- 52. The convenience store clerk's testimony that the defendant had been in the store before and made him nervous.
- 53. The weather was clear, with few clouds, on the night of the robbery.
- 54. The defendant's fingerprints were found on the cash register.
- 55. The defendant is a known member of a gang.
- 56. The defendant testified that he received the \$521 he had in his possession at the time of his arrest from a friend who had since left town.
- 57. The allegations made that the police officer who arrested Walters' was racist.
- 58. The defendant was represented by a public defender.

Please answer the following question on this piece of paper.

What factors (e.g., evidence) did you find most influential when deciding on a verdict in this case?