The Influence of Intuitive Thinking Styles Versus Analytical Thinking Styles on the

Use of Stereotypes in Judgments

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Abstract

Participants were randomly assigned to receive one of two instruction sets, one which encouraged them to rely on their intuitions and another which encouraged a more analytical thinking style. Participants were also randomly assigned to read one of two reports in order to decide whether an elementary school student who exhibited some ambiguously aggressive behaviors should be recommended for a program designed for children with behavioral problems. The otherwise identical reports were either concerning a student named "Eric" or a student named "Tyrone." I predicted that participants would be more likely overall to recommend Tyrone for the behavioral program than Eric, but that this effect will be more pronounced for participants in the condition that encouraged an intuitive thinking style. This hypothesis was not confirmed. Participants in the condition that encouraged an intuitive thinking style were more confident in their judgments and less ambivalent about their judgments than participants who were encouraged to use an analytical thinking style.

Many people firmly believe that they would never base an important decision, such as whether to give a person a job or determine that person's guilt or innocence in a court of law, on a stereotype. In fact, people who report low levels of prejudice believe they are unaffected by stereotypes when it comes to their treatment of others, simply because they do not consciously endorse these stereotypes as valid (Devine, 1989; Plant & Devine, 1998). However, research has shown time and again that stereotypes often impact our judgment in numerous ways, whether or not we give credence to these potentially prejudicial beliefs (Devine, 1989; Fazio, Jackson, Dunton, & Williams, 1995; Macrae, Milne, & Bodenhausen, 1994). Most problematically, social psychologists have further demonstrated that we are not always capable of correcting for potential biases in our judgments of others, even at times when we are motivated to do so (Devine, Plant, Amodio, Harmon-Jones, & Vance, 2002; Plant & Devine, 2009). In fact, sometimes attempts to correct for biases backfire and lead people to become biased in a direction opposite from their stereotypes (e.g., Petty, Wegener, & White, 1995).

Stereotypes are defined as mental representations that associate individuals with specific characteristics based on their membership to a particular group (Amodio & Devine, 2006; Hilton & von Hippel, 1996). Although people often report knowing about specific stereotypes of various groups while disavowing these stereotypes' validity (Devine, 1989), many researchers have suggested thinking about stereotypes as a kind of heuristic that people automatically or implicitly use to interpret the behaviors of others more efficiently and with less cognitive effort (Banaji & Hardin, 1996; Bodenhausen, 1990; Bodenhausen & Wyer, 1985). More recently, however, Wegener, Clark, and colleagues (Wegener, Clark & Petty, 2006; Clark, Wegener, Brinol, & Petty, 2009) have shown evidence that stereotypes are not only used as judgmental

shortcuts, but that they can also bias judgment-relevant thinking and validate stereotype-consistent thoughts when the stereotypes are considered in a more deliberative manner.

Researchers have found repeatedly that stereotypes are frequently used when processing information and forming judgments, whether the stereotypic information is used in a relatively thoughtful or non-thoughtful manner. Consequently, negative stereotypes even influence the thinking and behavior of those who are targeted by them and experience negative consequences due to their application. A seminal study in early social psychology illustrated that young black girls were more likely to play with a white doll than a black doll when given a choice between the two because the white doll was more appealing to them (Clark & Clark, 1947). Relatedly, another study found that women rated scholarly articles more favorably when identical articles were attributed to male rather than female authors (Goldberg, 1968). These studies showing that stereotypes can be used even when they are opposed to one's own interests provide suggestive evidence that stereotyping can often be involuntary. Researchers have explored how people can control for these potentially prejudicial beliefs when making judgments, as there is considerable evidence for their widespread influence in social life.

The Continuum of Automatic vs. Controlled Processing

Research examining stereotype activation and how people subsequently control for prejudice often describes "automatic" versus "controlled" processing of information, and how the resulting thoughts can have different consequences for the use of stereotypes in judgment (Blair & Banaji, 1996; Payne, 2001; Wegener et al., 2006). In the context of decision-making, controlled processing refers to relatively more effortful cognitive processes that identify and elaborate on the most important aspects of the situation. On the other hand, "automatic

processing" refers to relatively more rapid, potentially involuntary processing that generally

sacrifices accuracy for efficiency when scrutinizing the available information (Gawronski &

Bodenhausen, 2006; Petty & Cacioppo, 1986). It is easiest to think of automatic versus

controlled processing as theoretical limits at each end of a continuum that represents an

individual's depth of processing (Craik & Lockhart, 1972), whereby a stereotype can be

activated and used relatively automatically (e.g. Bodenhausen, 1990) or relatively more

thoughtfully (e.g. Wegener et al., 2006), depending on many situational and individual factors.

In a culture that has grown to disapprove of negative stereotypes of minority groups,

researchers have previously assumed that many of the prejudicial judgments people make based

on stereotypes result from the relatively more automatic, involuntary form of information

processing. Support for this hypothesis is impressive, and can be found in studies showing that

people recall stereotypic information or make stereotypic judgments more frequently when they

have neither the motivation nor the time to override the influences of stereotyping on thinking

(Bodenhausen, 1990; Macrae, Hewstone, & Griffiths, 1993; Wigboldus, Sherman, Franzese, &

Knippenberg, 2004). For instance, Macrae et al. (1993) required participants to view a video of a

woman answering questions about herself, and manipulated whether the woman used relatively

stereotype-consistent or stereotype-inconsistent language to describe herself. Participants who

were placed under high cognitive load by being instructed to remember an 8-digit number while

viewing the video were more likely to recall stereotype-consistent information about the woman

in the video than the participants who did not have as cognitively demanding a task to perform,

and thus were also more likely to make judgments of the woman reflecting these stereotypes. In

another study by Wigdolbus et al. (2004), participants read particular behaviors of a person and

then identified whether a subsequently given trait accurately matched the aforementioned

behavior. Participants formed their evaluations of a person with either a common Asian name or a common Caucasian-American name, and half of the participants were placed under relatively higher cognitive load. Participants under higher cognitive load had a significantly longer reaction time when tasked with correctly rejecting a stereotype-consistent trait of a person with an Asian name than participants in the low cognitive load condition. These studies support the idea that stereotypes can frequently be used as judgmental heuristics, especially when motivation and ability to process information are relatively low.

Other research on stereotyping has shown that even in the absence of distraction, time constraints or cognitive load, people often rely on stereotypes to aid in judgments about ambiguous situations. Duncan (1976) conducted a seminal study showing that white participants were more likely to rate an ambiguous shove as aggressive when the person executing the shove was black rather than white. A follow-up study showed that students evaluated ambiguously aggressive behaviors, such as poking a classmate with a pen, as more violent when the actor was black rather than when the actor was white, regardless of the participating student's own race (Sagar & Schofield, 1980). The results from these studies indicate that stereotypes were not necessarily used as judgmental heuristics, but perhaps as schemas that acted as biases in thoughtful processing of the ambiguous information (Wegener et al., 2006). On the whole, evidence from these studies supports the idea that people are more susceptible to information provided by stereotypes when judgments are complex, ambiguous or require a substantial amount of interpretation.

An Attitudinal Perspective on Stereotyping

The history of stereotyping research in psychology follows closely the history of developing indirect measures of individuals' "implicit" associations and evaluations of others

(for a review, see Fazio & Olson, 2003). Research on sequential priming (the "bona fide pipeline;" Fazio, Jackson, Dunton, & Williams, 1995) and the implicit association test (IAT; Greenwald, McGhee, & Schwartz, 1998) was developed primarily to detect when individuals' more automatic responses in social categorization tasks were stereotype-consistent associations that people would otherwise not endorse on more deliberative measures of their evaluations. As a rule, these implicit measures require participants to complete the association tasks with such speed that controlled processing exerts a minimal influence on evaluative responses. Mapping onto the "automatic" versus "controlled" processes of stereotyping, researchers in the attitudes domain have repeatedly found that individuals report having relatively positive attitudes towards African-Americans on more controllable "explicit" measures, whereas these same individuals exhibit relatively greater negativity on less controllable "implicit" measures like the IAT (Greenwald et al., 1998; Petty, Brinol, & Johnson, 2012). For example, a person may consciously reject negative academic performance stereotypes of African Americans, but this person may still exhibit an automatic association of African-Americans with lesser intelligence on an implicit measure of their social categorizations.

Describing the Meta-Cognitive Model of attitudes (MCM), Petty, Briñol, and DeMarree (2007) explained that the phenomenon of discrepant implicit-explicit associations arises from object-evaluation links that differ in relative strength along with meta-cognitively applied "validity tags" that indicate whether or not a particular evaluative association is valid or true. For example, from historically fraught race relations to modern-day media representations, an individual may have acquired an impression of African-Americans as being more likely to behave violently than Whites. The attitude object (African-Americans) is therefore linked to the association or evaluation (aggressive, negative) in memory. However, if this person reflects on

his or her thoughts and concludes that he or she does not explicitly endorse this particular stereotype, then the evaluation is negated by linking it with a tag in memory, indicating that this association is "invalid." As long as a person has the cognitive resources available and is sufficiently motivated, he or she can access these validity tags to override the stereotypic association that would result from relatively less effortful processing. However, if one is not motivated to use a controlled thinking process or if one is unable to do so because of time constraints or cognitive distractions, one may access the negative stereotype association from memory without also retrieving the validity tag that designates this association as invalid. Thus, stereotypes might lead someone to make decisions that are diametrically opposed to one's consciously endorsed beliefs and values, depending on the extent to which motivation and ability to process individuating information are both relatively high and on how strong the implicit association is in memory.

The Present Research

The proposed study is focused on expanding our understanding of when stereotypes are more or less likely to be used in social judgments. This question is explored in two ways: (1) by manipulating the relative usefulness or liking for intuitive or "gut feelings" when asking people to make potentially stereotype-consistent judgments, and (2) assessing individuals' trait differences and their external versus internal motivations to control for their own prejudice. Each of these points is described in detail below

Influencing the Usefulness of Automatically Activated Stereotypes. There are social influences that affect the kind of processing people engage in and whether they are prone to use stereotypes. One such variable is social judgeability concerns, which motivate people to process

and use information in a way that is consistent with social expectations (Yzerbyt et al., 1994).

Loersch, McCaslin, & Petty (2010) showed that participants can be influenced to use

subliminally conditioned associations to a person on explicit self-report measures of attitudes

when social judgeability concerns were alleviated. Loersch et al. (2010) manipulated the

"usefulness" of these associations by telling half the participants that it was appropriate to use

their "gut feelings" to make a decision about the attitude object. Participants who were told to

"go with their gut" were far more likely to use subliminally presented information when forming

and expressing their attitudes toward a novel individual. That people often have thoughts or

experiences about their own thinking processes (i.e., meta-cognitions) means that people can also

deem some thoughts more valid than others, varying across individuals and situations (Petty et

al., 2007). Clearly, then, manipulating these meta-cognitive processes should also influence how

people use stereotypes, form attitudes, and make social judgments.

     Motivations to Respond without Prejudice. Social influences also affect the degree to

which people use stereotypes in person perception by potentially imbuing people with a

normative motivation to control for prejudicial responses (Plant & Devine, 1998; 2009). Reliance

on stereotypes to make reasonable judgments of others often goes against commonly known

social norms, but the reasons for people to be motivated to respond without prejudice can vary

across individuals and situations. A relatively high internal motivation to respond without

prejudice is based in personal beliefs that emphasize the relatively greater importance of values

like social equality, whereas a relatively high external motivation to respond without prejudice is

based in heightened fears of social disapproval. People can have both of these differential

motivational sources or neither of them, and each source of motivation carries its own

implications for successful control for prejudice. Those motivated to respond without prejudice

by external factors are most sensitive to learning ways by which their outwardly "detectable" prejudice can be controlled, whereas those motivated to respond without prejudice by internal factors are insensitive to whether their prejudice is relatively detectable or not (Plant & Devine, 2009). Interestingly, the interaction of internal and external motivations uniquely predicts the extent to which people exhibit implicitly measured race biases, such that people with relatively high internal and low external motivations to respond without prejudice show the least amount of racial bias on a race IAT (Devine et al., 2002).

   Other Individual Difference Measures. Several different variables have been proposed to predict the usage of stereotypes to make judgments. The effects of individuals' Need for Cognition (NFC; Cacioppo, Petty, & Kao, 1984) have been researched extensively with regards to the formation of attitudes. The NFC is defined as an individual's inclination towards engaging in higher-level processing when evaluating a message or forming an attitude. Participants high in NFC tend to focus more on the quality of arguments when evaluating a persuasive message, whereas those low in NFC tend to focus more on "peripheral cues," such as the number of arguments and the attractiveness of the source of the persuasive message (Petty, Cacioppo, & Morri, 1983). Another individual difference of interest for the current work is participants' Faith in Intuition (FI; Epstein et al. , 1996). FI is a measurement of how likely an individual is to trust his or her "gut feelings" about something as being accurate and thus useful for forming attitudes and rendering judgments. The FI inventory evaluates whether people prefer to use rational system, which is defined as analytic and relatively effortful, when processing information and making decisions or an experiential system, which is defined as holistic and comparably effortless. Importantly, FI has not been found to be significantly correlated with NFC. Although

these researchers have found no significant correlation between FI and modern racism, NFC has been shown to be negatively correlated with explicit racist attitudes (Epstein et al, 1996).

The present research examines the aforementioned variables of racial stereotype activation, external or internal motivations to respond without prejudice, and intuitive reasoning to examine how these variables taken together may influence the degree to which participants will use stereotypes to form attitudes about others and to make stereotype-relevant decisions. In the current study, I presented participants with a scenario that asked them to evaluate an ambiguously aggressive student, based on a classroom behavior report supposedly drafted by his teacher. Between participants, I manipulated whether participants were encouraged or discouraged from using their intuitions and "gut feelings" while processing information and forming an evaluation, and whether the student was perceived to be African-American or White, based on his first name (Eric or Tyrone; Wheeler, Jarvis, & Petty, 2001). I predicted that participants who were instructed to rely on (versus reject) their more automatic reactions and "gut feelings" about the student would be more likely to use stereotypic information to form stereotype-consistent judgments about a student as being more aggressive when the student was perceived to be African-American versus Caucasian-American. Furthermore, I predicted that participants who were instructed to rely on their gut feelings would express these stereotype-consistent attributions of aggression to the student with a higher degree of certainty, and would experience less ambivalence about their attitudes and attributions. I made these predictions based on the idea that controlling for prejudice and correcting for biases is a relatively more effortful process that involves accessing "validity tags" about particular stereotypical associations. Thus, I expected that participants instructed to rely more on their

automatic processing of information would be more likely to make stereotype-consistent judgments, because these participants would be more influenced by the strength and ease of recall of stereotypic associations in memory, and would be less likely to meta-cognitively assess the validity of these associations. I also predicted that these effects would be more pronounced for participants who reported low internal motivation to respond without prejudice, but high external motivation to respond without prejudice. This was because I expected alleviating social judgeability concerns with an instruction set encouraging the use of "gut feelings" would increase the likelihood that these participants they would make stereotypic judgments to a larger to degree than participants with high internal motivation and low external motivation to respond without prejudice. Furthermore, I predicted that manipulations of the perceived race of the student and thinking style instruction set may temporarily influence participants' external, but not internal, motivations to respond without prejudice, as measured at the very end of the study, as the experimental methods may cause people to be relatively more concerned with detectable forms of prejudice during the course of the study. Finally, I predicted that NFC and FI may moderate the degree to which the race manipulation and the thinking style manipulation influenced participants' use of stereotypes, although I did not make a prediction about the directionality of these potential moderators.

Method

Participants. 183 undergraduate students enrolled in an introductory psychology course at the Ohio State University participated in this study for course credit. Participants were randomly assigned to a 2 [instruction set: rely on gut feelings, reject gut feelings] by 2 [student race: African-American or White] between-participants factorial.

Procedure. Participants were presented with experimental instructions on laboratory computers using MediaLab software (Jarvis, 2010). Participants were told that the current study was being conducted in collaboration with the Department of Education at their university to examine how teachers and school administrators evaluated their students based on their observations of the students in a classroom setting. The instructions indicated that the participant would be learning some information about an actual student through a de-identified behavioral profile and, after reading this profile, the participant would make a series of judgments regarding his or her general impressions of the student, and whether the student should be enrolled in a demanding in-school program designed to reduce behavioral problems of students.

Gut feelings manipulation. Participants were randomly assigned to either rely on or reject their intuitions and gut reactions while learning about the student and forming an impression of him. All participants were told that they would be asked to determine whether or not an elementary school student should be recommended for placement in a program designed to assist students with behavioral problems. Participants who were assigned to rely on their intuitions and gut feelings received the following instructions:

> "Past research has demonstrated that these types of judgments are most objectively accurate when the evaluator trusts his or her "hunches" or initial feelings. This is because those who ignore their gut feelings begin to focus on irrelevant details and start to downplay the importance of key factors that would lead to the correct decision. Try to rely on your instincts and your "gut feelings" when making your decision."

Participants who were assigned to reject their intuitions and gut feelings received a different instruction set:

> "Past research has demonstrated that these types of judgments are most objectively accurate when the evaluator thinks about the decision in-depth. Past research has demonstrated that these types of judgments are most objectively accurate when the evaluator thinks about the decision in-depth. Try to ignore your

"gut feelings" as they arise and to only rely on reasons that are well-thought out when making your decision."

Student race manipulation. After receiving these instructions, participants were instructed to open the manila folders in front of them to examine the behavioral report of the child. This prompt also reminded participants of the instructions to either trust their intuitive thoughts or to reject their "gut feelings" when considering the information provided, depending on condition. Participants were randomly assigned to either read a behavioral report for a student that was named either Tyrone or Eric. This manipulation was used to prime stereotypes related to African-Americans or not, respectively (Wheeler et al., 2001). The behavioral reports were identical with the exception of the student's name. The report described several observations of potential behavioral problems as noted by that student's teacher, and these behaviors were designed to be ambiguously aggressive. For example, one item stated, "Tyrone (Eric) hit another student with a wadded up piece of paper, but he claimed it was an accident and that he was aiming for the trash can." (See Appendix A for a full list of these behaviors). In order to control for differences in time, participants were allotted two minutes to examine the report in the manila folder before the screen prompted them to continue with the experiment.

Measures. Next, participants provided their responses on various ratings of the child described in the report, including their attitudes toward the student, and their perceptions of the student's intelligence and aggressiveness on 7-point semantic differentials. The participants indicated their attitudes toward the student on two 7-point semantic differentials (e.g., 1 = not at all likable, 7 = very much likable). These two measures were highly related ($\alpha = .73$), so I averaged them to form a composite index of participants' attitudes towards the student. Then, participants gave their recommendation concerning whether or not the student should be placed in the program on a dichotomous choice measure, indicating either, "Yes, this student should be

enrolled in this program," or, "No, this student should not be enrolled in this program." Following their choice, participants rated their levels of certainty on two 7-point semantic differentials (e.g., 1 = not at all certain, 7 = very much certain) and these two measures were highly related (α = .85), so they were averaged into a composite index of participants' certainty. Finally, participants rated their ambivalence about their judgment on two 7-point semantic differentials (e.g., 1="I feel not at all mixed about my decision," 7="I feel extremely mixed about my decision") which were also highly related (α = .73), and so I averaged them into a composite rating of participants' ambivalence.

Participants also completed two items to check for the effectiveness of the manipulations and to verify that they had followed instructions and correctly perceived the intended race of the student. Participants responded to a question about the extent to which they used their gut feelings to make their decision on a 7-point semantic differential scale (e.g., 1="Not at all" 7="To a great extent"). They were also given a free-response question about what race they perceived the child as being.

After completing the first portion of the experiment, participants were told they would take a questionnaire as part of a different study on the personality and attitudes of students. The questionnaire presented 20 items, in random order from the Need for Cognition Scale (NFC; Cacioppo, Petty, & Kao, 1984), the Internal and External Motivations to Control for Prejudiced Responses Scales (Plant & Devine, 1998), and the Faith in Intuition Scale (FI; Epstein et al., 1996; see Appendix B for the complete list of these items). The NFC and FI scales were assessed at the same time as the internal and external motivation items so as to minimize participants' suspicions about the true purpose of collecting their responses to these items. Upon completion

of this section, participants were thanked for their participation and were fully debriefed on the

true purposes of the experiment.

Results

Manipulation checks. I tested to see whether the effects of the manipulations were

successful in influencing whether participants "correctly" identified the race of the student based

on the name of the student provided in the report, as well as whether participants used or rejected

their intuitions and "gut feelings." 5 participants failed to provide the correct name of the

student, and so they were excluded from further analyses. Among the remaining participants, 21

participants failed to identify the student with the "correct" race of the child, and so these

participants were also excluded from primary analyses.

Furthermore, when participants were repeated instructed to "use their intuitions" (versus

"reject their intuitions"), I expected that they would report using their gut feelings more on the

manipulation check measure. Entering this 2-cell manipulation (instruction set: use intuition

versus reject intuition) into a one-way ANOVA revealed a null effect of instruction set, $F(1,

155)=0.05$, $p=.819$. Participants who were instructed to "use their intuition" used their gut to a

relatively high degree (M=5.5), but participants who were instead instructed to "reject their

intuition" did not significantly differ in the extent to which they reported using their gut feelings

(M=5.5). In examining the distribution of participants' responses to this 7-point measure, I found

that those instructed to use their intuitions reported using their gut feelings at a minimum of 3

and a maximum of 7, the high endpoint of the scale. In contrast, participants that were instructed

to reject their intuitions reported using their gut feelings across the entire range of values,

including the top two maximum scores on this measure. This indicated that many participants

used their gut to a large degree, even when explicitly instructed not to do so. Thus, based on the distribution of scores from those participants who were instructed to "go with their gut," I excluded 47 participants in the "reject your gut" condition who provided a response at the top two points of the instructional manipulation check measure. When entering both student race and instruction set as predictors of the gut feelings manipulation check measure, there was only a main effect of instruction set, $F(1,108)=23.92$, $p<.001$, indicating that this exclusion rule successfully isolated participants who followed experimental instructions. In all, the exclusion criteria based on these manipulation checks removed 73 participants from the initial sample, leaving a total of 110 participants for primary analyses.

Attitudes toward the student. Attitudes toward the student were submitted to a 2 [instruction set: use intuition versus reject intuition] X 2 [student name: Eric versus Tyrone] between-participants ANOVA. There was no significant effect of the name of the student on participants' attitudes toward the student, $F(1,105)=0.32$, $p=.727$, $\eta_p^2=.006$, nor was there a significant effect of the instruction set on participants' attitudes toward the student, $F(1,105)=0.43$, $p=.515$, $\eta_p^2=.004$. The interaction between the two independent variables was also not significant, but was trending towards significance such that participants instructed to use their gut feelings liked Tyrone more (M=3.68) than when instructed to reject their gut feelings (M=3.31), but participants instructed to use their gut feelings liked Eric less (M=3.56) than when instructed to reject their gut feelings (M=3.76), $F(1,105)=2.56$, $p=.112$

Judgment to recommend student to disciplinary program. Participants' dichotomous choice of recommending or not recommending that the student be placed into a behavioral program was also submitted to a 2 X 2 ANOVA. There was no significant effect of the thinking style manipulation, $F(1,105)=0.64$, $p=.424$, $\eta_p^2=.006$, and the name of the student also did not

have a significant effect, $F(1,105)=1.16$, $p=.319$, $\eta_p^2=.022$. The interaction between this two variables also produced no significant effect, $F(1,105)=0.30$, $p=.583$, $\eta_p^2=.003$.

Judgmental certainty, ambivalence, and discomfort. Despite the null findings, I was interested in seeing if the manipulations were effective in predicting changes in participants' reported certainty, ambivalence, and general feelings of discomfort after making a decision about the student. Thus, these three measures were also submitted to 2 X 2 between-participants ANOVAs, with instruction set and student race entered as factors. The results revealed a main effect of instruction set on certainty, $F(1,105)=10.89$, $p<.001$, $\eta_p^2=.094$. Participants instructed to reject their gut feelings were significantly less certain in their judgments (M=4.14) compared to those who were instructed to rely on their gut feelings (M=5.01). There was also a significant main effect of the thinking style manipulation on participants' ambivalence, $F(1,105)=4.11$, $p<.05$, $\eta_p^2=.038$. Participants instructed to rely on their gut feelings (M=3.31) were significantly less ambivalent than participants instructed to reject their gut feelings (M=3.85).

Motivation to Respond without Prejudice. I was also interested to see if the manipulations affected participants' motivation to respond without prejudice. A 2 X 2 between-participants ANOVA by condition revealed a significant main effect of the name of the student on participants' self-reported external motivation to respond without prejudice, $F(1,105)=3.72$, $p<.05$, $\eta_p^2=.066$. Participants who received information regarding a student named Tyrone (M=5.39) reported significant greater external motivation to respond without prejudice than participants who received information regarding a student named Eric (M=4.88). Furthermore, the interaction between thinking style condition and the name of the student was significant, $F(1,105)=5.40$, $p<.05$, $\eta_p^2=.049$. When participants read about a student named Tyrone, they expressed greater externally-focused motivations to respond without prejudice in their responses

when they were instructed to reject their gut feelings (M=5.98) relative to those who were told to

rely on their gut feelings(M=5.18). Conversely, when participants learned about Eric, they

expressed significantly less external motivation to respond without prejudice when instructed to

reject their gut feelings (M=4.27) relative to those who were told to rely on their gut feelings

(M=5.19).

Correlational analyses. Given that the manipulations failed to yield significant effects on

several of the dependent measures, I conducted correlational analyses among the variables of

interest to determine if any of the predicted patterns would emerge (see Table 1). In the present

study, participants who perceived the student as aggressive were significantly more likely to

recommend that student for placement in the behavioral program, $r = .254$, $p < .01$. Participants

who decided to recommend either student for placement in the behavioral program were

significantly more likely to report feeling conflicted about their decision, $r = .202$, $p < .05$.

When analyzing the individual difference measures, it was found that those higher in FI

were significantly more likely to report feeling more certain in their judgment, $r = .241$, $p < .05$.

There were also significantly less likely to report feeling conflicted about their judgments, $r = -.194$, $p < .05$. Furthermore, participants higher in FI were less likely to recommend either student

for placement in the behavioral program, $r = -.197$, $p < .05$. Participants high in NFC were

significantly more likely to report having high internal motivation to control for prejudice, $r = .190$, $p < .05$.

Table 1

Correlations Between Measures

		GutGood	TyroneY	contrast	External	Internal	yjudg	attitude	certain	ambiv
GutGood	Pearson Correlation	1	.086	-.121	.096	.056	-.070	.081	.310**	-.193*
	Sig. (2-tailed)		.362	.199	.305	.556	.457	.389	.001	.039
	N	115	115	115	115	115	115	115	115	115
TyroneY	Pearson Correlation	.086	1	.380**	.179	.143	-.048	-.048	-.115	.106
	Sig. (2-tailed)	.362		.000	.055	.126	.609	.610	.221	.259
	N	115	115	115	115	115	115	115	115	115
contrast	Pearson Correlation	-.121	.380**	1	-.142	.057	-.029	.051	-.022	.020
	Sig. (2-tailed)	.199	.000		.130	.546	.755	.587	.815	.831
	N	115	115	115	115	115	115	115	115	115
External	Pearson Correlation	.096	.179	-.142	1	.104	.100	-.169	-.047	.127
	Sig. (2-tailed)	.305	.055	.130		.267	.288	.071	.615	.176
	N	115	115	115	115	115	115	115	115	115
Internal	Pearson Correlation	.056	.143	.057	.104	1	-.007	.085	.066	.088
	Sig. (2-tailed)	.556	.126	.546	.267		.938	.369	.485	.350
	N	115	115	115	115	115	115	115	115	115
yjudg	Pearson Correlation	-.070	-.048	-.029	.100	-.007	1	-.342**	-.160	.206*
	Sig. (2-tailed)	.457	.609	.755	.288	.938		.000	.088	.027

	N	115	115	115	115	115	115	115	115	115
attitude	Pearson Correlation	.081	-.048	.051	-.169	.085	-.342**	1	.261**	-.208*
	Sig. (2-tailed)	.389	.610	.587	.071	.369	.000		.005	.026
	N	115	115	115	115	115	115	115	115	115
certain	Pearson Correlation	.310**	-.115	-.022	-.047	.066	-.160	.261**	1	-.621**
	Sig. (2-tailed)	.001	.221	.815	.615	.485	.088	.005		.000
	N	115	115	115	115	115	115	115	115	115
ambiv	Pearson Correlation	-.193*	.106	.020	.127	.088	.206*	-.208*	-.621**	1
	Sig. (2-tailed)	.039	.259	.831	.176	.350	.027	.026	.000	
	N	115	115	115	115	115	115	115	115	115

**NOTE: contrast = GutGood * TyroneY

Discussion

I hypothesized that participants instructed to rely more on their intuitions and gut feelings as they evaluated an ambiguously aggressive student would be more likely to make stereotypical and prejudicial judgments when this student was perceived to be African-American, compared to participants instructed to reject their "gut feelings" and when the student was perceived to be White. Analysis of the results indicated that participants did not differ in their attitudes toward the student across any of the conditions. Participants who received an instruction set to rely on their "gut feelings" to make their judgments were also no more likely to recommend a student named Tyrone for placement in a behavioral program than a student named Eric; furthermore, participants who were given a student named Tyrone to evaluate, rather than a student named Eric, were not significantly more likely overall to recommend the student for placement in a disciplinary behavioral program. Thus, the primary hypotheses were not confirmed.

There are several possible reasons why this experiment may not have yielded the predicted pattern results. Perhaps a manipulating the perceived race of the student by using names of a student was too salient to produce the intended effects. Also, perhaps the number of ambiguously aggressive behaviors included in the student report built too effective of a case that this student's need to be placed in a behavioral program was difficult to determine. A situation involving less evidence to consider might have prompted participants to rely more on a heuristic thinking style when directed to do so. Also, analysis of the extent to which participants reported using their gut feelings showed that those participants directed to not use their "gut feelings" actually reported relying on their "gut feelings" to a large extent. This might suggest that some people have difficulty rejecting their "gut feelings" if they tend to rely on their intuitions when the information is ambiguous. In a future study, a control condition that makes no recommendation of how to think about the available evidence could be added to further evaluate the effectiveness of this manipulation.

Although the initial hypotheses were not confirmed, some of the results obtained were consistent with what could be predicted from the existing literature on stereotyping and judgments. I hypothesized that the when people perceived the student as more aggressive, people would be more likely to recommend that the student be placed in the disciplinary program, and the correlation analyses confirmed this prediction. Thus, the conceptual relationship between these two variables seems to be sound. Additionally, the interaction of the manipulations successfully prompted participants to report possessing relatively more extreme external, but not internal, motivations to respond without prejudice, such that participants who were instructed to reject their intuitions and gut reactions scored much higher when the student was named Tyrone versus when he was named Eric. In other words, by trying to alleviate participants' social

judgeability concerns by encouraging them to rely on their intuitions and gut feelings, the manipulations might have ironically increased their social judgeability concerns, causing participants to claim that their thinking style was consistent with what was requested. An alternative explanation for the null results on the dependent measures of interest, then, might be that participants were motivated to hide any detectable signs that prejudicial beliefs may have influenced their attitudes toward, and judgments of, a presumably African-American student. Future work could possibly use more subtle manipulations of student race, perhaps by giving the student a race-neutral name (e.g., Terry, D.J.) and subsequently pairing this name with subliminal primes related to African-American or White categories. Giving participants an IAT either prior to or after the experiment might also determine whether judgments made about the student depend on implicit attitudes associating African-American with aggression, and whether participants' judgments are impacted by these implicit attitudes depending on whether they were instructed to rely on or reject these relatively more automatic associations.

Interestingly, participants instructed to rely on their gut feelings to make their decision were more likely to report feeling more confident and less conflicted about their decision compared to participants rejecting their intuitions, regardless of their actual judgments of the student. This suggests that instructing participants to trust more in their intuitions may temporarily alter their liking of their intuitions in such a way that they behave similarly to someone who reports high chronic Faith in Intuition (Epstein et al., 1996). Perhaps a byproduct of using an intuitive thinking process is that those who believe it is the best method to arrive at a judgment also end up having higher certainty in their judgments.

It is also entirely plausible that individual differences in Need for Cognition (NFC; Cacioppo, Petty, & Kao, 1984) and FI (Epstein et al., 1996) may reflect individuals' preferences

to process information at two extreme of a processing continuum, which may in turn predict consequentially different patterns of results in the current study. When it comes to stereotyping, research has shown that individuals high versus low in NFC are both affected by stereotypes when making judgments, but in different ways. Crawford and Skowronski (1998) found that individuals low in NFC were more likely to directly use stereotypes as a basis for judging a Hispanic defendant as guilty, whereas those high in NFC were more likely to base their decision on thoughtful consideration of the information given. However, individuals high in NFC were still susceptible to the effects of stereotyping in that they demonstrated a memory bias for remembering more information that would suggest guilt when the defendant was Hispanic rather than Caucasian.

There are potentially interesting implications for NFC and FI to separately or interactively moderate the results of the current study, and future research would benefit from an examination of these individual differences on their effects on people when forming evaluations using relatively more automatically-activated, "intuitive" information, and how these two individual differences might predict expressed external and internal motivations to respond without prejudice when race is a salient social feature of the situation.

More research is needed studying the relationship between individuals' tendency to use their intuitions and their judgmental certainty. It appears from this study that relying more on intuitions and gut feelings leads people to feel more certain and less conflicted in their evaluations, even when the information they are processing is vague or ambiguous. Possible future directions might involve determining whether this effect is robust and holds up under other types of manipulation or what the possible mechanisms driving this effect might be.

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Appendix A

Student report form given to participants

BEHAVIOR OBSERVED DURING EVALUATION PERIOD:

01/16/12 Tyrone/Eric hit another child with a wadded up piece of paper, but he claimed it was an accident and that he was aiming for the trash can.

01/19/12 Tyrone/Eric had to be disciplined for poking another student with his eraser until the child got annoyed today.

01/25/12 Another student claimed that Tyrone/Eric was annoying him while the group was out in the hallway working on a project. He said that Tyrone kept trying to distract him from getting the work done. This is a student Tyrone/Eric has had some problems with before.

02/20/12 Tyrone/Eric took a pencil off of another child's desk without asking, and he returned it quickly when asked to do so.

02/27/12 Tyrone/Eric bumped into another student walking down the hallway. However, it was unclear to me whether Tyrone/Eric was intentionally pushing the other child or not paying attention to where he was going.

03/15/12 Tyrone/Eric refused to read and seemed to be in a poor mood all day.

03/25/12 I noticed Tyrone/Eric and another child in an argument on the playground. I noticed Tyrone/Eric yell, "Shut up!" to the other child, then I went to intervene. The other children who witnessed the incident claim that they do not know who started the argument.

OTHER COMMENTS:

Tyrone/Eric appears to be a bright student at times, but is very quiet and sometimes moody.

Seems capable of doing well, but struggles with a few subjects. It appears he gets along with a

few of his peers, but sometimes keeps to himself and gets into arguments with other students.

Appendix B

Faith in Intuition. (rated from 1-5, 1="Completely false" and 5="Completely true").

I trust my initial feelings about people.

I believe in trusting my hunches.

My initial impressions of people are almost always right.

When it comes to trusting people, I can usually rely on my "gut feelings."

I can usually feel whether a person is right or wrong, even if I can't explain how I know.

External Motivation to Respond without Prejudice. (rated from 1-9, 1="Strongly disagree and 9="Strongly agree").

Because of today's PC (politically correct) standards, I try to appear non-prejudiced towards Black people.

I try to hide any negative thoughts towards Black people in order to avoid negative reactions from others.

If I acted prejudiced towards Black people, I would be concerned that others would be angry with me.

I attempt to appear non-prejudiced towards Black people in order to avoid disapproval from others.

I try to act non-prejudiced towards Black people because of pressure from others.

Internal Motivation to Respond without Prejudice (rated from 1-9, 1="Strongly disagree and 9="Strongly agree")

I attempt to act in non-prejudiced ways toward Black people because it is personally important for me.

According to my personal values, using stereotypes about Black people is OK.

I am personally motivated by my beliefs to be non-prejudiced toward Black people.

Because of my personal values, I believe that using stereotypes about Black people is wrong.

Being non-prejudiced toward Black people is important to my self-concept.

Need for Cognition (rated from 1-5, 1="Completely false" and 5="Completely true").

I prefer complex to simple problems.

I like to have the responsibility of handling a situation that requires a lot of thinking.

I find satisfaction in deliberating hard and for long hours.

The idea of relying on thought to make my way to the top appeals to me.

I really enjoy a task that involves coming up with new solutions to problems.