

Not All Stereotyping Is Created Equal: Differential Consequences of Thoughtful Versus Nonthoughtful Stereotyping

Duane T. Wegener and Jason K. Clark
Purdue University

Richard E. Petty
Ohio State University

Much research emphasizes heuristic use of stereotypes, though stereotypes have long been considered as capable of influencing more thoughtful processing of social information. Direct comparisons between thoughtful and nonthoughtful stereotyping are lacking in the literature. Recent research in attitude change emphasizes the different consequences of judgments arising from relatively thoughtful versus nonthoughtful processes. Therefore, increased thought could not only fail to decrease stereotyping but might also create stereotypic perceptions that are more likely to have lasting impact. The current studies demonstrate thoughtful and nonthoughtful stereotyping within the same setting. More thoughtful stereotyping is more resistant to future attempts at change and to warnings of possible bias. Implications are discussed for the typical research questions asked after observing stereotypic judgments.

Keywords: stereotyping, prejudice, attitudes, resistance, bias correction

Perhaps the largest “growth industry” in social psychological research over the last 10–15 years has been the study of stereotyping and prejudice. Although social psychologists had been concerned with such topics for much of the 20th century (e.g., see Allport, 1954), development of social–cognitive models and methodology paved the way for a great expansion of research on the topic. Much of the recent work has been guided by the influential distinction between automatic and controlled processes. For the most part, *automatic* processes have been studied as a means by which stereotypes influence perception and judgment (e.g., Banaji & Hardin, 1996; Devine, 1989; Perdue & Gurtman, 1990). These influences have especially been studied as processes that require little or no intention or thought and as processes over which people have little control (cf., Bargh, 1994). In contrast, *controlled* processes have generally been studied as a means by which stereotype influence is resisted or avoided (e.g., Devine, 1989; Macrae, Bodenhausen, Milne, & Jetten, 1994; see Devine & Monteith,

1999, for a review). For example, consider a person who knows the cultural stereotype about a group but who personally disagrees with the stereotype and prefers not to use it. This person might show evidence of stereotyping when automatic processes dominate (e.g., when speeded responses are required or cognitive resources are low) but relative lack of stereotyping when controlled processes are more likely (e.g., when responses are not rushed and cognitive resources are high).

The research in the current article focuses on stereotyping processes that differ in their amount of thoughtfulness. Some cognitive processes involve shallow, heuristic, top-of-the-head responses that require little or no cognitive effort. Other processes involve more cognitive effort, as the person considers the meaning of presented information, compares it with existing knowledge, assesses its validity and importance, and attempts to integrate it into a coherent and defensible overall impression. This “amount of thinking” continuum is central to prominent models of impression formation and evaluation (e.g., the continuum model, Fiske & Neuberg, 1990; the dual-process model of impression formation, Brewer, 1988; the elaboration likelihood model [ELM], Petty & Cacioppo, 1986; the heuristic–systematic model, Chaiken, Liberman, & Eagly, 1989; and the unimodel, Kruglanski & Thompson, 1999; see Chaiken & Trope, 1999). Amount of thinking (also referred to as *amount of processing*, *scrutiny*, or *elaboration*) is correlated with, but not synonymous with, distinctions such as automatic versus controlled processing (Devine, 1989) or spontaneous versus intentional impression formation (Uleman, 1999). For example, processes that lie toward the low end of an amount-of-thinking continuum could involve some level of intention to form an impression. Like many stereotyping studies, in the current research, the task is introduced as forming an impression of a target. Yet, amount of thinking about the behavior of the target is restricted in some conditions by the presence of a secondary task.

Duane T. Wegener and Jason K. Clark, Department of Psychological Sciences, Purdue University; Richard E. Petty, Department of Psychology, Ohio State University.

A preliminary report of Experiment 3 was presented at the 2001 meeting of the Midwestern Psychological Association, Chicago, IL, a preliminary report of Experiment 4 was presented at the 2004 meeting of the Society of Personality and Social Psychology, Austin, TX, and a preliminary report of Experiment 5 was presented at the 2005 meeting of the Midwestern Psychological Association, Chicago, IL. This research was supported by National Science Foundation Grant 0094510-BCS.

We thank members of the 1999–2002 Social Cognition Lab Group at Purdue University for their helpful comments concerning this research. We also thank the following individuals for their assistance with data collection and coding: Adam Behnke, Joe Brown, Brent Buscher, Jamie Hughes, Jeannie Jamison, Mysti Jones, Brittney Koger, Chris McAfee, James Phares, Carla Sparacino, and John Statzer.

Correspondence concerning this article should be addressed to Duane T. Wegener or Jason K. Clark, Department of Psychological Sciences, Purdue University, West Lafayette, IN 47907-1364. Email: wegener@psych.purdue.edu or jclark@psych.purdue.edu

Nonthoughtful Use of Stereotypes

Consistent with past research using the automatic versus controlled distinction and with models using the amount-of-thinking

dimension, much research on the judgmental effects of stereotypes has emphasized use of stereotypes as heuristics, simple cues, or short cuts to judgment (e.g., Bodenhausen, 1990; Macrae, Milne, & Bodenhausen, 1994). Bodenhausen, Sheppard, and Kramer (1994) expressed this emphasis by stating that “stereotypes can be viewed as judgmental heuristics that are relied upon by social perceivers whenever they lack the ability or the inclination to think more extensively about the unique personal qualities of outgroup members” (p. 49). Similarly, Macrae, Milne, et al. (1994) noted that “individuation, in its many guises, is a rather time consuming and effortful affair . . . Stereotyping, in contrast, relies only on the execution of some rather rudimentary skills” (p. 37). Thus, according to this approach, stereotyping should occur most when motivation or ability to think about the target is relatively low. This prediction is supported by many empirical investigations demonstrating increased use of stereotypes when people are under time pressure (e.g., Freund, Kruglanski, & Shpitajzen, 1985; Kruglanski & Freund, 1983) or cognitive load (e.g., Gilbert & Hixon, 1991; Macrae, Hewstone, & Griffiths, 1993), are experiencing an overload of information (e.g., Bodenhausen & Lichtenstein, 1987), or are at low levels of circadian arousal (Bodenhausen, 1990). Similarly, use of stereotypes is decreased when motivation to think about individuating information is relatively high, as when people expect to be held accountable for their ratings of targets (e.g., Nelson, Acker, & Manis, 1996; see also Neuberg, 1989; Neuberg & Fiske, 1987).

Thoughtful Stereotyping

Stereotypes have also been discussed as influencing judgments when social perceivers are engaged in effortful thinking about target-relevant information. For example, Kunda and Oleson (1995, 1997) suggested that stereotype maintenance after encountering a deviant group member is likely only to the extent that perceivers can find good grounds for dismissing the deviant (see also Allport, 1954; Kunda, 1990). The “rationalization” described by Kunda and Oleson should involve effortful thinking, and Yzerbyt, Coull, and Rocher (1999) have found that “fencing off” of a deviant, thereby maintaining previous stereotypic views of the group, occurs only when people are not distracted during receipt of target information. These data do not discount potentially efficient means of maintaining stereotypes (e.g., Bodenhausen & Macrae, 1998; von Hippel, Sekaquaptewa, & Vargas, 1995). They do suggest, however, that people can use and defend stereotypes when effortfully thinking about social information. In the stereotype maintenance research, group stereotypes are both the presumed causes and the judgment outcomes. The research does demonstrate effortful thinking in the service of maintaining stereotypic views of the group. However, perceptions of the individual deviant target have not been influenced by the group stereotype (presumably by virtue of being fenced off from the group). In other research, however, perceptions of the target have been influenced, presumably through biased thinking about target-relevant information.

As one example of the latter, Darley and Gross (1983) showed participants a videotape of a girl’s school and neighborhood (showing that she had low or high socioeconomic status; SES) followed, for some participants, by footage of the girl taking an intelligence test on which she performed ambiguously. For participants who saw no test performance, SES information alone had no biasing impact on ratings of the girl’s abilities. However, partici-

pants who saw the test performance rated the girl as having greater intellectual ability when she was more affluent. Because the testing information had to be present for the biases to occur, this study is often cited as evidence of some type of biased processing of the information (for conceptually similar results, see also Kunda & Sherman-Williams, 1993). Darley and Gross (1983) interpreted these effects as being due to hypothesis testing that was biased in an expectancy-consistent direction, noting that “expectancy confirmation, then, does not always result from an automatic inference process. Instead, it occurs as the end product of an active process in which perceivers examine the labeled individual’s behavior for evidence relevant to their hypothesis” (p. 28).

Consistent with the attitudes literature (e.g., Petty & Cacioppo, 1986), we use the term *biased processing* to describe the active, thoughtful, processes described by Darley and Gross (1983). Biased processing could include a number of mental operations that come together to influence the final judgment. For example, Darley and Gross noted that their results could have been due to selective recall of presented information, differential weighting of consistent versus inconsistent information when formulating perceptions of the target, and generation of reinterpretations of inconsistent information that make the information more consistent with initial expectations (cf., Petty & Cacioppo, 1986).

Although Darley and Gross (1983) interpreted their results as evidence of thoughtful (active) stereotyping, two approaches could suggest that the results might have relied only on relatively low-thought mechanisms. One approach suggests that biased encoding of the behaviors could have directly influenced ratings, even if processing of the behavioral information was minimal. For example, high cognitive load during receipt of information encourages spontaneous trait inferences from stereotype-consistent rather than stereotype-inconsistent behaviors (Wigboldus, Sherman, Franzese, & van Knippenberg, 2004). Load also leads to later priming of stereotypic traits by the stereotype-consistent behaviors (Sherman, Lee, Bessenoff, & Frost, 1998). Of course, encoding effects could also feed into more thoughtful processes used in formulation of judgments rather than more directly influencing judgments.

A second possible approach would be to suggest that stereotypic judgments are the result of selective use of a stereotype heuristic. Darley and Gross (1983) noted that social perceivers may be unwilling to base judgments solely on a category-based hypothesis. Yet, as Yzerbyt and his colleagues have suggested under the rubric of *social judgeability*, perceivers may be willing to rely on such hypotheses if they also believe that they have received diagnostic information about the target. This may occur even if social perceivers do not actually receive any individuating information to think about (Yzerbyt, Schadron, Leyens, & Rocher, 1994). Social judgeability researchers do not contend that the Darley and Gross (1983) results are necessarily heuristic in nature (e.g., Yzerbyt et al., 1999) but note that they may be (see Yzerbyt, Leyens, & Corneille, 1998), despite Darley and Gross’s claims of a bias in active information processing.

Other researchers have also suggested that stereotypes can be used as part of effortful processes. For example, Nolan, Haslam, Spears, and Oakes (1999) suggested that when social information fits stereotypes, stereotyping can actually be greater when cognitive load is low rather than high. Such predictions are consistent with views of stereotypes as providing valuable information about social reality (e.g., Oakes, Haslam, & Turner, 1994; see also Fiedler & Walther, 2003; Jussim, 1991). From this point of view,

effortful stereotyping should be a common part of social perception.

Thoughtful and Nonthoughtful Stereotyping

It seems, then, that the stereotyping literature has two sides. Many experiments (and theories) have focused on nonthoughtful heuristic impact of stereotypes on social judgments. Other approaches and theories, however, have examined stereotyping in situations that might involve use of stereotypes in more thoughtful processes. In the current research, we seek to show that both types of processes can bring about stereotype-consistent judgments within the same experimental paradigm (cf., Goodwin, Gubin, Fiske, & Yzerbyt, 2000; Nolan et al., 1999), depending on the social perceiver's motivation and ability to think about the target.

One might ask why the relatively thoughtful or nonthoughtful nature of an effect would matter if the judgments are the same. This question has received a great deal of attention in the attitudes literature under the rubric of attitude strength. Stronger attitudes result from high rather than low levels of thinking and have been shown to persist longer over time (Chaiken, 1980; Petty, Haugtvedt, & Smith, 1995), better resist future attempts at change (Haugtvedt & Petty, 1992; Haugtvedt & Wegener, 1994), and more powerfully direct future judgments and behavior (Cacioppo, Petty, Kao, & Rodriguez, 1986; Sivacek & Crano, 1982; see Petty & Krosnick, 1995). Of course, in the domain of stereotyping and prejudice, it is also important to learn whether a particular judgment (e.g., negative reactions toward a job candidate from a stigmatized group) is likely to persist over time, change if attacked, or guide future behavior.

Paying attention to the distinction between relatively thoughtful and nonthoughtful processes has resulted in many insights into the operation and use of stereotypes. One of the most consistent and prominent insights has been that there is often greater impact of stereotypes on judgments at lower levels of information processing. In the current article, we argue that there are additional reasons to pay attention to the extent to which people are able to effortfully process social information—reasons that go beyond the possibility of different judgment outcomes. In particular, one might find a variety of settings in which stereotypes have just as much impact when information processing is high as when it is low. However, across such settings, the consequences of the judgments might differ in important and predictable ways, as has been the case in the literature on attitude change (see Petty & Wegener, 1998).

Overview of Preliminary Research: Experiments 1 and 2

In the current article, we use a variation on the Darley and Gross (1983) paradigm to demonstrate both thoughtful stereotype-based biased processing and less thoughtful heuristic stereotyping within the same paradigm. Which type of stereotyping effect occurs should depend on a person's extent of information processing activity. We influenced ability to process social information by introducing a cognitive load in some conditions (similar to Gilbert & Hixon, 1991; Macrae et al., 1993; Stangor & Duan, 1991; Yzerbyt et al., 1999).

Because the current paradigm and manipulations differ somewhat from past research, we began by ensuring that the stimuli and manipulations are capable of replicating typical effects from past

stereotyping research. Therefore, in Experiment 1, we sought to replicate effects of cognitive load on stereotypicality of judgments (e.g., Gilbert & Hixon, 1991; Macrae et al., 1993). To do this, we began with relatively brief and clear performance information about a child. These aspects of the stimulus set corresponded to past research in which increased information processing decreases the impact of heuristic, peripheral, cues in persuasion (Chaiken & Maheswaran, 1994; Petty & Cacioppo, 1986).

The goal for Experiment 2 was to use the same basic paradigm but to adjust it in ways that make it more similar to the original stimuli used in the Darley and Gross (1983) research. In particular, we used more ambiguous performance information, because previous studies showing effortful biased processing have used relatively ambiguous target-relevant information (e.g., Chaiken & Maheswaran, 1994; Petty, Schumann, Richman, & Strathman, 1993; cf., Darley & Gross, 1983; Kunda & Sherman-Williams, 1993).

These two preliminary studies set the stage for Experiment 3, in which we manipulated cognitive load of perceivers while they received relatively ambiguous target information. This enabled us to experimentally compare the nonthoughtful and thoughtful stereotyping effects from the preliminary research. In each of the first three experiments, we incorporated the thought-listing methodology common in attitude change research as a way to address the potential thoughtfulness of the various stereotyping results (and as purported for the original Darley & Gross, 1983, study). Consistent with data in the attitudes literature, when stereotyping is thoughtful and stereotypes are biasing information processing, SES of the child should influence listed thoughts about the child in a stereotype-consistent manner. These thoughts should, in turn, influence the judgments of the child (see Petty, Ostrom, & Brock, 1981; Wegener, Downing, Krosnick, & Petty, 1995). However, when stereotyping effects are relatively nonthoughtful, SES of the child should not influence listed thoughts. Because the only stereotyping effects in Experiment 1 were expected to be of the low-thought variety (when cognitive load is high), listed thoughts should not mediate such effects. However, listed thoughts may represent a plausible mediator of stereotyping effects on judgments when information is more ambiguous and social perceivers are not distracted (in Experiment 2). If so, this would set the stage for a comparison in Experiment 3 of these thought-mediated stereotyping effects with possible distraction-induced heuristic stereotyping (not mediated by thoughts).

Experiment 1: Cognitive Load Influencing Amount of Stereotyping

In each experiment, people received information about a child's SES and the child's supposed answers to questions on an intelligence test. Although Experiment 1 was a preliminary study, its methodology paralleled that used in each experiment to follow. Therefore, the methods are described in detail, with only the relevant changes described for each subsequent study. As noted earlier, we expected that our manipulation of cognitive load would influence the likelihood of stereotypic judgments in Experiment 1 (with more stereotyping under high load), because the stimuli were relatively brief and unambiguous, similar to past attitude studies showing influences of amount of processing on likelihood of cue effects.

Method

Participants and Design

Fifty-nine Purdue University undergraduates were randomly assigned to conditions of a 2 (SES: low, high) \times 2 (cognitive load: low, high) between-participants design. The students received partial course credit in their introductory psychology classes.

Procedure

One to 7 participants arrived for a session and were each asked to sit at a visually isolated computer work station. The session began with each participant choosing a number between 1 and 35, supposedly for the purpose of randomly identifying a target for the study. Each number was said to identify a specific child from a sample of children that varied widely in academic ability. After choosing a number, participants were instructed to face the computer screen as they were given a fact sheet about a particular child. This sheet contained the manipulation of SES as well as some filler information. Participants were told their task was to read this material and then evaluate this child's performance on part of an academic ability test. Regardless of which number participants selected, a 9-year-old White boy named Donald was the target child. The background sheet was left with participants, so it was available for viewing, though not required, throughout the computerized portion of the study.

The computer materials were presented using MediaLab (2002) software. The study was introduced as an investigation of home ability testing. More specifically, the cover story concerned how accurately people without formal training could evaluate the abilities of children. All participants were told to "think hard" about the child's performance on the test, taking into account not only answers to questions but also the level of question difficulty. Before receiving target information, participants viewed a sample test question and were informed of the location and meaning of headings related to the content area of the question, the grading of the answer, and the difficulty of the question. Participants entered the number they had chosen to begin the session, and the computer presented a screen identical to the information sheet participants had received from the experimenter.

In addition to the cover story, some participants were told that the study was designed to simulate everyday circumstances in which people have to divide their attention across two activities. This division of attention constituted the cognitive load manipulation and is described below. To provide a rationale for all participants to wear headphones throughout the study, all typed instructional screens were accompanied by audio tracks on which a person read the same instructions presented on screen.

In past persuasion research, biases in effortful processing have been most pronounced when presented information is relatively ambiguous (see Chaiken & Maheswaran, 1994; Petty et al., 1993). In contrast, with unambiguous information, increases in processing decrease the impact of variables serving as peripheral cues (e.g., Chaiken & Maheswaran, 1994; Petty, Cacioppo, & Goldman, 1981). Therefore, we sought to conceptually replicate past amount-of-stereotyping results by using quite clear performance information and varying the amount of cognitive load during receipt of the target information. Each participant received six screens of questions containing a total of 20 intelligence test questions (taken from Lutterjohann, 1980) along with answers supposedly provided by the child. Each screen contained a number of questions, each with the same difficulty level (labeled as mental age of 7, 8, 9, 10, or 11) and content area (mathematics, reading and grammar, or logic). The six screens were randomly ordered for each participant. For each question, a handwritten answer was given, emulating the writing of a 9-year-old. Red ink was used for grading (Xs for incorrect responses, check marks for correct answers, and additional written comments). The information presented the child as getting all but 1 question correct, clearly portraying the child as performing very well.

After viewing the last screen of the child's test, participants rated the child's performance on semantic differential scales. Participants then completed a

written thought listing before going back to the computer for ratings of several filler items (concerning the participant's age, experience with children, and the like) and a manipulation check for SES. Finally, participants responded to a question about the usefulness of SES as a predictor of academic ability, completed a suspicion probe, and were debriefed.

Independent Variables

SES. We manipulated SES by creating two different versions of the fact sheet presented to participants at the start of the session. Each fact sheet included the following: a fuzzy photograph of Donald (so that skin color was apparent but facial features were not), contact information, parents' names and employment, names of siblings, favorite school subjects, and hobbies. The goal was to create documents that could plausibly represent part of a file schools might keep on children. To make it appear as if real forms had been altered for the study as a means of maintaining anonymity of the child, certain information (e.g., surname, city of residence, a section for comments) was blacked out.

In the low-SES condition, Donald's mother waited tables, and his father was unemployed. The parents resided at different addresses, with the mother's listed as an apartment, and Donald was noted as having two younger siblings. In contrast, the high-SES condition depicted Donald's father as a physician and mother as a freelance writer. Also, Donald was depicted as an only child with his address listed as a home, rather than an apartment. In both conditions, an identical photograph, list of hobbies, and favorite school subjects were given.

Cognitive load. For participants assigned to conditions with low cognitive load, instructions were given to work at their own pace. For participants assigned to high load, the presentation rate of test materials was controlled, so that people could not compensate for lack of ability to process by taking longer on the task. Overall presentation time was roughly equated across conditions by basing the controlled presentation time (in high cognitive load conditions) on the median time taken during a pretest in which people worked at their own pace.¹

In high cognitive load conditions, we adapted the task used by Martin, Seta, and Crelia (1990). While receiving the test performance information, participants were asked to count the number of letters spoken in a sequence of numbers and letters, with all utterances given in 1-s intervals. Each question screen was accompanied by a specific letter-number sequence timed to coincide with the length of time the test materials were on screen. Participants in these high-load conditions were instructed to place equal importance on both the test review and the counting task because the researchers were supposedly interested in simulating real world situations in which people attempt to complete more than one task at a time (see Martin et al., 1990; Petty, Wells, & Brock, 1976). Participants were asked not to write down the number of letters counted, but to keep track of the amount in their heads. To further convey the importance of this counting task, and also to keep the task manageable throughout the entire study, each participant was asked periodically between test question screens to report the number of letters counted since the last inquiry.

¹ The pretesting in which median reading times were determined presented the full set of test question screens (i.e., those in Experiment 2) with low cognitive load. Pretesting also included a no-SES information condition, so that we could assess whether high SES, low SES, or both were creating the observed biases. The manipulation of SES significantly influenced ratings, $F(2, 53) = 4.03, p < .025$. The difference between high-SES ($M = 5.99$) and low-SES conditions ($M = 5.26$) was significant, $F(1, 53) = 6.96, p < .011$. Ratings in the high-SES condition did not differ from ratings in the no-SES condition ($M = 5.88, F < 1$). However, low-SES led to ratings that were considerably lower than the control condition, $F(1, 53) = 5.09, p < .029$. We used both high- and low-SES conditions in Experiments 2 and 3, but the fact that low-SES information created significant differences from a control group becomes important in Experiments 4 and 5 (when we studied resistance to attacks on perceptions biased by low-SES information).

Dependent Measures

Performance and ability ratings. Following the test materials, participants rated the child's performance and intellectual ability on four semantic differential scales. The first two items targeted performance on the test: "In general, how well did this child perform on the test portion you were given?" (1 = *performed extremely poorly*, 11 = *performed extremely well*) and "Which best reflects the amount of questions this child answered correctly?" (1 = 0%, 11 = 100%). The third item concerned a more general assessment of academic ability: "Compared to others of the same age, which choice best characterizes this child?" (1 = *well below average*, 11 = *well above average*). Finally, the fourth measure focused on future academic performance: "Given the test portion you have seen, predict how this child will perform later in his or her scholastic career" (1 = *will perform extremely poorly*, 11 = *will perform extremely well*).

Cognitive responses. Following the ability measures, participants were instructed to write down the thoughts that occurred to them while viewing the child's test. Each participant was provided with a lined sheet of paper for this task and was told to be unconcerned with spelling and grammar (see Wegener et al., 1995, for specific thought-listing instructions). Participants were asked not to spend more than 3 min on this activity, although time was not directly constrained by the experimenter.

Manipulation checks and perceived usefulness of SES information. After completing the thought listing, participants completed a pair of manipulation checks. On an 11-point scale, participants reported their perceptions of the socioeconomic background of the child: "Which choice best represents the background of this child?" (1 = *poor*, 11 = *wealthy*). To examine the effectiveness of our cognitive load manipulation, participants were asked, "How easy or difficult was it to evaluate the child's performance on the test?" (1 = *extremely easy*, 11 = *extremely difficult*). Consistent with Darley and Gross (1983) participants were asked "How useful is economic background information with regard to evaluating and predicting academic performance?" (responses on an 11-point scale, with 1 = *not at all useful* and 11 = *extremely useful*). Finally, in each experiment, participants were asked to type their perceptions of what the experiment was designed to study. Because no participants in any of the studies identified possible effects of SES on perceptions of performance or intelligence of the child, this suspicion probe will not be discussed in the remaining studies.

Results

Manipulation Checks and Perceived Usefulness of SES Information

The manipulation checks and perceived usefulness measure were submitted to separate 2 (SES: low, high) \times 2 (cognitive load: low, high) between-participants analyses of variance (ANOVAs). Participants assigned to low-SES conditions rated the child as considerably less affluent ($M = 3.04$) than participants who received high-SES information ($M = 9.58$), $F(1, 55) = 313.04$, $p < .0001$. For the check on cognitive load, a significant main effect of the load manipulation, $F(1, 55) = 32.18$, $p < .001$, showed that participants in high cognitive load conditions found the task of evaluating the child's performance significantly more difficult ($M = 7.75$) than participants assigned to conditions without the accompanying task ($M = 4.44$).

Analyses of perceived usefulness of SES information revealed no differences between low ($M = 5.81$) and high ($M = 6.21$) cognitive load conditions ($F < 1$). Of note, Darley and Gross (1983) found that perceivers regarded SES information as more useful when it was accompanied by individuating information. This was associated with greater impact of the SES information and was interpreted by Yzerbyt et al. (1994) as consistent with the presence of information increasing perceptions of social judgeabil-

ity. In the current setting, our load manipulation was apparently not so severe that people regarded the situation as equivalent to a no-information condition, in which perceived usefulness would, presumably, have dropped. The lack of such effects is not surprising given that people in past research have appeared to consider themselves justified in making judgments even when the individuating information is not audible and is received through a largely unattended earpiece (e.g., Yzerbyt et al., 1994).²

Performance and Ability Ratings

The four semantic differentials targeting perceptions of test performance and general aptitude were highly correlated (Cronbach's $\alpha = .84$), so responses were averaged to form a composite measure. A 2 (SES: low, high) \times 2 (cognitive load: low, high) between-participants ANOVA showed the expected interaction of SES \times load, $F(1, 55) = 7.58$, $p < .01$. When cognitive load was high, the effect of SES on ratings was significant ($M_s = 8.30$ and 9.16 for the low-SES and high-SES conditions, respectively), $F(1, 55) = 5.54$, $p < .023$. In contrast, when cognitive load was low, ratings were consistent with the strong performance information, and there was no effect of SES on ratings ($M_s = 9.67$ and 9.14 for the low-SES and high-SES conditions, respectively), $F(1, 55) = 2.23$, $p > .13$. This pattern also created a main effect of load, with participants in high-load conditions rating the well-performing child less favorably ($M = 8.73$) than participants in low-load conditions ($M = 9.41$), $F(1, 55) = 7.11$, $p = .01$.

Cognitive Responses

Two independent judges, unaware of condition, categorized participants' thoughts as positive, negative, or neutral toward the child's performance and ability. Any observed effects of SES could be due to variation in generation of positive thoughts, negative thoughts, or both. Therefore, analyses for all experiments were conducted on the proportion of thoughts that were positive and the proportion that were negative. For this, and for all subsequent experiments, effects were found only for proportions of positive rather than negative thoughts. In other words, the impact of SES on thoughts was for low-SES to diminish the generation of positive thoughts about the child when compared with the high-SES target. Therefore, only proportions of positive thoughts are reported.³ Proportions for the two judges were highly correlated ($r = .95$), so they were averaged to form a single measure of positivity of thoughts.

As noted earlier, thoughts coming to mind during receipt of the performance information should primarily mediate effects of SES on ratings when amount of processing is high and information is relatively ambiguous. Because the only SES effects in Experiment

² There was also a main effect of SES on perceived usefulness. High-SES information (which matched the very strong performance of the child) was rated as more useful ($M = 7.28$) than low-SES information ($M = 4.75$), $F(1, 55) = 16.9$, $p < .001$. This conceptually parallels a result from Experiment 3 when low-SES information matches the low-performance information.

³ The same pattern of effects is found when thoughts are indexed with a difference between positive and negative thoughts, divided by total thoughts, but such effects are due to the reported differences in proportions of positive thoughts across conditions.

1 were to occur when processing was low rather than high, no effects of SES on thoughts were expected. No effects of SES or Load \times SES were observed ($F_s < 1.11$). However, there was a main effect of load, $F(1, 55) = 4.98, p < .03$. Thoughts were more positive when load was low ($M = 0.69$) rather than high ($M = 0.46$). This is consistent with increases in elaboration of the very strong performance information leading to more positive thoughts and more positive judgments.

Discussion

The results of Experiment 1 suggest that our adaptation of the Darley and Gross (1983) paradigm replicates past effects of cognitive load on use of stereotypes (Gilbert & Hixon, 1991; Macrae et al., 1993; Yzerbyt et al., 1999). The results also fit with past research in the attitudes area, showing that decreases in amount of processing increase impact of simple cues to judgments (e.g., Petty et al., 1981), especially when target-relevant information is relatively clear rather than ambiguous (e.g., Chaiken & Maheswaran, 1994). These same increases in processing increase impact of the content of unambiguous information, however. If stereotypes can play multiple roles in judgment, however, this could mean that stereotypes are quite capable of biasing the thoughts that come to mind when ambiguous information is presented under conditions conducive to effortful information processing (cf., Petty & Wegener, 1998). Experiment 2 provides an initial exploration of this possibility.

Experiment 2: Thoughtful Stereotyping Mediated by Cognitive Responses

Method

Participants and Design

Eighty-three Purdue University undergraduates were randomly assigned to one of two SES conditions. Students received partial course credit in their introductory psychology classes.

Procedure

The basic procedures and measures were the same as in Experiment 1, with the following exceptions. Because Experiment 2 was designed to address effects of stereotypes when ability to process was high, only conditions with low cognitive load were used. Also, we considerably expanded the performance information and made it more ambiguous, to increase the likelihood of biased processing (cf., Chaiken & Maheswaran, 1994). A total of 30 screens were used to present 113 questions (taken from Lutterjohann, 1980) along with answers supposedly provided by the child. The 30 screens were randomly ordered for each participant and included 6 screens at each mental age and 2 screens for each content area within each level of mental age.

In contrast to the information in Experiment 1, but similar to the stimuli used by Darley and Gross (1983), the child's performance on the test was quite mixed. Donald provided wrong answers for many of the easy questions (i.e., he responded correctly on only 44% of the items for mental ages 7 or 8), but he provided correct answers for many of the more difficult questions (i.e., he responded correctly on 56% of the items for mental ages 10 and 11). Incorrect answers were at times only slightly off but sometimes were significantly erroneous.

The manipulations of SES and the dependent measures were identical to those in Experiment 1, with the exception that the SES manipulation check used 5 points rather than 11. It is worth reiterating, however, that the goal

of Experiment 2 differs from that of Experiment 1. Rather than replicating past effects of amount of processing on stereotyping, Experiment 2 was designed to assess whether SES could impact ratings under conditions of low cognitive load when performance information was more ambiguous. Also, Experiment 2 was designed to address the possibility that this effect can be due to biased processing of the ambiguous information. Similar to past research in attitudes (i.e., Chaiken & Maheswaran, 1994; Petty et al., 1993), a thought listing was used to assess the possible mediation of stereotyping effects on judgments through the impact of the group information on cognitive responses.

Results

Manipulation Check and Measure of Perceived Usefulness of SES Information

Responses to the manipulation check for SES were submitted to a one-way ANOVA. A significant effect of SES was obtained, $F(1, 81) = 56.04, p = .0001$, wherein participants in high-SES conditions believed the child was more affluent ($M = 4.32$) than in low-SES conditions ($M = 1.91$). Perceived usefulness of the SES information was marginally higher when SES was high ($M = 6.56$) rather than low ($M = 5.36$), $F(1, 81) = 3.73, p < .06$, even though pretests showed that the low-SES rather than high-SES information created judgment differences from a control group with no SES information (see Footnote 1).

Performance and Ability Ratings

Perceptions of test performance and intellectual ability were averaged to form a single index (Cronbach's $\alpha = .86$). The high-SES child ($M = 5.92$) was perceived to have better test performance and greater academic ability than the low-SES child ($M = 5.28$), $F(1, 81) = 7.24, p < .009$. If these judgments resulted from biased processing, then one would expect SES to influence thoughts that came to mind when encountering the information.

Cognitive Responses

Two independent judges, unaware of condition, categorized participants' thoughts as positive, negative, or neutral toward the child's performance and ability. Proportions of positive thoughts for the two judges were highly correlated ($r = .87$) and were averaged to form a single measure of thought positivity. Consistent with the rating data, an ANOVA yielded a significant effect of SES, $F(1, 80) = 7.45, p < .008$. The proportion of positive thoughts was greater in high-SES ($M = 0.314$) rather than low-SES conditions ($M = 0.198$). This effect allows for the possibility that thoughts could mediate SES effects on judgments.

Mediational Analyses

On the basis of procedures outlined by Baron and Kenny (1986), we submitted data from cognitive responses and performance ratings to regression analyses to test for mediation. When included in independent models, unstandardized regression coefficients for effects of SES on proportion of positive thoughts, $B = 0.116, t(80) = 2.73, p < .008$, and on performance ratings, $B = 0.641, t(81) = 2.69, p < .009$, were obtained. When simultaneously entered, the impact of SES on ratings decreased, $B = 0.470, t(79) = 1.99, p < .05$, and the influence of thoughts on ratings remained strong and significant, $B = 1.836, t(79) = 3.09, p < .001$.

.003. A Sobel test of mediation was significant ($z = 2.00, p < .045$; see Baron & Kenny, 1986).

Discussion

The data from Experiment 2 suggest that the thoughts of social perceivers can mediate the impact of SES information on ratings of child performance and intelligence. Or more generally, the study shows that a stereotype can influence judgment by biasing thoughts in a stereotype-consistent direction. This result is consistent with the original biased processing interpretation of the Darley and Gross (1983) research. Taken together, the results of Experiments 1 and 2 suggest that one can observe either relatively thoughtful or nonthoughtful stereotyping effects on judgments within the same basic paradigm. Of course, better evidence of this would demonstrate thought-mediated effects of stereotypes as well as stereotyping effects that are not thought mediated using exactly the same stimulus set.

Because heuristic use of stereotypes should not depend greatly on the content of the performance information, it should be possible to find the same type of low-thought stereotyping as in Experiment 1 if the performance information is more ambiguous (Chaiken & Maheswaran, 1994; Petty et al., 1993). Therefore, in Experiment 3, we used performance information that was similar to the information used in Experiment 2 (and considerably more ambiguous than in Experiment 1). At the same time, to provide independent evidence that the manipulation of cognitive load was, in fact, affecting capacity to process the performance information, we also manipulated the overall number of items the child answered correctly. If the manipulation of cognitive load influences capacity for processing, then the performance manipulation should have greater impact on ratings when cognitive load is low rather than high (Petty et al., 1976). In addition, to the extent that the stereotyping observed in Experiment 3 results from biased processing of the performance information, effects of SES should be mediated by cognitive responses. Consistent with Experiments 1 and 2, this should be more likely when cognitive load is low rather than high.

If biased-processing forms of stereotyping primarily occur when cognitive distraction is low rather than high, this would be a pattern of “moderated mediation” (James & Brett, 1984; Muller, Judd, & Yzerbyt, in press; Wegener & Fabrigar, 2000). That is, thoughts should serve as a mediator of SES effects on ratings when cognitive load is low (as in Experiment 2) but should not serve as a plausible mediator of SES effects on ratings when cognitive load is high (as in Experiment 1).

Experiment 3: Moderated Mediation of Stereotypic Judgments

Method

Participants and Design

Three hundred forty-seven Purdue University undergraduates were randomly assigned to conditions of a 2 (SES: low, high) \times 2 (cognitive load: low, high) \times 3 (test performance: low, moderate, high) between-participants design. Students received partial course credit in their introductory psychology class.

Procedure

Participants arrived in groups of 1–7. The cover story, “random” child selection, and basic procedures were the same as in the previous experi-

ments. Because Experiment 3 included a manipulation of cognitive load, participants all wore headphones. The performance stimuli were similar to those in Experiment 2 but were adapted somewhat. The length was slightly shortened (i.e., 86 questions rather than 113), and Donald’s test performance varied by condition. After viewing the materials, participants responded to the dependent measures from Experiment 2, responded to the load manipulation check from Experiment 1, and then were thanked and debriefed.

Independent Variables

SES and distraction. Participants received either the low- or high-SES version of the child background sheets used in Experiments 1 and 2 and received the performance information with either low or high cognitive load, as in Experiment 1.

Test performance. In low-performance conditions, Donald answered relatively few questions correctly, regardless of difficulty level. For the questions aimed at or below his chronological age (i.e., mental ages 9, 8, and 7) he responded incorrectly on approximately 75% of the items. On more difficult questions (i.e., mental age 10 and 11), Donald’s performance dropped to nearly 85% incorrect. Despite this poor performance, because each stimulus screen included multiple questions, Donald got a question correct on most of the screens. Therefore, Donald’s poor performance was likely not as extremely poor as his excellent performance was clearly outstanding in Experiment 1. The moderate-performance conditions of Experiment 3 were similar to Experiment 2. Donald answered approximately one half of the questions correctly and showed variation in the quality of the answers. Finally, in the high-performance conditions, Donald answered most of the questions correctly (i.e., approximately 90%). Yet, because each screen included multiple questions, 8 of the 20 screens included at least one incorrect answer. Across performance conditions, handwriting and grading was kept as similar as possible (e.g., similar amounts of red ink), although, given the performance differences, some esthetic variation was unavoidable. Although the performance levels differed across conditions, all of these conditions were designed to be more ambiguous than the clearly positive performance information used in Experiment 1.

Dependent Measures and Manipulation Checks

Participants completed the same performance ratings, thought listing, SES manipulation check, and perceived usefulness item as in Experiment 2, as well as the cognitive load manipulation check from Experiment 1.

Results

Manipulation Checks and Perceived Usefulness of SES Information

The manipulation checks and perceived usefulness measure were submitted to 2 (SES: low, high) \times 2 (cognitive load: low, high) \times 3 (test performance: low, moderate, high) between-participants ANOVAs. Consistent with previous experiments, participants assigned to low-SES conditions rated the child as considerably less affluent ($M = 2.05$) than participants who received high-SES information ($M = 3.65$), $F(1, 335) = 281.31, p < .001$. For the check on cognitive load, a significant main effect of the manipulation, $F(1, 335) = 75.31, p < .0001$, showed that participants in high-load conditions found the task of evaluating the child’s performance significantly more difficult ($M = 7.50$) than

participants assigned to low-load conditions ($M = 5.46$).⁴ Analyses of perceived usefulness of SES information revealed no differences between low ($M = 6.02$) and high ($M = 5.99$) distraction conditions ($F < 1$).⁵

Performance and Ability Ratings

The four semantic differentials were averaged to form a composite measure (Cronbach's $\alpha = .95$). A 2 (SES: low, high) \times 2 (cognitive load: low, high) \times 3 (test performance: low, moderate, high) between-participants ANOVA showed that participants in high-SES conditions rated the child's performance more favorably ($M = 6.34$) than participants in low-SES conditions ($M = 5.92$), $F(1, 335) = 10.90, p < .01$. The impact of SES on ratings was similar across the two levels of load ($F < 1$ for the SES \times Load interaction). This was expected, because the performance stimuli were considerably more ambiguous than in Experiment 1, when increased processing led to less stereotyping (cf. Chaiken & Maheswaran, 1994). This result makes the primary hypothesis test possible—that the same stereotypic judgments are coming about by relatively thoughtful means when cognitive load is low but are coming about by relatively nonthoughtful means when cognitive load is high.

Another aspect of the ratings of performance and ability is also important in making the case for different levels of thinking across levels of cognitive load. Because the same amount of stereotyping is observed across levels of load when the performance information is more ambiguous than in Experiment 1, we included in the design of Experiment 3 a feature that would provide independent evidence of differences in amount of thinking. Similar to past research in attitude change (e.g., Petty et al., 1976), if the manipulation of cognitive load affects the capacity of people to process the meaning of the presented performance information, then the manipulation of performance quality should impact ratings to a greater extent when cognitive load is low rather than high. This is exactly what occurred.

Across levels of SES and cognitive load, the manipulation of test performance quality had a significant impact on ratings of the child's performance and ability, $F(2, 335) = 265.46, p < .0001$. Of greater importance, the manipulation of cognitive load significantly influenced the impact of test performance on ratings, Load \times Performance, $F(2, 335) = 4.79, p < .01$. Although participants were able to pick up on performance differences even when cognitive load was high ($M_s = 7.72, 6.21, \text{ and } 4.62$ for high-, moderate-, and low-performance conditions, respectively), the performance information influenced ratings to a significantly greater extent when cognitive load was low ($M_s = 7.88, 6.35, \text{ and } 3.95$ for high-, moderate-, and low-performance conditions, respectively). This effect, along with similar effects on generated thoughts (described below) provides evidence that the amount of processing of the performance information differed significantly across levels of cognitive load, despite the different levels of cognitive load resulting in the same impact of SES on ratings.

Cognitive Responses

Participants' thoughts were coded as positive, negative, or neutral toward the child's performance and ability by two independent raters unaware of participants' experimental condition. The two judges' indices of thought positivity were highly correlated ($r =$

.87), so the indices were averaged to form a composite measure. Similar to Experiment 2, the impact of SES on thoughts (when cognitive load is low) is crucial for making the argument that SES information biased the processing of performance information when forming impressions.

A 2 (SES) \times 2 (cognitive load) \times 3 (test performance) between-participants ANOVA revealed significant main effects of performance, $F(2, 335) = 53.69, p < .0001$, and cognitive load, $F(2, 335) = 23.37, p < .0001$, on the proportion of positive thoughts. That is, more positive thoughts were generated to the extent that performance was high ($M_s = .332, .204, \text{ and } .075$ for high-, moderate-, and low-performance conditions, respectively) and when cognitive load was low ($M = 0.253$) rather than high ($M = 0.155$). As expected, however, these two factors also interacted significantly, Load \times Performance, $F(2, 335) = 6.01, p < .003$. That is, the performance manipulation influenced the proportion of positive thoughts to a greater extent when cognitive load was low ($M_s = 0.416, 0.264, \text{ and } 0.076$ for high-, moderate-, and low-performance conditions, respectively) rather than high ($M_s = 0.247, 0.143, \text{ and } 0.074$ for high-, moderate-, and low-performance conditions, respectively). This pattern provides additional evidence that the manipulation of cognitive load significantly influenced the amount of processing of the performance information.

The most important effect in this analysis is the significant interaction between SES and load, $F(1, 335) = 6.15, p < .014$. SES significantly influenced the proportion of positive thoughts when load was low ($M_s = 0.297 \text{ and } 0.210$ for high-SES and low-SES conditions, respectively), $F(1, 335) = 8.89, p < .0031$, but not when load was high ($M_s = 0.147 \text{ and } 0.162$ for high-SES and low-SES conditions, $F < 1$). This pattern of SES effects on thoughts is consistent with the possibility of thought-mediated stereotyping when cognitive load is low but more cue-based or heuristic stereotyping (not mediated by thoughts) when cognitive load is high.

⁴ There was also a main effect of performance, $F(2, 335) = 4.37, p < .014$, such that moderate performance was rated as creating more difficult assessments than high or low performance. The expected main effect of load was also qualified by an unexpected 3-way interaction among SES, load, and performance, $F(2, 335) = 3.43, p < .04$. There were minimal effects of SES on perceptions of difficulty in assessing performance of the child in all conditions except for when participants received moderate performance information under conditions of high load. In this condition, participants rated assessments of performance of high-SES targets as substantially more difficult than performance of low-SES targets. Because all mean ratings of difficulty were higher when distraction was high than when it was low, this unexpected interaction does not undermine evidence that the distraction manipulation was effective.

⁵ SES also interacted with performance, $F(2, 335) = 4.03, p < .019$. When performance was low, low-SES information was viewed as particularly useful ($M = 6.74$), but high-SES information was viewed as particularly low in usefulness ($M = 5.05$). When performance was moderate or high, there was little effect of SES on perceived usefulness ($F_s < 1, M_s = 6.03 \text{ and } 6.09$ with high SES and low SES, respectively, similar to Experiment 2). This also created a main effect of SES, with low-SES information rated as more useful ($M = 6.30$) than high-SES information ($M = 5.71$), $F(1, 335) = 4.98, p < .027$. Perhaps, similar to Experiment 1, the match between performance information and SES was strongest in the low-performance condition.

Mediational Analyses

To investigate whether the impact of SES on ratings was mediated by the proportion of positive thoughts generated in low-load but not high-load conditions, we conducted two types of analysis. First, we conducted a series of separate regressions for high and low load conditions, as described by Baron and Kenny (1986). Then, consistent with the discussion of moderated mediation by Wegener and Fabrigar (2000), we conducted a series of regressions comparing the high- and low-load conditions.

Baron and Kenny (1986) approach. We began by conducting regressions within each load condition including SES, performance, and their interaction. In each load condition, there were significant effects of SES and performance but no significant interactions between SES and performance. For ease of presentation, the regression coefficients are only presented for SES and thought effects on ratings, but each analysis also controls for variance due to performance.

In low-load conditions, separate regressions showed an impact of SES on performance ratings, $B = 0.439$, $t(169) = 2.53$, $p < .013$, and on thoughts, $B = .085$, $t(169) = 2.94$, $p < .004$. When thoughts were added to the model as a predictor of ratings, the impact of SES on ratings decreased and was nonsignificant, $B = 0.222$, $t(168) = 1.38$, $p > .17$, whereas the influence of thoughts on ratings remained strong and significant, $B = 2.55$, $t(168) = 6.07$, $p < .0001$. A Sobel test (see Baron & Kenny, 1986) supported thought mediation of the stereotyping effect on judgments ($z = 2.62$, $p < .009$).

In high-load conditions, SES also influenced performance ratings, $B = 0.385$, $t(170) = 2.17$, $p < .031$, but did not affect thoughts, $B = -0.016$, $t(170) = -0.55$, $p > .57$. When thoughts were added to the model, the effect of SES was changed very little, $B = 0.412$, $t(169) = 2.40$, $p < .017$. Independent of these persisting effects of SES on ratings, the proportion of positive thoughts did predict ratings, $B = 1.70$, $t(169) = 3.68$, $p < .0003$, although the strength of this effect was less than when load was low (see additional moderated mediation analyses below). Because inclusion of thoughts did not influence SES effects on ratings, a Sobel test showed that there was no mediation of SES effects by thoughts ($z = .53$, $p > .59$).

Wegener and Fabrigar (2000) approach. As noted by Wegener and Fabrigar (2000), one could present a case for moderated mediation through a set of regression analyses that compare effects of the predictor(s) across levels of the moderator. In the current case, moderated mediation could occur because cognitive load influences the extent to which SES affects thoughts, the extent to which thoughts affect ratings, or both. Therefore, the first set of analyses that would address moderated mediation has already been presented. The SES effect on thoughts was significantly stronger when cognitive load was low rather than high, $F(1, 335) = 6.15$, $p < .014$. Thus, the first step in the mediational chain is moderated by cognitive load. Even if effects of thoughts on ratings were equal across levels of cognitive load, this moderation of SES effects on thoughts could produce the predicted moderation of mediation.

In the current case, however, we also find some evidence of the effect of thoughts on ratings varying across levels of cognitive load. This was tested by a regression in which SES, load, thoughts, and all the two-way interactions among these factors were used to predict variance in the ratings of the child's performance and ability. To test the second facet of moderated mediation—variation

in the impact of thoughts on ratings across levels of cognitive load—the crucial effect in this analysis is the interaction between load and thoughts. This interaction was significant, $F(1, 340) = 7.01$, $p < .009$. That is, when cognitive load was low, the greater the proportion of positive thoughts, the higher the ratings of the child's performance and ability, $B = 5.75$, $t(170) = 12.14$, $p < .0001$. This was also true when cognitive load was high, $B = 3.75$, $t(171) = 6.30$, $p < .0001$, but the significant Load \times Thoughts interaction shows that the impact of thoughts was greater when load was low rather than high.

Discussion

The results of Experiment 3 suggest that stereotypes can have relatively thoughtful or nonthoughtful effects within the same judgment setting (i.e., with the same stimulus information about a social target). That is, stereotypes affected judgments similarly under both low and high load conditions, but the underlying mechanism differed. In low-load conditions, stereotypes biased thoughts which in turn affected judgments, but under high load, stereotypes affected judgments without affecting thoughts. To our knowledge, this is the first demonstration of both thought-mediated (biased processing) and non-thought-mediated (heuristic) influences of stereotypes using the same target stimuli.

As noted earlier, distinctions between relatively thoughtful and nonthoughtful processes by which stereotypes affect judgments could be important because, according to models of judgment strength (e.g., Petty & Cacioppo, 1986), the very same perceptions of targets tend to (a) persist longer over time, (b) better resist future attempts at change, and (c) better predict future judgments and behavior when based on higher levels of thinking about the target. These effects can occur because of changes in cognitive structures that come about during extensive thought about the target (e.g., changes in accessibility, integrative complexity, or structural consistency of the impression) or because of related beliefs about the impression (e.g., confidence that it is correct; see Petty et al., 1995; Wegener et al., 1995, for reviews). If such strength effects (Petty & Krosnick, 1995) occur in the stereotyping and prejudice domain, ability to think carefully would provide additional leverage in predicting which types of stereotyping outcomes are likely to hold long-term significance for the targets and the social perceivers.

Experiment 4 was conducted as an initial attempt to document some of the hypothesized consequences of relatively thoughtful versus nonthoughtful stereotyping and prejudice. Unfortunately, little empirical attention has been paid to such questions in past research. Perhaps this is due, in part, to recent emphasis on amount of stereotyping differing across different amounts of information processing. To most appropriately compare consequences across conditions, one would want to have the same initial judgments. Fortunately, in Experiment 3, the effect of SES was equal across high- and low-load conditions. Because of this, we should be able to compare the extent to which the resulting perceptions of the child would differentially persist over time, resist attack, or guide behavior.

Experiment 4: Differential Resistance to Change

In many circumstances, social perceivers might receive information about a person that conflicts with initial perceptions of that

person. Yet, the impact of this “attacking” information might be predictable on the basis of the extent to which perceivers are able to think about the target when forming the initial impression. To examine this possibility, we manipulated capacity to think using the same manipulation of cognitive load as in Experiments 1 and 3. After encountering the moderate-performance testing information and making the same ratings of child performance and ability as in Experiments 2 and 3, participants received additional information, supposedly based on another participant’s assessment of the child’s abilities after viewing a videotape of the child’s classroom. This additional information always differed from the participant’s view of the child. After receiving the “attacking” information, participants were given the opportunity to rate their perceptions of the target child a second time. If higher initial capacity to think about the target is associated with stereotypic perceptions that are more resistant to attack (when compared with equally stereotypic perceptions formed with less capacity to think), then the attacking information should have less influence on the views of people who initially encountered information about the child with low levels of cognitive load.

Attitudinal Resistance

The idea that high levels of information processing should create attitudes that are resistant to attack has been a part of the attitudes literature for some time (see Eagly & Chaiken, 1993; Petty & Cacioppo, 1986). Studies measuring (e.g., Haugtvedt & Petty, 1992) or manipulating (e.g., Haugtvedt & Wegener, 1994) motivation to think have generally shown that attitudes formed when motivation to think is high rather than low are more likely to resist later attempts at changing the attitude (see Petty et al., 1995; Wegener, Petty, Smoak, & Fabrigar, 2004, for reviews). However, in each of these studies, one could argue that part of the resistance effect is because of continued differences in processing during the second message. That is, the measured or manipulated motivation continues to be high or low during receipt of the second (attacking) message. Because the attacking information has tended to be weak in most of this research, higher levels of motivation to think about the attack could render it less influential (Petty et al., 1981). Certainly, the observed results have been consistent with differential attitude strength following the initial message, but part of the previous effects might also have been due to the additional variable of differential processing of the attacking message.

Better evidence for differences in resistance being created by differences in the strength of initial judgments could be created by using a manipulation of initial message processing that is confined to that initial message. By doing so, everyone should be likely to process the attacking message in similar amounts, varying primarily in the amount of spontaneous defense of their initial opinions. The current paradigm should lend itself well to providing such evidence because differences in initial processing are created through divided attention during receipt of the initial information rather than in varying levels of motivation. No one is distracted during the attacking information, and there is no reason for either group to view the attacking information as any more or less personally relevant.

Another theoretical advantage associated with Experiment 4 is that it is designed to show differential resistance on the basis of thoughtful versus nonthoughtful effects of the same variable. As noted earlier, attitude theories have predicted, and research has

found, that the same variable can have either relatively direct effects on attitudes (when motivation or ability is relatively low) or less direct, thought-mediated, effects (when motivation and ability are high; e.g., Chaiken & Maheswaran, 1994; Petty et al., 1993). Yet, all previous demonstrations of differential strength have created equally extreme initial attitudes using different message or source factors (e.g., thoughtful effects of strong arguments and nonthoughtful effects of an expert source; cf. Chaiken, 1980; see Eagly & Chaiken, 1993, for additional discussion). No demonstrations to date have compared the differential strength of thoughtful (biased processing) versus nonthoughtful (heuristic) influences of the same variable.

Therefore, Experiment 4 has the potential to add to both the attitudes and stereotyping–prejudice literatures. It would add to the stereotyping–prejudice literature by providing the first evidence of differential consequences of the same stereotypic judgments based on initial levels of capacity to think about the social target. Experiment 4 would add to the attitudes literature—actually to both literatures—by showing that this differential resistance can be associated with thoughtful versus nonthoughtful influences of the same variable and by showing that differential resistance can occur without differences in motivation to process the attacking message.

Method

Participants and Design

Fifty-nine Purdue University undergraduates were randomly assigned to a 2 (cognitive load: low, high) \times 2 (target ratings: initial, postattack) mixed design, with load as a between-participants factor and target ratings as a within-participant factor. Participants received partial course credit in their introductory psychology class.

Materials and Procedure

The procedure and materials for the first part of the study were identical to those of the moderate-performance conditions of Experiment 3, with the following exceptions. First, we focused the study on initial prejudice toward negatively stereotyped groups, so all participants received the low-SES depiction of Donald. Also, the SES information was only provided through a single computer screen prior to the test materials, without the supplemental paper copy. Finally, following common practice in attitude resistance studies, participants did not engage in a thought-listing task (e.g., Haugtvedt & Petty, 1992; Petty et al., 1995). This was done to ensure that peoples’ processing of the initial information was not artificially increased by having them complete the thought-listing task prior to receipt of the attacking information.

After rating the child’s performance and abilities on the same measures used previously, participants were given instructions (on screen and through the headphones) concerning the researcher’s interest in “comparing child evaluations from a number of different sources.” Participants were told they would receive the results of a previous (randomly drawn) participant’s evaluation of the same child on the same measures. However, the previous participant was said to have received a different type of information about the child than that received by the current participant. Supposedly from a prior study concerned with behavioral observation of abilities, the previous participant’s evaluation was said to be based solely on a “20-min classroom videotape,” without any of the ability and intelligence test materials received by current participants. In addition, participants were told that the video represented “a typical day of elementary school,” wherein some footage could be deemed as “more related to the child’s academic abilities” than other footage.

As a summary of the videotape, participants viewed a screen that included a list of eight activities on the video along with typed comments for each section from the supposed previous participant who had viewed the video. Consistent with past research on attitude resistance, this summary was constructed such that much of the information contained was not especially germane to an assessment of the child's abilities (conceptually similar to a weak attacking-counterattitudinal-persuasive message). In four of the eight activities, the child's behavior was less than diagnostic of intellectual abilities (e.g., physical education, lunch break, music lesson, training about fire safety), with the remaining activities (e.g., math lesson, small reading groups, science lesson, social studies lesson) more related to the judgment at hand. Even for the related activities, however, the amount of footage presumably presented on each activity was brief (1–3 min for each activity), and the fictitious video participant's comments were not particularly compelling. For example, under the heading "Math Lesson: basic multiplication—3 min.," the video participant's comments were "Mostly lecture, but students had the opportunity to answer questions. Donald was rather quiet, but appeared to be following along fine." Participants were told to read through the entire video summary and were allowed to work at their own pace, with no distraction task during presentation of the attacking information.

After reading the video summary, participants advanced to a screen informing them that the computer was calculating and comparing their ratings of performance with those of the previous video participant. After 5 s, a synopsis of the previous participant's opinion was provided that clearly differed from current participants' earlier judgments of the child. That is, participants received the following:

After watching the school videotape without receiving any test items, video Participant 436 rated this child . . . an AVERAGE OF 2-SCALE POINTS HIGHER THAN YOU DID. In other words, video Participant 436 viewed the child's academic abilities to be somewhat greater overall than you did.

After reading this information, participants rated the child's academic abilities and general intelligence a second time. Then, participants were thanked and debriefed.

Independent Variable

The manipulation of cognitive load was identical to that used in Experiment 3.

Dependent Measures

Target ratings: Initial and postattack. Following presentation of the performance information, participants rated the child's performance and intellectual ability on the same four 11-point semantic differential scales used in Experiments 1–3. These measures were averaged to form a composite index of initial evaluations of the target (Cronbach's $\alpha = .80$). After receiving the contrasting view of the previous video participant, experiment participants rated the child's abilities on four 11-point semantic differentials. The first two were identical to the general ability questions given after the initial information. The two new items were "At present, how well do you think this child performs academically in school?" (1 = *performs extremely poorly*, 11 = *performs extremely well*), and "In general, how intelligent is the child you evaluated?" (1 = *extremely unintelligent*, 11 = *extremely intelligent*). These four items were highly correlated (Cronbach's $\alpha = .93$) and were averaged to form an index of postattack ratings.

Manipulation check and measure of perceived usefulness. After the postattack ratings, participants completed the same manipulation check for cognitive load that was used in Experiment 3. Also, participants were asked, "In general, how useful is information about a child's economic

background in evaluating and predicting academic performance?" (11-point scale; 1 = *not at all useful*, 11 = *extremely useful*).

Results

Manipulation Check and Perceived Usefulness of SES Information

Responses to the manipulation check on cognitive load were submitted to a one-way ANOVA. Evaluation of the test materials was perceived to be more difficult ($M = 8.27$) for participants in high-load conditions rather than low-load conditions ($M = 6.86$), $F(1, 57) = 9.25, p < .004$. A separate ANOVA conducted on the perceived usefulness of SES information revealed no differences across high ($M = 5.27$) and low ($M = 5.24$) load conditions ($F < 1$).

Target Ratings: Initial and Postattack

For a valid comparison of resistance across high- and low-thought conditions to be made, it is important to have initial evaluations that do not differ from each other in extremity (Petty et al., 1995). Perceptions of the child's performance and abilities did not significantly differ across high- ($M = 5.93$) and low-load ($M = 5.81$) conditions ($F < 1$). Therefore, the stage was appropriately set for testing differential resistance to the attacking information.

Initial and postattack ratings were subjected to a 2 (cognitive load: low, high) \times 2 (target ratings: initial, postattack) mixed-design ANOVA with load as a between-participants variable and target ratings as a within-participant variable. Results showed a main effect of the target ratings factor, $F(1, 57) = 58.58, p < .0001$, such that ratings of the child were more positive after the positive (attacking) information was presented ($M = 6.83$) than after only the initial information ($M = 5.87$). More important, a significant Load \times Target Rating interaction was observed, $F(1, 57) = 4.21, p < .045$ (see Figure 1). Participants under low cognitive load when processing the initial performance information were less influenced by the attacking information (initial $M = 5.81$, postattack $M = 6.52$) than participants under high load when processing the performance information (initial $M = 5.93$, postattack $M = 7.15$). That is, participants with the capacity to think

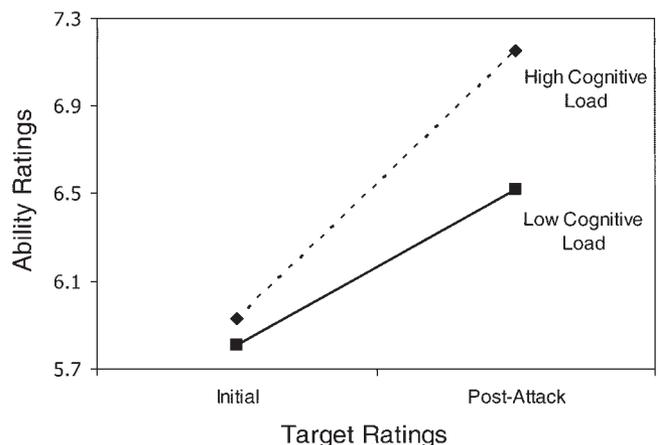


Figure 1. Child ability ratings as a function of initial cognitive load and time of target ratings (initial vs. postattack).

about the initial testing information resisted later attacking information better than participants who initially lacked capacity to think.

Discussion

To our knowledge, this is the first study in which different consequences of the same stereotypic judgments have been predicted and demonstrated on the basis of the cognitive capacity of social perceivers when they formed those stereotypic judgments. In Experiments 3 and 4, participants were equally likely to use SES information in forming their impressions of the child, regardless of the extent to which they were able to think carefully about the testing information. Yet, consistent with theories of attitude change, those perceptions that were formed when ability to think was high were more resistant to later attempts at change.

These resistance differences are important, in part, because they provide a different role for processing capacity than has been emphasized during the last 15 years or so of research on stereotyping and prejudice. When researchers have examined situations in which people are able and motivated to think about social targets, the research has often emphasized effortful attempts to avoid use of stereotypes or prejudiced attitudes (e.g., Devine, 1989; Fazio, Jackson, Dunton, & Williams, 1995). Yet, there might be a variety of situations in which increasing thought would not only fail to decrease stereotyping but might also create stereotypic perceptions that are more likely to have lasting influences on related judgments and behaviors. In fact, to the extent that many stereotypic judgments are the result of biased processing (see Kunda & Sherman-Williams, 1993), the current research suggests that such judgments would often have more lasting impact than implied by heuristic uses of stereotypes.

Experiment 5: Differential Correction of Stereotypic Biases

To this point, we have dealt primarily with thinking that occurs when the possibility of bias is not salient to social perceivers. Although many of our research participants might prefer not to have their perceptions of the child influenced by the child's economic background, it is unlikely that they realize that such effects are occurring. If people were to realize or be warned of these biases, however, they may try to correct their perceptions of the child to avoid such influences (Petty & Wegener, 1993; Strack, 1992; Wegener & Petty, 1997; Wilson & Brekke, 1994). After all, there are circumstances in which people intentionally attempt to suppress stereotypes or to otherwise avoid their use (see Devine & Monteith, 1999, for a review).

As discussed by Wegener and Petty (2001; Wegener et al., 2004), thinking when bias is not particularly salient should follow the processes and outcomes outlined by theories of attitude change, such as the ELM or heuristic-systematic model. When the possibility of bias becomes more salient, however, thinking should follow the processes and outcomes outlined in the flexible correction model (FCM; Wegener & Petty, 1997). In this approach, people use their naive theories of bias to assess which biases might be at work in the particular judgment setting and to guide their attempts at avoiding any detected biases (see also Wegener, Dunn, & Tokusato, 2001). In the realm of stereotyping, such corrections

might be more likely to occur for certain stereotypes (Sczesny & Kühnen, 2004), for people who are concerned about being biased themselves or about appearing biased to others (Dunton & Fazio, 1997; Plant & Devine, 1998), or in situations that alert people to potential biases (Monteith, Deneen, & Tooman, 1996; Wegener & Petty, 1995).

Experiment 4 was the first demonstration of differential resistance to social influence on the basis of different levels of cognitive capacity during initial formation of stereotypic impressions. To gain greater confidence in these consequence effects, we sought to conceptually replicate and extend the finding to another type of resistance. One interesting domain in which to do so concerns possible differences in the likelihood of correction after forming initial biased impressions in thoughtful versus nonthoughtful ways. One might think about such differences in correction in terms of resistance to change when the attacking information comes from within the social perceiver. When people become aware of possible biases in their impressions, they question whether the initial impression of a target is appropriate. Regardless of whether the social perceiver spontaneously questions the appropriateness of impressions (Fleming, Wegener, & Petty, 1999) or is alerted to possible bias by outside sources (as when judges instruct jurors not to use certain pieces of evidence, see Wegener, Kerr, Fleming, & Petty, 2000), the perceptions of the bias(es) at work often come from the person's own beliefs about bias and the person's observations of his or her reactions to the target (see Wegener et al., 2001; Wegener & Petty, 1997).

When introducing the FCM, we hypothesized that the likelihood of correction should depend, in part, on the extent to which the initial (biased) impressions of the target are based on relatively high or low levels of thinking (Petty & Wegener, 1993, 1998). That is, greater capacity to think about the target should result in greater integration of many pieces of information (Petty & Cacioppo, 1986; Petty et al., 1995), and integrated biases might be less likely to be corrected than isolated biases (Schul & Burnstein, 1985; Wyer & Budesheim, 1987). This could be because people are more easily able to justify the presumed accuracy of impressions based on large amounts of integrated information or because people are motivated to remain consistent with perceptions they spent a great deal of effort in forming. Initial evidence of integration effects on correction comes from studies in which people were instructed to form an overall impression versus remember separate pieces of information (Schul & Burnstein, 1985) or were asked to disregard specific information either immediately after receiving the information or after it had (presumably) been integrated with information presented after it (Wyer & Budesheim, 1987). Neither of these studies manipulated the motivation or ability to think about the target information, so the FCM prediction (Petty & Wegener, 1993, 1998) remains untested. However, the prediction fits nicely with the predictions and findings in Experiment 4 and in the past attitude resistance research (see Wegener et al., 2004). Whereas the past attitudes research and the current Experiment 4 demonstrate differential resistance to outside influence, the FCM prediction describes differential resistance to internal beliefs and questions about whether one's perceptions have been biased. In brief, the prediction is that social perceivers should be less likely to engage in debiasing corrections when their initial perceptions are formed with high rather than low capacity to think carefully about the target.

Method

Participants and Design

Sixty-four Purdue University undergraduates were randomly assigned to a 2 (cognitive load: low, high) \times 2 (target ratings: initial, post correction instruction) mixed design, with load as a between-participants factor and target ratings as a within-participant factor. Participants received partial course credit in their introductory psychology class.

Materials and Procedure

The procedure and materials for the first part of the study were identical to those of Experiment 4. After initially rating the performance and ability of the moderate-performance, low-SES child, participants were alerted to the possibility of bias. More specifically, participants read the following instruction:

Past research has shown that irrelevant aspects of children (for example, the child's economic background, gender, or race) can influence peoples' perceptions of a child's performance on intelligence tests. On the following screens, please rate the child again. While doing so, please try to make sure that your ratings are not influenced by any irrelevant factors.

This instruction was similar to instructions used in previous research (Petty & Wegener, 1993; Stapel, Martin, & Schwarz, 1998; Wegener & Petty, 1995, 1997). Although a number of possible biases were identified for participants, no one bias was singled out, and participants had to determine whether one or more of these factors might have influenced their perceptions.

Following the correction instruction, participants responded to the same items as in the initial ratings and to the present performance and general intelligence items from the postattack ratings in Experiment 4. After these measures, participants responded to the same manipulation checks used in Experiment 4 to assess the perceived SES of the child, the level of cognitive load, and the perceived usefulness of the SES information. Finally, participants responded to the 18-item Need for Cognition scale (NC; Cacioppo & Petty, 1982; Cacioppo, Petty, & Kao, 1984). This scale measures individual differences in the extent to which people enjoy effortful cognitive activities. High-NC items include "I like to fill my life with puzzles I must solve," whereas items indicative of low-NC include "Thinking is not my idea of fun." Each response was on a 5-point scale with 1 = *not at all characteristic of me* and 5 = *extremely characteristic of me*. The NC measure might provide additional leverage in indexing the extent of processing in which participants engaged when receiving the initial performance information.

Results

Manipulation Check and Perceived Usefulness of SES Information

Effects of cognitive load, the continuous measure of NC (standardized), and their interaction were tested with a simultaneous regression. There were no effects of NC or its interaction with cognitive load on any of the manipulation checks. There were no effects of cognitive load on perceptions of SES. Consistent with

the low-SES information provided, participants rated the child as quite poor ($M = 3.17$ on an 11-point scale from Experiment 1). Evaluation of the test materials was rated as more difficult ($M = 8.17$) for participants in high-load rather than low-load conditions ($M = 6.56$), $F(1, 60) = 7.89$, $p < .007$. Unlike the previous experiments, people in the high-load condition found the SES information more useful ($M = 5.47$) than people in the low-load condition ($M = 4.15$), $F(1, 60) = 4.23$, $p < .045$. Because the usefulness question came after the corrected judgments, it is possible that high-load participants found the SES information more useful in the corrections, rather than in initial judgments.

Target Ratings: Initial and Post Correction Instruction

We first tested whether initial ratings were equivalent across levels of cognitive load and NC. To make strong comparisons of resistance across conditions, initial ratings should be equal. A simultaneous regression showed no effects of load, NC, or their interaction on initial ratings of child performance and abilities ($F_s < 1$). Therefore, the stage was appropriately set for testing differential resistance to the debiasing instruction across high- and low-load conditions.

Initial and post-correction-instruction evaluations were subjected to a mixed regression with level of cognitive load (low vs. high) and standardized NC as between-participants factors and target ratings (initial vs. post correction instruction) as a within-participant factor. Results showed a main effect of the Target Ratings factor, $F(1, 60) = 10.25$, $p < .003$, such that ratings of the child were more positive after participants were alerted to possible biases ($M = 6.26$) than after only the initial information ($M = 6.04$). More important, there was a significant Load \times Target Rating interaction, $F(1, 60) = 4.14$, $p < .047$ (see Figure 2). Paralleling Experiment 4, participants under low cognitive load when they received the performance information shifted their assessments of the target less when alerted to possible bias (initial $M = 5.94$, post correction instruction $M = 6.02$) than did participants initially under high load (initial $M = 6.14$, post correction instruction $M = 6.49$). That is, participants with the capacity to think about the initial testing information resisted later warnings

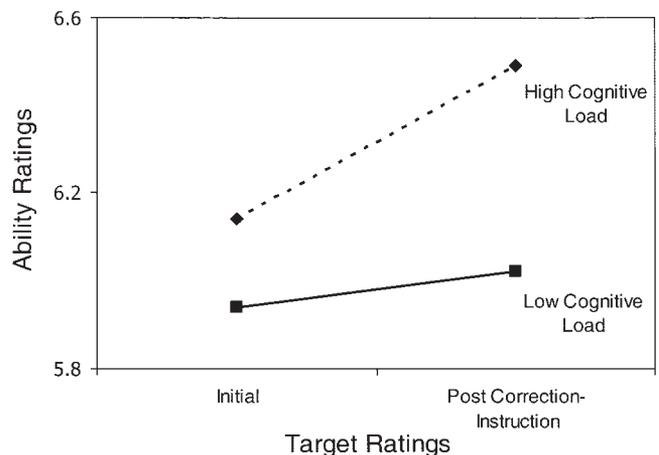


Figure 2. Child ability ratings as a function of initial cognitive load and time of target ratings (initial vs. post correction instruction).

about potential bias more so than participants who initially lacked capacity to think.

There was a parallel effect of NC on corrections, $F(1, 60) = 4.21, p < .045$. Similar to the effects of cognitive load, participants with NC one standard deviation above the mean shifted their assessments of the target less when alerted to possible bias (initial $M = 6.05$, post correction instruction $M = 6.12$) than did participants with NC one standard deviation below the mean (initial $M = 6.03$, post correction instruction $M = 6.39$). This pattern of corrections is consistent with higher levels of initial motivation to process leading to less likelihood of correction when later alerted to possible biases. In addition to these load and NC effects on corrections, there was a marginal Load \times NC \times Target Ratings interaction, $F(1, 60) = 3.93, p < .053$. That is, across most of the range of NC, corrections were greater when initial cognitive load was high rather than low, but this difference increased as the level of NC decreased.

Discussion

Experiment 5 extends previous research in a number of ways. Experiment 4 showed that differences in amount of thinking can create different consequences of the same stereotypic judgments. In Experiment 4, the consequence was differential resistance to a supposed opposing view held by another research participant. In Experiment 5, conceptually similar effects were found, with the same increases in cognitive load (as well as decreases in NC) leading to greater likelihood of corrections for bias when participants were asked not to be unduly influenced by group memberships of the child. Although previous discussions of bias correction had noted the possibility that thoughtful biases might be less likely to be corrected than nonthoughtful biases, Experiment 5 is the first of which we are aware to specifically test this possibility.

Readers might note that past research on NC has sometimes shown greater rather than less correction by people high in NC (e.g., DeSteno, Petty, Wegener, & Rucker, 2000; Martin et al., 1990). To the extent that corrections are often relatively effortful, this result makes sense. It may well be that the timing and type of correction instructions help to determine when people high in NC correct a lot versus a little. That is, when indications of possible bias are not very direct, high levels of NC can identify the people who are more likely to seek out and find the possible biases at work (see DeSteno et al., 2000; Dove, Wegener, & Petty, 2003). When direct instructions motivate corrections across levels of NC and a bias is directly identified for social perceivers, increased correction with high levels of NC may be less likely. Yet, especially when biases are only identified after initial judgments have already been made, effortful thinking might be just as likely, or more likely, to go into attempts to justify these previous judgments.

General Discussion

The research reported in this article advances three literatures. It advances the stereotyping–prejudice literature by presenting two types of effects for the first time. The present research includes the first evidence of differential mediation of stereotyping effects on ratings within the same paradigm—evidence that is consistent with relatively thoughtful (cognitive response mediated) versus nonthoughtful processes leading to the same stereotype-consistent

ratings. Also, the present research provides the first evidence of differential consequences of those same ratings across levels of cognitive capacity. The two types of consequences contribute substantially to the attitudes and bias correction literatures, respectively. Past attitudinal evidence of differential resistance to change across levels of processing was based on motivation manipulations that likely carried over to create differential processing of the attacking message. The current resistance study created differential resistance using a manipulation of cognitive capacity that should have been more limited to processing of the initial information, without creating different levels of processing of the attacking information. Also, the past attitudinal resistance work was based on studies creating thoughtful effects of one variable (content of message arguments) and comparing these with nonthoughtful effects of other variables (e.g., source characteristics or sheer number of arguments). The current evidence is the first to demonstrate differential resistance on the basis of initial thoughtful versus nonthoughtful effects of the same variable. Finally, the current correction study is the first to validate a prediction made a decade ago in the correction literature—that biases based on more thoughtful processes could be less likely to be corrected than biases based on less thoughtful processes.

Expanding Research Questions

The last 15 years have witnessed an explosion of research and theory in stereotyping and prejudice. A great deal has been learned using the distinction between relatively nonthoughtful and relatively thoughtful processes. Much of this work has emphasized the different judgment outcomes resulting from nonthoughtful (heuristic) use of stereotypes versus thoughtful use of individuating information. Research has followed up these judgment-oriented studies by investigating a variety of ways in which heuristic use of stereotypes can influence low-level processes, such as encoding or retrieval of stimulus behaviors, or spontaneous trait inferences made when stereotype-consistent behaviors are encountered. This research is certainly valuable, and much of it would not have developed purely on the basis of an attitudinal approach. Yet, predictions based in prominent attitude theories could add to these research questions in significant ways (for discussion of attitudinal approaches in intergroup relations and stereotype change, see Johnston & Coolen, 1995; Mackie & Smith, 1998; Yzerbyt et al., 1999).

When people treat high levels of thinking as likely to decrease stereotyping, there would be little reason to compare the consequences of thoughtful versus nonthoughtful processes, because the different judgment outcomes brought about by each would result in comparing “apples with oranges.” Yet, as outlined in the current article, a somewhat different set of possibilities presents itself from the view of contemporary attitude theories. Consider, for example, a study in which more negative judgments are associated with a Black rather than White target. The ELM would suggest that at different levels of the elaboration continuum, a variable like ethnicity can create the same judgment outcome for different reasons (Petty & Wegener, 1998). The judgments could occur if the level of elaboration was low and ethnicity served as a simple cue (with “Whiteness” of targets serving as a positive cue, “Blackness” as a negative cue, or both; cf., Bodenhausen, 1990). If elaboration was high, judgments could be more negative toward the Black target if ethnicity was serving as a central merit of the attitude object (e.g.,

if the target is a candidate for a job in which ability to identify with or communicate with White people is a core duty) or if ethnicity biased the processing of judgment-relevant information (with positive biases associated with White targets, negative with Black, or both; cf., Kunda & Sherman-Williams, 1993). The same ethnicity differences in judgment could also occur if background levels of elaboration likelihood were more moderate, but either the White target increased the amount of scrutiny of judgment-relevant information when available information about the target was predominantly positive, or the Black target received greater scrutiny when information about the target was predominantly negative (see Wegener & Petty, 2001, for additional discussion). Expanding beyond the ELM, it is also possible that more favorable judgments of White targets could result from corrections for perceived positive (contrast) biases associated with the Black target (Hass, Katz, Rizzo, Bailey, & Eisenstadt, 1991; Kobrynowicz & Biernat, 1998; Wegener & Petty, 1997).

Of course, similar processes could also account for the opposite judgment (more positive judgments of Black than White targets). For example, Black targets could receive greater scrutiny when available information was predominantly positive (Fleming, Petty, & White, 2005; Sargent & Bradfield, 2004) or social perceivers could correct for supposed negative biases against the Black targets. These processes apply to many types of variables and judgment outcomes (Petty & Wegener, 1998; Wegener & Petty, 1997, 2001; Wegener et al., 2004).

Because this framework involves different processes leading to similar judgment outcomes, the attitudinal approach also suggests that one go beyond the judgments themselves to emphasize judgmental and behavioral consequences. The majority of judgment-oriented studies in stereotyping and prejudice stop after initial judgments. In some cases, the studies use reaction time or other cognitively oriented measures to unpack the processes leading to stereotypic judgments, but in others, they use the judgment outcome itself (e.g., a difference in judgment between targets of two different ethnicities) as an indication that a prominent process has occurred. The current perspective suggests that various processes might have been at work and that the consequences of the judgments for later thought or behavior likely differ across those possible processes. Learning whether the process(es) at work are relatively thoughtful versus nonthoughtful might be especially important, because judgments based on higher levels of processing are more likely to last over time, to resist change, and to predict future judgments and behaviors (Petty et al., 1995).

Of note, some of these differential consequences might be more difficult to study in stereotyping and prejudice domains than in other settings. Consider differential persistence of stereotyping or prejudice over time. One factor that might make such effects illusive is the extent to which the stereotype itself is directly tied to the person (e.g., when group membership is visually salient, rather than simply represented in memory). For visually salient group memberships, even if initial judgments are based on rather heuristic use of stereotypes, one might find similar judgments at a later point if the same heuristic is used. In domains such as attitude change, the cue or heuristic is often only temporarily associated with the attitude object. For example, a source of a message might often be absent at some later point when people encounter the attitude object. With visually salient stereotypes, however, the heuristic is virtually always present when the person is encountered. Of course, this is not the case with all stereotypes or

associated stigmas. For example, SES, though sometimes associated with visible markers, might often be relatively invisible when a social target is encountered at a later point in time. Similarly, stigmas associated with divergent political or religious beliefs would often be invisible and might often require activation of information in memory that is associated with the person. Differential persistence based on amount of thinking about initial information might be most likely when stereotypes are not visually salient.

Summary

The current research demonstrates both thoughtful and non-thoughtful routes to the same stereotypic-prejudiced judgments. That is, in reacting to the same social information, perceivers with the requisite cognitive capacity engaged in biased processing of the presented information. People without the necessary cognitive capacity provided equally biased judgments without group membership of the target influencing listed thoughts. Although the judgment outcomes looked the same (i.e., were equally extreme) across these conditions, the consequences of these judgments differed depending on the amount of processing of the presented information. Judgments based on thoughtful consideration of the presented information were less likely to change in reaction to an alternative point of view espoused by another social perceiver and in reaction to a reminder that certain biases might be at work. Because past attitudes research has suggested that differences in amount of elaboration also confer related consequences, such as persistence over time and ability to guide behavior, the current approach suggests that differential consequences of stereotypic or prejudiced judgments would be a potentially fruitful (and certainly important) avenue for future research. We look forward to future work that explores the synergies among areas of social psychology, especially between the attitude and stereotyping-prejudice domains.

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Received November 2, 2003

Revision received January 26, 2005

Accepted November 9, 2005 ■

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