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Psychological Mechanisms Responsible for the Moderating Effects of
Need for Cognition on Attractiveness Stereotyping

by

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Bachelor of Arts (Honours), Psychology, Laurentian University, 1998

THESIS

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Abstract

This thesis focuses on the psychological mechanisms responsible for the moderating role of need for cognition (NFC) in attractiveness stereotyping. Attractiveness stereotyping refers to the tendency to attribute more positive characteristics to attractive than to unattractive individuals. Recent research has found that people high in NFC show less of this attractiveness bias. The present research used two approaches to test the hypothesis that NFC moderates the bias because persons higher in NFC have greater motivation and ability to engage in systematic thought processes. First it included measures to assess the types of thoughts that participants high and low in NFC engaged in while rating attractive and unattractive individuals. Second, it included experimental manipulations to vary participants' motivation and ability to think systematically when rating a target person. Results of the thought measures were generally consistent with the hypotheses, however, the experimental manipulations produced several unexpected findings.

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The Psychological Mechanisms Responsible for the Moderating Effects of Need for Cognition on Attractiveness Stereotyping

The purpose of the present research was to examine factors that determine whether people judge an individual on the basis of stereotypes. This topic has important social implications and has been widely studied by social psychologists. Much of the past research has focused on the development (e.g., Tajfel & Turner, 1986) and maintenance (e.g., Tajfel, 1969) of stereotypes, as well as demonstrating the pervasiveness of various forms of stereotypes. In an influential paper, Devine (1989) proposed that everyone may be "guilty" of stereotyping to some degree. Devine demonstrated that cultural stereotypes were automatically activated among individuals with either high or low levels of prejudice when they were unknowingly exposed to a stereotype prime, but when controlled processing was allowed, only highly prejudiced people allowed stereotypes to affect their judgments of an individual. In addition to individual differences in prejudice level, researchers have identified several other personality factors that may moderate the application of stereotypes (e.g., belief in the appropriateness of stereotypes, Macrae, Bodenhausen, & Milne, 1998; need for closure, Dijksterhuis, van Knippenberg, Kruglanski, & Schaper, 1996). Given that the activation of stereotypes may be fairly automatic, the value of identifying individual differences that attenuate the application of stereotypes is paramount.

A promising area for the investigation of such differences is the study of cognitive processing styles. In the present research the personality construct

need for cognition (NFC) was examined in an effort to understand its moderating effects on stereotype application. Specifically, I examined the means by which individual differences in NFC may affect people's tendency to apply stereotypes about attractiveness to specific individuals that they encounter. Below I review relevant background literature concerning the NFC construct, the attractiveness stereotype, and their interrelations.

Impact of NFC on Attributes and Judgments

NFC refers to the tendency to seek out and engage in effortful cognitive processing, and a scale has been developed to assess individual differences in NFC (Cacioppo & Petty, 1982). High scores on the NFC Scale are associated with greater and more complex thought compared to low scores (Cacioppo, Petty, Feinstein, & Jarvis, 1996; Cacioppo, Petty, & Kao, 1984; Waller, 1994). Individuals high in NFC can thus be referred to as chronic cognizers. Cumulative evidence suggests that such persons are intrinsically motivated to expend cognitive effort whereas individuals low in NFC (cognitive misers) are not intrinsically motivated to engage in such effortful thinking (e.g., Cacioppo et al., 1996; Leone, 1994; Thompson, Chaiken, & Hazlewood, 1993). Individuals low in NFC have been shown to avoid thoughtful processing (e.g., Cacioppo et al., 1996).

One particular body of research has examined underlying mechanisms responsible for the processing differences of persons high and low in NFC; this work has focused on attitudes and attitude change. Studies in this area have shown that the attitudes of high relative to low NFC persons tend to be stronger

(Cacioppo, Petty, Kao, & Rodriguez, 1986), more resistant to change (Haugtvedt & Petty, 1992) and polarization (Lassiter, Apple, & Slaw, 1996; Leone, 1994), more predictive of behavior (Cacioppo et al., 1996; Shestowsky, Wegener, & Fabrigar, 1998), and less ambivalent (Thompson & Zanna, 1995) because they originate from more extensive thought.

Such differences in the attitudes of persons high and low in NFC appear to reflect variations in the motivation to engage in effortful cognitive processing. High NFC persons have been shown to rely on the quality and logic of persuasive appeals. Thus their attitudes are based on systematic thought processes (Axsom, Yates, & Chaiken, 1987; Cacioppo, Petty, & Morris, 1983; Haugtvedt & Petty, 1992). In contrast, low NFC individuals, who lack the motivation to think effortfully, rely on heuristic cues (e.g., audience response, expertness of message source) to make their judgments (Axsom et al., 1987; Cacioppo et al., 1986; Cacioppo et al., 1983; Haughvedt, Petty, & Cacioppo, 1992; Verplanken, 1993). Thus low NFC individuals form and change their attitudes based on information that requires relatively shallow processing. To illustrate, low NFC persons will tend to adopt the attitude of an expert on the basis of a simple rule of thumb, "experts can be trusted", whereas high NFC persons may or may not adopt the expert's attitude, depending on whether the expert presents a rational and logical argument.

Investigation of individual differences in motivation to think systematically has been extended from the study of attitudes to the study of various forms of cognitive and judgmental bias (e.g., reverse hindsight bias, Verplanken &

Pieters, 1988; framing biases. Smith & Levin, 1996). Many such studies suggest that high NFC (compared to low NFC) individuals may be more likely to correct for biases in their judgments because of their willingness to expend cognitive effort (e.g., Kellaris, Dahlstrom, & Boyle, 1996; Martin, Seta, & Crelia, 1990; Perlini & Hansen, 1998; Smith & Levin, 1996; Verplanken & Pieters, 1988; Waller, 1993). For example, Martin et al. (1990) examined whether priming effects (i.e., either contrast or assimilation effects) on impression formation would be moderated by people's willingness and ability to expend effort in forming impressions. Participants who were either distracted or told that their responses would be lumped together with others showed assimilation in their target ratings. That is, when given a positive prime (printed self-referent statements) they rated the target person positively and when given a negative prime (printed self-referent statements) they rated the target negatively. In contrast, when participants were not distracted or when they were told that their responses would be examined individually, they attempted to correct for the context bias and instead demonstrated a contrast between prime and target. The results of these studies indicated that a contrast effect on judgment (a negative relation between the value of a prime and the value of a target) requires more cognitive effort than assimilation.

Importantly, these researchers also examined the effects of a priming manipulation on persons high and low in NFC. Participants were primed with either the trait "persistent" or "stubborn", were asked to read a paragraph that ambiguously described a target person, and then were asked to form an

impression of the target person. As would be expected, high NFC participants showed contrast effects and low NFC participants showed assimilation effects. Taken together, these findings suggest that high NFC persons (compared to low) are more inclined to expend extra cognitive effort to correct for possible biases in their judgments.

In a more recent study, a contextual bias in ethical judgments was found to be moderated by individual differences in NFC (Kellaris et al., 1996). Participants high and low in NFC read two paragraphs that primed either ethical or unethical marketing practices. Following this priming task they were asked to read a third (ambiguous) paragraph and rate how ethical the target person's behavior was. As in the Martin et al. (1990) study, high NFC participants showed contrast effects and low NFC participants tended toward assimilation. However, when participants were explicitly warned that the previous two paragraphs might affect their ratings of the third, low NFC participants displayed a correction: they showed a contrast effect. Ethical judgments of the high NFC participants (who had presumably already corrected for an assimilation bias) tended to show less of a contrast effect. That is, their judgments of the ethical nature of the ambiguous paragraph fell between judgments indicating assimilation and contrast effects. Apparently the high NFC participants corrected their judgments once more after having been made aware that their initial responses might be biased. Low NFC participants also corrected their judgments when blatantly warned; however, due to their initial lack of cognitive effort, their correction resulted only in a contrast effect rather than a more moderate and unbiased

response. These findings again suggest that high NFC individuals are more inclined to engage in the extra thought required to correct for factors that might contaminate their judgments.

Research that has experimentally manipulated the thought processes characterizing individuals low and high in NFC lends further support to this interpretation. A study that examined the effects of context on product assessment and manipulated cognitive capacity provides further evidence that effortful thought (e.g., a controlled correction process) is responsible for the differential judgments of high and low NFC persons (Meyers-Levy & Tybout, 1997). After either a positive or negative affective prime, high and low NFC participants were asked to rate a novel beverage under conditions of low or high cognitive capacity (i.e., product description was either inconsistent or consistent with product category). Results indicated that high NFC participants were more likely to expend effort in correcting for the priming context than low NFC individuals, but only when sufficient cognitive resources were available to them.

Additional evidence of the attenuating effect that NFC has on cognitive biases comes from a study examining the correspondence bias (D'Agostino & Fincher-Kiefer, 1992). The correspondence bias refers to the tendency to believe that people's public behaviors reflect their dispositions rather than situational factors. In this study, high and low NFC participants read a paragraph that a target had been forced to write and were later asked to rate the target's true attitude on the issue written about. Under normal circumstances, only low NFC participants evidenced a correspondence bias. However, when made

cognitively busy during the rating task, high NFC participants too displayed a correspondence bias. It was concluded that when controlled processing was allowed to occur without distraction, high NFC participants corrected for the influence of the situation in their ratings of the target's true attitude. In sum, NFC has been shown to moderate a wide variety of cognitive biases and the moderating effects appear to occur because individuals high in NFC are more inclined to engage in the extra thought needed to "correct" for effects of the biasing factor.

Impact of NFC on Stereotyping

Of particular interest to the present investigation are biases that result from the application of stereotypes. Surprisingly little research has examined the effects of NFC on stereotyping. However, the existing literature suggests that low NFC persons are more likely to form impressions based on stereotypes than are high NFC persons because stereotype-based judgments require less cognitive effort and resources compared to judgments based on individuating information (Erber & Fiske, 1984). Evidence that NFC scores are negatively correlated to scores on the Modern Racism Scale (McConahay, 1986) are consistent with this notion. In addition, low NFC persons are more likely to form impressions on the basis of race than are high NFC persons (Waller, 1993).

More direct evidence that NFC attenuates the use of stereotypes in judgments comes from a study that examined the effects of occupational and racial stereotypes on memory and judgment. In a series of experiments, Crawford and Skowronski (1998) demonstrated that, although high NFC

participants had a superior memory for stereotype-consistent information, only the low NFC participants demonstrated stereotype-relevant discriminatory judgments. Participants in the first two experiments were presented with lists of traits that purportedly described a target person. Half of these words were consistent with an occupational stereotype (e.g., caring, honest, and upstanding are consistent with the stereotype of a doctor) and half were neutral (e.g., unlucky, passive, clumsy). In addition, half of the participants were given a stereotype label (e.g., doctor) with each of the traits. The analyses indicated that high NFC participants had a superior memory (i.e., better recall) compared to low NFC participants. Moreover, high NFC participants recalled a greater number of stereotype consistent traits compared to their counterparts, especially when the occupational label was presented with the traits. A similar procedure was used in a third experiment studying racial stereotypes and these results were replicated.

In a final experiment, Crawford and Skowronski used both a memory measure and a judgment measure of the impact of a racial stereotype within the context of a court case. Rather than presenting participants with a list of traits they were given evidence (positive, negative, and neutral) concerning the defendant. The name and city of birth of the defendant were used to prime a racial stereotype. Although high NFC participants recalled more stereotype-consistent information compared to low NFC participants, it was the low NFC participants who allowed this information to affect their judgments. Judgments of guilt made by high NFC participants were not dependent on the defendant's

race.

In the research by Crawford and Skowronski, it is perhaps not surprising that NFC affected memory: Given their experience in effortful thought it would be expected that high NFC participants would identify memory strategies and thus use them to organize incoming information. However, as the research demonstrated, better memory for stereotype-consistent words does not necessarily result in these words influencing later judgments. Apparently, high NFC individuals take advantage of the processing benefits (i.e., greater efficiency; Macrae, Stangor, & Milne, 1994) provided by stereotypes, but they go to additional lengths to monitor and sometimes adjust for these stereotypes when making judgments concerning an individual.

An additional study is particularly relevant to the proposed investigation because it examined moderating effects of NFC on attractiveness stereotyping (Perlini & Hansen, 1998). Attractiveness stereotyping refers to the tendency to attribute more positive characteristics to attractive, compared to unattractive, individuals (Dion, Bershied, & Walster, 1972). Relative to unattractive targets, attractive targets are judged to be more sociable, kind, intelligent, sexually warm, outgoing, and witty (Feingold, 1992). Neither sex (Feingold, 1992; Langlois et al., 2000) nor age (Adams & Huston, 1975; Langlois et al., 2000) of the evaluator have been demonstrated to moderate this bias; however, three individual difference variables have been identified as possible moderators. Dermer and Theil (1975) found that individuals who perceive themselves as physically attractive exhibit a much stronger bias in favor of attractive targets

than do those who perceive themselves as unattractive. Dion and Dion (1987) demonstrated that individuals who "believe in a just world" have a stronger attractiveness bias relative to nonbelievers. The third variable is the NFC personality trait.

In the study by Perlini and Hansen (1998), participants were matched on NFC scores and randomly assigned to one of four target photo conditions. The participants were given a single photograph of either an attractive male, an attractive female, an unattractive male, or an unattractive female and were asked to evaluate the person on 17 bipolar trait rating scales. The participants were simply told that the study was examining person perception and were provided with no additional information on which to base their judgments. Although both high and low NFC participants evidenced an attractiveness bias (i.e., they attributed more positive traits to attractive, compared to unattractive targets), this bias was significantly attenuated among high NFC participants. Thus individual differences in NFC served to moderate attractiveness stereotyping.

Assessing Psychological Mechanisms Underlying the Effects of NFC on Stereotyping

How and why do individual differences in NFC moderate the application of attractiveness stereotypes to judgments of an individual? Perlini and Hansen (1998) suggested that the moderating effect of NFC reflected differences in the amount of thoughtful systematic processing that participants engaged in as they rated their target. According to this account, the bias was relatively weak for those high in NFC because they engaged in more extensive systematic

processing, whereas the bias was significantly stronger for low NFC participants because they based their judgments on a salient peripheral cue, namely target attractiveness. However, the researchers did not assess the role of this hypothesized cognitive mechanism. The main purpose of the present research was to assess the validity of this interpretation.

Previous research offers considerable evidence that is consistent with this interpretation. As noted previously, researchers studying attitudes and persuasion (e.g., Cacioppo & Petty, 1979) and various cognitive biases (e.g., D'Agostino & Fincher-Kiefer, 1992) have attributed differences found between high and low NFC persons to their differential motivations to think extensively. Concerning the persuasion literature, low NFC individuals have been shown to rely upon heuristic or peripheral cues whereas high NFC individuals use information that is more dependent on quality and logic. With regards to the varying levels of cognitive bias demonstrated by individuals high and low in NFC, such differences have been explained in terms of the willingness of (only) high NFC persons to explore and think about a wide variety of factors (e.g., both congruent and incongruent information, Srull, Lichtenstein, & Rothbart, 1985) rather than simply considering the most salient peripheral cues (Cacioppo et al., 1996).

Thus studies examining NFC in many domains indicate that individuals high and low in NFC differ in their motivation and ability to process information systematically. In a recent major review of NFC research, Cacioppo et al. (1996) cited an abundance of research that suggests these two factors are the

underlying mechanisms that distinguish the trait. Those with a high NFC are intrinsically motivated to seek out and engage in effortful cognitive activities (Thompson et al., 1993); their processing is of a very deep level. Over years of such systematic processing, individuals high in NFC appear to develop/enhance certain cognitive abilities (e.g., more efficient storage of information, better recall of information, better appraisal of problem-solving effectiveness, higher levels of comprehension of certain messages, better attention to the quality of information, etc.) that are not enhanced in those who tend to use more shallow processing (i.e., persons low in NFC) (Cacioppo et al., 1998). Individuals with a low NFC, in contrast, tend to avoid systematic thought, rather, they rely on more shallow thinking to navigate their social worlds. These two divergent styles of cognitive processing (i.e., deep vs. shallow) have been labeled differently within the social psychological literature (Chaiken & Trope, 1999). For purposes of the present study, the essence of the distinction between the two forms of thought processing are described by both the Elaboration Likelihood Model (ELM; Petty & Cacioppo, 1986) and the Heuristic-Systematic Model (HSM; Chaiken, 1980).

Both the ELM and the HSM were borne out of persuasion research. These models contend that when using "central route" (ELM) or "systematic" processing (HSM), people carefully examine all available information logically both within the context of the persuasive message and within the context of previous knowledge and experience. Thus, in Perlini and Hansen's (1998) study wherein explicit central cues (e.g., "this person has many friends") were absent, high NFC persons may have relied on a store of information including personal

beliefs and experience. Activation of such thoughts could account for why high NFC persons seemed to correct for possible biases. For example, one belief that might serve to attenuate the effects of stereotyping is that "you should not judge a book by its cover."

"Peripheral route" (ELM) or "heuristic" (HSM) processing is thought to occupy the opposite end of the continuum. This mode of processing is said to be simple and (most often) efficient through the use of heuristic cues or simple rules of thumb. Compared to systematic processing, heuristic processing entails far less cognitive effort and capacity as well as less time. In relation to the Perlini and Hansen study, low NFC persons may have simply relied on the heuristic, "what is beautiful is good" when they rated the target.

There is at least some anecdotal evidence for these differential cognitive processes. Perlini and Hansen (1998) reported that, during debriefing, many participants spontaneously offered information consistent with this notion. For example, many said that they felt that the rating task was unfair and that you can't judge a person only on the basis of a photograph. Moreover, some of these participants reported having rated the target person on the midpoint of the rating scales to avoid being biased. Upon closer examination of these reports, Perlini and Hansen found that such responses were only made by participants high in NFC.

In the present research, I used two techniques to obtain more direct evidence for the role of these hypothesized cognitive processes. First, I introduced measures designed to assess the types of thoughts underlying

participants' ratings of an individual. As a second technique, I attempted to vary experimentally the extent to which participants engaged in extensive systematic processing.

Manipulations of Effort and Ability to Think Systematically

Given that individual differences in NFC have been shown to be quite strongly correlated with many other personality traits (e.g., need to evaluate, Jarvis & Petty, 1996; desire for control, Thompson et al., 1993; causal uncertainty, Weary & Edwards, 1994) it can be argued that trait-based studies (i.e., Perlini & Hansen, 1998) do not clearly demonstrate the solitary role of the trait or underlying mechanisms responsible for its moderating impact. In such circumstances, converging evidence can be obtained by using situational manipulations of the construct that is thought to produce the moderating effect. In this investigation I attempted to manipulate those variables (i.e., motivation and ability to think systematically) which are considered to distinguish between high and low NFC personalities in an effort to better understand the moderating effects of NFC in attractiveness stereotyping.

According to the ELM, central route processing, which entails evaluation of central information (such as that typically used by persons high in NFC), is said to occur when motivation and ability to critically evaluate information are high. In contrast, peripheral route processing and the use of peripheral cues (such as those typically used by low NFC persons) is said to occur when motivation and/or ability are low (Petty & Cacioppo, 1986). The HSM makes equivalent contentions for systematic and heuristic thought processes (Chaiken,

Liberman, & Eagly, 1989). It therefore follows that in situations that decrease the motivation and/or ability to process central information, individuals high in NFC will show less of a reliance on such information and instead base their judgments on peripheral cues or heuristics. Similarly, in situations that increase the motivation and/or ability to engage in thoughtful analysis, individuals low in NFC should decrease their reliance on peripheral cues in favor of use of more central information.

Within the social psychological literature, many situational manipulations have been used to vary people's motivation and ability to process information carefully. Three manipulations used to reduce people's ability to process information systematically are distraction (Martin et al., 1990; Petty & Brock, 1981; Petty, Wells, & Brock, 1976) or cognitive busyness (D'Agostino & Fincher-Kiefer, 1992; Krull & Erickson, 1995), repetition (Cacioppo & Petty, 1979), and time pressure (Freund, Kruglanski, & Shpitzajzen, 1985; Ordonez & Benson, 1997; Verplanken, 1993). For example, using a distraction manipulation, Petty et al. (1976) had some participants record which quadrant an "x" appeared in on a screen while they were performing an experimental task. This manipulation proved to decrease the cognitive efficiency of those who were distracted.

Similarly, manipulations of "cognitive busyness" (i.e., concurrently performing the experimental task and an unrelated cognitive task) have been shown to affect a number of judgment biases (Krull & Erickson, 1995; Martin et al., 1990; Petty et al., 1976). For example, D'Agostino and Kiefer-Fincher (1992)

found the correspondence bias to be stronger among those participants who were preoccupied with an upcoming task compared to those who had only one task to think about. Similar effects on biases have been reported when participants are put under time pressure. For example, primacy effects are more prevalent among pressured individuals compared to their non-pressured counterparts (Freund et al., 1985).

More relevant to the present study are those investigations that examined the relationship between the ability to think systematically and stereotype application. Such studies have shown that when people's ability to process information carefully is reduced (either by cognitive busyness or time pressure) the use of stereotypes to form impressions of others is increased (e.g., Gilbert & Hixon, 1991; Kruglanski & Freund, 1983). Gilbert and Hixon found that participants who performed a visual search task were more likely to apply a cultural stereotype compared to those who were not cognitively occupied with the search. Similarly, Kruglanski and Freund found that the effects of a cultural stereotype were more pronounced when participants were rushed to complete the rating task within a short period of time.

In addition to ability, the motivation to think systematically has been enhanced by increasing levels of personal involvement (Axsom et al., 1987; Petty & Cacioppo, 1979, 1984), task relevance (Darke et al., 1998; Petty & Cacioppo, 1984; Sorrentino, Bobocel, Gitta, Olson, & Hewitt, 1988), accountability (Martin et al., 1990; Tetlock, 1983a, 1983b), and outcome dependency (Berscheid, Graziano, Monson, & Dermer, 1976; Erber & Fiske,

1984). Under such conditions, participants are more inclined to carefully process a wide range of available information (Berscheid et al., 1976). Moreover, they think about things that, under normal circumstances, would typically be ignored (Erber & Fiske, 1984).

Like the ability manipulations, manipulations of motivation to engage in careful thought have resulted in the attenuation of various biases (e.g., primacy effects and numerical anchoring; Kruglanski & Freund, 1983). Consider a case in which accountability was manipulated. When participants believed that their responses would be individually examined by the experimenter they displayed more careful consideration and corrected for context biases than when they expected their responses to be lumped (anonymously) among the group responses (Martin et al., 1990).

With regard more specifically to the effects of stereotypes, manipulations of accountability have been shown to moderate cultural stereotyping. Kruglanski and Freund (1983) found that ethnic stereotyping decreased in magnitude when "evaluation apprehension" was high. The manner in which evaluation apprehension was manipulated is similar to accountability manipulations used in other research: Participants were either told that they would have to explain their ratings of target job success to the group and that their ratings would be compared against objective criteria (high accountability), or simply that the rating scale was merely in its pilot stages (thus its validity is yet to be known) and that they were unable (because of ethics) to find out the target's actual job success (low accountability). Further evidence that increased accountability can

attenuate stereotyping behavior comes from a study conducted by Schaller, Boyd, Yohannes, and O'Brien (1995). Participants who were naturally inclined to form erroneous group stereotypes (i.e., individuals high in personal need for structure) did not do so if they believed they would have to justify their impressions publicly.

In sum, situational factors that lead people to engage in more or less systematic thought can affect people's judgments in the same way that the NFC personality construct does. Some circumstances might prompt a high NFC person to think like a low NFC person and vice versa.

Interaction of Individual Differences in NFC and Experimental Manipulations

Evidence of such manipulations acting to minimize the judgmental differences between high and low NFC persons is found within the persuasion literature. Many instances exist within this literature in which individuals low in NFC are induced (via an experimental manipulation) to think more critically, thus resembling the style of thought of high NFC individuals. For example when personal relevance is extremely high there is no difference in the number of issue relevant-thoughts generated by high and low NFC persons: both are high (Axsom et al., 1987; Thompson & Zanna, 1995). In fact, there is evidence that low NFC individuals sometimes report greater mental exertion compared to high NFC individuals in such instances (Sorrentino et al., 1988). Similarly, differences in information recall are reported only when the material is task irrelevant; when clearly relevant to the task at hand, low NFC individuals exhibit equally high recall of material as high NFC persons (Lassiter, Briggs, & Slaw, 1991). One

other instance in which individuals low in NFC have been induced to exhibit great cognitive effort is when they are explicitly instructed to think carefully about an issue. In such cases, their judgments are equivalent to those made by individuals high in NFC (Lassiter, Apple, & Leach, 1994 as cited in Cacioppo et al., 1996).

Compared to those studies in which low NFC individuals are induced to think more carefully, very few efforts have been made to induce high NFC individuals to think less carefully or more peripherally. Note that for low NFC individuals typically the manipulations intended to increase systematic thought have been a function of motivation (e.g., personal relevance, accountability). Because high NFC persons are intrinsically motivated toward extensive thinking, it is unclear how they could be motivated to think in a more simplistic manner. Unlike low NFC persons, high NFC persons naturally have both the ability and the motivation to process information effortfully. In order to induce more peripheral thinking in these individuals, manipulations may need to focus on their ability or capacity for careful thought (e.g., cognitive busyness; Lassiter et al., 1996). For example, Meyers-Levy and Tybout (1997) found that differences in context effects on product evaluations found in high and low NFC persons were eliminated when the participants' processing capacity was limited (i.e., using a cognitive busyness manipulation). Apparently high NFC participants did not have the cognitive resources available to make the required corrections. Thus high NFC people may always have the motivation to think carefully, but the situation may dictate whether they will be able to do so. People low in NFC on

the other hand, (despite being given the opportunity) are just not motivated to engage in effortful thinking.

In the present research I introduced manipulations designed to prompt some high and low NFC individuals to think in a manner opposite to their general inclination. An initial experiment used an accountability manipulation to vary participants' motivation to think systematically. In a second experiment, a more direct, instructional manipulation was used to increase participants' motivation for systematic thought; in addition, participants' ability to process thoughtfully was manipulated using distraction. By manipulating individuals' motivation and ability to think systematically (the two cognitive mechanisms believed to underlie the trait of NFC), these experiments could provide converging evidence that these mechanisms are responsible for the moderating effects of NFC on attractiveness stereotyping.

Overview of the Experiments and Hypotheses

In two experiments, I sought to gain converging evidence that differences in the motivation and ability to process information carefully and systematically moderate attractiveness stereotyping. Using a procedure similar to that of Perlini and Hansen (1998), participants high and low in NFC rated the attributes of an individual (who was either attractive or unattractive) on the basis of only a photograph. In the present research, however, I used two approaches to test the hypothesized cognitive mechanisms. First, I introduced measures of the thought processes underlying participants' ratings. Participants were asked to list all the thoughts that went through their minds as they evaluated the person in the target

photograph. These open-ended thought listings were coded for evidence of systematic thinking (e.g., comments indicating that the participant felt that you cannot judge a person on the basis of a photograph; that the ratings would not be accurate; that the participant was using some corrective strategy to avoid stereotypes) and evidence of heuristic thinking (e.g., comments indicating that the participant was simply relying on first impressions; that the participant was imagining what the person was like on the basis of the photo). Further closed-ended rating scales were also included to assess the extent to which participants engaged in systematic vs. heuristic thought processes.

Second, I included manipulations designed to vary participants' motivation and ability to engage in careful systematic thought. In the first experiment, accountability was manipulated in order to induce participants (high and low on the trait) to complete the rating task using more systematic processing (i.e., using reason and logic). In the second experiment, participants' motivation was manipulated with a more direct instruction to think carefully about their ratings. In this experiment, participants' ability to engage in thoughtful processing was also manipulated using distraction, such that some participants were induced to use more heuristic processing (i.e., using peripheral cues such as attractiveness). Both experiments included control conditions providing a replication of the previous Perlini and Hansen (1998) study.

The main hypotheses for the study were as follows: (1) Within the control conditions that replicated the Perlini and Hansen study, there would be an attractiveness bias. That is, participants would attribute more positive traits to

the attractive than to the unattractive target photos. (2) Within these control conditions, individual differences in NFC would moderate the attractiveness bias. Specifically, the ratings of participants higher in NFC would be affected less by the attractiveness of the targets. (3) Within these control conditions, individual differences in NFC would also be related to the measures of underlying thought processes. That is, participants higher in NFC would evidence more systemic thought (and less heuristic thought) than those low in NFC. (4) Experimental manipulations designed to increase participants' motivation to think systematically would attenuate the attractiveness bias. Specifically, participants lower in NFC would show less bias when motivated to think more systematically. (5) Experimental manipulations designed to decrease participants' ability to think systematically would increase the attractiveness bias. Specifically, participants higher in NFC would show more bias when prevented from thinking systematically.

Experiment 1

Method

Participants

One hundred and sixty one Wilfrid Laurier University undergraduate students (116 females and 45 males) were recruited from the psychology participant pool to participate in a study on personality and person perception. The participants had earlier completed the NFC scale as part of a larger test battery administered in introductory psychology classes. All students received partial course credit for their participation.

Procedure

Initially, 725 participants were pre-screened on their NFC level as part of a large test battery administered to introductory psychology students at the beginning of the year. The NFC Scale (Cacioppo et al., 1984) consists of 18 statements describing one's level of motivation and ability to engage in careful, analytical thought (see Appendix A). Half of the statements describe a high level of NFC (e.g., I would prefer complex to simple problems) and the other half describe a low level (e.g., Thinking is not my idea of fun). Participants were asked to indicate the extent to which each statement was characteristic of them on a 5-point scale. The responses ranged from extremely uncharacteristic (1) to extremely characteristic (5), with uncertain (3) as a midpoint. Half of these items were reverse scored. The scale was used to classify participants as either low or high in NFC².

Several weeks after completing the test battery, participants were recruited to participate in a study examining person perception. The materials for this experiment are presented in Appendix B. Each experimental session was conducted in small groups. Upon arrival at the lab each participant was seated in a cubicle and given preliminary verbal instructions. The participants were told that the researchers were examining personality and person perception and that their task was to make some judgments about a person in a photograph. A further instruction was used to manipulate accountability. Half of the participants (accountable condition) were instructed to meet individually with the experimenter to explain and justify their responses after they had completed the

questionnaire. The other half (not accountable condition) did not receive this instruction. All participants were then given a questionnaire package³ containing one of eight target photographs.

In order to vary attractiveness, the target photos used in the investigation were graphically designed using the "Faces" (1998) software program. This program provides the user with an array of facial feature options (e.g., face shape, jaw line, eyes, smile lines, chins, noses, etc.), each of which can be combined and assembled to create an unlimited number of novel faces. Initially, ten attractive female faces and ten attractive male faces were created and pilot-tested to determine which four would be used in the experiment proper. Eight male and 7 female students rated the physical attractiveness of each face using 7-point scales (1 = unattractive and 7 = attractive). The two male (Ms = 4.38 and 4.38) and female faces (Ms = 5.29 and 4.86) with the highest mean ratings were chosen for use in the experiment. These four attractive faces were then digitally altered (by thinning the lips, widening the nose, moving the eyes apart, thickening the eyebrows, etc.) to create unattractive versions of the same photos. Care was taken to ensure that these unattractive photos did not appear contrived. In total, eight target photographs were constructed: (a) two attractive males, (b) two attractive females, (c) two unattractive males, and (d) two unattractive females. Two different sets of photos were used to ensure that any effects of attractiveness were not attributable to idiosyncratic features of a particular photo.

Participants received a single same-sex target photo⁴ and were instructed to rate the person on a series of traits used in previous research on attractiveness stereotyping (e.g., Dion & Dion, 1987; Perlini & Hansen, 1998). Each trait was rated on a 7-point bipolar rating scale, with higher ratings indicating more positive attributions. On the basis of past research, two types of traits were included. Traits related to character and traits related to sociability. Meta-analytic research has demonstrated that there are no attractiveness effects on character traits, but moderate to strong effects for sociability traits (Feingold, 1992). Character traits were as follows: Honest-dishonest, genuine-artificial, sincere-insincere, kind-cruel, moral-immoral, trustworthy-untrustworthy. The sociability traits were as follows: Poised-awkward, strong-weak, interesting-boring, assertive-submissive, sociable-unsociable, warm-cold, desirable as a friend-undesirable as a friend, exciting-dull, sophisticated-unsophisticated, sexually warm-sexually cold, well mannered-ill mannered, and polite-impolite. The bipolar rating of attractive-unattractive was embedded amongst the trait ratings and served as a check on the attractiveness manipulation. In order to counter acquiescence response set, the positive pole was on the right for half of the items and on the left for the other half.

Participants were also asked to describe in writing what they were thinking as they made their trait ratings. Because this thought listing measure may itself have increased accountability, it was placed after the trait rating scales in the questionnaire package. The main purpose of the open-ended thought listing measure was to assess the extent to which participants engaged

in “systematic” vs. “heuristic” thought processes as they made their ratings. Two independent judges who were blind to the experimental conditions and NFC levels coded the responses for evidence of these two types of thought processes. Statements coded as evidence of systematic thoughts were those indicating that the participant felt they could not make the judgments simply on the basis of a photograph (e.g., “I couldn’t tell what the person was like just by looking at them.”), that the participants thought their ratings would be inaccurate (e.g., “I thought that none of my judgments would be accurate.”), and that the participants used some sort of corrective strategy in order to avoid basing their judgments on stereotypes (e.g., “I answered most of the questions around 4 because I didn’t feel comfortable choosing an extreme trait (and stereotyping) from someone’s photo) (inter-rater agreement = .92). Statements coded as evidence of heuristic thoughts were those indicating that the participants were relying on first impressions (e.g., “When you see someone for the first time I think the first impression is very important, and it also could tell you a lot about the person.”), that the participants were trying to picture the target person in various situations (e.g., “I put the subject of the picture into different hypothetical situations in my mind and considered how he would respond.”), and that the participants were simply trying to imagine the personality and life of the target person (e.g., “She likes materialistic things, but more importantly depends on friendships, pleasure, giving love or receiving love.”) (inter-rater agreement = .94). For each participant I computed the number of statements coded as reflecting systematic thought, the number coded as reflecting heuristic thought,

as well as a systematic-heuristic difference score.

To further assess the thought processes underlying participants' trait ratings, six closed ended questions were also included. Again, the purpose of these questions was to measure the extent to which participants engaged in systematic vs. heuristic thought processes. The specific questions were as follows: (1) To what extent were you trying to give very carefully thought out answers?. (2) To what extent were you trying to avoid basing your judgments on stereotypes?. (3) To what extent were you trying to make the ratings with the least amount of effort?. (4) How difficult was it to evaluate the person based solely on a photograph?. (5) How comfortable were you in evaluating the person based solely on a photograph?. and (6) How confident are you that you were able to evaluate the person accurately based solely on a photograph? All responses were made on 7-point rating scales.

In sum, the design of the study was a 2 (Photo Attractiveness: Attractive/Unattractive) X 2 (NFC Level: High/Low) X 2 (Accountability: Accountable/Not Accountable) X 2 (Sex: Male/Female) X 2 (Photo Set: One/Two) between subjects factorial design and participants were randomly assigned to the experimental conditions. The main dependent variables were the trait ratings and the measures of underlying thought processes.

Results

Need For Cognition Scores

Participants' responses to the NFC scale items were summed to create an overall NFC score (Cronbach's alpha = .84) with higher scores indicating a

higher level of NFC. Participants were then classified as having a high or a low level of NFC on the basis of a median split ($Mdn = 64$). Eighty-eight participants were classified as low in NFC (M score = 55.50) and 73 were classified as high in NFC (M score = 71.11). Participants were randomly assigned to the eight experimental conditions and cell sizes ranged from 12 to 25.

Attractiveness Manipulation Check

The attractiveness ratings were submitted to a 2 (Photo Attractiveness: Attractive/Unattractive) X 2 (NFC Level: High/Low) X 2 (Accountability: Accountable/Not Accountable) X 2 (Sex: Male/Female) X 2 (Photo Set: One/Two) analysis of variance (ANOVA). A main effect for photo attractiveness, $F(1, 129) = 197.03, p < .001$, confirmed that the attractive target photos ($M = 5.42, SD = 1.11$) were perceived to be more attractive than the unattractive target photos ($M = 3.00, SD = 1.09$). A main effect of sex was also found, $F(1, 129) = 15.02, p < .001$ ($M_s = 3.71$ vs. $4.41, SD_s = 1.34$ vs. 1.70 for men and women respectively). Each of these main effects was qualified by a significant Photo Attractiveness X Sex interaction, $F(1, 129) = 5.66, p < .02$. Simple effect analyses performed at each level of the sex factor indicated that women gave much higher ratings to the attractive targets ($M = 5.76, SD = .88$) than to the unattractive targets ($M = 3.07, SD = 1.17$), $t(129) = 13.45, p < .05$. Men also gave significantly higher ratings to the attractive targets than to the unattractive targets ($M_s = 4.57$ vs. $2.82, SD_s = 1.16$ vs. $.85$), $t(129) = 5.44, p < .05$; however the effect was not as strong as it was for women.

Trait Ratings

I averaged across trait ratings to create two composite indices, one for the character traits (Cronbach's alpha = .85) and one for the sociability traits⁵ (Cronbach's alpha = .84). Each index was separately submitted to a 2 (Photo Attractiveness: Attractive/Unattractive) X 2 (NFC Level: High/Low) X 2 (Accountability: Accountable/Not Accountable) X 2 (Sex: Male/Female) X 2 (Photoset: One/Two) ANOVA.

No significant effects were found for the character trait index. Hence, consistent with previous research, attractive target persons were not perceived as more positive than unattractive targets on traits such as honesty, sincerity or trustworthiness.

However, several significant effects emerged from the analysis of the sociability trait index. Means for the sociability trait index are presented in Table 1 as a function of photo attractiveness, accountability, and NFC level. As anticipated, a main effect of photo attractiveness indicated that attractive targets were rated more positively ($M = 4.60$) than unattractive targets ($M = 3.63$), $F(1, 118) = 90.40$, $p < .001$. However, contrary to the hypothesis, this attractiveness bias was not moderated significantly by either NFC level ($F(1, 118) = .43$, ns) or accountability ($F(1, 118) = 2.00$, ns). Thus the attractiveness of the photo had an equivalent impact on participants' ratings whether they were accountable or not (see Table 2) and whether they were classified as low or high in NFC (see Table 3).

The analysis did reveal a 3-way interaction that approached significance, $F(1, 118) = 3.52, p < .06$. To decompose this interaction separate 2 X 2 ANOVAs were performed within each accountability condition. In the not accountable condition, the hypothesized Photo Attractiveness X NFC Level interaction approached significance, $F(1, 74) = 3.18, p < .08$. This interaction indicates that NFC moderated the effects of attractiveness. More specifically, for unattractive photos, participants high in NFC gave ratings higher than their counterparts; whereas for attractive photos, participants high in NFC gave ratings approximately the same as their counterparts. In the accountable condition, NFC did not moderate the effects of the attractiveness bias.⁶

To provide a more sensitive test of the moderating role of NFC and to eliminate the problem of unequal cell sizes, I also performed a regression analysis on the sociability trait index wherein NFC scores were treated as a continuous variable. The regression analysis proceeded in three steps. In the first step, the sociability ratings were regressed on dummy variables representing sex, photo attractiveness, accountability, as well as the scores on the NFC scale. Next, the six corresponding two-way interaction terms were entered. Lastly, the three-way interaction terms were added to the equation. A main effect of photo attractiveness was found in step one ($\beta = .60, p < .001$) indicating, once again, that the more attractive photos received higher sociability ratings. In addition, a significant Photo Attractiveness X NFC Scores X Accountability interaction was obtained ($\beta = 4.40, p < .03$).

To interpret this interaction, separate regressions were performed within the accountable and not accountable conditions. Importantly, within the not accountable condition there was a significant Photo Attractiveness X NFC Scores interaction ($\beta = 1.87, p < .02$). This interaction indicates that, within the not accountable condition, the attractiveness bias was moderated by NFC. More specifically, the unattractive targets were rated more positively by people higher in NFC ($r(74) = .23, p < .05$) whereas the ratings of attractive targets were unrelated to NFC scores ($r(72) = .01, ns.$) Thus, consistent with the prior research, the ratings made by those higher in NFC were affected to a lesser degree by the attractiveness of the target. Within the accountable condition, there was not a significant Photo Attractiveness X NFC Scores interaction, indicating that NFC did not moderate the effects of attractiveness in this condition ($\beta = .29, ns$).

Closed Ended Thought Measures

Next, participants' responses to the closed-ended self-report measures of thought processes were examined. Initially I computed an overall index of the extent to which participants evidenced systematic vs. heuristic thought processes. The items were first re-coded so that participants received higher scores on this index to the extent they reported: Trying to give carefully thought out answers, trying to avoid basing their judgments on stereotypes, not trying to make ratings with little effort, finding it difficult to evaluate the person based solely on a photograph, feeling uncomfortable evaluating the person on the basis of a photograph, and feeling they were unable to evaluate the person

accurately on the basis of a photograph. The index was then formed by averaging across all six items (Cronbach's alpha = .52). Due to the low reliability of this index I performed analyses separately for the individual items as well as for the index as a whole.

The means for each item as well as the overall index are presented as a function of accountability in Table 4, and I computed t-tests to assess whether participants' reports of their thought processes were affected by their accountability condition⁷. Only one significant effect was obtained. Accountable participants reported that they used more effort than not accountable participants when making the trait ratings. $t(156) = 2.53, p < .01$.

I also computed correlation coefficients to assess whether the thought processes were related to participants' NFC scores. Consistent with the hypotheses, participants higher in NFC reported thinking more carefully ($r(161) = .24, p < .01$), trying harder to avoid using stereotypes ($r(161) = .23, p < .01$), and feeling more uncomfortable making the judgments ($r(161) = .24, p < .01$). In addition, the composite index formed by averaging across the six self-report items was significantly related to NFC ($r(161) = .26, p < .001$).

Correlations between NFC and the thought measures were also computed separately within each accountability condition (see Table 5). In the not accountable condition, participants higher in NFC again reported giving more carefully thought out answers ($r(81) = .28, p < .02$), trying harder to avoid using stereotypes ($r(81) = .31, p < .01$), and feeling more uncomfortable making the judgments ($r(81) = .22, p < .05$). In the accountable condition there were fewer

significant correlations. Participants higher in NFC reported feeling uncomfortable making the judgments ($r(80) = .24, p < .03$), and lacking confidence in the judgments ($r(80) = -.27, p < .02$). The composite index was significantly correlated with NFC in both the accountable ($r(80) = .27, p < .02$) and not accountable ($r(81) = .27, p < .02$) conditions.

Open-ended Thought Measures

Parallel analyses were performed on the open-ended thought ratings. First I examined the effects of accountability. The mean frequencies for systematic thoughts, heuristic thoughts, and systematic-heuristic difference scores are presented in Table 6 as a function of accountability. T-tests revealed, as expected, that participants in the accountable condition evidenced more systematic thought ($t(159) = 2.17, p < .03$), less heuristic thought ($t(159) = 2.09, p < .04$), and thus larger systematic-heuristic difference scores ($t(159) = 2.65, p < .01$) than those in the not accountable condition.

Next I examined the relation of NFC to the open-ended thought indices. Surprisingly, analyses performed on the entire sample revealed that participants' NFC scores were not significantly correlated with any of the thought indices. A closer examination of the thoughts of high and low NFC participants was also done by performing these correlations separately within each of the accountability conditions (see Table 7). Within the accountable condition, NFC was again completely uncorrelated with the thought indices. Within the not accountable condition the correlations were all in the expected direction but the separate systematic and heuristic thought indices failed to attain significance.

Participants higher in NFC evidenced somewhat more systematic thought ($r(81) = .20, p < .07$), less heuristic thought ($r(81) = -.17, p < .14$), and thus greater systematic-heuristic difference scores ($r(81) = .22, p < .05$). Although these correlations are relatively weak, the pattern is consistent with previous research which has demonstrated that individuals high in NFC tend to use more systematic than heuristic thought processes while individuals low in NFC naturally tend to use more heuristic than systematic thought.

Discussion

The results of experiment one were only partially consistent with the hypotheses. The accountability manipulation did not produce the hypothesized effects. I had expected that the accountability induction would reduce the attractiveness bias, particularly for participants low in NFC, but this effect was not obtained. Although there was a significant Accountability X NFC Level X Photo Attractiveness interaction, it indicated a very different pattern. Accountability did not lead to a significant decrease in the attractiveness bias of low NFC participants, and rather than remaining the same, the attractiveness bias of the high NFC participants increased slightly when they were held accountable for their responses. Further research is needed to determine whether this unanticipated pattern of results is replicable.

Examination of participants' open-ended thought listings was of little assistance in comprehending this unanticipated finding because the effects of accountability on these measures did not differ among high and low NFC participants. In general, however, there was some evidence that the

accountability manipulation was effective in inducing more systematic thought. Participants in the accountable condition were more likely to evidence systematic thought processes. For instance, they were more likely to comment that they could not rate traits accurately on the basis of only a photograph, and to indicate that they were trying to avoid being influenced by stereotypes. In addition they reported using more effort to make their judgments. It is worth noting, however, that the effects of accountability on the thought measures were generally weak and that for the majority of closed-ended items no significant effects were obtained. Thus at present it remains unclear whether the absence of hypothesized effects of accountability on the trait ratings is attributable to problems with the accountability manipulation itself.

One limitation of the accountability manipulation is worth noting. Although conceptually two factors are thought to underlie the effects of NFC on judgment – the motivation and ability to process information systematically – only one of these factors was addressed with the accountability manipulation. The manipulation was intended to increase participants' motivation to think systematically. For participants high in NFC this may not be the most appropriate technique for varying the construct of interest. These participants are already highly motivated to process information systematically. Instead, manipulations that target the participants' capacity to process information systematically may be more effective.

Apart from introducing the accountability manipulation, a major purpose of the study was to replicate the findings of Perlini and Hansen (1998) and further

explore these findings by introducing process measures. This was best achieved by examining the findings within the not accountable condition because it very closely resembles the original Perlini and Hansen study. The results within this condition generally replicated the previous findings that NFC moderates the attractiveness stereotype. That is, high NFC participants evidenced a weaker attractiveness bias compared to low NFC participants.

Interestingly, in the present study, the moderating effects of NFC occurred primarily for the unattractive rather than the attractive photos as is typically the case in attractiveness stereotyping research (e.g., Perlini & Hansen, 1998). This difference may have been due to the use of different stimulus photos.

Specifically, in the present study the target photos were lower in attractiveness than the target photos used in the previous research. The attractive photos used in the present study received a mean rating of only 5.42, whereas the attractive photos in the previous study were given a mean rating of 6.09 (on the same 7-point scales). Similarly, the mean ratings for unattractive photos was 3.0 in the present study and 4.20 in the previous study. Thus, in the present research the unattractive photos were rated furthest from the scale midpoint (i.e., below it); in the previous study the attractive photos were rated furthest from the midpoint (i.e., above it). Conceivably, stereotypical thinking is prompted by either extremely attractive or unattractive photos, more so than by moderately attractive photos. In any case, the present findings may be limited to evaluations concerning very unattractive and moderately attractive people.

Importantly, the present study extends Perlini and Hansen's findings by introducing measures of the thought processes underlying the moderating effect of NFC on the attractiveness bias. It was hypothesized that NFC moderates the bias because high NFC participants engage in more careful, systematic thought (e.g., they try to avoid the use of stereotypes) whereas low NFC participants use more heuristic type thought (e.g., they rely on first impressions). Some support was found for this hypothesis. Participants high in NFC reported thinking more carefully, trying to avoid the use of stereotypes more, and feeling more uncomfortable making the trait ratings. The open-ended thought analyses also supported this pattern of more systematic thought and less heuristic thought among participants higher in NFC, although the results on these measures were relatively weak.

Experiment 2

The second experiment addressed a number of issues raised in the initial study. First I attempted to vary both factors thought to underlie the moderating effects of NFC on judgment. In Experiment 1, motivation to think carefully was manipulated by making some participants feel accountable for their judgments. Although there was some evidence that participants in the accountable condition did use more systematic thought processes compared to those in the not accountable condition, this evidence was relatively weak. Motivation to think carefully was manipulated in Experiment 2 using a more direct technique. Participants were given direct instructions to think carefully about the task and give it their full attention. The intention was to create a stronger motivation

manipulation in order to provide a more powerful test of the hypothesis.

As discussed previously, it was expected that the motivation manipulation would serve to decrease the attractiveness bias primarily among low NFC participants. Little effect of this manipulation was expected among high NFC participants because they are typically already motivated to think carefully and correct for possible biases in their judgments. By introducing an alternative motivation manipulation the present experiment could also determine whether the effects obtained among high NFC participants in Experiment 1 (i.e., a slightly larger bias in the accountable condition than in the not accountable condition) were generalizable.

In addition to clarifying the role of motivation among high NFC participants, a purpose of Experiment 2 was to determine whether the attractiveness bias found in high NFC participants might be increased when the ability to process information carefully is withheld from them. The ability to carefully process information was manipulated by distracting participants, that is by having them continually repeat a string of numbers in their heads while completing the trait ratings. Such cognitive load manipulations leave participants with diminished cognitive resources for careful systematic thought (e.g., Gilbert & Hixson, 1991). Minimal effects of the distraction manipulation on the ratings of low NFC participants were expected because these individuals already tend to process information in a shallow manner and tend to reveal a strong attractiveness bias.

An additional change was made in Experiment 2: The original stimulus photos from the Perlini and Hansen study were used. As was mentioned in the discussion, the average attractiveness ratings of the photos used in experiment one fell on the midpoint whereas the average ratings of the Perlini and Hansen photos was well above the midpoint. If attractiveness stereotypes are prompted more by extreme than by moderate levels of attractiveness, then we would expect the moderating effects of NFC to appear primarily in the attractive condition in the present study. Aside from the modification to the motivation manipulation, the added distraction condition, and the different stimulus photos, Experiment 2 was parallel to Experiment 1.

Method

Participants

One hundred and sixty-eight new participants (102 females and 66 males) who had earlier completed the NFC scale were recruited (via telephone) from the same pool used in Experiment 1. They received partial course credit for participating.

Procedure

The materials and procedure used in the present experiment only slightly differed from those in the first (see Appendix C for materials). Once again, participants were recruited to participate in a study that examined person perception. After being seated in their cubicles, participants were given verbal instructions informing them that their task would be to make some judgments about a person in a photograph. Further written instructions were used to

manipulate participants' motivation and ability to think carefully. One third of the participants (motivation condition) were told to think very carefully about the rating task, to give it their complete attention, and to be as thoughtful as possible. A second group of participants (distraction condition) were given an eight digit number and asked to repeat it continually in their heads while they were making their judgments. The final third of the participants (control condition) served as a control group and were not given any special written instructions. All participants were then given a questionnaire that was essentially the same as that used in Experiment 1, as well as one of four target photographs.

The stimulus photos in the present study were those used by Perlini and Hansen (1998). Four photographs were used: (a) an attractive female, (b) an attractive male, (c) an unattractive female, and (d) an unattractive male. The unattractive photos were created by digitally modifying photos of highly attractive faces.

As in the first experiment, participants were given a same sex photograph and asked to rate the target person on the series of traits. The open-ended thought listing measure again followed the trait ratings in the questionnaire. Responses to this measure were coded into the systematic and heuristic thought categories used in experiment one. Next, participants completed the series of six closed-ended thought measures used in the first experiment. In addition, two items were added to assess the extent to which participants felt distracted while they made their trait attributions: (1) To what degree do you feel that you paid

close attention to the task? and (2) To what degree do you feel that you were distracted? Responses to these items were made on 7-point rating scales. These two items served as manipulation checks for the experimental manipulation of the judgment conditions.

The design of the study was a 2 (Photo Attractiveness: Attractive/Unattractive) X 2 (NFC Level: High/Low) X 3 (Judgment Condition: Motivation/Distraction/Control) X 2 (Sex: Male/Female) between subjects factorial. Unlike Experiment 1, participants were first matched on their NFC scores and then randomly assigned to the experimental conditions. This served to ensure equal cell sizes, reduce error variability, and to create larger differences in NFC between the low and high NFC groups. Thus in each judgment condition there was an equal number of participants high and low in NFC and the high NFC groups each had an average score of 75 on the NFC scale whereas the low NFC groups each had an average score of 50.

Results

Manipulation Checks

Attractiveness ratings were submitted to a 2 (Photo Attractiveness: Attractive/Unattractive) X 2 (NFC Level: High/Low) X 3 (Judgment Condition: Motivation/Distraction/Control) X 2 (Sex: Male/Female) ANOVA. A significant main effect for photo attractiveness confirmed that the attractive photos ($M = 6.01$, $SD = .92$) were perceived as more physically attractive than the unattractive photos ($M = 5.10$, $SD = 1.11$). As in Experiment 1, there was also a main effect of sex, $F(1,144) = 11.13$, $p < .001$. Women ($M = 5.77$, $SD = 1.13$)

rated the target persons higher in attractiveness compared to men ($M = 5.23$, $SD = 1.00$).

In addition to these main effects there was an unexpected Photo Attractiveness X NFC Level X Judgment Condition interaction, $F(2, 144) = 3.84$, $p < .02$ which I decomposed by performing separate Photo Attractiveness X NFC Level ANOVAs within each judgment condition. In the control condition there was a main effect for photo attractiveness, $F(1, 52) = 23.48$, $p < .001$, with attractive photos rated higher than unattractive photos ($M_s = 6.14$ vs. 4.93 , $SD_s = .85$ vs. 1.05). In both the motivation and the distraction conditions, the effects of photo attractiveness were qualified by Photo Attractiveness X NFC Level interactions, $F_s(1, 52) = 4.02$ and 4.09 , respectively, $p_s < .05$. The interaction indicated that in each of these two conditions participants high in NFC rated the attractive photos higher in attractiveness than the unattractive photos in the motivation condition, $t(144) = 4.26$, $p < .05$ and the distraction condition, $t(144) = 2.71$, $p < .05$, whereas participants low in NFC did not.

The two new items included as manipulation checks for the manipulation of judgment condition were each submitted to a 2 (NFC Level: High/Low) X 3 (Judgment Condition: Motivation/Distraction/Control) ANOVA. For the item assessing participants' level of distraction, there was a main effect of judgment condition, $F(2, 162) = 9.02$, $p < .001$. Subsequent comparisons confirmed that participants in the distraction condition reported feeling more distracted than those in the motivation condition, $p < .001$, and those in the control condition, $p < .001$. For the item assessing participants' level of attention to the task, there

was also a main effect for condition, $F(2, 162) = 2.94$, $p < .05$. As anticipated, participants in the motivation condition reported paying more attention to the task than participants in the other two conditions; although subsequent contrasts indicated that their ratings differed significantly from the distraction condition only, $p < .02$.

Trait Ratings

The traits were averaged as in Experiment 1 to create a composite index for the character traits (Cronbach's alpha = .88) and the sociability traits (Cronbach's alpha = .78). Each index was submitted to a 2 (Photo Attractiveness: Attractive/Unattractive) X 2 (NFC Level: High/Low) X 3 (Judgment Condition: Motivation/Distraction/Control) X 2 (Sex: Male/Female) ANOVA.

For the character trait index, a Photo Attractiveness X NFC Level X Judgment Condition interaction was significant, $F(2, 144) = 2.98$, $p < .05$, and thus further analyses were performed within each judgment condition. In the control condition, consistent with experiment 1, no effects were found for the character trait index. In both the motivation and the distraction conditions, however, the Photo Attractiveness X NFC Level interactions were significant, $F_s(2, 144) = 12.00$ and 6.74 , for the motivation and distraction conditions respectively, $p_s < .01$. Within the motivation condition, high NFC participants attributed higher character trait ratings to the attractive ($M = 4.73$) than to the unattractive ($M = 3.69$) target photos, $t(144) = 3.06$, $p < .05$, whereas low NFC participants attributed lower ratings to the attractive ($M = 3.88$) than to the

unattractive ($M = 4.58$) photos, $t(144) = 2.06$, $p < .05$. Within the distraction condition no significant simple effects were found. These findings were unexpected in light of past research (including Experiment 1) finding no attractiveness effects on character traits.

The main hypotheses concerned participants' ratings of the sociability traits. Mean ratings for these traits are presented in Table 8 as a function of attractiveness, NFC level, and judgment condition. A Photo Attractiveness X NFC Level X Judgment Condition ANOVA performed on the sociability trait index revealed main effects of photo attractiveness, $F(1, 144) = 3.37$, $p = .07$, and NFC Level, $F(1, 144) = 4.85$, $p < .03$. The main effect for NFC level indicates that, in general, people higher in NFC gave more positive ratings. Of greater theoretical interest, the main effect of attractiveness indicates that, in general, attractive photos were rated more positively than unattractive photos. The effect of attractiveness did not interact with either judgment condition (see Table 9 for means) or with NFC level (see Table 10 for means). However there was a significant Photo Attractiveness X NFC Level X Judgment condition interaction, $F(1, 144) = 4.07$, $p < .02$.

To interpret this interaction, further ANOVAs were performed separately within each judgment condition. The relevant means are presented in Table 8. In the control condition, these analyses revealed the usual main effect for attractiveness, $F(1, 52) = 6.47$, $p < .01$, indicating that the attractive photos ($M = 5.33$) were given higher sociability ratings than the unattractive photos ($M = 4.91$). The attractiveness bias again appeared to be smaller, as hypothesized,

for participants high in NFC than for participants low in NFC; however, the Photo Attractiveness X NFC Level interaction was not significant. In the motivation condition, a significant Photo Attractiveness X NFC Level interaction was found, $F(1, 52) = 11.08, p < .01$. However this interaction effect was very different from the pattern observed in the control condition. Simple effect analyses indicated that high NFC participants rated the attractive targets ($M = 5.29$) more positively than the unattractive targets ($M = 4.57$), $t(144) = 3.20, p < .05$, but low NFC participants gave similar sociability ratings to the unattractive targets ($M = 5.36$) and the attractive targets ($M = 5.04$), $t(144) = 1.42, ns$. In the distraction condition, no significant effects were found. Thus, instructing low NFC participants to think carefully about the rating task appeared to eliminate their attractiveness bias. In fact, the low NFC participants gave slightly higher sociability ratings to the unattractive photos than to the attractive photos.

To better understand the effects of the motivation manipulation on persons high and low in NFC, I compared the ratings given by participants in the motivation and control conditions within each NFC level. For participants high in NFC, ratings of attractive targets did not differ in the control and motivation conditions, $t(144) = .75, ns$, and nor did ratings of unattractive targets, $t(144) = 1.20, ns$. For participants low in NFC, however, ratings of attractive targets were lower in the motivation condition than in the control condition, $t(144) = 2.18, p < .05$, and ratings of unattractive targets did not differ by condition, $t(144) = 1.73, ns$ (see Table 8 for means). Thus, as anticipated, the ratings of attractive targets decreased among low NFC participants when they were asked to think very

carefully about the task.

To examine the effects of the distraction manipulation on persons high and low in NFC, I compared the ratings given by participants in the distraction and control conditions at each NFC level. For high NFC participants, there were no differences in the ratings of those in the distraction and control conditions for either the attractive or unattractive targets. Participants low in NFC, however, did give higher ratings to the unattractive targets when they were distracted than when not, $t(144) = 2.13$, $p < .05$. There were no differences in how low NFC participants in the distraction and control conditions rated the attractive targets.

To provide a more sensitive test of the moderating role of NFC, I again performed regression analyses treating NFC as a continuous variable. As in Experiment 1, a separate regression analysis was performed within each judgment condition in which the sociability trait ratings were regressed on photo attractiveness, sex, and NFC scores, followed by the hypothesized NFC Scores X Photo Attractiveness interaction term. In the control condition, the hypothesized interaction effect was marginally significant ($\beta = 1.16$, $p < .08$). This interaction indicates that the attractive targets were rated less positively by participants higher in NFC, $\beta(27) = -.49$, $p < .01$, whereas the ratings of unattractive targets were unrelated to NFC score, $\beta(27) = -.12$, *ns*. Thus, participants higher in NFC revealed less attractiveness bias and primarily because they gave relatively low ratings to the attractive target. In the motivation condition the interaction effect proved to be significant ($\beta = 1.92$, $p < .01$), however, in this condition, participants higher in NFC gave lower ratings to

unattractive targets, $r(27) = -.50$, $p < .01$, and ratings of attractive targets were not related to NFC score. Thus participants higher in NFC actually revealed more attractiveness bias in this condition. Within the distraction condition the NFC Scores X Photo Attractiveness interaction did not approach significance ($\beta = .66$, ns).

Closed Ended Thought Measures

As in Experiment 1, participants' responses to the closed-ended measures of thought processes were combined into an overall index indicating the extent of systematic thought (Cronbach's alpha = .61). Means for the index and the individual items are presented in Table 11 as a function of judgment condition and I conducted a series of one-way ANOVAs to determine whether participants' thought processes differed across the judgment conditions. The only significant effect was for the item assessing participants' confidence in the accuracy of their ratings, $F(2, 165) = 3.71$, $p < .03$. Post hoc comparisons indicated that participants in the control condition felt less confident than those in either the motivation condition ($p < .01$) or in the distraction condition ($p < .10$).

Next I computed correlations to determine whether the closed-ended thought measures were related to participants' NFC scores. Consistent with hypotheses, participants higher in NFC reported feeling less confident about the accuracy of their ratings ($r(168) = -.22$, $p < .01$) and feeling less comfortable making these judgments ($r(168) = -.29$, $p < .01$). In addition, the composite index formed by averaging across the six self-report items was significantly

related to NFC ($r(168) = .23, p < .01$).

The correlations between NFC and the thought measures were also computed separately within each judgment condition (see Table 12). In the motivation condition, only one item was found to be significantly correlated with NFC scores: participants higher in NFC reported feeling less comfortable in making the trait attributions, $r(56) = -.41, p < .01$. In the distraction condition, similarly only one item was significant: participants higher in NFC reported feeling less confident in their ratings, $r(56) = -.30, p < .05$. In the control condition, however, several items were found to be related to NFC scores. Participants higher in NFC reported feeling less comfortable with the task, $r(56) = -.36, p < .01$, and rated the task as being more difficult, $r(56) = .25, p < .10$. In addition, the composite index was found to be significantly related to NFC scores suggesting that, in general, participants higher in NFC used more systematic thought, $r(56) = .31, p < .05$.

Open-ended Thought Measures

Once again, parallel analyses were run on the open-ended thought measures. The mean frequencies for systematic thoughts, heuristic thoughts, and systematic-heuristic difference scores are presented in Table 13 as a function of judgment condition. One-way ANOVAs on each of the three indices indicated that there were no significant effects due to condition.

However, participants' NFC scores were modestly correlated with the frequency of systematic thoughts, $r(168) = .14, p < .08$, and the systematic-heuristic difference scores, $r(168) = .14, p < .07$. Participants higher in NFC

evidenced more use of systematic thought processes. Correlations performed separately within each of the judgment conditions (see Table 14) revealed that NFC was only significantly correlated with the thought categories within the control condition. In the control condition, high NFC participants evidenced more systematic thought ($r(56) = .32, p < .05$), less heuristic thought ($r(56) = -.27, p < .05$), and greater systematic-heuristic difference scores ($r(56) = .35, p < .01$).

Discussion

The inclusion of three judgment conditions in the present experiment allowed for tests of several hypotheses concerning participants' ability and motivation to process information systematically. Hypotheses concerning the motivation and control conditions remained the same as in the first experiment. In the control condition, high NFC participants were expected to show a weaker attractiveness bias compared to low NFC participants. In the motivation condition, the bias of the low NFC participants was expected to decrease while the bias of high NFC participants was expected to remain the same, thus resulting in a decreased discriminability between high and low NFC participants in this condition. A decreased discriminability was also expected for high and low NFC participants' ratings in the distraction condition, however, in this case, low NFC participants' ratings were not expected to differ from their control counterparts and high NFC participants were anticipated to increase their bias from the level of high NFC controls. Thus I had expected a 3-way interaction between photo attractiveness, NFC level, and judgment condition.

Although a significant 3-way interaction was obtained, it did not take the exact form that I had expected. The effects of the motivation manipulation on the sociability trait ratings were generally consistent with the hypothesis. When participants low in NFC were instructed to think carefully, they showed less attractiveness bias than when they were not. Specifically, they tended to lower their ratings of the attractive photos. Participants high in NFC, as anticipated, were not affected in this manner. Indeed the motivation instructions again tended to increase the bias for these participants, although not significantly. The effects of the distraction condition, however, were not as hypothesized. When participants high in NFC were distracted, their attractiveness bias did not increase, but rather decreased slightly. For participants low in NFC the bias was also reduced (even reversed slightly) by the distraction. The judgment instructions produced almost no significant effects on the thought measures, and did not interact with NFC to affect these measures. Thus the thought measures did not offer much help in understanding the impact of the judgment instructions on the trait ratings.

The analyses performed separately within each judgment condition revealed some interesting, and theoretically important, effects of NFC. The analyses within the control condition are particularly important because this condition replicates previous research. Within the control condition the moderating effect of NFC reported by Perlini and Hansen and replicated in experiment one, was marginally significant. Interestingly, low and high NFC participants differed primarily in their ratings of the attractive photos, as the

participants high in NFC gave lower ratings of these photos. This same pattern of effects was obtained by Perlini and Hansen using the same stimulus photos.

Furthermore, within the control condition, there was also evidence for the thought processes hypothesized to underlie the moderating effects of NFC. Participants higher in NFC revealed more evidence of systematic thought processes. Specifically, they were more inclined to report that they had difficulty rating the person on the basis of only a photo, and that they were uncomfortable making these ratings. Ratings of the open-ended thought lists also revealed more evidence of systematic (and less evidence of heuristic thought) among participants higher in NFC. Thus the measures of thought process revealed evidence consistent with the hypothesis that people high and low in NFC show different levels of attractiveness bias because they engage in qualitatively different thought processes. Interestingly, within the motivation condition NFC was actually related to higher levels of attractiveness bias. Within this condition NFC was not strongly related to the thought indices, and thus this effect remains difficult to interpret. Finally, within the distraction condition, NFC was unrelated to either the degree of attractiveness bias or the thought indices.

General Discussion

The present research was designed to replicate and extend Perlini and Hansen's study demonstrating the moderating effects of NFC on the attractiveness bias. These researchers found that the tendency to attribute more positive traits to attractive people than to unattractive people, was weaker for individuals who engage in effortful cognitive processing (i.e., individuals high in

NFC). They reasoned that the effects occurred because individuals higher in NFC were more inclined to engage in systematic thought processes (e.g., to recognize that a person's traits can't be known from physical appearances; to actively avoid using stereotypes; etc.) whereas individuals lower in NFC were more inclined to engage in heuristic thought processes (e.g., to simply go with first impressions; to base judgments on stereotypes of attractive people). However, the previous research provided no empirical evidence for the hypothesized cognitive mechanism. An important purpose of the present research was to determine whether individuals' motivation and ability to process information systematically were the underlying mechanisms responsible for the moderating effect of NFC on attractiveness stereotyping. Toward this end, the research included measures designed to assess the thought processes underlying participants' trait ratings as well as experimental manipulations designed to vary participants' motivation and ability to process information systematically.

Moderating Effects of NFC on the Attractiveness Bias

Perlini and Hansen's (1998) finding that NFC moderates the attractiveness bias, was replicated within the control condition of both experiments. However, the moderating effect of NFC was considerably weaker than that found by Perlini and Hansen. In the first experiment, the ANOVA results indicated that the moderating effect of NFC was only marginally significant, however, the effect attained significance when NFC was treated as a continuous variable in the regression analyses. Similarly in the second

experiment, the pertinent interaction between NFC and photo attractiveness did not reach significance in the ANOVA, although the results were in the expected direction. When analyzed as a continuous variable, NFC again moderated the effects of attractiveness, although this moderating effect was only marginally significant. It is also worth noting that the attractiveness bias itself was relatively weak in comparison to effects reported in previous research.

One possible explanation for these weaker results concerns the perceived attractiveness of the target photos. In this regard, it is instructive to compare the attractiveness ratings given to attractive vs. unattractive photos in the Perlini and Hansen study ($M_s = 6.09$ vs. 4.20), with those in the present Experiment 1 ($M_s = 5.42$ vs. 3.0) and Experiment 2 ($M_s = 6.01$ vs. 5.10). In Experiment 1, although the difference in attractiveness ratings across conditions was relatively large, the attractive targets were not given very high ratings. In Experiment 2 the difference in perceived attractiveness across conditions was smaller than in the Perlini and Hansen study. And also in Experiment 2 (which used the same stimulus photos as the Perlini and Hansen study) the unattractive photos were rated as much more attractive. In sum, the weak findings in the present research may simply be explained by saying that the attractive photos were not attractive enough (Experiment 1) and the unattractive photos were not unattractive enough (Experiment 2). It is unclear why the unattractive photos in experiment two were given such high attractiveness ratings given that these were the same photos that were given considerably lower ratings of attractiveness in the Perlini and Hansen study.

Although slightly problematic in the present research, the variability in levels of target attractiveness allow for some interesting speculation about the locus of the attractiveness effects. Typically in this line of research the effects of attractiveness are attributable to attractive photos, as was the case in Perlini and Hansen's (1998) study. NFC moderated the attractiveness bias because high NFC participants gave less positive ratings than low NFC participants to attractive targets. Ratings of unattractive targets did not differ for high and low NFC participants. In Experiment 2 (control condition) of the present research wherein the attractive photos were given equally high attractiveness ratings as those in Perlini and Hansen's research, the same effect was obtained. In Experiment 1 (not accountable condition) however, wherein the attractiveness ratings of attractive targets were moderate and the ratings of unattractive targets were very low, the moderating effect occurred for the unattractive photos. NFC moderated the attractiveness bias because high (compared to low) NFC participants gave more positive ratings to the unattractive targets. In this case, ratings of attractive targets did not differ for high and low NFC participants. Based on these findings, it appears that extreme levels, either high or low, of attractiveness are responsible for the attractiveness bias. Further research should therefore take into account not only the relative, but also absolute levels of target attractiveness. Inclusion of more than two attractiveness conditions (e.g., very attractive, moderately attractive, very unattractive) in future research would also help researchers to determine the locus of the effects more precisely.

Measures of Underlying Mechanisms

In addition to serving as a replication of previous research, the present studies also extended that research by collecting thought listing data. Given the moderating effect of NFC on the attractiveness stereotype within the control conditions, I expected also to find differences in the types of thoughts expressed by participants high and low in NFC within these conditions. Specifically, I expected that high NFC participants would evidence more systematic types of thoughts compared to low NFC participants. Correlations between NFC and indices of systematic and heuristic processing (from both closed and open-ended measures) were generally consistent with my hypotheses. Higher levels of NFC were related to use of more systematic and less heuristic thought, although these correlations were quite weak.

The correlations may have been weaker than anticipated due to problems with the measures. Although derived from a theoretical basis, both the closed-ended items and the thought listing categories were rather indirect indicators of the thought processes which differentiate participants high and low in NFC. For example, reporting being uncomfortable rating a person on the basis of a photo provides only indirect evidence that one is engaged in the type of systematic thought processes believed to characterize high NFC participants. While the thought measures may have not captured all of the differences in thought processes of high and low NFC persons, they did succeed in offering some evidence of the types of thought that may account for differences in the judgments of high and low NFC participants. Based on the findings of these

thought measures it appears that high NFC persons are more motivated and/or are more able to engage in careful thought and avoid using stereotypes than low NFC persons.

Manipulation of Underlying Mechanisms

in addition to the measures of thought process, the present research introduced experimental manipulations designed to induce particular types of thought. In Experiment 1, participants' motivation to engage in careful thought was varied and in Experiment 2, both the motivation and ability to think carefully were varied. In the first experiment, the motivation manipulation (accountability) was not as effective in moderating the attractiveness bias as I had anticipated. Motivating low NFC participants to think carefully about the ratings they were making was expected to decrease their attractiveness bias. Their bias did decrease, but only slightly and not significantly. One possible explanation is that there were generally high levels of accountability in participants to begin with, and thus there was little room to increase participants motivation to think carefully. However, the strong main effect found for attractiveness on the sociability trait ratings suggest that participants were not trying to suppress their attractiveness stereotypes.

An alternative explanation is that the manipulation of accountability was not powerful enough. Perhaps being instructed to meet with a student experimenter to explain and justify their responses was just not intimidating enough to motivate participants to control for possible biases in their judgments. It is worth noting, however, that there was at least some evidence that the

accountability manipulation operated as it was expected to. On the closed-ended measures of thought, accountable participants reported using more effort than not accountable participants, and on the open-ended measures, accountable participants evidenced more systematic and fewer heuristic thoughts.

In part, to remedy the problem of a weak manipulation, a more direct approach was taken in experiment two to motivate participants to engage in careful, critical analysis. This direct, instructional manipulation appeared to attenuate the attractiveness bias in low NFC participants as I had expected. In fact, the attractiveness bias actually reversed for low NFC participants in the motivation condition: unattractive targets were given more positive ratings than attractive targets.

Taken together then, the present research suggests that it may be possible to eliminate the attractiveness bias among low NFC persons by motivating them to engage in careful thought. This conclusion remains tentative, however, for several reasons. First, the distraction condition, in which the bias of low NFC participants was not expected to change, yielded a similar pattern of results to that of the motivation condition. That is, the bias of low NFC participants decreased when their mental capacity to process information carefully was strained. Second, parallel evidence was lacking in the thought measures. That is, the motivation manipulation did not increase participants' tendency to engage in more systematic thought. In addition, there were no significant correlations between NFC and the measures of thought processes in the motivation condition. Never the less, the effect of the motivation manipulation

on the judgments of low NFC participants is an intriguing finding that merits further investigation.

The effects of the motivation manipulation on high NFC participants are difficult to interpret. Recall that motivating high NFC participants to engage in careful thought was not expected to decrease their attractiveness bias because they are already motivated to do so. However the finding that such manipulations increased the bias of high NFC persons was unexpected and remains puzzling. In both Experiments 1 and 2, high NFC participants increased their ratings of attractive targets and decreased their ratings of unattractive targets when motivated to think carefully. Perhaps rather than motivating the high NFC participants to think carefully, the manipulation simply motivated them to think differently. Examination of the thought measures provides some evidence for this possibility. In both experiments, the positive correlations between NFC and evidence of systematic and heuristic thought processes found within the control conditions disappeared when participants were motivated to think carefully. Also, the correlation between NFC and avoidance of stereotypes was diminished to nonsignificance. Further investigation is required to understand the impact of motivation manipulations on high NFC persons.

Also unanticipated were the effects that distraction had on participants high in NFC. The cognitive load was expected to decrease their ability to engage in careful thought, thus increasing their attractiveness bias. Similar to the pattern of results found for low NFC participants, however, high NFC participants' attractiveness bias actually decreased in the distraction condition (compared to

controls) although only slightly. Given the unexpected effects that the distraction manipulation had on both high and low NFC participants, it is wise to interpret the results within this condition cautiously, despite the fact that participants in this condition reported having been more distracted and having paid less attention to the task than participants in the other two conditions.

In sum, although the present research was unable to provide any supporting evidence in regard to the role of ability to process information carefully in the moderating effect of NFC on attractiveness stereotyping, some preliminary evidence is suggestive of the role of motivation to engage in careful thought. High NFC persons do appear to engage in more systematic thought and less heuristic thought than low NFC persons thus resulting in a lesser attractiveness bias (whether that bias stems from a very attractive target or a very unattractive target). As well, low NFC persons can be made to temper their attractiveness bias by motivating them to engage in more systematic and less heuristic thought. Further research is necessary to determine whether these findings are replicable.

Theoretical Implications

In addition to extending the work of Perlini and Hansen, the present research contributes more generally to several areas of social psychological research. Specifically, this research adds to our understanding of differences in judgments of high and low NFC persons, the interactions between individual differences in NFC and situational factors, and the attractiveness bias in general.

Extensive research has examined individual differences in NFC and the relation of those differences to a host of other variables (e.g., Cacioppo et al., 1996). Little research, however, has examined the relation between NFC and stereotyping. Thus the present research provides valuable new information concerning the relation of individual differences in NFC to judgments based on stereotypes.

The present research demonstrates that like other kinds of judgments, judgments based on stereotypes differ for individuals high and low in NFC. Low NFC persons appear to be more likely to base their judgments on stereotypes. This is consistent with previous theorizing, because stereotype application is thought to require little cognitive effort (compared to relying on individuating information) and persons low in NFC are more likely to choose the route that requires the least amount of effort. In addition to demonstrating differences in stereotype application for individuals high and low in NFC, the present research extends previous work by offering more evidence that differences in cognitive processing underlie these effects. Both closed and open-ended thought measures revealed that persons high in NFC thought more systematically than persons low in NFC.

Little past research on the NFC construct has examined how manipulations of relevant situational variables (i.e., those related to the motivation and ability to think systematically) affect high NFC persons. Many studies have reported how such manipulations affect low NFC individuals (e.g., Axsom et al., 1987; Thompson & Zanna, 1995). The present research extends

this existing work by providing information about how situational manipulations of motivation and ability affect the responses of both high and low NFC persons.

Consistent with previous findings, when low NFC persons were motivated to think more carefully a decreased discriminability between high and low NFC persons' responses is found: low NFC participants' bias was reduced.

Interestingly, when high NFC participants were motivated to engage in careful thought, the discriminability between the responses of high and low NFC participants was also reduced, however, in this case, the effect was on the responses of high NFC participants: their bias increased.

The manipulation intended to reduce participants' ability to process information systematically did not appear to have the hypothesized effects on either high or low NFC participants. Surprisingly, rather than increasing the bias of high NFC persons, and rather than not affecting the bias of low NFC persons, this manipulation appeared to lower the bias of both high and low NFC participants. Thus, the present research served to identify an area of investigation that requires further examination.

Finally, the present research contributes to the body of research examining the attractiveness bias. Consistent with previous research, these two experiments each found evidence of an attractiveness bias. More positive traits were attributed to attractive than to unattractive target persons. The present experiments add to this literature by demonstrating that the absolute level of target attractiveness may play an important role in the application of attractiveness stereotypes. Along these same lines, a recent meta-analysis

(Langlois et al., 2000) suggested that investigation of multiple levels of attractiveness is lacking in the literature. Most studies (including the present one) use only two levels of attractiveness (i.e., attractive and unattractive). Thus it has been difficult to determine where the exact locus of the effect occurs. However, the present experiments do provide some indirect evidence that attractiveness effects may result from both extreme levels of attractiveness and extreme levels of unattractiveness. That is, very attractive targets might elicit very positive ratings while very unattractive targets might elicit very negative ratings. Thus, in accordance with the Langlois et al. assertion, the present findings suggest that future research should examine not only these two extremes, but also the levels that lie between them. It may be that the degree of favoritism is a direct function of the degree of attractiveness.

Limitations of the Present Research

In addition to the limitations previously discussed, the external validity of the present research may be limited by a number of factors. First, although the sample was relatively large, it was quite homogenous. All participants were introductory psychology students at Wilfrid Laurier University. Across both experiments, participant age ranged from 17 to 41 with a mean of 19.27. In addition, twice as many women as men served as participants. Although NFC level was normally distributed within the sample, caution must be exercised when generalizing these findings to broader populations.

The findings of the studies are also limited because targets and participants were matched on sex. Very different and perhaps stronger effects

may have been obtained if women judged men and men judged women.

However, given that many studies have found the attractiveness bias to be highly robust to variations in age, culture, or sex, it is unlikely that the matching procedure used in the present studies posed a severe limitation.

A limitation common to much of social psychological research is that of demand characteristics. A number of steps were taken to ensure that demand characteristics were not a serious problem in the present research. Participants were pretested on NFC months before the actual experiments, and the NFC scale was embedded amongst a variety of other scales and questionnaires in the mass test. In addition, the description of the study's purpose, although not deceptive, was kept purposefully vague. Participants were simply told that the research was examining how individuals who differed on a particular personality trait made judgments about strangers. For these reasons, it is unlikely that participants could have intuited the role that NFC was expected to play on the sociability judgments.

Given the nature of the participant's task (i.e., making judgments about a stranger based only on a photograph) it is likely that many of them guessed that the study was examining some sort of stereotype, and information gathered from participants at the end of the questionnaire (see Appendices B7 and C8) was consistent with this possibility. When asked what they thought the full purpose of the study was, several participants suggested that the researcher was examining stereotypes. However, the particular stereotype being examined appeared to be a mystery. It is also worth noting that several items were included in the mass

test questionnaire in part to confuse the participant on this matter. On the basis of these items, the focus of the research could have been on either age, sex, or physical attractiveness. The steps taken to ensure that participants were not aware that this research was looking at the effects of NFC on the attractiveness bias appeared to be successful because no participant indicated either at the end of the questionnaire or during debriefing that they thought the study was examining either traits consistent with the NFC construct or the effects of a person's physical attractiveness.

One additional indication that demand characteristics were not a serious concern in the present experiments is seen in the results themselves. If participants were aware that the study was examining the attractiveness bias, and how systematic processing decreases this bias, they would have been expected to make more socially desirable judgments (i.e., to have corrected for biases) and thus demonstrated no attractiveness bias. This was not the case. In both experiments, there were biasing effects of attractiveness on the sociability judgments and, although significantly weaker, the bias was still present in high NFC participants.

One final limitation is worth noting: In the present investigation, no additional information (e.g., personality, life style, etc.) about the target person was made available to participants. In a study that examined differential use of systematic processing, it may have made sense to offer participants the opportunity to use information other than physical appearance. However, such information was omitted for several reasons. First, one of the major foci of the

present investigation was to replicate the findings of Perlini and Hansen (1998). In their study, no additional information about the target was provided for participants. Second, additional information need not be explicitly provided in order for systematic processing to occur. According to both the HSM and the ELM, the definition of systematic information also encompasses previous knowledge and experience. It is precisely this sort of information (e.g., avoid stereotypes because they are unfair and inaccurate) that the present study investigated. Finally, it is not unusual to conduct attractiveness stereotyping research in the absence of this additional information. In fact, in their meta-analysis on attractiveness stereotyping research, Langlois and others (2000) reported that a large proportion of these studies were conducted using only a photograph. Nevertheless, further research is warranted to determine whether the present findings generalize to situations wherein information other than appearance is available.

Practical Implications

In closing, it is worth noting that the present research has important practical implications because the attractiveness bias can affect our perceptions and evaluations of others in a wide variety of social contexts. Indeed, the effects of attractiveness on judgments as well as on the resulting behavior of the judge have been shown throughout the literature to be quite robust (e.g., Langlois et al., 2000). Thus, the likelihood that attractive persons are unfairly favored in a variety of social situations is quite high. For example, in the courtroom, defendants may be handed lighter sentences and fines or be judged innocent

more often, not simply because the evidence supports these decisions, but because they are perceived to be beautiful and thus good. Similarly, attractive persons may be favored over unattractive persons in job interviews, promotions, learning evaluations, and even political elections. What ever the judgment situation, research on attractiveness stereotyping suggests that there is a great chance that attractive people are at an advantage compared to unattractive people.

The present research also offers some suggestions as to how this bias can be attenuated. People who base their judgments on central information (i.e., individuals high in NFC) appear to be less likely to rely on attractiveness when making their decisions, and thus, the favoritism so often expressed for attractive people is minimized. The present research suggests that people high in NFC base their judgments less on the attractiveness of the target person and more on a wider range of information. Although information beyond attractiveness was not made explicitly available to participants, their tendencies to engage in systematic processing appears to have aided them in finding other types of information that might help make such judgments. Admittedly, these two studies did not identify precisely what this information is. However, we might speculate that one or more maxims came to mind for persons high in NFC (e.g., never judge a book by its cover, beauty is only skin deep, etc.) which led them to be cognizant of the possible biasing factor and to make appropriate modifications to their judgments in order to control for it.

But what of low NFC persons? The present research suggests that the strong attractiveness bias held by persons low in NFC may be modified so that the effects of attractiveness on judgments are weakened. Because these people are inclined to rely on heuristic cues (e.g., attractiveness) when making their judgments, efforts taken to motivate low NFC persons to think more carefully may result in attenuating their attractiveness biases. For example, prior to conducting an interview, if the interviewers are instructed to think carefully about their evaluation task, it is likely that their evaluation would be influenced less by the attractiveness of the applicant and more by his or her qualifications.

Unfortunately, the present research suggests that such interventions may be counterproductive when applied to persons high in NFC. That is, motivating people who already think systematically to think even more carefully may actually increase their bias. Future research should examine more closely (using alternative motivation manipulations) the implications of motivating high NFC persons to think carefully. It is possible that if the instructions were directed more specifically at preventing attractiveness from influencing their decisions, high NFC individuals might have continued to control for attractiveness biases. In short, it is recommended that (unless the NFC level of the judge is known), caution be taken when trying to motivate people to make unbiased evaluations.

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Footnotes

1. Although there are some differences between the two models, they are not highly relevant to the proposed research thus the terms “systematic” and “central” will be used interchangeably as will the names “heuristic” and “peripheral”.

2. In the mass test battery, I also included some related measures for exploratory purposes (see Appendix A2). These measures were intended to assess participants' beliefs, in general, about typical members of social categories (including physically attractive vs. unattractive) as well as their thoughts about using stereotypes to evaluate individuals. These measures are beyond the scope of the thesis and will not be discussed further.

3. For exploratory purposes, additional items were also included in the questionnaire package to assess the extent to which participants focused on various features of the photographs (see Appendices B7 and C8). These items were placed at the end of the questionnaire and thus could not have contaminated participants' responses to the dependent variables. They will not be discussed further.

4. Participant sex and target sex were matched in the present study because previous research has found there to be no sex differences in attractiveness stereotyping. Also, interactions involving sex were not of interest in the present investigation.

5. Two items (independent-dependent and sensitive-insensitive) were omitted from the indices due to low item total correlations. Also, several participants

failed to report on one or more of the items and these participants have been excluded from analyses.

6. The ANOVA also revealed an unanticipated Accountability X Photo Attractiveness X Sex interaction, $F(1, 118) = 4.64, p < .03$, which I decomposed by conducting separate Photo Attractiveness X Sex ANOVAs within each accountability condition. Within the not accountable condition, the only factor that affected ratings of target sociability was photo attractiveness, $F(1, 74) = 34.88, p < .001$. More positive traits were ascribed to the attractive than to the unattractive target photos. Within the accountable condition, however, a significant interaction between photo attractiveness and sex was found, $F(1, 68) = 12.96, p < .001$. Subsequent comparisons indicated that the attractive and unattractive targets were not rated differently by men, $t(118) = 1.49, ns$. Women, however, did rate the attractive targets more positively than the unattractive targets, $t(118) = 8.07, p < .05$. Thus women showed a larger attractiveness bias than men when they were held accountable for their judgments. For men, as we expected, accountability reduced the attractiveness bias, whereas for women, surprisingly, it exacerbated this bias. This interaction involving sex was unanticipated and must be interpreted cautiously because of the small number of male participants; thus, it is not discussed further.

7. Initially, means for the closed-ended (and open-ended) items were submitted to a NFC Level X Accountability ANOVA. Because no significant interactions were found, the t-tests for accountability are reported.

Table 1
Mean Sociability Ratings by Photo Attractiveness, NFC Level, and Accountability
(Experiment 1)

		Photo Attractiveness	
		Attractive	Unattractive
Accountability			
Accountable			
High NFC			
	<u>M</u>	4.72	3.46
	<u>SD</u>	.67	.71
	<u>N</u>	19	14
Low NFC			
	<u>M</u>	4.63	3.67
	<u>SD</u>	.56	.54
	<u>N</u>	18	21
Not Accountable			
High NFC			
	<u>M</u>	4.56	3.92
	<u>SD</u>	.70	.68
	<u>N</u>	25	19
Low NFC			
	<u>M</u>	4.45	3.44
	<u>SD</u>	.48	.53
	<u>N</u>	12	22

Table 2
Mean Sociability Ratings by Photo Attractiveness and Accountability
 (Experiment 1)

		Photo Attractiveness	
		Attractive	Unattractive
Accountability			
Accountable			
	<u>M</u>	4.68	3.58
	<u>SD</u>	.62	.62
	<u>N</u>	37	35
Not Accountable			
	<u>M</u>	4.52	3.66
	<u>SD</u>	.63	.64
	<u>N</u>	37	41

Table 3
Mean Sociability Ratings by Photo Attractiveness and NFC Level (Experiment 1)

NFC Level		Photo Attractiveness	
		Attractive	Unattractive
High	<u>M</u>	4.63	3.72
	<u>SD</u>	.69	.72
	<u>N</u>	44	33
Low	<u>M</u>	4.56	3.55
	<u>SD</u>	.53	.54
	<u>N</u>	30	43

Table 4
Mean Responses to Closed-ended Thought Measures by Accountability
 (Experiment 1)

	Accountability	
	Accountable	Not Accountable
Trying to think carefully		
<u>M</u>	5.68	5.52
<u>SD</u>	1.10	1.04
Trying to avoid stereotypes		
<u>M</u>	4.21	4.59
<u>SD</u>	1.60	1.60
Using least amount of effort (reverse scored)		
<u>M</u>	4.86	4.26
<u>SD</u>	1.48	1.48
Having difficulty evaluating		
<u>M</u>	6.11	5.88
<u>SD</u>	1.22	1.42
Feeling comfortable evaluating (reverse scored)		
<u>M</u>	5.29	5.56
<u>SD</u>	1.80	1.41
Feeling confident in accuracy (reverse scored)		
<u>M</u>	5.95	5.69
<u>SD</u>	1.21	1.36
Overall index		
<u>M</u>	5.35	5.25
<u>SD</u>	.74	.79

Note. Means are based on 80 participants in the accountable condition and 81 participants in the not accountable condition.

Table 5
Correlations between Closed-ended Thought Measures and NFC Scores as a
 Function of Accountability (Experiment 1)

Thoughts	Accountability	
	Accountable	Not Accountable
Trying to think carefully	.21*	.28***
Trying to avoid stereotypes	.14	.31***
Using least amount of effort (reverse scored)	.03	.05
Having difficulty evaluating	.02	.15
Feeling comfortable evaluating (reverse scored)	.24**	.22**
Feeling confident in accuracy (reverse scored)	.27**	.10
Overall index	.27***	.27**

Note. Correlations based on 80 participants in the accountable condition and 81 participants in the not accountable condition.

* $p < .10$. ** $p < .05$. *** $p < .01$.

Table 6
Means Frequency of Statements Coded into the Thought Categories by
Accountability (Experiment 1)

Thought Category	Accountability	
	Accountable	Not Accountable
Systematic		
<u>M</u>	.56	.33
<u>SD</u>	.78	.55
Heuristic		
<u>M</u>	.55	.74
<u>SD</u>	.59	.57
Systematic-Heuristic		
<u>M</u>	.01	-.41
<u>SD</u>	1.06	.95

Note. Means are based on 80 participants in the accountable condition and 81 participants in the not accountable condition.

Table 7
Correlations Between the Frequency of Statements Coded into the Thought
 Categories and NFC by Accountability (Experiment 1)

Thought Category	Accountability	
	Accountable	Not Accountable
Systematic	.05	.20*
Heuristic	-.04	-.17
Systematic-Heuristic	.05	.22**

Note. Correlations are based on 80 participants in the accountable condition and 81 participants in the not accountable condition.

* $p < .10$. ** $p < .05$.

Table 8
Mean Sociability Ratings by Photo Attractiveness, NFC Level, and Judgment Condition (Experiment 2)

		Photo Attractiveness	
		Attractive	Unattractive
Judgment Condition			
Motivation			
High NFC	<u>M</u>	5.29	4.57
	<u>SD</u>	.54	.56
	<u>N</u>	14	14
Low NFC	<u>M</u>	5.04	5.36
	<u>SD</u>	.72	.49
	<u>N</u>	14	14
Distraction			
High NFC	<u>M</u>	5.27	5.15
	<u>SD</u>	.60	.40
	<u>N</u>	14	14
Low NFC	<u>M</u>	5.14	5.45
	<u>SD</u>	.55	.64
	<u>N</u>	14	14
Control			
High NFC	<u>M</u>	5.12	4.84
	<u>SD</u>	.66	.60
	<u>N</u>	14	14
Low NFC	<u>M</u>	5.53	4.97
	<u>SD</u>	.61	.60
	<u>N</u>	14	14

Table 9
Mean Sociability Ratings by Photo Attractiveness and Judgment Condition
 (Experiment 2)

Judgment Condition		Photo Attractiveness	
		Attractive	Unattractive
Motivation			
	<u>M</u>	5.16	4.97
	<u>SD</u>	.64	.66
	<u>N</u>	14	14
Distraction			
	<u>M</u>	5.20	5.30
	<u>SD</u>	.51	.54
	<u>N</u>	14	14
Control			
	<u>M</u>	5.32	4.90
	<u>SD</u>	.66	.59
	<u>N</u>	14	14

Table 10
Mean Sociability Ratings by Photo Attractiveness and NFC Level (Experiment 2)

NFC Level		Photo Attractiveness	
		Attractive	Unattractive
High	<u>M</u>	5.22	4.86
	<u>SD</u>	.59	.57
	<u>N</u>	42	42
Low	<u>M</u>	5.23	5.26
	<u>SD</u>	.65	.60
	<u>N</u>	42	42

Table 11
Mean Responses to Closed-ended Thought Measures by Judgment Condition
 (Experiment 2)

	Judgment Condition		
	Motivation	Distraction	Control
Trying to think carefully			
<u>M</u>	5.79	5.34	5.63
<u>SD</u>	.91	1.21	1.17
Trying to avoid stereotypes			
<u>M</u>	4.45	3.89	4.56
<u>SD</u>	1.92	1.69	1.73
Using least amount of effort (reverse scored)			
<u>M</u>	2.80	2.96	2.61
<u>SD</u>	1.15	1.19	.93
Having difficulty evaluating			
<u>M</u>	5.45	5.45	5.79
<u>SD</u>	1.78	1.59	1.50
Feeling comfortable evaluating (reverse scored)			
<u>M</u>	4.70	5.16	5.16
<u>SD</u>	2.00	1.60	1.65
Feeling confident in accuracy (reverse scored)			
<u>M</u>	5.50	5.23	5.93
<u>SD</u>	1.50	1.41	1.16
Overall index			
<u>M</u>	4.74	4.72	4.95
<u>SD</u>	.90	.79	.74

Note. Means are based on 56 participants in each judgment condition.

Table 12
Correlations between Closed-ended Thought Measures and NFC Scores as a
 Function of Judgment Condition (Experiment 2)

Thoughts	Judgment Condition		
	Motivation	Distraction	Control
Trying to think carefully	.11	.15	.03
Trying to avoid stereotypes	.10	.01	.04
Using least amount of effort (reverse scored)	.21	.02	.11
Having difficulty evaluating	.04	.03	.25*
Feeling comfortable evaluating (reverse scored)	.41***	.08	.36***
Feeling confident in accuracy (reverse scored)	.19	.30**	.17
Overall index	.22	.17	.31**

Note. Correlations based on 56 participants in each judgment condition.

* $p < .10$. ** $p < .05$. *** $p < .01$.

Table 13
Mean Frequencies of Statements Coded into the Thought Categories by Judgment Condition (Experiment 2)

Thought Category	Judgment Condition		
	Motivation	Distraction	Control
Systematic			
<u>M</u>	.54	.68	.61
<u>SD</u>	.91	.97	.89
Heuristic			
<u>M</u>	1.00	1.02	.96
<u>SD</u>	.57	.77	.69
Systematic-Heuristic			
<u>M</u>	-.46	-.34	-.36
<u>SD</u>	1.28	1.50	1.33

Note. Means are based on 56 participants in each judgment condition.

Table 14
Correlations between the Frequency of Statements Coded into the Thought
 Categories and NFC by Judgment Condition (Experiment 2)

Thought Category	Judgment Condition		
	Motivation	Distraction	Control
Systematic	.15	-.05	.32**
Heuristic	-.08	.04	-.27**
Systematic-Heuristic	.15	-.05	.35***

Note. These correlations are based 56 participants in each judgment condition.
 * $p < .05$. ** $p < .01$.

Appendix A
Mass Testing Materials

Appendix A1 - NFC Scale

Instructions: For each of the statements below, please indicate the extent to which the statement is characteristic of you using the following scale:

- 1 = extremely uncharacteristic**
2 = somewhat uncharacteristic
3 = uncertain
4 = somewhat characteristic
5 = extremely characteristic

- ___ 1. I would prefer complex to simple problems.
- ___ 2. I like to have the responsibility of handling a situation that requires a lot of thinking.
- ___ 3. Thinking is not my idea of fun.
- ___ 4. I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.
- ___ 5. I try to anticipate and avoid situations where there is a likely chance I will have to think in depth about something.
- ___ 6. I find satisfaction in deliberating hard and for long hours.
- ___ 7. I only think as hard as I have to.
- ___ 8. I prefer to think about small, daily projects to long-term ones.
- ___ 9. I like tasks that require little thought once I've learned them.
- ___ 10. The idea of relying on thought to make my way to the top appeals to me.
- ___ 11. I really enjoy a task that involves coming up with new solutions to problems.
- ___ 12. Learning new ways to think doesn't excite me very much.
- ___ 13. I prefer my life to be filled with puzzles that I must solve.
- ___ 14. The notion of thinking abstractly is appealing to me.
- ___ 15. I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.
- ___ 16. I feel relief rather than satisfaction after completing a task that required a lot of mental effort.
- ___ 17. It's enough for me that something gets the job done; I don't care how or why it works.
- ___ 18. I usually end up deliberating about issues even when they do not affect me personally.

Appendix A2 - Stereotype Beliefs Scale

General Beliefs About Social Groups

We are interested in how people think about members of various social groups. Below we will ask you to indicate your views about what the members of various groups or categories are like. Of course all members of a group are not alike, but we want you to consider, in general, what the "typical" member of the group is like.

Ages

Please use the scales to indicate how people who are young compare to those who are older. Place your rating for the "typical" young person on the blank line under the heading, "Young Adult". Likewise, place your rating for the "typical" older person on the blank under the heading, "Older Adult."

Young Adult (18-30)	Older Adult (50-80)	
_____	_____	Interesting Boring 1-----2-----3-----4-----5-----6-----7
_____	_____	Dishonest Honest 1-----2-----3-----4-----5-----6-----7
_____	_____	Poised Awkward 1-----2-----3-----4-----5-----6-----7
_____	_____	Unsociable Sociable 1-----2-----3-----4-----5-----6-----7
_____	_____	Moral Immoral 1-----2-----3-----4-----5-----6-----7
_____	_____	Insensitive Sensitive 1-----2-----3-----4-----5-----6-----7
_____	_____	Trustworthy Not Trustworthy 1-----2-----3-----4-----5-----6-----7
_____	_____	Ill Mannered Well Mannered 1-----2-----3-----4-----5-----6-----7
_____	_____	Sexually Warm Sexually Cold 1-----2-----3-----4-----5-----6-----7

Physical Appearance

Please use the scales to indicate how people who are physically attractive compare to those who are unattractive. Place your rating for the "typical" attractive person on the blank line under the heading, "Physically Attractive". Likewise, place your rating for the typical unattractive person on the blank under the heading, "Physically Unattractive."

<u>Physically Attractive</u>	<u>Physically Unattractive</u>	
_____	_____	Interesting 1-----2-----3-----4-----5-----6-----7 Boring
_____	_____	Dishonest 1-----2-----3-----4-----5-----6-----7 Honest
_____	_____	Poised 1-----2-----3-----4-----5-----6-----7 Awkward
_____	_____	Unsociable 1-----2-----3-----4-----5-----6-----7 Sociable
_____	_____	Moral 1-----2-----3-----4-----5-----6-----7 Immoral
_____	_____	Insensitive 1-----2-----3-----4-----5-----6-----7 Sensitive
_____	_____	Trustworthy 1-----2-----3-----4-----5-----6-----7 Not Trustworthy
_____	_____	Ill Mannered 1-----2-----3-----4-----5-----6-----7 Well Mannered
_____	_____	Sexually Warm 1-----2-----3-----4-----5-----6-----7 Sexually Cold

Gender

Please use the scales to indicate how women compare to men. Place your rating for the "typical" woman on the blank line under the heading, "Women". Likewise, place your rating for the "typical" man on the blank under the heading, "Men."

<u>Women</u>	<u>Men</u>	
_____	_____	Interesting 1-----2-----3-----4-----5-----6-----7 Boring
_____	_____	Dishonest 1-----2-----3-----4-----5-----6-----7 Honest
_____	_____	Poised 1-----2-----3-----4-----5-----6-----7 Awkward
_____	_____	Unsociable 1-----2-----3-----4-----5-----6-----7 Sociable
_____	_____	Moral 1-----2-----3-----4-----5-----6-----7 Immoral

Women

Men

Insensitive Sensitive
1-----2-----3-----4-----5-----6-----7

Trustworthy Not Trustworthy
1-----2-----3-----4-----5-----6-----7

Ill Mannered Well Mannered
1-----2-----3-----4-----5-----6-----7

Sexually Warm Sexually Cold
1-----2-----3-----4-----5-----6-----7

In general, how much can you tell about a person's qualities based solely on his or her age?

1-----2-----3-----4-----5-----6-----7
 Nothing at all A great deal

In general, how much can you tell about a person's qualities based solely on his or her physical appearance?

1-----2-----3-----4-----5-----6-----7
 Nothing at all A great deal

In general, how much can you tell about a person's qualities based solely on his or her gender?

1-----2-----3-----4-----5-----6-----7
 Nothing at all A great deal

In general, how appropriate is it to judge someone on the basis of their age?

1-----2-----3-----4-----5-----6-----7
 Not at all A great deal

In general, how appropriate is it to judge someone on the basis of their physical appearance?

1-----2-----3-----4-----5-----6-----7
 Not at all A great deal

In general, how appropriate is it to judge someone on the basis of their gender?

1-----2-----3-----4-----5-----6-----7
 Not at all appropriate Completely appropriate

In general, do you attempt to judge people on the basis of their age or avoid doing so?

1-----2-----3-----4-----5-----6-----7
 I try to use age I try to avoid using age

In general, do you attempt to judge people on the basis of their appearance or avoid doing so?

1-----2-----3-----4-----5-----6-----7
 I try to use appearance I try to avoid using appearance

In general, do you attempt to judge people on the basis of their gender or avoid doing so?

1-----2-----3-----4-----5-----6-----7
 I try to use gender I try to avoid using gender

Appendix B
Experiment One Materials

Appendix B1 - Information Sheet

**“Personality and Person Perception”
Wilfrid Laurier University, Study Information Letter**

In our research we are interested in understanding how people perceive individuals they have not met. In particular we are interested in whether people's personality styles are related to their judgments. Earlier in the semester you completed a questionnaire that measured particular aspects of your personality style. In the study today, we will present you with a photograph of one individual and ask you to fill out a questionnaire in which you report your thoughts and judgments about this person.

To further examine how such judgments are made we will be holding short interviews. We do not have time to speak to everyone, and we have randomly chosen half of you to meet with the experimenter for the interview. The cover page of your questionnaire will clearly indicate whether you have been chosen.

All of your responses will be kept completely confidential. Only the researchers conducting this study will have access to them. The questionnaires are not anonymous because we want to match your responses today with your responses to the personality scales you completed earlier.

The entire session will take no longer than 20 to 30 minutes to complete. For your participation today you will receive one half research credit. Please note that it is very important that you make your responses honestly.

Appendix B2 - Informed Consent

**“Personality and Person Perception Study”
WILFRID LAURIER UNIVERSITY INFORMED CONSENT STATEMENT**

INFORMATION

The purpose of this study is to examine how people with certain personality styles perceive strangers. You have been requested to participate in this study because you earlier completed some personality scales as part of a test battery. Participants in this study will be asked to view a photograph of a person, make a number of judgments about that person, and answer some related questions. As well, some participants may be asked to discuss their responses with the experimenter. The session today will take approximately 20 to 30 minutes to complete. We can't fully describe all of the details of the study at this time, but we will provide a full explanation after you have completed the questionnaire.

RISKS

There are no foreseeable risks or discomforts involved in participating in this study.

BENEFITS

You will have the opportunity to observe directly the methods that researchers use to study people's thoughts and judgments about others, thus enhancing your understanding of psychological research. By participating you will also be contributing to the growing body of knowledge concerning person perception.

CONFIDENTIALITY

Your responses will be kept completely confidential. They will not be identified in reports of this research; only aggregated data (averages from many people) will be reported. They will be stored in a locked room in the psychology department that can be accessed only by the current researchers and will be destroyed after the data have been entered in computer files and analyzed.

COMPENSATION

Participants will receive one half research participation credit towards their research participation requirement for PS100. As an alternative to participating in this study, students in PS100 can earn the same credit by writing a short critical review of a journal article (see course instructor for further guidelines). Participants who begin the study but choose to withdraw prior to its completion will still receive their full half research credit.

CONTACT

If you have questions at any time about the questionnaire or procedure, you may

contact Samantha Hansen (one of the researchers) at the Psychology Department, Wilfrid Laurier University, 884-0710 ext. 2990 or hans3648@mach1.wlu.ca or the supervising researcher, Dr. Roger Buehler, same address, phone ext. 3036, email: rbuehler@wlu.ca. If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Dr. Linda Parker, Assistant Dean of Graduate Studies and Research, Wilfrid Laurier University, 884-0710, extension 3126.

PARTICIPATION

Your participation in this study is voluntary: you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at any time without penalty and without loss of benefits to which you are otherwise entitled. You may choose to omit the answer to any question. If you withdraw from the study before data collection is completed your data will be destroyed.

CONSENT

I have read and understand the above information. I have received a copy of this form. I agree to complete the questionnaire.

FEED-BACK

We will be posting our results on the Research Bulletin Board in the hallway beside room N2005 in the Science Building by April 1, 2000.

Participant's name _____ Date _____

(please print)

Participant's signature _____

Investigator's signature _____ Date _____

Appendix B3 - Verbal Instructions

“Personality and Person Perception” Introductory Script

Hi. My name is Sam. Today you'll be participating in a study that is examining personality and person perception. Earlier this semester you completed a questionnaire that contained several measures of personality styles and general beliefs. Is there anyone present who did not complete the PS100 Psychology Test Battery? We are interested in knowing whether a particular personality trait is related to how people make judgments about strangers.

After you have read and signed the consent forms you may flip over the questionnaire booklet and begin. Inside the booklet you will find a photograph. All of the questions you will be asked pertain to this photo.

We are particularly interested in how judgments are made. We do not have time to speak with all of you about how and why you made your responses. Half of you have been randomly selected to meet with me to discuss your thoughts. Your questionnaire will clearly indicate on the first page whether you have been chosen for the interview (it will say: you have been randomly selected to meet with the experimenter. . .). If you have been chosen, please come to the last cubicle when you have completed the questionnaire. For those of you who have not been chosen to discuss your responses, please wait quietly until everyone is done. It should take about 20-30 minutes for everyone to complete the procedure. At that time I will collect the materials from you and give you a short debriefing. So, please read over and sign the consent forms now, and then you may begin.

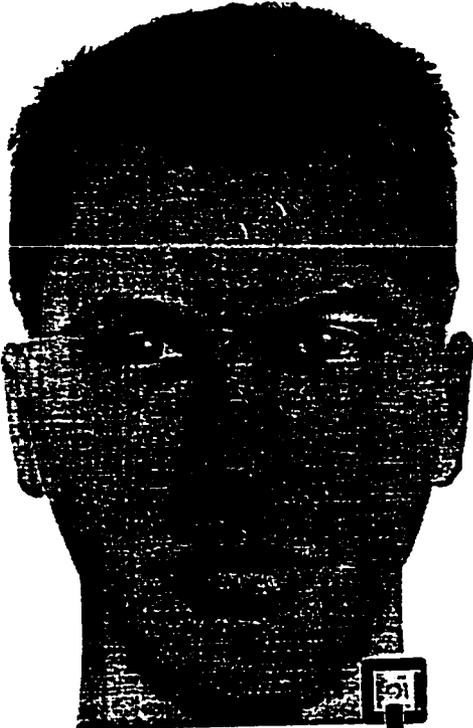
Appendix B4- Stimuli

Attractive Female Target Photo (Set 1)

Attractive Female Target Photo (Set 2)



Attractive Male Target Photo (Set 1)



Attractive Male Target Photo (Set 2)



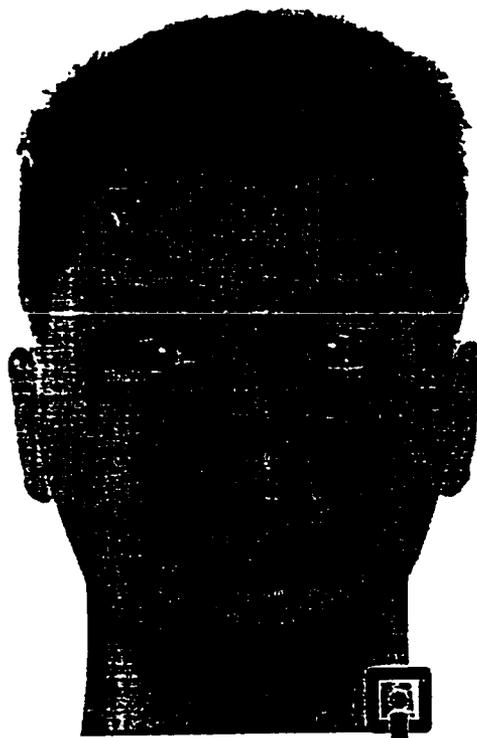
Unattractive Female Target Photo (Set 1)



Unattractive Female Target Photo (Set 2)



Unattractive Male Target Photo (Set 1)



Unattractive Male Target Photo (Set 2)



Appendix B5 - Written Instructions (Not Accountable Condition)

Personality and Perception Questionnaire

In this questionnaire you will be asked to make judgments about what the person in the photograph is like.

It is important that you give your honest answer to each question.

Please complete the questionnaire one page at a time, without looking ahead and without looking back.

Appendix B6 - Written Instructions (Accountable Condition)

Personality and Perception Questionnaire

In this questionnaire you will be asked to make judgments about what the person in the photograph is like.

It is important that you give your honest answer to each question.

Please complete the questionnaire one page at a time, without looking ahead and without looking back.

Important note: You have been randomly selected to meet with the experimenter. We are interested in knowing exactly how you arrived at your judgments. Once you have completed the questionnaire please proceed to the last cubicle for your interview. You will be asked to explain and justify the responses you have given. So, think carefully as you are completing the questionnaire and be prepared to explain the decisions you are making.

Appendix B7 - Questionnaire

Person Perception Questionnaire

We are interested in your judgments about what the person in the photograph is like. Please rate the person by circling a number on each of the following scales.

1-----2-----3-----4-----5-----6-----7
 DISHONEST HONEST

1-----2-----3-----4-----5-----6-----7
 POISED AWKWARD

1-----2-----3-----4-----5-----6-----7
 WEAK STRONG

1-----2-----3-----4-----5-----6-----7
 INTERESTING BORING

1-----2-----3-----4-----5-----6-----7
 SUBMISSIVE ASSERTIVE

1-----2-----3-----4-----5-----6-----7
 SOCIABLE UNSOCIABLE

1-----2-----3-----4-----5-----6-----7
 DEPENDENT INDEPENDENT

1-----2-----3-----4-----5-----6-----7
 WARM COLD

1-----2-----3-----4-----5-----6-----7
 UNDESIRABLE AS A FRIEND DESIRABLE AS A FRIEND

1-----2-----3-----4-----5-----6-----7
 GENUINE ARTIFICIAL

1-----2-----3-----4-----5-----6-----7
 IMPOLITE POLITE

1-----2-----3-----4-----5-----6-----7
 ATTRACTIVE UNATTRACTIVE

1-----2-----3-----4-----5-----6-----7
 DULL EXCITING

1-----2-----3-----4-----5-----6-----7
 SOPHISTICATED UNSOPHISTICATED

1-----2-----3-----4-----5-----6-----7
 SEXUALLY COLD SEXUALLY WARM

1-----2-----3-----4-----5-----6-----7
 SINCERE INSINCERE

1-----2-----3-----4-----5-----6-----7
 INSENSITIVE SENSITIVE

1-----2-----3-----4-----5-----6-----7
 WELL MANNERED ILL MANNERED

1-----2-----3-----4-----5-----6-----7
 CRUEL KIND

1-----2-----3-----4-----5-----6-----7
 MORAL IMMORAL

1-----2-----3-----4-----5-----6-----7
 TRUSTWORTHY NOT TRUSTWORTHY

While rating the person in the photo. . .

To what extent were you trying to give very carefully thought out answers?

1-----2-----3-----4-----5-----6-----7
 Did not try at all Tried a great deal

To what extent were you trying to avoid basing your judgments on stereotypes?

1-----2-----3-----4-----5-----6-----7
 Did not try at all Tried a great deal

To what extent were you trying to make the ratings with the least amount of effort?

1-----2-----3-----4-----5-----6-----7
 Did not try at all Tried a great deal

How difficult was it to evaluate the person based solely on a photograph?

1-----2-----3-----4-----5-----6-----7
 Not at all difficult Very difficult

How comfortable were you in evaluating the person based solely on a photograph?

1-----2-----3-----4-----5-----6-----7
 Not at all comfortable Very comfortable

How confident are you that you were able to evaluate the person accurately based solely on a photograph?

1-----2-----3-----4-----5-----6-----7
 Not at all confident Very confident

As mentioned previously, we could not tell you about all the details of this study at the outset. We are also looking at things other than the relation of people's personality to their perceptions of others. We are interested in your thoughts about the full purpose of the study while you were making the trait ratings.

What did you think the study was about while you were rating the person in the photo?

Check one of the following:

- I had no idea.
- I thought I knew the purpose of the study.

What did you think the researchers were testing in this study and how were they doing it? Please explain.

Appendix B8 - Debriefing

“Personality and Person Perception” Wilfrid Laurier University Debriefing

In our research we are interested in studying one particular stereotype referred to as “the attractiveness stereotype.” Quite simply attractiveness stereotyping refers to the tendency to attribute more positive qualities (e.g., intelligence, sense of humor, sexual warmth, etc.) to attractive people compared to unattractive people. Many years of research have shown that this stereotype is widespread, however, more recent research suggests that some people may be less likely to judge people on the basis of their level of attractiveness than others. One particular personality variable that has been shown to “differentiate” between people who are very likely and who are less likely to apply the attractiveness stereotype is “need for cognition” (NFC). NFC refers to the tendency to engage in (and enjoy) effortful thinking. Some people score very high on this trait and some people score very low. It has been shown that those who score low in NFC generally tend to have stronger attractiveness stereotypes. This is presumably because they use more simple “rules of thumb” (e.g., “what is beautiful is good!”) to make unimportant decisions.

In the present study we sought to investigate the underlying mechanisms responsible for this difference between people high and low in NFC. We hypothesized that people high in NFC show less evidence of the attractiveness stereotype because they are naturally motivated to think very carefully unlike those low in NFC who tend to take mental shortcuts. This is not to say that low NFC individuals never think carefully: in an attempt to make their thinking more efficient, low NFC individuals reserve effortful thought for important tasks. It is also worth mentioning that high NFC individuals may not always engage in effortful thought either. These tendencies are just general inclinations and they do not hold true for all people, nor do they hold true for a specific individual all of the time.

To assess whether people’s ratings were affected by attractiveness stereotypes, we varied the level of attractiveness of the person being rated. Some participants rated people who are generally perceived as attractive, while other participants rated people who are generally seen as unattractive.

There are a number of ways in which we plan to test our hypothesis concerning the role of NFC. First, we asked you to describe in your own words what you were thinking and feeling as you rated the person in the photo; some of you were also asked to respond verbally in a brief face to face interview. Using the NFC scores we attained from the PS100 Psychology Test Battery we will be

examining these comments to determine whether differences in thought strategy exist between people high and low in NFC.

A second method used to test our hypothesis involves comparing the responses made by people who had the interview with people who did not have the interview. Research has shown that when people are made to feel accountable (i.e., they are told that they will have to explain and justify their responses to an interviewer) they become more motivated to make careful decisions. If the motivation to think carefully is responsible for the differential attractiveness biases of individuals high and low in NFC, then the ratings of individuals low in NFC who were in the accountable group should closely resemble the ratings of individuals who are high in NFC. That is, their attractiveness bias will be relatively weak compared to the low NFC individuals in the not accountable group.

When completing the PS100 Psychology Test Battery we also asked you a number of questions about stereotypes in general. As well, we had you imagine the “typical attractive” and the “typical unattractive” person and make various comparisons between them. This information will be used to determine whether persons high and low in NFC **have** the same beliefs but **show** different rating behaviors or whether high and low NFC persons differ in terms of both their general beliefs and their judgments about a specific individual.

We hope that you understand our need to keep the full purpose and details of the study from you until this time. We could only create differences in feelings of accountability by treating the accountable and not accountable groups differently.

If you would like to learn more about attractiveness stereotyping see pages 693 and 694 of your PS100 text. For additional information on cognitive motivation and NFC pages 423 and 424 may be helpful.

Baron, R. A., Earhard, B., & Ozier, M. (Eds.). (1999). Psychology (2nd ed.). Scarborough, Canada: Allyn and Bacon.

For an update on our findings, check the bulletin board outside N2005 after April 1, 2000. If you want more information please contact Samantha Hansen at 884-1970 ext. 2990. If you have any concerns about the project or the manner in which it was carried out, you may contact either Linda Parker, Chair of the Research Ethics Board in the Dept. of Psychology at Wilfrid Laurier University (884-1970 ext. 3900), the Research Office at Wilfrid Laurier University (884-1970 ext. 3131), or the senior researcher, Roger Buehler (Dept. of Psychology, Wilfrid Laurier University, 884-1970 ext. 3036).

Appendix C
Experiment Two Materials

Appendix C1 - Information Sheet

**“Personality and Person Perception”
Wilfrid Laurier University, Study Information Letter**

In our research we are interested in understanding how people perceive individuals they have not met. In particular we are interested in whether people's personality styles are related to their judgments. Earlier in the semester you completed a questionnaire that measured particular aspects of your personality style. In the study today, we will present you with a photograph of one individual and ask you to fill out a questionnaire in which you report your thoughts and judgments about this person. We are also interested in how mental distraction might affect such judgments, so some participants will be asked to complete several tasks at once.

All of your responses will be kept completely confidential. Only the researchers conducting this study will have access to them. The questionnaires are not anonymous because we want to match your responses today with some scales you completed earlier as part of a test battery.

For your participation today you will receive one half research credit. Please note that it is very important that you make your responses honestly.

Appendix C2 - Informed Consent

**“Personality and Person Perception Study”
WILFRID LAURIER UNIVERSITY INFORMED CONSENT STATEMENT**

INFORMATION

The purpose of this study is to examine how people with certain personality styles perceive strangers. You have been requested to participate in this study because you earlier completed some personality scales as part of a test battery. Participants in this study will be asked to view a photograph of a person, make a number of judgments about that person, and answer some related questions. We are also interested in whether mental distraction affects these judgments therefore some participants will be asked to do a number of mental tasks simultaneously. The session today will take approximately 20 minutes to complete. We can't fully describe all of the details of the study at this time, but we will provide a full explanation after you have completed the questionnaire.

RISKS

There are no foreseeable risks or discomforts involved in participating in this study.

BENEFITS

You will have the opportunity to observe directly the methods that researchers use to study people's thoughts and judgments about others, thus enhancing your understanding of psychological research. By participating you will also be contributing to the growing body of knowledge concerning person perception.

CONFIDENTIALITY

Your responses will be kept completely confidential. They will not be identified in reports of this research; only aggregated data (averages from many people) will be reported. They will be stored in a locked room in the psychology department that can be accessed only by the current researchers and will be destroyed after the data have been entered in computer files and analyzed.

COMPENSATION

Participants will receive one half research participation credit towards their research participation requirement for PS100. As an alternative to participating in this study, students in PS100 can earn the same credit by writing a short critical review of a journal article (see course instructor for further guidelines). Participants who begin the study but choose to withdraw prior to its completion will still receive their full half research credit.

CONTACT

If you have questions at any time about the questionnaire or procedure, you may contact Samantha Hansen (one of the researchers) at the Psychology Department, Wilfrid Laurier University, 884-0710 ext. 2990 or hans3648@mach1.wlu.ca or the supervising researcher, Dr. Roger Buehler, same address, phone ext. 3036, email: rbuehler@wlu.ca. If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Dr. Linda Parker, Assistant Dean of Graduate Studies and Research, Wilfrid Laurier University, 884-0710, extension 3126.

PARTICIPATION

Your participation in this study is voluntary: you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at any time without penalty and without loss of benefits to which you are otherwise entitled. You may choose to omit the answer to any question. If you withdraw from the study before data collection is completed your data will be destroyed.

CONSENT

I have read and understand the above information. I have received a copy of this form. I agree to complete the questionnaire.

FEED-BACK

We will be posting our results on the Research Bulletin Board in the hallway beside room N2005 in the Science Building by April 1, 2000.

Participant's name _____ Date _____
(please print)

Participant's signature _____

Investigator's signature _____ Date _____

Appendix C3 - Verbal Instructions

**“Personality and Person Perception”
Introductory Script**

Hi. My name is Sam. Today you'll be participating in a study that is examining personality and person perception. Last semester you completed a questionnaire that contained several measures of personality styles and general beliefs. We are interested in knowing whether a particular personality trait is related to how people make judgments about strangers. We are also interested in how these judgments are affected by mental distraction.

After you have read and signed the consent forms you may flip over the questionnaire booklet and begin. It is very important that you read the instructions on the first page of the questionnaire carefully. After you have read these instructions you may open the booklet and remove the photograph that is inside. All of the questions you will be asked pertain to this photo.

It should take about 20 minutes for everyone to complete the procedure. At that time I will collect the materials from you and give you a debriefing sheet. So, please read over and sign the consent forms now, and then you may begin.

Appendix C4 - Stimulus Photos

Attractive Female Target Photo



Attractive Male Target Photo



Unattractive Female Target Photo

Unattractive Male Target Photo



Appendix C5 - Written Instructions (Control Condition)

**“Personality and Person Perception”
Questionnaire Instructions**

We are interested in examining the effects of personality on person perception.

In this questionnaire you will be asked to make judgments about what the person in the photograph is like.

It is important that you give your honest answer to each question.

Please complete the questionnaire one page at a time, without looking ahead and without looking back.

Appendix C6 - Written Instructions (Motivation Condition)

**“Personality and Person Perception”
Questionnaire Instructions**

We are interested in examining the effects of personality on person perception.

In this questionnaire you will be asked to make judgments about what the person in the photograph is like.

It is important that you give your honest answer to each question.

Please complete the questionnaire one page at a time, without looking ahead and without looking back.

Instructions: As you make the following 21 judgments on the next two pages, we would like you to think very carefully about this task. Give the task your complete attention. Try to be as thoughtful as you can.

Appendix C7 - Written Instructions (Distraction Condition)

**“Personality and Person Perception”
Questionnaire Instructions**

We are interested in examining the effects of personality on person perception.

In this questionnaire you will be asked to make judgments about what the person in the photograph is like.

It is important that you give your honest answer to each question.

Please complete the questionnaire one page at a time, without looking ahead and without looking back.

Instructions: As you make the following 21 judgments on the next two pages, we would like you to continually repeat a string of numbers in your head. Do not simply memorize the numbers; it is important that you keep them in your mind even as you answer the questions. Please do not turn back to this page unless you lose track of your numbers.

Please keep the following numbers in your head by repeating them to yourself:

82059384

When you are comfortable repeating the number, please turn the page.

Appendix C8 - Questionnaire

Person Perception Questionnaire

We are interested in your judgments about what the person in the photograph is like. Please rate the person by circling a number on each of the following scales.

1-----2-----3-----4-----5-----6-----7
 DISHONEST HONEST

1-----2-----3-----4-----5-----6-----7
 POISED AWKWARD

1-----2-----3-----4-----5-----6-----7
 WEAK STRONG

1-----2-----3-----4-----5-----6-----7
 INTERESTING BORING

1-----2-----3-----4-----5-----6-----7
 SUBMISSIVE ASSERTIVE

1-----2-----3-----4-----5-----6-----7
 SOCIABLE UNSOCIABLE

1-----2-----3-----4-----5-----6-----7
 DEPENDENT INDEPENDENT

1-----2-----3-----4-----5-----6-----7
 WARM COLD

1-----2-----3-----4-----5-----6-----7
 UNDESIRABLE DESIRABLE
 AS A FRIEND AS A
FRIEND

1-----2-----3-----4-----5-----6-----7
 GENUINE ARTIFICIAL

1-----2-----3-----4-----5-----6-----7
 IMPOLITE POLITE

1-----2-----3-----4-----5-----6-----7
 ATTRACTIVE UNATTRACTIVE

1-----2-----3-----4-----5-----6-----7
 DULL EXCITING

1-----2-----3-----4-----5-----6-----7
 SOPHISTICATED UNSOPHISTICATED

1-----2-----3-----4-----5-----6-----7
 SEXUALLY COLD SEXUALLY WARM

1-----2-----3-----4-----5-----6-----7
 SINCERE INSINCERE

1-----2-----3-----4-----5-----6-----7
 INSENSITIVE SENSITIVE

1-----2-----3-----4-----5-----6-----7
 WELL MANNERED ILL MANNERED

1-----2-----3-----4-----5-----6-----7
 CRUEL KIND

1-----2-----3-----4-----5-----6-----7
 MORAL IMMORAL

1-----2-----3-----4-----5-----6-----7
 TRUSTWORTHY NOT TRUSTWORTHY

While rating the person in the photo. . .

To what degree do you feel that you paid close attention to the task?

1-----2-----3-----4-----5-----6-----7
 Low Attention High Attention

To what extent were you trying to avoid basing your judgments on stereotypes?

1-----2-----3-----4-----5-----6-----7
 Did not Avoid it Tried to Avoid it

To what degree do you feel that you were distracted?

1-----2-----3-----4-----5-----6-----7
 Did not Feel distracted Felt very Distracted

How difficult was it to evaluate the person based solely on a photograph?

1-----2-----3-----4-----5-----6-----7
 Not at all difficult Very difficult

How comfortable were you in evaluating the person based solely on a photograph?

1-----2-----3-----4-----5-----6-----7
 Not at all comfortable Very comfortable

How confident are you that you were able to accurately evaluate the person based solely on a photograph?

1-----2-----3-----4-----5-----6-----7
 Not at all confident Very confident

To what extent were you trying to give very carefully thought out answers?

1-----2-----3-----4-----5-----6-----7
 Did not try at all Tried a great deal

To what extent were you trying to make the ratings with the least amount of effort?

1-----2-----3-----4-----5-----6-----7
 Used very little effort Used a great deal of effort

As mentioned previously, we could not tell you about all the details of this study at the outset. We are also looking at things other than the relation of people's personality to their perceptions of others. We are interested in your thoughts about the full purpose of the study while you were making the trait ratings.

What did you think the study was about while you were rating the person in the photo?

Check one of the following:

- I had no idea.
- I thought I knew the purpose of the study

What did you think the researchers were testing in this study and how were they doing it? Please explain.

Appendix C9 - Debriefing

“Personality and Person Perception” Wilfrid Laurier University Debriefing

In our research we are interested in studying one particular stereotype referred to as “the attractiveness stereotype.” Quite simply attractiveness stereotyping refers to the tendency to attribute more positive qualities (e.g., intelligence, sense of humor, sexual warmth, etc.) to attractive people compared to unattractive people. Many years of research have shown that this stereotype is widespread, however, more recent research suggests that some people may be less likely to judge people on the basis of their level of attractiveness than others. One particular personality variable that has been shown to “differentiate” between people who are very likely and who are less likely to apply the attractiveness stereotype is “need for cognition” (NFC). NFC refers to the tendency to engage in (and enjoy) effortful thinking. Some people score very high on this trait and some people score very low. It has been shown that those who score low in NFC generally tend to have stronger attractiveness stereotypes. This is presumably because they use more simple “rules of thumb” (e.g., “what is beautiful is good!”) to make unimportant decisions.

In the present study we sought to investigate the underlying mechanisms responsible for this difference between people high and low in NFC. We hypothesized that people high in NFC show less evidence of the attractiveness stereotype because they are naturally motivated to think very carefully unlike those low in NFC who tend to take mental shortcuts. This is not to say that low NFC individuals never think carefully; in an attempt to make their thinking more efficient, low NFC individuals reserve effortful thought for important tasks. It is also worth mentioning that high NFC individuals may not always engage in effortful thought either. These tendencies are just general inclinations and they do not hold true for all people, nor do they hold true for a specific individual all of the time.

To assess whether people's ratings were affected by attractiveness stereotypes, we varied the level of attractiveness of the person being rated. Some participants rated people who are generally perceived as attractive; while other participants rated people who are generally seen as unattractive.

There are a number of ways in which we plan to test our hypothesis concerning the role of NFC. First, we asked you to describe in your own words what you were thinking and feeling as you rated the person in the photo. Using the NFC scores we attained from the PS100 Psychology Test Battery we will be examining these comments to determine whether differences in thought strategy

exist between people high and low in NFC.

In order to determine whether motivation and ability to think carefully are the underlying mechanisms responsible for the different attractiveness biases of high and low NFC persons, we randomly assigned the participants to three groups: 1) control condition, 2) high distraction condition, and 3) low distraction condition. Participants in the control condition were asked to complete the questions as they normally would. Those in the low distraction condition were asked to think very carefully about the task. Participants in the high distraction condition were asked to repeat an eight digit number in their head while completing the rating task. This serves to distract the participant and make them “cognitively busy.” To examine whether it is the motivation and ability that cause high NFC persons to have a lower attractiveness bias, we will compare the responses of high NFC persons in the control condition with those of the high NFC persons in the high distraction condition. To examine whether low NFC persons’ attractiveness bias can be weakened (i.e., by motivating them to think carefully), we will compare the responses of the low NFC persons in the control condition with those of the low NFC persons in the low distraction condition.

When completing the PS100 Psychology Test Battery we also asked you a number of questions about stereotypes in general. As well, we had you imagine the “typical attractive” and the “typical unattractive” person and make various comparisons between them. This information will be used to determine whether persons high and low in NFC **have** the same beliefs but **show** different rating behaviors or whether high and low NFC persons differ in terms of both their general beliefs and their judgments about a specific individual.

We hope that you understand our need to keep the full purpose and details of the study from you until this time.

If you would like to learn more about attractiveness stereotyping see pages 693 and 694 of your PS100 text. For additional information on cognitive motivation and NFC pages 423 and 424 may be helpful.

Baron, R. A., Earhard, B., & Ozier, M. (Eds.). (1999). Psychology (2nd ed.). Scarborough, Canada: Allyn and Bacon.

For an update on our findings, check the bulletin board outside N2005 after April 1, 2000. If you want more information please contact Samantha Hansen at 884-1970 ext. 2990. If you have any concerns about the project or the manner in which it was carried out, you may contact either Linda Parker, Chair of the Research Ethics Board in the Dept. of Psychology at Wilfrid Laurier University (884-1970 ext. 3900), the Research Office at Wilfrid Laurier University (884-1970 ext. 3131), or the senior researcher, Roger Buehler (Dept. of Psychology, Wilfrid Laurier University, 884-1970 ext. 3036).