SELF-REFERENCE IN MYSTERY MOODS: CONSEQUENCES FOR INFORMATION PROCESSING AND SELF-ENHANCEMENT

DISSERTATION

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ABSTRACT

By now, it has been widely established that features of the environment that do not enter our conscious awareness can nonetheless impact us in various ways, including our mood state. Studies using subliminal priming of positive or negative stimuli have shown that such primes can affect our mood in a congruent manner, and that these “mystery moods” – or moods of an unknown origin – have further, downstream consequences.

Previous research on nonconsciously induced moods has focused solely on stimuli that varied on the valence dimension (i.e., positive vs. negative). The current research examined another dimension of mystery moods – namely, the degree to which the source of the mood implicates the self, and how it may interact with the valence dimension to produce different consequences for information processing and self-esteem enhancement.

Four studies tested the hypothesis that when a mystery mood is non-self-referent, positive mood leads to heuristic information processing while negative mood results in systematic information processing. One consequence of this difference in processing strategy is stereotyping, such that people are less likely to stereotype when they are processing information in a careful, systematic fashion. Thus, being in a non-self-referent mystery mood results in consequences that are of a cold, cognitive nature. On the other hand, when a mystery mood is self-referent, a hot, motivational process is...
activated. In the case of a negative self-referent mood, which is akin to a self-esteem threat, it can result in using stereotyping as a way to restore one’s self-esteem. Thus, the consequences of being in a self-referent mood can be different from the consequences of non-self-referent moods of the same valence. Overall, this research adds to the literature on mood and stereotyping by clarifying the conditions under which cognitive versus motivational mechanisms of stereotyping dominate. This research also makes an important contribution to the mood priming literature by showing that the degree of self-reference is a key dimension to consider in the mystery mood phenomenon.
Dedicated to all the people who have made a difference in my life
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In his seminal paper on affect and cognition, Zajonc (1980) famously proclaimed that “preferences need no inferences.” This affective primacy hypothesis argues that affective reactions can be elicited prior to, and independent of, conscious thought. A substantial body of literature has since supported the notion that evaluative reactions toward attitude objects can be activated efficiently and automatically (e.g., Bargh, Chaiken, Govender, & Pratto, 1992; Bargh, Chaiken, Raymond, & Hymes, 1996; Fazio, Sanbonmatsu, Powell, & Kardes, 1986; Giner-Sorolla, García, & Bargh, 1999), even when the stimuli are presented outside of one’s conscious awareness (Kunst-Wilson & Zajonc, 1980; Murphy & Zajonc, 1993; Niedenthal, 1990).

In a well-known example, Murphy and Zajonc (1993) had participants rate their liking for various Chinese ideographs (which presumably represented novel, neutral stimuli for their non-Chinese participants). Prior to each Chinese ideograph, participants were exposed to happy and angry faces for 4 ms, which was too quick for conscious perception (Bargh & Chartrand, 2000). Murphy and Zajonc found that the subliminal affective primes influenced participants’ judgments of the Chinese characters, such that pictographs following happy primes were rated more positively than the trials involving
neutral polygon primes or no prime. Conversely, ideographs preceded by negative primes were rated more negatively. This finding demonstrated that emotional stimuli can be processed at a level below conscious awareness and influence subsequent judgments.

Automatic evaluation and mood

Recent studies have demonstrated that affective priming can influence one’s mood state. Using the mere exposure paradigm, which has shown that people have a greater liking for stimuli that they have been repeatedly exposed to (Zajonc, 1968), Monahan, Murphy, and Zajonc (2000) found that multiple subliminal exposure to the same stimuli led participants to later report being in a better mood. Examining the effect of subliminal image primes on facial muscle activation, Dimberg, Thunberg, and Elmehed (2000) found that people who had been primed with happy faces showed heightened activation of their zygomatic major muscle, which is the “smiling” muscle. Participants who had been primed with angry faces, on the other hand, were more likely to activate their corrugator supercilii muscle, which knits the eyebrows to form a frown. Using subliminal word primes, Chartrand, van Baaren, and Bargh (in press) also found mood congruence effects – participants were in a better mood following positive primes, but in a worse mood following exposure to negative words. Thus, various lines of research, using different manipulations and dependent measures, have all supported the idea that stimuli that we are not consciously aware of can affect our mood states. Collectively, these moods – whose origins are of a nonconscious nature – have been dubbed “mystery moods” (Chartrand & Kay, 2006).
Why does automatic evaluation influence mood? Chartrand et al. (in press) posited that automatic evaluation serves a functional purpose; it allows us to continuously monitor stimuli in the environment and react to them without having to engage in conscious, deliberative thought. Thus, prolonged exposure to positive or negative stimuli leads to congruent mood states that serve to communicate to us the status of our current situation so that we are able to respond to it appropriately. One consequence of mood is the information processing strategies we adopt. Chartrand et al. proposed that their model illustrates one mechanism for the feelings-as-information model (Schwarz, 1990). According to the feelings-as-information model, our mood states communicate to us information about our environment. A good mood signals to us that the environment is safe, and thus reduces the need to engage in analytical, systematic information processing. A bad mood, however, suggests that danger is lurking in the environment, and therefore triggers the motivation to process information in a cautious, deliberative fashion. Indeed, empirical research has found that individuals in a positive mood are more likely to process information heuristically than individuals in a negative mood (e.g., Bless, Bohner, Schwarz, & Strack, 1990; Bless, Clore et al., 1996; Bless, Hamilton, & Mackie, 1992; Gasper & Clore, 2002).

Effect of mood priming on information processing: The case of stereotyping

The feelings-as-information model makes a specific prediction for the effect of mood on stereotyping. Cognitive models of stereotyping have suggested that stereotypes serve as cognitive shortcuts by which we simplify, organize, and comprehend our social world (Bodenhausen & Wyer, 1985). Thus, people are particularly prone to using
stereotypes when the motivation or capacity to engage in effortful, systematic
information processing is low. If, as the feelings-as-information theory suggests, a
positive mood results in relatively shallow, heuristic information processing, then one
would expect greater reliance on stereotypes in making judgments about others when one
is in a good mood. On the other hand, if a negative mood leads to careful, analytical
information processing, then it should, in turn, lessen the use of stereotypes. Indeed,
research examining the influence of mood on stereotyping has generally confirmed these
predictions (e.g., Bodenhausen, Kramer, & Süsser, 1994; Park & Banaji, 2000).

Do mood states that result from subliminal affective priming show the same
consequences for stereotyping? Chartrand et al. (in press) answered this question in two
of their studies, in which participants were repeatedly primed with positive or negative
nouns and then completed a stereotyping measure developed by von Hippel,
Sekaquaptewa, and Vargas (1997). In this measure, known as the Stereotypic
Explanatory Bias (SEB), participants were asked to complete various sentence stems.
Some of the sentence stems contained stereotype-consistent information (e.g., “Rich
studied the engineering manual…”); some depicted stereotyping-inconsistent behaviors
(e.g., “Lisa went to the auto show…”). Because people are more likely to provide an
explanation for behaviors that contradict one’s expectations in order to make sense of the
behavior (Hastie, 1984), stereotyping on the SEB is indicated by the extent to which
participants complete the stereotype-inconsistent sentence stems, versus the stereotype-
consistent stems, with explanations.
Chartrand et al. (in press) found that, as predicted by the feelings-as-information model, participants who were subliminally exposed to negative words were more likely to engage in stereotyping than participants primed with positive words. Furthermore, a path analysis revealed that mood mediated the influence of prime valence on stereotyping. Thus, similar to moods induced by more conscious means, nonconsciously activated positive and negative moods also have consequences for stereotyping.

Consequences of nonconscious goal pursuit for mood and stereotyping

Mood can also result from succeeding or failing at a goal that one is not aware of pursuing in the first place. Bargh’s auto-motive model (Bargh, 1990) has asserted that goals can be automatically activated by environmental stimuli that have been previously paired with the goal. Nonconsciously activated goals, in turn, lead to goal-relevant cognitions and behaviors, in the same way as consciously chosen goals (Chartrand & Bargh, 1996). Previous research has found that, just like the affective consequences of conscious goal pursuit, successfully achieving a nonconscious goal results in a positive mystery mood, whereas failure to accomplish a nonconscious goal puts one in a negative mystery mood (Chartrand & Kay, 2006). Again, “mystery moods” were induced because participants were not aware of the cause of their positive or negative mood, nor did they have any conscious knowledge of having a goal in the first place. Thus, one’s mood state can not only be directly influenced by priming of positive and negative stimuli, but can also be a result of other nonconscious processes, such as succeeding and failing at nonconscious goal pursuit.
Studies on the phenomenon of nonconscious goal pursuit have further examined its downstream consequences. In particular, Chartrand, Cheng, Dalton, and Tesser (2006) tested the idea that nonconscious goal pursuit failure leads to self-enhancement. This hypothesis was based on the theory put forth by Tesser and his colleagues (Tesser, 2000; Tesser, Crepaz, Collins, Cornell, & Beach, 2000; Tesser, Martin, & Cornell, 1996), which posited that different mechanisms for self-esteem maintenance can substitute for one another because of an underlying negative affect of unknown origin. In other words, one can repair a threatened self-esteem using one of many different self-enhancement strategies, as long as one is unaware of the source of the negative affect accompanying the self-esteem threat.

Consistent with this notion, Chartrand et al. (2006) found that participants who had been led to fail at a nonconscious goal – who were in a negative mystery mood (Chartrand & Kay, 2006) – were more likely to engage in behaviors that promoted their self-esteem. Moreover, the effect of negative mystery mood on self-enhancement was eliminated when participants were made aware of the source of their mood.

One self-enhancement strategy that Chartrand et al. (2006) examined was stereotyping. Fein and Spencer (1997) have argued that a self-esteem threat can motivate one to stereotype others as a way to restore that self-image (see also Sinclair & Kunda, 1999, 2000; Spencer, Fein, Wolfe, Fong, & Dunn, 1998). Consistent with this assertion, Chartrand et al. demonstrated that failure at nonconscious goal pursuit increased the likelihood of stereotyping.
However, Chartrand et al.’s (2006) stereotyping data appear to contradict the findings of Chartrand et al. (in press). Recall that in the latter case, a negative mystery mood triggered by mood primes led to relatively less stereotyping. In contrast, Chartrand et al. (2006) found that a negative mystery mood that was the result of failing at a nonconscious goal led to more stereotyping. Adding to the puzzle was the fact that both studies used the exact same paradigm – the SEB – to assess stereotyping.

Why the discrepancy? A closer examination of the manipulations used in Chartrand et al. (in press) and Chartrand et al. (2006) may provide the answer. In Chartrand et al. (in press), participants were primed with affectively-charged nouns such as music, friends, war, and cancer. Thus, the subsequent positive and negative mood was a result of automatic evaluation of objects or events that were external to the self. Chartrand et al.’s (2006) manipulation, on the other hand, involved leading participants to succeed or fail at a primed goal. Thus, the mood effects in this case were due to an internal source – that the self has succeeded or failed at a goal temporarily activated by the priming procedure. An analogy can be made for moods caused by a conscious source. For example, we can be in a good mood because the weather is nice (external source) or because we have just won a valuable award (internal source). Likewise, a bad mood can be a result of gloomy weather or having lost an important competition. In other words, the extent to which one’s mood implicates the self may be the key moderating variable that led to the conflicting findings in Chartrand et al. (in press) and Chartrand et al. (2006) for stereotyping. In Chartrand et al. (in press), the source of the mood referred to external, environmental stimuli. As such, a positive non-self-referent
mood indicates that the environment is safe – just as proposed by the feelings-as-information model – and increases the likelihood of relying on judgmental heuristics, such as stereotypes, compared to a negative non-self-referent mood. Stereotyping, in this case, is a cold, cognitive process, a consequence of heuristic information processing.

By contrast, in Chartrand et al. (2006), the source of the mood referred to the self. A negative self-referent mood is a self-esteem threat, and the motivation to repair the self-image takes over – by stereotyping others if the opportunity to do so is available. In this case, stereotyping is the result of a hot, motivational process.

The current proposition that mood can affect stereotyping via either a cognitive or a motivational process is consistent with the ideas proposed by the Affect Infusion Model (AIM; Forgas, 1994, 1995, 2001), an integrative framework of mood and social judgments. In the absence of a specific motivation, the AIM concurs with the feelings-as-information model that positive mood states are associated with heuristic information processing, whereas negative mood states result in a substantive processing strategy. As explained above, the differential processing strategies can, in turn, affect stereotyping. Unlike the feelings-as-information model, the AIM also takes into account motivated processing strategies. It suggests that preexisting motivation may guide information processing, and that mood itself may give rise to a certain motivated processing strategy. The current proposal provides a specific prediction for the condition under which mood may influence motivation – that when a negative mood is caused by a self-esteem threat, it triggers the motivation to restore one’s self-esteem, using strategies such as stereotyping.
Goals of the current research

The current research attempts to reconcile the findings of Chartrand et al. (in press) and Chartrand et al. (2006) by proposing that the self plays an important role in the effects of mystery moods. Specifically, even outside of conscious awareness, we are able to process affective information as being self-referent or not. Non-self-referent moods have consequences for the information processing strategy one adopts; as proposed by the feelings-as-information model, a positive non-self-referent mood leads to heuristic processing whereas a negative non-self-referent mood results in systematic processing. These different information processing tactics have further consequences, such as stereotyping. Self-referent moods, however, activate a motivational process, such that a negative self-referent mood triggers the motivation to enhance one’s self-esteem, and one method used to improve self-esteem is to stereotype others.

Mood and social judgment revisited

In light of the current hypothesis, it is worth revisiting the mood inductions used in previous studies on mood and social judgment to examine whether or not they conformed to the hypothesis proposed here. The review that follows focuses on studies that induced general happy and sad moods, and which incorporated dependent measures that assessed stereotyping, as well as the related phenomena of social categorization and judgment.

Past research that has linked positive mood to an increase in stereotyping, hence supporting the feelings-as-information model, has adopted three main types of mood induction procedures. First, media clips have been commonly used as a way to
manipulate participants’ mood. For example, Park and Banaji (2000) and Forgas and Fiedler (1996, Study 1) had participants watch video clips that induced happiness (e.g., a clip of a comedy show), sadness (e.g., a scene from a depressing movie), or a neutral mood (e.g., a clip depicting natural scenery). Emotionally-laden music has also been used to manipulate mood (Bodenhausen, Kramer et al., 1994, Study 2). Another popular mood induction method involved asking participants to report a happy or a sad memory, or to describe a mundane event for the neutral control (Bless, Schwarz, & Wieland, 1996; Bodenhausen, Kramer et al., 1994, Studies 1 & 4; Forgas & Fiedler, 1996, Study 3). Finally, one study (Bodenhausen, Kramer et al., 1994, Study 2) manipulated mood by having participants either contract their facial muscles to form a smile (happy mood) or to form a fist with their hands (control).

Possibly with the exception of the personal event recall task, all of the mood induction techniques are arguably non-self-referent. In the case of the personal event recall task, no instructions were given to specifically request participants to recall self-referent events. That is, participants were simply asked to recall a happy or a sad memory, but the memory could be self-referent (e.g., “I won a contest”) or not (e.g., “I attended my sister’s birthday party”). Thus, there was most likely a mix of self-referent and non-self-referent memories reported by these participants, and it is unclear whether the opposite stereotyping pattern – that is, with negative mood increasing stereotyping – would emerge if participants had been explicitly instructed to provide self-referent memories.
In one of Forgas and Fiedler’s studies (1996, Study 2), a false feedback paradigm was used to manipulate participants’ mood. In this study, participants first completed a size estimation task and were arbitrarily told that they were an overestimator or an underestimator. Then, participants were told that their performance on the size estimation task was either excellent (happy mood induction) or abysmal (sad mood induction). Forgas and Fiedler found that, among participants who were led to believe that being an overestimator/underestimator is a highly significant feature of one’s personality, sad participants showed greater intergroup discrimination (determined by the degree to which participants favored an ingroup member over an outgroup member in a reward allocation task), compared to happy and control participants who received no feedback.

Note that the negative mood manipulation in this case involved informing participants that they had performed poorly in a domain that was purportedly an important aspect of one’s personality. This manipulation constituted a self-esteem threat. Thus, the findings of this study corroborate the current view that a negative self-referent mood increases the motivation to self-enhance by engaging in intergroup discrimination.

While the bulk of the previous literature on mood and social judgment is generally consistent with the present hypothesis, there is one set of findings that did not support the current view. Ikegami (2002) had the insight that self-esteem may play a role in the effect of negative mood on impression formation. She induced participants to experience a negative self-referent or a negative other-referent mood by having them complete sentence stems such as “I hate myself because ___” (negative self-referent) or
“I hate people foremost who ___” (negative other-referent). Participants in the control group completed affectively neutral sentences such as “When I describe something to others, I ___. “ Ikegami found that, compared to those in a negative other-referent mood, participants in a negative self-referent mood were less likely to rate an ambiguous target as being hostile, and more likely to perceive the target as friendly.

The most plausible reason that Ikegami’s (2002) results ran counter to the current hypothesis is that all of her participants were Japanese. Substantial research has shown that people in a collectivist culture (such as Japanese) are different from people in an individualist culture (such as North Americans) in many fundamental ways, including how they view themselves (Markus & Kitayama, 1991). Indeed, Heine and his colleagues (Heine, Lehman, Markus, & Kitayama, 1999) have argued that, unlike the North American society, the Japanese culture is characterized by self-criticism rather than a motivation to maintain a positive self-image. In addition, because collectivists derive their self-worth from their interpersonal relationships (Markus & Kitayama, 1991), a self-esteem threat may trigger the goal to enhance one’s social relationships and to perceive others in a more positive light among collectivists. It is not necessarily surprising then, that the Japanese participants in Ikegami’s study did not use a strategy common in North America – disparaging another person – in order to enhance their own self-esteem. Because of this important difference in participant population, it is not appropriate to compare Ikegami’s findings to the current hypothesis.
Recap and overview of studies

To recapitulate, the current research examined the effect of self-referent versus non-self-referent moods on information processing and self-esteem maintenance. It was hypothesized that when mood is non-self-referent, a positive mood reduces the need to process information carefully, compared to a negative mood. However, when the self is implicated by one’s mood, a negative mood leads to the motivation to engage in self-enhancement.

This hypothesis was tested in four studies. Studies 1 and 2 focused on stereotyping as a dependent variable. First, Study 1 examined the effect of self-referent versus non-self-referent mood primes on stereotyping in a single study, employing the same stereotyping measure (the SEB) that was used in Chartrand et al. (in press) and Chartrand et al. (2006). Study 2 attempted to replicate the effect with several methodological improvements, including the use of an improved self-referent manipulation and a dependent measure that allowed for an examination of both stereotyping and active derogation of an elderly target. Study 3 extended the findings to a different dependent measure involving judgment of another university that, while it did not involve stereotyping, was equally sensitive to both information processing and self-enhancement effects. Finally, Study 4 examined the notion that different self-enhancement strategies could substitute for one another (Tesser, 2000; Tesser et al., 2000; Tesser et al., 1996) by employing a different dependent measure that assessed the degree to which one engages in self-serving biases, which is another self-enhancement mechanism (Dunning, Leuenberger, & Sherman, 1995). Because previous research has
found that self-enhancement is most likely when individuals are not aware of the origin of their negative self-referent mood (Chartrand et al., 2006), the present studies ensured that participants would not be able to identify the source of their mood by employing subliminal mood induction procedures.

This research contributes to the literature on mood and stereotyping by demonstrating that the effect of mood on stereotyping depends on whether the mood refers to the self or not. Further, it extends the AIM by introducing a specific case in which mood may induce motivation, overriding the information processing effects of mood.

Previous research on subliminal priming of mood has focused solely on stimuli that varied in valence (i.e., positive vs. negative). Thus, the current research also contributes to the literature on affective priming by showing that more complex moods varying in self-reference can be induced at a nonconscious level.
In a study on affective priming, Chartrand et al. (in press) found that subliminal primes of positive, negative, or neutral words affected participants’ mood state, which in turn influenced participants’ information processing style. Specifically, participants who had been primed with negative words were in a worse mood, and were less likely to engage in stereotyping than those primed with neutral or positive words. This finding supports the feelings-as-information model (Schwarz, 1990), which posits that our mood state informs us about the environment, which in turn influences the way we process information. Thus, a negative mood signifies that something is amiss in the environment, and promotes more effortful, systematic information processing strategies, which is associated with less stereotyping of others. On the other hand, a positive mood indicates that the environment is safe, and fosters the use of less careful, heuristic information processing strategies – hence the reliance on stereotypes to make judgments.

Stereotyping can also be used as a way to restore one’s threatened self-esteem (Fein & Spencer, 1997). Chartrand et al. (2006) found that participants who failed at a nonconscious goal were more likely to use stereotyping as a strategy to enhance one’s threatened ego. However, Chartrand and Kay (2006) had found that failure at
nonconscious goal pursuit leads to a negative mood. Taken together, these two sets of studies would suggest that being in a negative mood results in an increase in stereotyping – contrary to the predictions afforded by the feelings-as-information model and the findings by Chartrand et al. (in press).

Examining these two lines of research more closely, a plausible explanation for the contradictory findings may lie in whether or not the self is implicated in one’s mood. In Chartrand et al. (in press), participants’ mood was caused by a relatively external, non-self-referent source (e.g., being primed with the word “music” or “war”); thus, the stereotyping effects can be explained by the differing information strategies used as a result of the mood-imparted information about the environment. On the other hand, failure at nonconscious goal pursuit represents an internal, self-referent source of negative mood; thus, the stereotyping effects found in Chartrand et al. (2006) is due to a motivation to self-enhance. In other words, when mood is non-self-referent, it affects our information processing strategies. However, when mood (particularly a negative mood) is self-referent, it activates a motivational process to enhance one’s self-image. The two processes then lead to opposite predictions for stereotyping.

The goal of Study 1 was to reconcile the contradictory findings of Chartrand et al. (in press) and Chartrand et al. (2006) by examining the effect of self-referent versus non-self-referent moods on stereotyping in a single study. In line with Chartrand et al.’s (in press) findings, it was predicted that the stereotyping effects for participants exposed to non-self-referent primes should follow the feelings-as-information model (Schwarz, 1990), such that those primed with positive words and are therefore in a good mood
should be more likely to engage in heuristic information processing – and more inclined to engage in stereotyping – than those primed with negative words. However, this pattern of results was expected to reverse for participants primed with self-referent adjectives: The negative self-referent primes (e.g., worthless, insecure) serve as a self-esteem threat, akin to failing at a nonconscious goal (Chartrand et al., 2006), and should activate the motivation to restore one’s self-esteem by engaging in more stereotyping (Fein & Spencer, 1997), compared to those primed with positive self-referent adjectives.

**Method**

To test these predictions, a list of adjectives was first pretested on the dimensions of self-reference, negativity, positivity, and frequency or commonness. Based on the results of pretesting, adjectives were selected that fit into one of the following four categories: negative non-self-referent, positive non-self-referent, negative self-referent, positive self-referent. In other words, the stimulus words varied in valence and self-reference. Participants were subliminally primed with words from one of these categories, and then completed a stereotyping measure.

**Design**

Study 1 had a 2 (Prime Valence: Positive vs. Negative) x 2 (Self-Reference: Self-Referent vs. Non-Self-Referent) between-subjects factorial design.

**Pretesting**

A pretest was conducted prior to Study 1 in order to select stimulus words for the study. A separate group of participants took part in the pretest which was appended to the end of an unrelated experiment. A list of 108 adjectives was taken from an English
dictionary and participants were asked to rate each adjective on a 7-point scale \(1 = \text{not at all}; \ 7 = \text{extremely}\) along four dimensions: self-relevance, negativity, positivity, and frequency or commonness. The pretesting instructions are presented in Appendix A. As can be seen, instructions for the self-relevance ratings were carefully worded to emphasize that participants should not rate the extent to which each adjective described themselves, but rather, the extent to which each can be referred to the self.

Based on the pretesting data, six adjectives for each of the four conditions were chosen, matched on the four dimensions outlined above. Sample items include infested (negative, non-self-referent), delicious (positive, non-self-referent), worthless (negative, self-referent), and secure (positive, self-referent). A full list of the selected words and their ratings are presented in Appendix B.

**Participants**

Participants in Study 1 were 134 introductory psychology students (69 female, 65 male, mean age = 18.9 years) who enrolled in the experiment for partial course credit. Participants were randomly assigned to one of the four experimental conditions.

**Apparatus and Materials**

*Subliminal priming task.* The subliminal priming task was administered on a PC computer. Participants were told that it was a visual acuity task, designed to examine how quickly and accurately they were able to judge the location of stimuli that would appear on the computer screen. At the beginning of each trial, an asterisk appeared at the center of the computer screen for anywhere between 2 and 7 s (as randomly determined by the computer). Because it was impossible to predict when and where the next
stimulus would appear, participants were instructed to focus their gaze on the asterisks at all times. Thus, the asterisks fell in the center of the participant’s visual field. Following the asterisks, a stimulus word was presented in the parafoveal region of the participant’s visual field in one of the four quadrants of the computer screen, at angles of 45º, 135º, 225º, and 315º from the center of the screen. The stimulus words were presented for 60 ms, which is too quick for conscious perception in the parafoveal visual field (Bargh & Chartrand, 2000). Each subliminally presented stimulus word was immediately followed, in the same location, by a backward mask consisting of a string of random letters for 60 ms, which served to erase the stimulus word from iconic memory. The stimulus word primed for any given trial and its presentation location were randomly determined by the computer. Participants’ task was to indicate whether each stimulus (which they perceive as a “flash”) appeared on the left or the right side of the screen, as quickly and accurately as possible. The entire subliminal priming task consisted of 8 practice trials and 72 experimental trials (with each stimulus word presented 12 times), and took approximately 6 min to complete.

Stereotyping task. As an initial test of the experimental hypotheses, the same stereotyping measure used in Chartrand et al. (in press) and Chartrand et al. (2006) – the Stereotypic Explanatory Bias (SEB) measure developed by von Hippel and his colleagues (von Hippel et al., 1997) – was used in Study 1. The SEB was administered on the computer and contained a series of sentence stems which participants were asked to complete in any way they wished. Each sentence stem described either a male or a female engaging in a behavior of some kind. Six of these sentence stems were consistent
with gender stereotypes (e.g., “Rich studied the engineering manual...”) and six were stereotypically inconsistent (e.g., “Lisa went to the auto show...”). Ten additional “filler” sentence stems were included and were neutral with respect to gender stereotypes, yielding a total of 22 sentence stems (see Appendix C for the complete measure).

The sentence stems appeared on the screen in a random order. In order to counterbalance the stereotype-consistent and stereotype-inconsistent behaviors, two versions of the SEB were used. Thus, one version of the SEB contains the stereotype-consistent stem “Rich studied the engineering manual...,” while in the other version, the same behavior is performed by a female and is therefore stereotype-inconsistent, as in “Lisa studied the engineering manual...” Participants were randomly assigned to receive one of the two versions of the SEB, and the two versions did not yield different results.

The logic underlying the SEB is based on Hastie’s (1984) work, which found that behaviors inconsistent with one’s expectations are more likely to elicit explanations than behaviors that are consistent with expectations. Providing a justification for an incongruent behavior allows one to make sense of the behavior and to maintain those expectancies. Applied to the domain of gender role stereotyping, one is more likely to explain a behavior that is inconsistent with how one expects a female or a male to act (e.g., “Lisa went to the auto show...because her boyfriend dragged her there”) than in the case where the target behaves in a manner that is consistent with those expectancies (e.g., “Rich studied the engineering manual...thoroughly”). By explaining away a stereotype-inconsistent behavior, the behavior is no longer incongruent to one’s beliefs, and this eliminates the need to revise one’s original stereotypes in the face of stereotype-
defying information. Thus, in the SEB, the extent to which a respondent engages in stereotyping is assessed by the probability that he/she completes a stereotype-inconsistent behavior with an explanation, compared to the probability that he/she provides an explanation for a stereotype-consistent behavior.

Procedure

An experimenter greeted participants in a designated waiting area and brought them into the laboratory in groups of up to six. Participants were then seated at individual computers and told that the experiment consisted of two unrelated studies combined for time purposes. They were randomly assigned to one of the four prime conditions, and proceeded to complete the subliminal priming task and the SEB, followed by a demographics questionnaire and a funneled debriefing questionnaire, designed to probe for suspicion of the experimental hypothesis. Finally, participants were fully debriefed and thanked for their participation.

Results

SEB scoring

Two independent coders who were blind to participants’ condition and the experimental hypothesis coded participants’ written responses in the SEB. The coders classified each sentence completion as either an explanation or not. The coders were instructed to count a sentence completion as an explanation if the participant explained the event depicted in the sentence stem. For example, a participant who completed “Tom bottle-fed the baby” with “because its mother was out shopping” was clearly providing an explanation for the target’s behavior; hence, this sentence completion would be coded
as an explanation. While the use of the word “because” typically signified an explanation, coders were instructed to include explanations that did not begin with the word “because” as well. For example, even though the word “because” was not used, “Tom bottle-fed the baby so the baby’s mother could take a nap” was also coded as an explanation because the sentence completion provided a reason why the target person engaged in the said behavior. On the other hand, a sentence completion such as “Tom bottle-fed the baby three times a day” was coded as a non-explanation. The interjudge reliability was $r = .64, p < .01$. Discrepancies were resolved by a third judge blind to participants’ condition.

A stereotyping index was computed by subtracting the number of explanations for stereotype-consistent stems from the number of explanations for stereotype-inconsistent stems (von Hippel et al., 1997). Thus, a positive score indicates that the participant was more likely to explain stereotype-inconsistent than stereotype-consistent behaviors, thus reflecting stereotyping. A negative score would indicate that more explanations were given for stereotype-consistent stems than stereotype-inconsistent stems, which would suggest a form of counter-stereotyping. A score of zero indicates no stereotyping.

**Main analyses**

A 2 (Prime Valence: Positive vs. Negative) x 2 (Self-Reference: Self-Referent vs. Non-Self-Referent) Analysis of Variance (ANOVA) was conducted on the stereotyping scores. Results yielded no significant main effects, but as predicted, a significant Prime Valence x Self-Reference interaction was found, $F(1,130) = 7.41, p < .01$. This interaction is depicted in Figure 2.1. Simple main effect analyses revealed a marginally
significant difference between participants in the two non-self-referent conditions; participants in the positive non-self-referent condition had a higher stereotyping score ($M = .15$) than those in the negative non-self-referent condition ($M = -.40$), $F(1,130) = 3.24$, $p = .07$. A significant difference between the two self-referent conditions was also found, such that participants who had been primed with negative self-referent adjectives were more likely to engage in stereotyping ($M = .15$) compared to those primed with positive self-referent adjectives ($M = -.49$), $F(1,130) = 4.19$, $p = .04$.

T-tests were conducted to examine whether or not each cell mean was significantly different from zero. These analyses showed that the difference between the mean stereotyping score for the negative non-self-referent condition ($M = -.40$) and zero was marginally significant, $t(130) = -1.88$, $p = .06$. In addition, the mean stereotyping score for the positive self-referent condition ($M = -.49$) was significantly different from zero, $t(130) = 2.20$, $p = .03$. In these conditions, participants were responding counter-stereotypically. However, the mean stereotyping scores for the negative self-referent and the positive non-self-referent conditions (both $M$s = .15) – the two conditions under which stereotyping was thought to occur – were not significantly different from zero, $t(130) = .69$, $p = .49$.

Additional analyses were conducted to examine whether there was a difference between outgroup stereotyping and ingroup stereotyping. For outgroup stereotyping, female participants’ responses to male targets on the SEB and male participants’ responses to female targets on the SEB were combined and subjected to a 2 (Prime Valence: Positive vs. Negative) x 2 (Self-Reference: Self-Referent vs. Non-Self-
Referent) ANOVA. This analysis revealed a significant Prime Valence x Self-Reference interaction, $F(1,130) = 4.45, p < .04$, with mean stereotyping scores following the same pattern as the overall Prime Valence x Self-Reference interaction above. For ingroup stereotyping, a 2 (Prime Valence: Positive vs. Negative) x 2 (Self-Reference: Self-Referent vs. Non-Self-Referent) ANOVA was conducted on participants’ responses to same-sex targets on the SEB. Results indicated a marginally significant Prime Valence x Self-Reference interaction, $F(1,130) = 2.86, p = .09$, again, in the same pattern as the overall interaction. Thus, the pattern of stereotyping scores on the SEB for outgroup and ingroup members was similar.

Participant sex was not found to moderate any of the Prime Valence x Self-Reference interactions.

Discussion

According to the feelings-as-information model (Schwarz, 1990), our mood serves as a signifier of what goes on in our external environment. A positive mood indicates that the environment is safe and reduces the need to engage in careful, systematic information processing, thus increasing the likelihood that one would rely on stereotypes to make judgments, compared to being in a negative mood. In Study 1, the non-self-referent primes used (e.g., delicious, sunny, infested, defective) were indicative of good or bad things in the environment. Consistent with the feelings-as-information model, Study 1 found that the level of stereotyping on the SEB measure was higher following positive non-self-referent primes than negative non-self-referent primes.
For the self-referent mood prime conditions, however, the opposite pattern of results was expected. According to Fein and Spencer (1997), a self-esteem threat can activate the motivation to stereotype others as a way to restore one’s self-esteem. In this study, the negative self-referent primes (e.g., worthless, insecure) consisted of adjectives that were threatening to the self, and the results indeed found that participants who had been primed with negative self-referent adjectives had higher SEB stereotyping scores than those who had been primed with positive self-referent adjectives.

However, while the results from Study 1 followed the predicted pattern, participants in the two key conditions in which stereotyping was expected – the positive non-self-referent and the negative self-referent conditions – did not actually evidence stereotyping, as the mean SEB stereotyping scores in those conditions were not significantly different from zero. In fact, it appears that counter-stereotyping was taking place in the negative non-self-referent and the positive self-referent conditions, as their mean stereotyping scores were significantly less than zero. Although it was expected and found that participants in these two conditions would stereotype less than in the positive non-self-referent and the negative self-referent conditions, it had not been predicted that they would engage in counter-stereotyping. It appears that the overall average stereotyping score in this sample was in the negative direction ($M = -.15$), indicating some degree of counter-stereotyping (although the overall mean was not significantly different from zero or any of the four prime conditions, $ps > .12$); however, without a control group, it was not possible to determine what the baseline level of stereotyping is
for this population and how the mood prime conditions might compare to the neutral baseline.

Also with respect to stereotyping, Fein and Spencer’s (1997; Spencer et al., 1998) results, which showed that people were more likely to stereotype as a result of self-esteem threat, were based on stereotyping of outgroup members. In Study 1, both outgroup and ingroup stereotyping was evident. There are several possible explanations for the ingroup stereotyping. First, it is worth noting that gender does not constitute a minority group in the same sense as do gay men and Asian Americans (two of the groups in Fein and Spencer’s studies); thus, the current findings are not necessarily inconsistent with Fein and Spencer’s account. Research suggests that people view gender out-subgroups (a subcategory of the one’s same gender that one does not belong to, as in businesswoman vs. homemaker) more negatively than not only gender in-subgroups, but even gender outgroups (Vonk & Olde-Monnikhof, 1998). This type of ingroup derogation may be particularly prominent if the individual disapproves of the gender out-subgroup, as research has found that ingroup derogation can occur to distance oneself from an unfavorable ingroup member as a way to protect one’s image (Eidelman & Biernat, 2003). Thus, the ingroup stereotyping found in the current study may have partially been due to stereotyping of unfavorable ingroup members or of gender out-subgroups.

Recall, also, that the stereotyping score for the SEB was based on the extent to which participants rationalized the stereotype-inconsistent behaviors, compared to the stereotype-consistent behaviors. Another plausible explanation for the “ingroup
stereotyping” found in the current study is that when an ingroup member engages in a behavior that might threaten the image of the group, participants may become motivated to defend their group image – in this case, by justifying the target’s behavior. For example, a male participant who reads that “Marvin let the waiter ignore him for fifteen minutes” may become motivated to defend Marvin as well as the male image by providing a rationale for Marvin’s seemingly anti-masculine behavior. In other words, some of the explanations that participants gave on the SEB may not have reflected stereotyping, but rather, defending of one’s group-esteem. Regardless of whether it is stereotyping or protection of the ingroup image, the justifications participants gave for stereotype-inconsistent behaviors were still motivated by an underlying need to restore a threatened ego. Thus, this explanation for the ingroup stereotyping found in Study 1 does not contradict the study’s hypothesis. However, the SEB was not designed to test the motivational bases for stereotyping; thus, it may not be the best dependent measure to use for the purpose of the current research, particularly as a way to examine the effect on stereotyping following self-referent mood primes.

Thus, although the original rationale for using the SEB as the dependent measure in Study 1 was to allow for a direct follow-up to the Chartrand et al. (in press) and the Chartrand et al. (2006) studies, a different stereotyping measure that involves an outgroup target is needed to eliminate some of the uncertainties raised by the current findings.

Another limitation of Study 1 was that the self-referent prime words used in this study may not have been construed by participants as self-referent. There is evidence suggesting that trait adjectives can be automatically interpreted as either self-relevant or
other-relevant (Wentura, Rothermund, & Bak, 2000); thus, it is possible that some
participants may have construed the self-referent primes in this study as referring to other
people rather than themselves. A cleaner manipulation of self-reference is needed to
circumvent this problem.

In sum, while Study 1’s results were consistent with predictions, various problems
associated with the independent variable and particularly the dependent measure made it
difficult to fully understand the findings. Thus, Study 2 sought to re-examine the
hypotheses with several improvements to the design and methodology.
Figure 2.1. Mean stereotyping score as a function of Prime Valence and Self-Reference Condition
CHAPTER 3

STUDY 2

The current research aimed to examine the role of the self in the effect of mood on information processing and self-enhancement. Study 1 had sought to reconcile the contradictory findings in the literature on mood and stereotyping by testing the idea that the effect of mood on stereotyping depended on whether the mood primes were self-referent or non-self-referent. Study 1 demonstrated that participants who were exposed to positive non-self-referent mood primes (e.g., delicious, sunny) were more likely to engage in stereotyping than those who were primed with negative non-self-referent words (e.g., infested, rotten), consistent with Chartrand et al. (in press) and an information-processing explanation for stereotyping. According to this view proposed by Schwarz (1990), our mood informs us about our current situation. A positive mood suggests that the environment is safe, thereby reducing the need to engage in analytical processing. This increases the tendency to stereotype, compared to the case where one is in a negative mood, because a negative mood suggests that the environment is unsafe and calls for careful information processing, reducing the likelihood that cognitive heuristics such as stereotypes are used. Study 1 also found that when the mood primes were self-referent, stereotyping followed the opposite pattern: participants primed with negative self-referent
words (e.g., insecure, helpless) were more likely to engage in stereotyping than those primed with positive self-referent words (e.g., secure, worthy). This finding was consistent with Chartrand et al. (2006), and the notion that people engage in stereotyping in order to enhance one’s self-esteem when it is threatened (Fein & Spencer, 1997).

However, Study 1 had several limitations, including the lack of a control group, potential questions about whether or not participants responded to the self-referent mood primes as intended, and problems interpreting the results based on the SEB (von Hippel et al., 1997) that was used as the dependent measure. Study 2 sought to address these issues with three methodological modifications: First, in order to ensure that participants interpret the self-referent primes as self-referent, and the non-self-referent primes as non-self-referent, a new manipulation adapted from Jones, Pelham, Carvallo, and Mirenberg (2004) was used. This manipulation entails either pairing participants’ names or the word “they” with the positive or negative self-referent adjectives used in Study 1. Secondly, a control group was added that exposed participants to two consecutive neutral word primes. Finally, Study 2 employed a different stereotyping measure that involved an outgroup target (an elderly individual).

It was predicted that participants who paired positive adjectives with a non-self-referent source (“they”) would be more likely to rely on stereotypes to make judgments about the elderly target, compared to those in the negative non-self-referent condition. By contrast, participants in the self-reference conditions should show the opposite pattern: compared to those who paired positive words with their names, those who paired negative words with their names should be more likely to stereotype and derogate the
elderly individual. Stereotyping among control participants should fall in between the other four conditions.

Method

Design

Study 2 had a 2 (Prime Valence: Positive vs. Negative) x 2 (Self-Reference: Self-Referent vs. Non-Self-Referent) between-subjects factorial design, plus a dangling control group.

Participants

Participants were 218 introductory psychology students (113 female, 105 male) who took part in the experiment in exchange for partial course credit. One male participant did not complete the critical dependent measure, leaving a final sample of 217 participants. Participants were randomly assigned to one of the five conditions.

Apparatus and materials

Subliminal conditioning paradigm. The subliminal conditioning paradigm was adapted from Jones et al. (2004) and was administered on a PC computer. Participants were subliminally conditioned to pair positive words (e.g., secure, worthy) or negative words (e.g., insecure, helpless) either with their own names (self-referent) or with the word “they” (non-self-referent). The words used in this study were taken from the list of self-referent words used in Study 1.

Before participants arrived in the laboratory, the experimenter entered the participants’ first names into the computer program. After participants arrived, they were assigned to the appropriate seat and were told that the first task examined how quickly
people could process written information. They were told that they would see a string of random letters in the center of the screen (e.g., “RTAOG”) and their task was to indicate, as quickly and as accurately as possible, whether the letter string started with a vowel (by pressing the letter “v”) or a consonant (by pressing the letter “c”). Participants then completed the conditioning paradigm, which consisted of 10 practice trials and 60 additional trials. During each trial, a string of asterisks appeared in the center of the screen for one second to focus participants’ attention. Then, either the participant’s name or the word “they” appeared in the same location for 13 ms, immediately followed by a prime word (either positive or negative) for 13 ms, and then a letter string. Both of these primes were presented at the subliminal level (Bargh & Chartrand, 2000). The letter string remained on the screen until participants made a response. A fifth group of participants, serving as the control group, received two consecutive neutral word primes (e.g., sidewalk, building).

Stereotyping task. The stereotyping measure in Study 2 was adapted from Pierce (2002). Participants were asked to read 17 excerpts of a purported internet chat log between a 73-year-old woman, Joan, and another person denoted as “A.” Two of the excerpts contained information implying the trait of absent-mindedness, and another two were consistent with having strong family values, both common stereotypes of the elderly. The remaining 13 items were individuating (i.e., stereotype-irrelevant) information about Joan (see Appendix D for the entire measure). One absent-minded excerpt and one family value excerpt (randomly chosen) were presented first in the sequence, in a randomized order, with the other absent-minded excerpt and family value
excerpt presented at the end. The 13 individuating excerpts were always presented in the middle of the sequence and were ordered randomly. Participants were then told to write a short essay describing a typical day in Joan’s life. The number of times participants mentioned behaviors pertaining to absent-mindedness and having strong family values in their essays was coded as a measure of stereotyping.

Procedure

Before participants arrived, an experimenter entered the first names of each participant into the computer program for the subliminal conditioning task. In order to keep the experimenter blind to participants’ conditions, the experimenter had to enter all participants’ names, even though the names would only be used in the subliminal conditioning paradigm for participants assigned to the self-referent conditions. After entering participants’ names, the experimenter pressed a button to exit the name-entering screen on the computer, ensuring that participants would be unaware that their names had been entered into the program.

The experimenter then brought participants into the laboratory in groups of up to four, and seated them at the appropriate pre-assigned computers. Participants were told that the experiment consisted of two unrelated experiments put together for time purposes. Participants were randomly assigned to one of the five conditions, and proceeded to complete the subliminal conditioning manipulation and the elderly stereotyping measure, followed by a demographics questionnaire and a funneled debriefing questionnaire, designed to probe for suspicion of the experimental hypothesis. Finally, participants were fully debriefed and thanked for their participation.
Results

Two independent judges blind to the participants’ condition and the experimental hypotheses coded the essays for the number of times the absent-mindedness and family values stereotypes were mentioned. The judges were instructed to include as evidence of stereotyping any statements participants made suggesting that the elderly target was absent-minded or had strong family values. Thus, this included specific, stereotypic behaviors or descriptions of the elderly target that were part of the chat excerpts, (e.g., “She went to a friend’s housewarming party but halfway there forgot the directions”), behaviors that participants generated themselves based on the two critical stereotypes implied by the chat excerpts (e.g., “She probably calls her grandchildren and children to see what is going on with them,” which was derived from the family values stereotype), and general statements about the elderly target’s traits that were stereotypical (e.g., “She is very forgetful”). The interrater reliabilities were \( r = .78, p < .01 \), for the absent-mindedness stereotype, and \( r = .76, p < .01 \), for the family values stereotype. Discrepancies were resolved by a third judge.

Participant sex did not moderate any of the analyses below, and will not be discussed further.

Absent-mindedness stereotype

First a 2 (Prime Valence: Positive vs. Negative) x 2 (Self-Reference: Self-Referent vs. Non-Self-Referent) Analysis of Variance (ANOVA) was conducted on the number of references to absent-mindedness mentioned in participants’ essays in order to examine the results for the four factorial conditions. Results yielded only a significant
main effect for Self-Reference, such that participants in the self-referent conditions were more likely to describe the elderly target as being absent-minded ($M = .173$) than participants in the non-self-referent conditions ($M = .034$), $F(1,170) = 5.73, p = .02$. The Prime Valence main effect was not statistically significant, $p > .12$, nor was the predicted Prime Valence x Self-Reference interaction, $p > .25$.

Then, to take into consideration the dangling control group, planned contrasts between the control group and each of the four experimental groups were conducted. The only contrast that was statistically significant was between the control group ($M = .045$) and the positive self-referent condition ($M = .250$), $t(213) = 2.71, p = .007$.

One major problem with this dependent variable surfaced after the coding was completed: a floor effect was evident, such that only 6.9% of the participants mentioned the absent-mindedness stereotype in their essays, rendering the results for this dependent measure somewhat unreliable.

*Family values stereotype*

A 2 (Prime Valence: Positive vs. Negative) x 2 (Self-Reference: Self-Referent vs. Non-Self-Referent) ANOVA was conducted on the number of statements in participants’ essays indicative of the family values stereotype. Results only indicated a marginally significant main effect for Prime Valence; participants primed with positive adjectives were more likely to stereotype ($M = .568$) than participants in the negative condition ($M = .384$), $F(1,170) = 3.02, p = .08$. Further analysis revealed that among participants in the non-self-referent conditions, those who had been primed with positive adjectives were significantly more likely to stereotype ($M = .68$) than those primed with negative
adjectives ($M = .36$), $F(1, 170) = 4.58$, $p = .03$, which confirmed the predictions. However, for the self-referent conditions, the positive and the negative conditions did not differ significantly from each other, $p > .74$. Neither the Self-Reference main effect nor the predicted Prime Valence x Self-Reference interaction was significant, $ps > .20$.

Once again, planned contrasts were conducted between the control condition and each of the four experimental conditions. None of the planned contrasts emerged significant, $ps > .22$.

A potential floor effect was also evident for the family values stereotype, although a much higher percentage of participants (38.5%) mentioned this stereotype than the absent-mindedness stereotype in their essays.

**Global essay rating**

Two independent judges blind to participants’ condition rated each essay based on a global impression of how positive or negative the elderly target was depicted in the essay. A 7-point scale was used for the rating, with 1 being very negative and 7 being very positive. This rating was employed for two reasons: First, it provided additional information about the participants’ impressions of the elderly target that may not have emerged due to the floor effects on the stereotype coding mentioned above. Secondly, this rating assessed the degree to which participants derogated the elderly target, independent of the use of specific stereotypes.

First, a 2 (Prime Valence: Positive vs. Negative) x 2 (Self-Reference: Self-Referent vs. Non-Self-Referent) ANOVA was conducted on the global essay rating. This analysis revealed a marginally significant main effect for Self-Reference, $F(1, 170) =$
3.51, \( p = .06 \), such that non-self-referent participants wrote a more positive description of the elderly target \((M = 4.10)\) than self-referent participants \((M = 3.87)\). This main effect was qualified by a Prime Valence x Self-Reference interaction, \(F(1,170) = 5.85, p = .02\). Simple main effect analyses showed that among participants in the non-self-referent conditions, no significant difference was found between those primed with positive adjectives \((M = 3.98)\) and those primed with negative adjectives \((M = 4.23)\), \(p > .15\). However, among participants in the self-referent conditions, participants primed with negative adjectives wrote a significantly more negative essay about the elderly target \((M = 3.69)\) than those who had been primed with positive adjectives \((M = 4.05)\), as expected. The main effect for Prime Valence was not significant, \(p > .67\). Figure 3.1 provides a graphical depiction of the results.

Planned contrasts between the control condition and the four experimental conditions revealed a significant difference between the control condition and the negative self-referent condition, \(t(212) = -2.31, p = .02\). The essays written by participants in the negative self-referent condition were rated significantly more negatively \((M = 3.69)\) than those written by control participants \((M = 4.09)\). No other planned contrast was significant, \(ps > .43\).

Discussion

At first glance, the results of Study 2 did not entirely confirm the original hypothesis. However, in retrospect, they are actually consistent with both the feelings-as-information (Schwarz, 1990) and the stereotyping as self-esteem maintenance (Fein & Spencer, 1997) models.
First, with respect to the family values stereotype, participants in the non-self-referent conditions showed exactly what would have been predicted by the feelings-as-information model: Participants who had been primed with positive adjectives were more likely to engage in stereotyping than those who had been primed with negative adjectives. While originally it was hypothesized that this pattern would reverse for participants in the self-referent conditions, it is possible that at least some participants construed the family values stereotype as a positive trait (in fact, one of the family values chat excerpts indicated that the elderly target likes to keep her family in touch with one another, which paints her in a positive light), and thinking positively about another person would not have been an effective strategy to restore a threatened self-esteem. Thus, it is not surprising that no difference in stereotyping was found between the two self-referent conditions.

With respect to the global essay ratings, Study 2 found that participants in the negative self-referent condition were significantly more likely to derogate the elderly target in their essays, compared to those in the positive self-referent condition as well as the control condition. This pattern of results was as predicted based on Fein and Spencer’s (1997) argument that negative thoughts about another person can boost a bruised ego. Participants in the two non-self-referent conditions, however, did not differ significantly in the ratings of their essays. Because the study’s predictions for the two non-self-referent conditions were derived from the feelings-as-information model, which was specific to information processing and stereotyping rather than motivated derogation, it makes sense that derogation did not differ significantly among participants between...
these two groups. Also, the fact that participants in the negative non-self-referent condition did not derogate the elderly target shows that the derogation was not a result of being in a negative mood per se (Schwarz, 1990), but rather, occurred only when the negative mood is self-referent.

The results for the absent-mindedness stereotype – that participants in the self-referent conditions were more likely to stereotype than participants in the non-self-referent conditions – did not confirm the study’s hypothesis. However, as mentioned previously, only 6.9% of participants described the elderly target as absent-minded in their essays, casting serious doubt on the interpretability of these results. This floor effect may have occurred because participants did not construe the two absent-minded behaviors described in the chat excerpts (forgetting the directions to a party and realizing midway through a TV show that she had seen it before) to be particularly indicative of an elderly stereotype. A few participants who had mentioned the elderly target’s absent-minded behaviors in their essays also wrote that these were fairly normal occurrences that anyone could experience. In addition, a separate group of 23 introductory psychology participants read the chat excerpts and rated, on a 7-point scale, the extent to which the elderly target was absent-minded and had strong family values. The mean rating for absent-mindedness was only 2.91, compared to 5.04 for the family values rating. This suggests that the chat excerpts may have simply failed to present the elderly target as being absent-minded, and also that the floor effect was likely not due to a problem with the coding scheme. It is also possible that participants did not come to view the elderly target as having any cognitive deficits commonly associated with absent-mindedness.
among the elderly, because the fact that the elderly target engages in online chatting suggests that she is technologically savvy and clearly of a sound mind. In fact, these traits are counter-stereotypical of the elderly. Thus, in hindsight, the absent-mindedness stereotype may not have been the best stereotype to use in this study.

Overall, Study 2 replicated and extended the findings in Study 1 with an improved self-reference manipulation that paired participants’ own names with positive or negative self-referent adjectives. This ensured that participants in fact processed the adjectives as referring to themselves. In addition, the inclusion of a control group allowed for a comparison between the four experimental groups and a neutral baseline. Finally, the use of a stereotyping measure that involves an outgroup target clarified some of the uncertainties associated with interpreting the SEB in Study 1. More importantly, the stereotyping measure used in Study 2 allowed for a distinction between a cognitive account of stereotyping as a result of positive versus negative non-self-referent mood primes, and a motivational account of an active derogation process that took place among participants who had their self-esteem threatened by the negative self-referent mood primes.

The goal of this research was to examine how information processing and self-esteem enhancement are affected by self-referent versus non-self-referent mood. Studies 1 and 2 examined the special case of stereotyping, which can be a consequence of both information processing and self-enhancement. However, it is important to extend the current findings beyond stereotyping. Thus, Study 3 aimed to replicate Studies 1 and 2
with a dependent measure that did not entail stereotyping, but yet assessed both
information processing strategies and self-enhancement.
Figure 3.1. Global ratings of participants’ essays
STUDY 3

The current research attempts to distinguish self-referent versus non-self-referent mood primes by examining their consequences. In Study 1, participants were presented with subliminal mood primes that varied in valence and degree of self-reference. It was found that participants who had been primed with positive non-self-referent words (e.g., delicious, sunny) were more likely to stereotype than participants primed with negative non-self-referent words (e.g., infested, rotten). This finding can be explained by the feelings-as-information model (Schwarz, 1990), which posits that our mood state communicates to us the state of our current situation. Thus, a negative mood informs us that our current situation is unsafe, and this leads us to adopt an information processing strategy that is vigilant and systematic. On the other hand, a positive mood suggests that the environment is safe, and this encourages us to process information in a more lax, heuristic manner – and one consequence of heuristic information processing is that it increases stereotyping.

Self-referent mood primes, however, were expected to result in the opposite pattern for stereotyping. According to Fein and Spencer (1997), a self-esteem threat motivates one to engage in stereotyping as a way to restore one’s self-esteem. Study 1
found that negative self-referent mood primes (e.g., insecure, helpless), which were meant to threaten the self-esteem, resulted in more stereotyping than positive self-referent mood primes (e.g., secure, worthy).

Study 2 sought to replicate Study 1 with several improvements to the design and methodology. This included the use of a subliminal conditioning paradigm as the self-reference manipulation to ensure that participants construed the self-referent and non-self-referent primes as intended, as well as employing a different stereotyping measure that involved an outgroup target, and adding a control group to the design to allow for a test of each prime condition against a neutral baseline. Replicating the findings of Study 1, Study 2 found that in the non-self-referent conditions, participants who had been primed with positive mood primes were more likely to stereotype than those primed with negative mood primes. In addition, participants in the non-self-referent condition did not differ in the degree to which they derogated the outgroup target. By contrast, participants in the positive and negative self-referent conditions did not show differences in stereotyping, but as expected, participants in the negative self-referent condition were more likely to derogate the outgroup target than participants in the positive self-referent condition as well as the control condition. In other words, Study 2 was successful in distinguishing between cognitive stereotyping and motivated derogation using the same dependent measure.

Study 3 employs the same subliminal conditioning manipulation used in Study 2. However, Study 3 aims to extend the findings of Studies 1 and 2 by moving away from stereotyping, and instead, using a different dependent measure that is sensitive to both
information processing and self-enhancement strategies. Specifically, a situation was carefully created such that, as in Studies 1 and 2, the information-processing model and the motivated self-enhancement account would give rise to opposite predictions. In the current paradigm, participants were told that the purpose of the study was to compare different universities. They were then given nine pieces of information about another university (which represented an outgroup), three of which were strong arguments on the merits of the university, and the remaining six were weak arguments on the negative features of the university, and participants’ attitude for the target university was assessed. The idea behind this design was derived from the literature on attitudes and persuasion. According to the elaboration likelihood model (Petty & Cacioppo, 1986), one’s motivation and ability to process information carefully and analytically determine the kind of persuasive attempt that would be most effective. An individual who engages in elaborative information processing would carefully scrutinize the information given, and is thus most persuaded by strong arguments. Conversely, an individual who does not process information effortfully would be more easily persuaded by simple peripheral cues, such as the mere number of arguments presented, regardless of the quality of those arguments.

The current dependent measure pits the number of arguments against the strength of those arguments. Participants who process information in a systematic manner should be more persuaded by the three strong positive features than the six weak negative features of the target university, and should therefore judge the target university more favorably, compared to participants who process information heuristically. Applying this
logic to the current manipulation, it was expected that participants in the negative non-self-referent condition should give higher ratings of the target university than participants in the positive non-self-referent condition.

For participants in the self-referent conditions, however, the opposite pattern of results was predicted. Following the logic of Studies 1 and 2, participants whose self-esteem was threatened by the negative self-referent primes should be motivated to focus on the negative features and derogate the target university. Thus, participants in the negative self-referent condition should give lower ratings of the target university than participants in the positive self-referent condition. Once again, ratings of the target university given by participants in the control condition should fall somewhere in between the other four conditions.

Because the dependent measure in the current study is sensitive to information processing strategies, the individual difference measure of need for cognition was included (Cacioppo & Petty, 1982; Cacioppo, Petty, & Kao, 1984). Need for cognition is the extent to which one engages and takes pleasure in the process of thinking. Individuals who are high in need for cognition are chronically motivated to scrutinize information carefully; thus, these individuals are most persuaded by the quality of arguments in a persuasive message. Those low in need for cognition, conversely, do not enjoy thinking, and are more likely to be persuaded by peripheral cues.

For ease of comprehension, the overall prediction, taking need for cognition into account, is depicted in Figure 4.1. Need for cognition was expected to impact participants’ attitude toward the target university only when participants were exposed to
non-self-referent primes. The negative non-self-referent mood primes were expected to further increase the normally elevated need to process information carefully among high need for cognition individuals, as previous research has found that chronic accessibility of a trait and temporary trait priming together have an additive effect (Bargh, Bond, Lombardi, & Tota, 1986). Thus, these participants should be most persuaded by the strong positive arguments and rate the target university the highest. Likewise, low need for cognition participants who were exposed to positive non-self-referent mood primes were expected to give the lowest ratings for the target university, because the primes combined with these participants’ chronic low enjoyment of thinking should lead them to process information even less and be most persuaded by peripheral cues (i.e., the relatively larger number of weak negative features).

For the high need for condition participants in the positive non-self-referent condition, the mood primes were expected to have some effect and reduce the amount of thought they engage in and lower their ratings of the target university, but they were still expected to process information more thoughtfully than participants low in need for cognition in general. Those low in need for cognition and exposed to negative non-self-referent mood primes should engage in relatively more thought than other low need for cognition participants and therefore give relatively higher ratings of the target university, but again, these participants are expected to give lower ratings than high need for cognition participants. In other words, a main effect of need for cognition was predicted for the non-self-referent conditions, such that high need for cognition individuals would rate the target university higher than low need for cognition individuals.
Need for cognition was not expected to have an effect in the self-referent conditions. This is because the predicted effect of negative self-referent mood primes on derogation of the target university is due to a motivation to boost one’s self-esteem, and there is no theoretical reason to believe that participants’ chronic need for cognition would impact the amount of derogation they engage in. In other words, participants exposed to negative self-referent mood primes should be motivated to focus on the negative features of the target university and give it lower ratings than participants exposed to positive self-referent mood primes, regardless of participants’ chronic level of need for cognition.

Thus, the overall pattern of the Prime Valence x Self-Reference interaction, as described previously, was expected to remain the same for both low and high need for cognition individuals. However, it was expected that in the non-self-referent conditions, high need for cognition participants would rate the target university higher than low need for cognition participants.

Method

Design

Study 3 had a 2 (Prime Valence: Positive vs. Negative) x 2 (Self-Reference: Self-Referent vs. Non-Self-Referent) x Need for Cognition mixed factor design, plus a dangling control group.
Participants

Participants were 179 introductory psychology students (111 female, 68 male, mean age = 18.5) at the Ohio State University who received partial course credit for their participation in the experiment.

Apparatus and materials

Subliminal conditioning paradigm. The subliminal conditioning paradigm used in Study 3 was identical to the one used in Study 2, with the exception that participants’ full names (and not just first names) were used as primes to more closely emulate Jones et al’s (2004) procedure.

University comparison task. First, pretesting data were collected from a separate group of 24 participants asking them to rate how they felt about various universities across the US on a scale from -3 (very negative) to +3 (very positive). Based on these data, the University of Rochester (UR) was selected as the target school because it met both selection criteria: the university was perceived as fairly neutral (mean rating = .48, SD = .81), and its ratings had a tight range around the zero point (from -1 to +2). In addition, UR is located outside of Ohio and is not part of the Big Ten conference to which the Ohio State University (OSU) belongs, thus reducing the likelihood that participants would have any reason to perceive UR as part of the ingroup. (All participants in this study were students at OSU.)

During the experimental session, participants were told via instructions on the computer that the study examines how different universities compare to one another and that they would be given some information about one of the universities for which data
Participants were then shown, purportedly, the most frequently mentioned positive and negative features of the University of Rochester (which were actually fabricated for the purpose of this study). The positive features were all very strong (e.g., “University of Rochester students win many prestigious national awards”) and the negative features were all weak (e.g., “The professors at the University of Rochester are not very attractive”). The full instrument can be found in Appendix E. There were nine features in total: three strong-positive and six weak-negative. This was done to purposefully create a situation where individuals engaging in heuristic information processing would simply base their judgment of UR on the peripheral cue that there were many negative features compared to positive features about UR, whereas individuals engaging in systematic information processing would take argument strength into consideration and base their judgment of UR on the strong, positive features, even though they are fewer in number. The three strong-positive and six weak-negative features were presented in a tabular format with the three strong-positive features listed in the left column and the six weak-negative features listed on the right. This was done to visually highlight the peripheral cue that UR had more negative than positive features.

Participants were not given a time limit to read over the information on UR. Post-hoc analyses indicated that participants in the five conditions did not significantly differ from one another in the average amount of time spent reading, $F < 1$. Need for cognition also did not predict the amount of time spent reading, $B = 1665.69$, $t = 1.47$, $p = .14$.

After reading the information on UR, participants were given a questionnaire containing four items, all rated on a 7-point scale ranging from -3 to 3. The first three
items were aimed at probing participants’ general attitude toward UR: “How favorable or unfavorable do you feel about the University of Rochester?” (-3 = very unfavorable, 3 = very favorable); “Would you recommend someone to attend the University of Rochester?” (-3 = definitely no, 3 = definitely yes); and “If you were to choose a college again, and if out-of-state tuition were not an issue, would you consider the University of Rochester?” (-3 = definitely no, 3 = definitely yes). Thus, a higher rating on these three items indicates a more positive attitude toward UR. The fourth question examined how participants would compare UR to OSU: “How do you think the University of Rochester compares to the Ohio State University?” (-3 = UR is much worse than OSU, 0 = UR is about the same as OSU, 3 = UR is much better than OSU). Thus, a positive rating on this item suggests that the participant believes that UR is better than OSU, while a negative rating means that UR is worse than OSU.

Need for cognition scale. The extent to which participants chronically engage in and enjoys thinking was measured using the short form of the need for cognition scale (Cacioppo et al., 1984), administered on the computer in this study. The need for cognition scale contains 18 self-report items and participants are asked to indicate the degree to which each item is characteristic of them on a 5-point scale (labeled, from 1-5, respectively: extremely uncharacteristic, somewhat uncharacteristic, uncertain, somewhat characteristic, and extremely characteristic). Sample items are “I would prefer complex to simple problems,” “I really enjoy a task that involves coming up with new solutions to problems,” and “Thinking is not my idea of fun” (reverse-scored). Participants’ responses to individual scale items are averaged to create an overall need for
cognition score, with a higher score representing higher need for cognition. The full 18-item need for cognition scale is available in Cacioppo et al. (1984).

Procedure

Participants arrived at a designated waiting area and were brought into the laboratory in groups of up to four. The experimenter explained that the study consisted of two unrelated experiments put together for time purposes, and seated participants in individual computer cubicles. Participants were randomly assigned to one of the five conditions. Participants completed the subliminal conditioning paradigm, the university comparison task, and the need for cognition scale, which were followed by a demographics questionnaire and a funneled debriefing (used to probe for suspicion of the experimental hypothesis). Participants were then fully debriefed, thanked for their participation, and dismissed.

Results

Scoring of the university comparison task

First, a general attitude index was created by averaging across participants’ responses to the three items on the questionnaire seeking their general opinions of UR (Cronbach’s alpha = .83). This general attitude index constituted one of the dependent variables. The fourth item on the attitudes questionnaire, which asked participants to compare UR to OSU, was conceptually different from the other three items on the questionnaire and was analyzed separately as a second dependent variable.¹
Main analyses

Hierarchical multiple regression analyses were conducted on each of the dependent variables. In accordance with recommendations by Aiken and West (1991), need for cognition scores were centered at the mean, and the two discrete variables (Prime Valence and Self-Reference) were dummy coded. The general attitude index was then submitted to a Prime Valence x Self-Reference x Need for Cognition hierarchical multiple regression analysis. Contrary to hypothesis, this analysis revealed no significant main effects or interactions, $p > .37$.

The UR-OSU comparison was then submitted to a Prime Valence x Self-Reference x Need for Cognition hierarchical multiple regression analysis. No main effects or two-way interactions were found, $p > .14$, including the predicted Prime Valence x Self-Reference interaction. However, a Prime Valence x Self-Reference x Need for Cognition interaction emerged, $B = 2.22, t = 2.24, p < .03$. This interaction was decomposed at one standard deviation above and below the mean need for cognition score (Aiken & West, 1991), which revealed a marginally significant Prime Valence x Self-Reference interaction, $B = 1.21, t = 1.81, p = .07$ among high need for cognition participants. The Prime Valence x Self-Reference interaction was not significant among low need for cognition participants, although there was a trend in the opposite direction, $B = -1.15, t = -1.58, p = .117$. Figure 4.2 depicts the results from this analysis.

Among high need for cognition participants, there was a marginal main effect of Prime Valence in the non-self-referent conditions, $B = -.85, t = -1.62, p = .107$. While overall, participants’ responses were below zero (indicating a preference for OSU vs.
UR), high need for cognition participants in the positive non-self-referent condition had a relatively lower preference for UR than participants in the negative non-self-referent condition, as predicted. In addition, among participants high in need for cognition, there was a marginally significant main effect of Self-Reference in the negative prime conditions, $B = -.79, t = -1.65, p = .10$. As predicted, high need for cognition participants who had been exposed to the negative self-referent mood primes were more likely to derogate UR by giving it a lower rating, compared to participants primed with negative non-self-referent primes. There was no effect of Prime Valence in the self-referent conditions, nor was the effect of self-reference in the positive prime conditions significant among the high need for cognition participants, $ps > .36$.

As can be seen in Figure 4.2, the Prime Valence x Self-Reference interaction was trending in the opposite direction among participants low in need for cognition. This pattern was primarily driven by a significant effect of Self-Reference in the negative prime conditions, $B = .89, t = 2.03, p = .04$. Contrary to hypothesis, low need for cognition participants in the negative non-self-referent condition had a relatively lower preference for UR than participants in the negative self-referent condition. This analysis revealed no other significant effects for low need for cognition participants, $ps > .18$.

Looking at the Prime Valence x Self-Reference x Need for Cognition interaction in a different way, it is can be seen that the effects were driven by the negative mood prime conditions: The Self-Reference x Need for Cognition interaction is significant when prime valence is negative, $B = -1.58, t = -2.56, p = .01$, but not when prime valence is positive, $B = -.64, t = -.83, p = .41$. 
To examine the difference between the control condition and the four prime conditions, the five conditions were treated as a single variable and dummy coded with the control condition as the comparison group since the comparisons between the control condition and the four prime conditions were of interest here. Therefore, in the analysis, main effects of condition would be interpreted as a contrast between a prime condition and the control group, as opposed to a pure effect of the specific condition.

The general attitude index was submitted to a Need for Cognition x Contrast hierarchical multiple regression analysis. This analysis yielded a significant main effect of Need for Cognition in the control condition, $B = .73$, $t = 2.16$, $p = .03$, such that participants high in need for cognition gave higher ratings for UR compared to low need for cognition participants. This result is consistent with the idea that high need for cognition individuals based their judgment about UR on the strong positive features, compared to low need for cognition participants who relied on peripheral cues for their judgment.

Also found was a marginally significant main effect for the positive self-referent versus control contrast, $B = -.568$, $t = -1.79$, $p < .08$, such that participants in the control condition rated UR higher than participants in the positive self-referent condition, which was an unexpected finding. However, it should be noted that this contrast was mainly driven by high need for cognition participants, $B = -1.08$, $t = -2.53$, $p = .01$, but not low need for cognition participants, $B = -.08$, $t = -.15$, $p = .88$. Further, the two-way interaction between Need for Cognition and the dummy coding specifying a contrast between the negative self-referent and the control conditions was marginally significant,
$B = -.86$, $t = -1.70$, $p = .09$. Decomposing this interaction at one standard deviation above and below the mean need for cognition score revealed that high need for cognition participants in the negative self-referent condition rated UR significantly lower than control participants, $B = -.884$, $t = -2.02$, $p < .05$, which supported the hypothesis, but this contrast was not significant for low need for cognition participants, $B = .03$, $t = .07$, $p = .95$. In addition, a marginally significant interaction was also found between Need for Cognition and the dummy variable for the positive non-self-referent versus control contrast, $B = -1.11$, $t = -1.67$, $p < .10$. Decomposition revealed that, consistent with hypothesis, high need for cognition participants in the positive non-self-referent condition rated UR lower than control participants, $B = -.93$, $t = -1.92$, $p < .06$. However, this contrast was not significant among low need for cognition participants, $B = .24$, $t = -.51$, $p = .61$. No other main effects or interactions emerged significant, $p > .26$.

In general, it appears that only the high need for cognition participants in the control condition gave ratings of UR that were different from (higher than) the rest of the participants – significantly so, in some conditions. It seems that priming simply reduced participants’ ratings of UR for high need for cognition participants, regardless of the type of prime.

The UR-OSU comparison rating was also submitted to a Need for Cognition x Contrast hierarchical multiple regression analysis. This analysis found no significant main effect or interactions, $p > .15$.³
Discussion

Study 3 found partial support for the experimental hypothesis. Specifically, individuals high in need for cognition showed a pattern that was generally consistent with the predictions. First, high need for cognition participants exposed to negative non-self-referent primes rated UR less negatively against OSU, compared to high need for cognition participants in the positive non-self-referent condition. This is consistent with the notion that the negative non-self-referent mood primes increased high need for cognition participants’ motivation to scrutinize information more carefully, as suggested by the feelings-as-information model (Schwarz, 1990). Moreover, once the negative mood primes became self-referent, the UR-OSU comparison ratings dropped among the high need for cognition participants, confirming the hypothesis that people were motivated to derogate UR when their self-esteem is threatened. However, no significant difference was found between the negative self-referent and the positive self-referent conditions, nor did the UR-OSU comparison rating in the two positive mood prime conditions differ from one another. In fact, for participants both high and low in need for cognition, all the effects that emerged were mainly driven by the negative mood primes.

The apparent lack of any influence of positive mood primes may be understood in terms of the hedonic contingency hypothesis (Wegener & Petty, 1994; Wegener, Petty, & Smith, 1995). The hedonic contingency hypothesis proposes that a positive mood motivates one to maintain his/her happy state. Thus, people in a positive mood are more likely to pay attention to the hedonic consequences of their actions. It follows then, that positive mood may reduce processing when the information to be processed is
particularly threatening to one’s mood. This view of the effect of mood on information processing is not necessarily inconsistent with the feelings-as-information model (Schwarz, 1990), but provides an alternative explanation for the underlying mechanism.

In Study 3, the dependent measure contained information that could potentially impair one’s mood. Specifically, the information that participants were asked to read about UR included three strong positive features about UR that students may find threatening because they suggest that UR may be a better school than OSU. For the participants primed with a positive mood (regardless of whether the mood was self-referent or not), they are motivated to maintain that positive mood by not processing the information on UR. Thus, across the board, participants in the positive mood prime conditions gave low UR-OSU comparison ratings.

Does this mean then, that the hedonic contingency hypothesis, rather than the feelings-as-information model, should be used to explain the effects found in Studies 1 and 2 as well? Note that in Studies 1 and 2, the dependent measures did not contain any information that could be considered particularly threatening to one’s mood, rendering the hedonic contingency explanation irrelevant in those studies.

Why was the predicted Prime Valence x Self-Reference found only among participants high in need for cognition? Petty and his colleagues (Petty et al., 2006; Petty & Jarvis, 1996) examined the relationship between need for cognition and priming effects, and found the usual priming effects on judgments and behavior among high need for cognition individuals, but not among low need for cognition individuals. They postulate that this may be partially due to high need for cognition individuals having
more accessible and better organized knowledge structures of their attitudes because of their tendency to think a lot about their attitudes. Thus, high need for cognition participants in the current study may have been more easily influenced by the mood primes than low need for cognition participants.

However, the Petty et al. (2006) data do not explain why low need for cognition participants in the current study showed a pattern of results that was in the opposite direction of what was predicted. Specifically, low need for cognition individuals who had been exposed to negative non-self-referent mood primes viewed UR significantly less favorably against OSU than those primed with negative self-referent mood. It appears that the low need for cognition participants may have merely used the primes themselves as cues on which to base their judgments of UR. Thus, those in the negative non-self-referent condition, who had had the word “they” paired with negative adjectives, simply used the “they’re bad” prime as a cue, and therefore gave a lower UR-OSU comparison rating. Low need for cognition participants in the negative self-referent condition, however, had their own names paired with negative concepts; thus, they responded to the “I’m bad” prime as a cue and evaluated attitude objects related to themselves, such as their own university, more negatively than participants in the negative non-self-referent condition. While it was originally thought that the negative self-referent mood primes would threaten one’s self-esteem, it is possible that because low need for cognition participants exert little thought about everything – including themselves – they have not developed a well-understood and easily accessible self-knowledge structure (Petty et al., 2006; Petty & Jarvis, 1996). Thus, the negative self-
referent mood primes were ineffective in activating a threatening part of the self for these participants. This analysis of the low need for cognition participants’ behavior – that they merely used the primes as cues – suggests that their chronic disliking of systematic information processing was too strong for the temporary primes (specifically, the negative non-self-referent mood primes) to impact information processing.

 Nonetheless, the fact that the Prime Valence x Self-Reference interaction was moderated by need for cognition in Study 3 does not appear to be entirely consistent with the findings of Studies 1 and 2, where an overall Prime Valence x Self-Reference interaction was found. However, it is possible that the effect of need for cognition in Study 3 emerged due to the nature of the dependent measure used in this study. In Study 3, the dependent measure contained simple instructions that did not necessarily give participants any reason to think carefully. Thus, low need for cognition participants maintained their chronic state of heuristic processing, which moderated the predicted Prime Valence x Self-Reference interaction. By contrast, in Study 1, the dependent measure entailed having participants complete sentence stems, and therefore required participants to actively engage in the task. In Study 2, the dependent measure contained instructions warning participants that the individual chat excerpts they would be presented with could be on completely different topics, and that each excerpt would be presented for a set amount of time, after which participants would not be able to go back to reread the information. In addition, participants were told specifically to focus on the elderly target’s statements in the chat transcript. Thus, the nature of the dependent measures used in Studies 1 and 2 may have boosted the motivation to process the
information, thus increasing the baseline amount of processing even among participants normally low in need for cognition.

Another curious finding in Study 3 was that its main results were confined to the UR-OSU comparison rating, but not the general attitude index, which was originally expected to be differentially affected by the mood primes. This may have been due to the instructions for the university comparison measure explicitly stating that the study aimed at *comparing* different universities, which inadvertently led participants to adopt a comparison goal. Thus, while reading the information on UR, participants may have spontaneously made comparisons between UR and OSU, and the effects therefore emerged only for the UR-OSU comparison.

The one effect that surfaced with the general attitudes index was with regards to the control condition. High need for cognition participants in the control condition gave UR a high rating than participants low in need for cognition, which was expected based on the notion that high need for cognition individuals focused more on the strong positive features of UR. However, high need for cognition participants in the control condition also rated UR higher than participants in all prime conditions except for the negative non-self-referent condition. With respect to the control versus negative self-referent contrast, this is consistent with the current hypothesis that the negative self-referent mood primes increased participants’ motivation to derogate UR in order to restore their threatened ego. The finding that the UR ratings were lower in the positive non-self-referent than in the control condition was also consistent with the idea that the positive non-self-referent mood primes reduced information processing. While the control versus positive self-
referent contrast contradicted the original hypothesis, this finding can be understood in
terms of the hedonic contingency hypothesis (Wegener & Petty, 1994; Wegener et al.,
1995). As discussed earlier, participants in a positive mood may not have wanted to
jeopardize their positive feelings by processing potentially mood-damaging information
about the merits of another university.

In sum, the results of Studies 1-3 generally supported the hypothesis of the current
research, using dependent measures that involved processing information about or
derogating another individual or group. Study 4 sought to examine whether the results
would hold using a different self-esteem maintenance measure that assessed the tendency
to engage in self-serving biases – a self-enhancement strategy that is directed at
augmenting one’s internal attributes rather than at denigrating others.
Figure 4.1. Overall predictions for Study 3.
Figure 4.2. Prime Valence x Self-Reference x Need for Cognition interaction for the UR-OSU comparison rating.
CHAPTER 5

STUDY 4

The current research aimed to explore the effect of self-referent versus non-self-referent mood primes on information processing and self-enhancement. Studies 1-3 examined this notion using various dependent measures. Overall, results have indicated that, compared to negative non-self-referent mood primes, positive non-self-referent mood primes led to heuristic information processing, using stereotyping (Studies 1 and 2) and a paradigm involving impression formation of another university (Study 3) as indices of information processing, although in some cases this effect only emerged for individuals who chronically enjoy and engage in elaborative thinking (Study 3). However, when the mood primes are self-referent, negative mood primes led to a higher stereotyping score (Study 1) and more derogation of an outgroup member (Study 2). Moreover, compared to negative non-self-referent mood priming, negative self-referent mood primes led to derogation of another university among chronic thinkers (Study 3).

In Studies 1-3, stereotyping and derogation of a target were examined as consequences of having been exposed to negative self-referent mood primes. Study 4 attempted to extend the findings of Studies 1-3 by using a different measure of self-enhancement. According to Tesser and his colleagues (Tesser, 2000; Tesser et al., 1996),
different self-esteem maintenance mechanisms can substitute for one another, as long as the source of the negative affect is unknown. Thus, the effects of negative self-referent mood primes should extend beyond stereotyping and derogation. In Study 4, a self-enhancement measure that does not involve perception of another target was used. In particular, the self-serving definitions of success paradigm, originally adapted from Dunning, Leuenberger, and Sherman (1995), is an indirect measure that assesses the degree to which individuals define success based on their own attributes. Previous research has found that self-esteem threat increases the likelihood that people rate their own characteristics as being important causes of success (Chartrand et al., 2006; Dunning et al., 1995). Thus, Study 4 aimed to provide evidence that self-esteem repair does not necessarily involve derogating others.

With respect to the self-reference manipulation, Study 4 employed the same subliminal conditioning paradigm from Studies 2 and 3, which involves subliminally pairing participants’ names or the word “they” with positive or negative adjectives such as “secure” and “helpless.” It was hypothesized that participants who were given negative self-referent mood primes – whose self-esteem was threatened – would be more likely to exhibit self-serving definitions of success than participants in the positive self-referent condition as well as the neutral control group. However, self-enhancement was not expected to occur among participants exposed to non-self-referent primes.
Method

Design

Study 3 had a 2 (Prime Valence: Positive vs. Negative) x 2 (Self-Reference: Self-Referent vs. Non-Self-Referent) between-subjects factorial design, plus a dangling control group.

Participants

One hundred and seventy-one introductory psychology students (90 female, 81 male, mean age = 19.0) enrolled in the experiment in exchange for partial course credit.

Apparatus and materials

Subliminal conditioning paradigm. The same subliminal conditioning paradigm from Study 3 was used in Study 4.

Self-serving definitions of success. The self-serving definitions of success measure taken from Chartrand et al. (2006) was used as a measure of self-enhancement in Study 4. This measure, presented in Appendix G, was administered on the computer and was modified from one originally developed by Dunning et al. (1995). In this measure, participants are given the cover story that the Department of Psychology is working in conjunction with the Counseling and Consultation Services at the Ohio State University to study people’s beliefs about financial success after college graduation. Participants then read a paragraph describing a target person whom they were led to believe was a recent graduate from the Ohio State University. Participants always read about a target person of the same gender; thus, female participants were given information about “Erin” while male participants were given information about “Eric.” Other than gender, the
information contained about the target person was identical. The paragraph describes the target person as being successful in securing a well-paying job after graduation and was quickly offered a promotion and a raise. In addition, biographical information about the target person was included in the paragraph. In order to counterbalance the biographical information, two versions of this measure were created. For example, in one version, the target person grew up in a small town, while he/she grew up in a metropolitan city in the other version. The critical attributes were as follows:

<table>
<thead>
<tr>
<th>Version 1</th>
<th>Version 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grew up in a small town</td>
<td>Grew up in a big city</td>
</tr>
<tr>
<td>Parents stayed married</td>
<td>Parents divorced</td>
</tr>
<tr>
<td>Being the oldest child</td>
<td>Being the youngest child</td>
</tr>
<tr>
<td>Attended a public school</td>
<td>Attended a private school</td>
</tr>
<tr>
<td>Took music lessons as a child</td>
<td>Did not take music lessons as a child</td>
</tr>
<tr>
<td>Was not involved in sports</td>
<td>Involved in sports</td>
</tr>
<tr>
<td>Served on high school student council</td>
<td>Did not serve on high school student council</td>
</tr>
<tr>
<td>Being talkative</td>
<td>Being quiet</td>
</tr>
<tr>
<td>Being conservative</td>
<td>Being liberal</td>
</tr>
</tbody>
</table>

Thus, altogether there were four versions of the success story, two each for the male and the female target. The two versions of the story did not yield different results.

After reading the paragraph, participants were given an attributes rating task in which they were asked to rate the extent to which they believed each attribute of the target person contributed to the target person’s successful outcome on a 9-point scale ($1 = made employment and financial failure much more likely; 9 = made employment and financial success much more likely$).

Following the attribute rating task, participants were given a self questionnaire. The first part of the questionnaire had 15 questions aimed at garnering biographical information about the participants themselves. Of the 15 questions, seven inquired about
the same critical attributes that had been mentioned in the paragraph describing the target person. For example, the paragraph described the target person as being the oldest/youngest child, and the self questionnaire asked participants to indicate whether they themselves were the oldest, youngest, middle, or only child. The other eight questions were fillers. The second part of the questionnaire asked participants to choose between two traits the one that described them best (e.g., emotional vs. rational). Among the ten trait-pairs presented, two of them contained the critical trait dimensions used to describe the target person. Thus, the target person had been described as talkative/quiet and conservative/liberal, and participants were asked on the self questionnaire to choose between “quiet” and “talkative,” and between “conservative” and “liberal,” to describe themselves.

Participants’ responses on the self questionnaire made it possible to determine the attributes that participants shared with the target person and the attributes that were not shared. For example, if a participant who read that the target person was an oldest child is also an oldest child himself/herself, then “being an oldest child” was a shared attribute. On the other hand, if the target person was an oldest child but the participant was not, then birth order was not a shared attribute.

The idea behind the self-serving definitions of success measure is that one may enhance his/her self-esteem by defining success based on his/her own attributes. For example, a self-enhancing participant who is an oldest child would be more likely to judge that being the oldest child was important for the target person’s success, while being the youngest child was not. Put differently, because the importance of each
biographical attribute is open to interpretation (i.e., one can come up with reasons why being an oldest child is both important and unimportant in contributing to success), a motivation to enhance one’s self-esteem can shift participants’ theory of what it takes to be successful to include traits that they themselves possess. Past research has found that self-esteem threat leads to more self-serving definitions of success (Chartrand et al., 2006; Dunning et al., 1995).

Procedure

An experimenter met participants at a designated waiting area and brought them into the laboratory area in groups of up to four. The experimenter explained to participants that they would complete two unrelated experiments that were combined into one session for time purposes. Participants were then seated in individual computer cubicles, and a computer program randomly assigned participants to one of the five conditions. Participants completed the subliminal conditioning paradigm, the self-serving definitions of success measure, a demographics questionnaire, and a funnelled debriefing (to probe for suspicion of the experimental hypothesis). Finally, participants were fully debriefed, thanked for their participation, and dismissed.

Results

Self-serving definitions of success scoring

A self-serving bias score was computed from the self-serving definitions of success measure following Dunning et al.’s (1995) procedure. First, participants’ attribute ratings were standardized. Then, the standardized attribute ratings were separated into two categories: shared attributes and non-shared attributes, based on
participants’ responses on the self-questionnaire. An average standardized attribute rating score was computed for each of the shared and non-shared categories. Finally, a self-serving bias score was calculated by subtracting the average standardized non-shared attribute ratings from the average standardized shared attribute ratings. Thus, a higher score indicated that a higher degree of defining success in a self-serving manner.

A self-serving bias score could not be calculated for one female participant because she shared all of the critical attributes with the target person (i.e., she did not generate any non-shared attribute ratings). Thus, this participants’ data could not be analyzed, leaving a final sample of 170 participants (89 females, 81 males) for the analysis.⁴

**Main analyses**

A 2 (Prime Valence: Positive vs. Negative) x 2 (Self-Reference: Self-Referent vs. Non-Self-Referent) Analysis of Variance (ANOVA) was conducted on the self-serving bias score. This analysis yielded no significant main effects or interactions, $F$s $> 1$. Thus, the results failed to confirm the study’s hypothesis.

To compare the self-serving bias scores of participants in the control condition with participants in the four prime conditions, planned contrasts were conducted. None of the contrasts emerged statistically significant, $p$s $> .24$. The means for all five conditions are presented in Figure 5.1.

There was no main effect of participant sex, nor did it moderate any of the results, all $p$s $> .16$. 

⁴
Discussion

The null results of Study 4 did not confirm the main hypothesis that participants primed with negative self-referent mood primes would be more likely to self-enhance by giving more self-serving definitions of success, compared to participants in the positive self-referent and the control conditions. These results also failed to replicate the results of Studies 1-3.

One potential explanation for the null results in Study 4 is that the current negative self-referent manipulation failed to activate a self-esteem threat. However, Studies 1-3 all showed the expected consequences of experiencing a self-esteem threat, providing converging evidence that the manipulation was indeed successful. In addition, previous studies using similar subliminal conditioning procedures have demonstrated the effectiveness of such procedures in manipulating self-esteem (Baccus, Baldwin, & Packer, 2004; Dijksterhuis, 2004; Riketta & Dauenheimer, 2003).

A more likely explanation for the null findings in Study 4 concerns the prime words used in the manipulation and the nature of the threatened self-esteem. Specifically, the negative self-referent condition involved pairing participants’ names with the following words: “ugly,” “lonely,” “insecure,” “helpless,” “incompetent,” and “worthless.” Possibly with the exception of “incompetent,” all of the prime words can be construed as socially significant. That is, when people view themselves as being ugly, lonely, insecure, helpless, or worthless, the part of their self-esteem that is derived from a sense of social belongingness is threatened. Baumeister and Leary (1995) have argued that the need to maintain social bonds with other people is a universal and fundamental
human motivation. In fact, Leary and his colleagues (Leary, Tambor, Terdal, & Downs, 1995) have posited that one reason self-esteem exists is to serve as a monitor for one’s level of social inclusiveness. Perhaps this need to belong is so fundamental that only socially-oriented methods of restoring one’s self-esteem are effective when one’s belongingness need is attacked. In line with the idea that belongingness threat selectively sensitizes the individual to socially-relevant information, Gardner, Pickett, and Brewer (2000) found that socially rejected participants were more likely to remember social events than individual events. More specifically relevant to consequences for interpersonal behavior, Twenge, Baumeister, Tice, and Stucke (2001) found that social exclusion led to aggressive behaviors toward others. Thus, the fact that the predicted effects of self-esteem threat were found in Studies 1-3 may have been a result of the dependent measures involving stereotyping and derogation of others. However, the self-enhancement measure used in Study 4 did not entail a socially-oriented coping strategy, but rather, was a direct way of enhancing one’s own attributes. This may be the reason that the expected effects failed to emerge.

From an evolutionary standpoint, it seems rather counterproductive for individuals who are deprived of social belongingness to engage in antisocial behaviors such as aggression (Twenge et al., 2001) or stereotyping and derogation (Studies 1-3). Instead, the most adaptive strategies would seem to be ones that improve the chances of being reaccepted into the social group. Indeed, research has found that individuals who are socially rejected or who have an affiliation need activated tend to engage in behaviors that are aimed at social inclusion (e.g., Lakin & Chartrand, 2003; Lakin, Chartrand, &
Arkin, 2006; Pickett & Brewer, 2001; Williams & Sommer, 1997). However, while a social inclusion strategy may be the most effective way to restore one’s belongingness needs, it is possible that individuals resort to other socially-oriented methods of self-esteem restoration, such as the negative interpersonal behaviors outlined above, when an opportunity for social inclusion is not present (see also Brewer, 2005). Moreover, certain seemingly antisocial behaviors such as stereotyping and derogation may actually serve an inclusion purpose after all. Because stereotypes reflect shared beliefs of our ingroup, advocating such stereotypes may be one way to feel socially included (Haslam, Turner, Oakes, McGarty, & Reynolds, 1998). Thus, a threat to the belongingness need may increase the extent to which people support common stereotypes held by other ingroup members. This may explain the seemingly curious finding in Study 1, in which the gender stereotyping measure used did not necessarily involve negative stereotyping of an outgroup member. A belongingness threat may have activated the propensity to endorse gender stereotypes, which are commonly held in our society, regardless of whether they are positive or negative stereotypes targeted at women or men.

The view that a threat to belongingness need requires a socially-oriented method of self-enhancement can also explain why the findings of Study 4 failed to replicate Chartrand et al. (2006), in which the self-esteem threat was due to failing at a nonconscious goal, and does not involve a threat to one’s social needs. Crocker’s work on contingencies of self-worth (Crocker & Wolfe, 2001) suggests that there are different facets of life on which people may base their self-esteem. Thus, the Chartrand et al. manipulation may have temporarily activated and threatened the part of participants’ self-
esteem that was contingent upon personal goal achievement, and that defining the
ccharacteristics that make one financially successful in a self-serving manner was an
effective strategy to restore one’s self-esteem in that case. The present studies, on the
other hand, threatened a more basic belongingness need that perhaps could not be
restored simply by enhancing personal attributes.

The current reasoning – that a threat to belongingness needs requires socially-
relevant strategies of self-esteem enhancement – is not entirely consistent with Tesser’s
(2000; Tesser et al., 1996) model, which argued for the substitutability of different self-
esteem maintenance mechanisms. However, Tesser’s theory was mainly derived from
self-esteem maintenance mechanisms that are unrelated to belongingness needs (e.g.,
reducing dissonance to achieve cognitive consistency, affirming an important value, and
self-evaluation in a social comparison situation). Thus, Tesser’s model does not take into
account the belongingness threat that the present studies activated. It may be the case
that the human belongingness need is so vital that it represents an exception to this
otherwise well-supported model.

In sum, the null findings in Study 4 may have prompted more questions than
answers. In particular, whether or not a threat to belongingness need is so unique and
fundamental that it can only be restored by interpersonally-oriented strategies of self-
enhancement remains an empirical question.
Figure 5.1. Self-serving bias score as a function of Prime Valence and Self-Reference Condition
CHAPTER 6

GENERAL DISCUSSION

Amy, a long-time friend, recently confided in her web journal that, “…I go through ups and downs for no obvious reason, and I could go from very happy to very depressed and closed up within 5 min, without anything triggering it, well, at least that [I] can tell.”

Amy’s experience is by no means unique. Most people have probably had similar experiences of being in a good mood or a bad mood – and sometimes oscillating between the two states – without knowing why. The question is: What causes these “mystery moods,” to use Chartrand and Kay’s (2006) terminology? As it turns out, while we have a limited capacity to process the vast amount of information in the environment, what we do not consciously process can nonetheless impact us in various ways (see Bargh & Chartrand, 1999, for a review). One such influence concerns our mood state.

Since Zajonc’s (1980) famed assertion that “preferences need no inferences” – that conscious thought is not necessary for affective reactions to take place – numerous empirical studies have now confirmed that environmental stimuli, even ones presented outside of conscious awareness, can automatically elicit a good or bad judgment (e.g., Bargh et al., 1992; Fazio et al., 1986; Murphy & Zajonc, 1993; Niedenthal, 1990). Such
automatic evaluations serve to constantly monitor the goodness or badness of our current situation, and can therefore affect our mood state in a congruent manner, which then guides appropriate action (Chartrand et al., in press).

One such action triggered by a nonconsciously induced mood state concerns the information processing strategy one adopts. Because a bad mood informs us that something is amiss in the environment, we are motivated to become vigilant and process information in a more attentive, systematic fashion, as proposed by the feelings-as-information model (Schwarz, 1990). A byproduct of careful, deliberative processing is that we are less likely to rely on stereotypes to make judgments about others. By contrast, a happy mood suggests that the environment is safe, and reduces the need to process information carefully, leading to a heightened use of stereotypes as a cognitive shortcut. Empirical research has found support for this notion, by inducing mood both consciously (e.g., Park & Banaji, 2000) and nonconsciously (Chartrand et al., in press).

Another action that can be triggered by mystery moods concerns the motivation to restore a threatened self-esteem. When we experience a negative mood due to a self-esteem threat, and are not consciously aware of the source of that mood, we may engage in various types of self-image maintenance behaviors (Tesser, 2000; Tesser et al., 2000; Tesser et al., 1996). Indeed, studies have found an increase in self-enhancing behaviors following a threat-induced negative mystery mood (Chartrand et al., 2006), and stereotyping is one such self-enhancing behavior (Fein & Spencer, 1997).
This presents an interesting paradox: Stereotyping is sometimes triggered by a good mood (Chartrand et al., in press), and sometimes by a bad mood (Chartrand et al., 2006). The goal of the current research was to examine and resolve this discrepancy.

When does a good mood result in stereotyping? It appears that a positive mood increases stereotype use when the cause of the positive mood state is in the external environment, rather than within the self. As the feelings-as-information suggests, our mood state can inform us the state of our current, external environment (Schwarz, 1990). If the environment is safe, as in the case of being nonconsciously exposed to positive and harmless attitude objects (Chartrand et al., in press), we are in a good mood and we process information less carefully. This increases a reliance on the use of cognitive heuristics such as stereotypes in making judgments. Thus, when our mood state is non-self-referent, there are consequences for the information processing strategies we adopt. This, in turn, has downstream consequences for stereotyping. Stereotyping, in this case, is the product of a cold, cognitive process.

When does a bad mood result in stereotyping? A bad mood leads to stereotyping when our mood implicates the self, rather than the external environment. A negative mood that implies a threat to the self-esteem, as in the case of failing at a nonconscious goal (Chartrand et al., 2006), results in the motivation to engage in self-enhancement, sometimes by stereotyping others (Fein & Spencer, 1997). Thus, self-referent mood states lead to opposite predictions for stereotyping than non-self-referent mood states. In the case of a negative self-referent mood, stereotyping occurs as a result of a hot, motivational process.
Summary of results

The current research aimed to examine the effects of self-referent and non-self-referent moods, as described above, in four experiments. Study 1 confirmed the experimental hypothesis using the SEB as a dependent measure. Specifically, among participants in the non-self-referent conditions, those primed with positive adjectives scored higher on a stereotyping measure than those primed with negative adjectives. This pattern was reversed for participants in the self-referent conditions: participants primed with negative adjectives had a higher stereotyping score than participants primed with positive adjectives. Study 2 replicated the findings of Study 1 with an improved self-reference manipulation, the addition of a control group, and a different stereotyping measure that permitted an examination of both stereotyping and derogation of an outgroup target.

Study 3 sought to demonstrate that the current hypothesis was not specific to stereotyping, and replicated the results of Studies 1 and 2 using a different dependent measure that, like stereotyping, was sensitive to both information processing and self-enhancement strategies. Study 3 found that the hypothesis was generally supported, at least among high need for cognition individuals. Finally, Study 4 attempted to show that self-enhancement was not necessarily limited to disparaging another target by employing a dependent measure that assessed self-serving bias. However, Study 4 failed to show the expected results. One possible explanation for the null findings is that the negative self-reference mood manipulation may have threatened not only participants’ self-esteem, but
more specifically, their fundamental belongingness need. This type of threat may require socially-oriented methods of self-enhancement.

In sum, for the most part, the present studies successfully demonstrated that self-referent moods can have different consequences than non-self-referent moods of the same valence. Thus, this research contributes to the literature on mood and stereotyping by clarifying the conditions under which cognitive versus motivational mechanisms of stereotyping dominate. The current findings are consistent with the AIM (Forgas, 1994, 1995, 2001), which argues that without a preexisting motivation, positive mood is associated with heuristic information processing while negative mood results in systematic information processing. However, mood can sometimes serve to provoke a specific processing goal and result in biased information processing. The present studies help specify a condition under which a goal might be activated and bias processing: a negative self-referent mood triggers a self-enhancement goal, which promotes behaviors that are aimed at achieving that goal, such as stereotyping and derogating others.

The current investigation also contributes to the affective priming literature by showing that the degree of self-reference is an important dimension to be considered in the mystery mood phenomenon. As mentioned earlier, Chartrand et al. (in press) argued that our capacity to nonconsciously process and evaluate information in our environment serves a functional purpose: to notify us about the state of our situation so that we can respond with suitable behavior. The current data extend this idea by showing that our mood can not only process information simply about the goodness or badness of our environment, but also about ourselves, even at a nonconscious level.
This contention fits well with Higgins’ (1996) functional view of self-knowledge: that it serves to assess the self in relation to the world. He argues that from a very young age, we must learn how our behaviors affect our social relationships, especially those with our caregivers, and to adjust those behaviors as necessary to maximize the likelihood of survival. Thus, it is adaptive to have self-knowledge because one function it serves is to continuously monitor how well our current state meets our desired state. For instance, it is presumably desirable to be competent and loved, while incompetence and rejection by others are detrimental to survival. Our self-system monitors how close or far we are from being the competent and loved individuals that we wish to be. Thus, it is adaptive for us to have developed effective and efficient ways to not only monitor the safety of our situation, but also the state of our current being. While non-self-referent moods communicate to us about the state of our external environment, self-referent moods inform us of whether or not we are achieving some desired end-state. The present research shows that we are, indeed, capable of automatically processing both non-self-referent and self-referent information.

Limitations, implications, and unanswered questions

*Mood versus specific emotions: Which was primed?*

In the psychological literature, the concepts of “mood” and “emotion” are often differentiated. While the exact definitions for these two constructs are still under debate, a simple distinction considers “moods” as prolonged, diffuse positive or negative states and are lower in intensity than “emotions,” which are discrete, short-lived states that have a specific cause (Clark & Isen, 1982; Frijda, 1993). Thus, while one may speak of
specific emotions such as joy, anger, and disgust, mood states are typically referred to in the general terms of “good” or “bad.”

While the summary of the literature on mood and stereotyping presented in Chapter 1 focused on studies examining diffuse positive and negative mood states, several studies have also investigated the effect of specific emotions on stereotyping. For example, Bodenhausen, Sheppard, and Kramer (1994) compared the effect of anger and sadness on stereotyping and found that angry participants showed greater reliance on stereotyping in their judgments than sad participants. R. S. Baron, Burgess, Kao, and Logan (1992) found that participants who were anxious about an upcoming dental procedure exhibited higher illusory correlation effects, and were more likely to process a persuasive message in a heuristic fashion, compared to non-anxious participants. Similarly, Lambert, Payne, Jacoby, Shaffer, Chasteen, and Khan (2003) found that socially anxious individuals were more likely to engage in stereotyping in an anxiety-provoking situation, and that the increase in stereotype use was due to a reduction in cognitive control. Tiedens and Linton (2001) tested the hypothesis that emotions associated with certainty would result in heuristic information processing. They found that disgust (an emotion accompanied by certainty), but not fear (an uncertain emotion), led to an increase in the use of superficial information processing strategies and stereotyping. Taken together, these results paint a rather complicated picture of the relationship between affective states and stereotyping. Overall, it appears that highly arousing emotions associated with certainty (e.g., anger, disgust) may be distracting to the individual (Wilder, 1993), reducing the capacity to process information carefully, thus
increasing the use of stereotypes. This suggests that the effect of such emotions on stereotyping occurs via a cognitive mechanism.

Throughout this paper, it was assumed that mood states, rather than emotions, were induced by the subliminal priming manipulation. However, could it not be possible that the current manipulation elicited different discrete emotions rather than mood states that varied in valence and self-reference? For example, it may be the case that the negative self-referent mood primes in the present studies induced an emotion that was highly arousing and associated with certainty, such as anger or disgust, which led to the stereotyping and derogation effects found in Studies 1-3. However, as noted earlier, the hypotheses regarding the effect of emotions on stereotyping are based on a cognitive model of stereotyping. Recall that in Study 2, only derogation, but not stereotyping, was found among individuals primed with a negative self-referent mood. Thus, the alternative explanation that specific emotions, rather than self-referent moods, drove the observed effects could not account for the results. Rather, the motivational account proposed by the current research provides a better explanation for the findings.

Furthermore, while it is possible that self-referent moods are associated with specific emotions, these emotions likely vary by individual. As discussed earlier, self-referent moods may serve a functional purpose in that they inform us of the discrepancy between our current state and the desired end state. Higgins’ (1987) self-discrepancy theory proposed that the emotional outcomes of such discrepancy analysis depend on the individual’s regulatory focus: When people’s current state meets their desired state (as in the case of self-referent positive moods), promotion-focused individuals feel happy and
satisfied, but prevention-focused individuals experience relief and calmness. When a discrepancy exists between people’s current and desired states (as in the case of self-referent negative moods), promotion-focused individuals feel dejected and disappointed, while prevention-focused individuals feel anxious and worried. As such, the specific emotions, if any, that were induced by the self-referent manipulation would have depended on individual differences in regulatory focus, and therefore could not explain the current results. In sum, it is not believed that specific emotions were responsible for the findings in the present research.

The mediational role of mood and self-esteem

The assumption that the prime valence manipulation used in the current studies induced certain mood states was derived from past research demonstrating the effect of subliminal priming of positive and negative stimuli on mood (Chartrand et al., in press; Dimberg et al., 2000). Likewise, it was inferred that the self-reference manipulation in the present experiments led to changes in participants’ self-esteem, based on previous studies showing that similar subliminal conditioning procedures affected scores on both explicit (Riketta & Dauenheimer, 2003) and implicit (Baccus et al., 2004; Dijksterhuis, 2004) measures of self-esteem. However, mood and self-esteem were never directly measured in the present studies. While the focus of the current research was to examine how primes varying in valence and self-reference affect information processing and self-enhancement strategies, the role of mood and self-esteem as mediators were implied but not directly tested. This was a major limitation of the current studies.
While a mediational test would have been useful, the difficulty in examining the mediating role of mood using self-report measures is a widely known fact among emotion researchers. Research has found that self-report of mood eliminated effects that would have otherwise emerged (Chartrand et al., 2006). Other studies have failed to obtain results with self-report measures of mood, even though they showed the expected downstream consequences of mood (Berridge & Winkielman, 2003; Winkielman, Berridge, & Wilbarger, 2005; Winkielman, Zajonc, & Schwarz, 1997). Thus, though desirable, methodological and theoretical issues surrounding the measure and nature of mood make it difficult to assess its role as a mediator using the traditional tests of mediation proposed by R. M. Baron and Kenny (1986). One promising alternative may be to manipulate one aspect of mood, particularly the awareness of its source, to show that different consequences follow, as Chartrand et al. (2006) and Schwarz and Clore (1983) have done.

The unconscious emotions debate

The fact that studies have uncovered consequences of affect without participants being able to report any changes in mood has led some researchers to argue for the existence of unconscious emotions (Berridge & Winkielman, 2003; Winkielman et al., 2005; Winkielman et al., 1997). For example, Winkielman et al. (2005) found that subliminally presented happy faces, compared to angry faces, increased the amount of beverage consumed by thirsty participants, as well as the amount they were willing to pay for the beverage and the additional amount they wished to drink. However, several self-report mood measures failed to show any effects on mood, even when the mood measures
were administered immediately after the subliminal priming procedure, presumably when participants were still able to attend to and remember their mood state. Thus, these researchers argue that not only can affect be elicited nonconsciously, but the emotions themselves can be nonconscious.

Indeed, a debate is currently brewing in the emotions literature concerning the concept of unconscious emotions. On the one hand, some theorists have argued that emotions, by definition, are a subjective experience, and it is therefore impossible for emotions to exist and not be felt (Clore, 1994; Ellsworth, 1995; Ledoux, 1994). On the other hand, it has been argued that emotions likely developed before consciousness (and the conscious awareness of our emotions) in our evolutionary history (Damasio, 1999).

Many nonhuman organisms display actions that appear to be prompted by emotions (such as a rat running away from a fast approaching human armed with a rolled up newspaper); however, it is difficult to argue that such organisms experience the kind of conscious awareness of their emotions that we humans enjoy. Even in humans, there exist cases in which overt behaviors driven by emotions are observed among individuals with severe limitations in awareness. For example, Damasio documents the case of a patient with advanced Alzheimer’s disease who had been robbed of all forms of conscious recognition and memory; yet, he would wheel himself to the window to look at the scenery outside, or pull out a photo of his wife and gaze at it for a long time, without any awareness of his actions or observable expression of emotions. Citing neurobiological evidence, some have suggested that cortical regions in the brain are responsible for the subjective experience of emotions, while subcortical structures are what cause the emotions
themselves (see Berridge & Winkielman, 2003, for a review). This dissociation suggests that it is possible for one to have emotions without being aware of those emotions. Kihlstrom has also pointed out that, “if we are willing to speak of implicit percepts, memories, and thoughts that are dissociated from their explicit counterparts, then we must be willing to speak of implicit emotions in the same terms” (1999, p. 433).

While the debate on unconscious emotions lies outside the scope of the current investigation, this issue raises the question of whether participants in the present studies were unaware of their mood, or simply the source their mood? First, it should be noted that no assumption was made at the outset of the current research concerning the nature of the mood that was to be induced by the current manipulation. In fact, as part of Tesser’s theory on the substitution of self-enhancement mechanisms (Tesser, 2000; Tesser et al., 2000; Tesser et al., 1996), which partially provided the impetus for the current investigation, the possibility was left open that individuals may be unaware of the origin of their mood or the mood itself. Nonetheless, the proposition presented earlier that we have evolved systems to nonconsciously monitor our environment and the state of our current selves maps on to the evolutionary argument for unconscious emotions. That is, if we have evolved systems to nonconsciously survey information that is of survival value to us, the communication of that information – in the form of moods – had to have evolved alongside the monitoring system, and therefore may not be necessarily conscious. Accordingly, it is possible that the current manipulation may have elicited moods that were not consciously felt by the participants. Of course, this is simply a conjecture, as the current data do not provide a definitive conclusion to this matter.
The role of individual differences in the conscious experience of emotions

Assuming that unconscious emotions exist, under what conditions do nonconsciously-induced moods remain nonconscious, and under what conditions do they seep into the level of consciousness? One possibility is that individual difference variables may determine the threshold at which certain emotions reach consciousness. For instance, research has found that both phobics and non-phobics were faster at detecting biologically fear-provoking stimuli, such as snakes and spiders, than fear-irrelevant stimuli (Öhman, Flykt, & Esteves, 2001), suggesting that the threatening stimuli automatically activated fear. However, phobics were more likely than non-phobics to show skin conductance responses corresponding to fear following subliminal exposure to the fear-eliciting stimuli (Öhman & Soares, 1994). In addition, phobics self-reported a higher level of arousal following exposure to threatening stimuli than control stimuli. Hence, it seems that while fear is automatically elicited and drives behavior among all individuals, only those who are particularly sensitive to the fear-provoking stimuli had a subjective awareness of their fear.

In the realm of social psychology, a related idea concerns self-schemas, or the mental representations about the self, which has been shown to facilitate processing of self-relevant information (Govorun, Sauser, Hardy, Fazio, & Arkin, 2006; Markus, 1977; Markus, Crane, Bernstein, & Siladi, 1982). Because information related to self-schematic domains are more important to us, the emotions associated with such information may also be of greater use to us and are processed more readily. Consequently, it may be easier for us to gain access to those emotions. As an example,
people who are particularly sensitive to interpersonal rejection (Downey & Feldman, 1996) may be quicker at processing rejection-related information, and the accompanying negative affect may be more easily felt.

Another individual difference variable that may shift the threshold at which nonconsciously-elicited moods enter consciousness is mindfulness. Mindfulness has its roots in Buddhist philosophy and is generally defined as the state of being fully aware and attuned to the present moment (Brown & Ryan, 2003; Kabat-Zinn, 1990). One major aim of mindfulness practice is to learn to be aware of harmful emotions or mental states as they arise, to look deeply at the cause of those destructive states, and to be cognizant of how they influence oneself and one’s interactions with other people (Ekman, Davidson, Ricard, & Wallace, 2005; Hanh, 1998). Individuals experienced in mindfulness meditation have been shown to have a higher correspondence between implicit and explicit self-esteem (Govorun, Cheng, & Koole, 2006), suggesting that mindful individuals have greater awareness of their implicit views of themselves. By the same token, it may be the case that mindful individuals are more capable of conscious recognition of mood states that are induced nonconsciously. Indeed, Brown and Ryan have touched on the same idea, suggesting that, “in less mindful states, emotions may occur outside of awareness or drive behavior before one clearly acknowledges them” (p. 823). In other words, mindfulness may reduce the unconscious-conscious mood threshold and increase the likelihood that people become subjectively aware of their mood states. Similar outcomes would also be expected for related individual difference variables that also emphasize monitoring one’s inner states, such as emotional
intelligence (Salovey & Mayer, 1990) and private self-consciousness (Fenigstein, Scheier, & Buss, 1975).

Nonconscious versus conscious inductions of mood: Does it matter?

Recall that mood in the present studies was induced using subliminal priming, to ensure that participants would not be aware of the source of their mood. This raises the question of whether it was necessary for mood to be nonconsciously induced. Would consciously elicited mood show the same effects on information processing and self-enhancement that were demonstrated here? Clearly, previous studies using conscious methods of mood induction, such as having participants watch affectively-laden video clips, have found the expected effects on stereotyping (Park & Banaji, 2000). However, being consciously aware when the mood induction procedure takes place is different from being aware of the cause of one’s mood (Bargh, 1992). As a case in point, in Schwarz and Clore (1983), participants’ mood were affected by the weather conditions. Participants were arguably aware of the weather, but not of its influence on their mood – that is, until the experimenter directed their attention to it. Thus, it is possible that the effects of mood on information processing and self-enhancement would be reduced, or even disappear, if participants were completely aware of the source of their mood. As mentioned earlier, a few studies that manipulated awareness of the mood source have provided direct evidence for this idea (Chartrand et al., 2006; Schwarz & Clore, 1983).

The role of individual differences in the awareness of the mood’s origin

Just as there may be individual differences in the awareness of one’s mood state, individual difference variables may also influence the extent to which one is aware of the
source of one’s mood. An interesting case involves, once again, the concept of mindfulness. As described earlier, because mindfulness encourages one to look deeply within oneself and identify the true cause of one’s destructive emotions, not only are mindful individuals likely have better access to their mood, they also likely to possess greater awareness of the origins of their mood, and are therefore less likely to exhibit the behavioral consequences of mystery moods – especially the maladaptive ones – that research has uncovered. In the clinical realm, practitioners have advocated the application of Buddhist principles, including mindfulness training, to the treatment of anger and aggression (Leifer, 1999), and research has linked mindfulness to well-being in general (Brown & Ryan, 2003). However, empirical evidence on the idea that mindfulness may actually reduce such harmful behaviors as aggression and derogation of others is still lacking, and warrants further investigation.

Conclusion

Mystery moods are a common phenomenon, triggered by even the most mundane stimuli in our environment. While mystery moods may communicate useful information to us, they can also have harmful side effects: Without our knowledge, mystery moods guide the way we think and the way we behave – sometimes in negative ways toward others. Thus, it is important for us to understand the antecedents and consequences of mystery moods. As for ways to reduce the detrimental effects of mystery moods: the answer awaits future research.
LIST OF REFERENCES


The four items on the attitudes questionnaire were subjected to a principal components analysis with varimax rotation. This analysis revealed one eigenvalue that was greater than 1 (explaining 63.9% of the variance), and a scree test also showed that one component should be retained. However, examination of component loadings found that only the first three questionnaire items loaded strongly onto the component (loadings = .92, .92, and .69, respectively), while the last item on the questionnaire (asking participants to compare UR to OSU) had a low component loading of .17, which is below the conventional cutoff level of .30. Thus, the last item was removed from the scale and analyzed as a separate item.

The Prime Valence x Self-Reference x Need for Cognition interaction in Study 3 was actually qualified by a Prime Valence x Self-Reference x Need for Cognition x Participant Sex four-way interaction, $B = -4.12, t = -1.97, p = .05$. Further analyses showed that the Prime Valence x Self-Reference x Need for Cognition three-way interaction was significant among female participants, $B = 3.07, t = 2.42, p < .02$, but not among male participants, $B = -1.05, t = -.63, p = .53$. However, this sex difference can be accounted for by the fact that there were only 53 males in this analysis (vs. 92 females); hence, there would not have been sufficient power for a three-way interaction to emerge among male participants. Thus, it is not believed that a meaningful sex difference can be obtained from current analysis.
Recall that a significant Prime Valence x Self-Reference x Need for Cognition interaction was found for the UR-OSU comparison rating. Thus, at first glance, it may seem puzzling that the Need for Cognition x Contrast analysis yielded no significant results. However, note again that the interpretation of the Need for Cognition x Contrast analysis was dependent on how the condition variable, which had five levels, was dummy coded. In this case, the control condition was coded as the comparison group, and all effects must be interpreted as contrasts between each prime condition and the control condition. Because the control condition did not differ significantly from any of the four prime conditions, the main effect for Contrast was not significant, even though a Prime Valence x Self-Reference interaction effect (which essentially compared the four prime conditions against one another) was found in the Prime Valence x Self-Reference x Need for Cognition multiple regression analysis.

Initially, the sample consisted of 173 introductory psychology students (90 females, 83 males). However, a computer programming error for the self-serving definitions of success measure was discovered at the end of the study. Specifically, in the questionnaire following the male version 2 of the self-serving definitions of success measure, the attributes that participants were asked to rate did not match the attributes that were ascribed to the target person in that version of the task. For example, participants read that the male target had grown up in a big city, but were asked to rate the extent to which having grown up in a small town contributed to the target person’s successful outcome. In other words, male participants who were assigned version 2 of the task were given the questionnaire that should have followed version 1. (The male
version 1 of the questionnaire was unaffected by this programming error, nor was either of the female versions.) Because of this error, data for 44 male participants could not be analyzed, and were replaced by a separate group of 42 male participants who participated in the study at a later time. Follow-up planned contrast analysis indicated that this group of participants did not yield significantly different results from the other three groups (male version 1, female version 1, and female version 2), $t(166) = .09, ns$. 
**General Instructions**

We would like to pretest some materials for a future study. We would like your help in providing ratings for some English words.

We will be showing you a series of words four times. Each time, we will ask you to rate these words on a different dimension. These dimensions are:

1. The degree to which each word is self-relevant.
2. The degree of negativity of each word.
3. The degree of positivity of each word.
4. The frequency or commonness of each word.

**Instructions for self-relevance**

First, we would like you to rate the self-relevance of each word that will be presented to you in the following screens. By "self-relevance," we DO NOT mean how descriptive these words are for YOU personally. What we mean by self-relevance is the extent to which the words refer to the self or implicates the self. For example, the word "boring" would be seen as more self-relevant than the word "irregular," because "boring" can be seen as a word that refers to the self, but "irregular" cannot. Just imagine, if someone tells you that you are "boring," your reactions would be quite different than if someone tells you you are "irregular"!

Again, it doesn't matter whether these words describe YOU or not. You would rate "boring" as being quite self-relevant even if you don't think of yourself as a boring person.

**Instructions for negativity**

Please rate how negative you think the following words are, using the scale provided.

**Instructions for positivity**

Please rate how positive you think the following words are, using the scale provided.

**Instructions for frequency or commonness**

Please rate how frequent this word appears or how common this word is used in the English language.
APPENDIX B

STIMULUS WORDS USED IN STUDY 1
<table>
<thead>
<tr>
<th></th>
<th>Non-Self-Referent</th>
<th></th>
<th>Self-Referent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Negative</td>
<td>Positive</td>
<td>Negative</td>
</tr>
<tr>
<td></td>
<td>Infested</td>
<td>Soft</td>
<td>Ugly</td>
</tr>
<tr>
<td></td>
<td>Hazardous</td>
<td>Delicious</td>
<td>Lonely</td>
</tr>
<tr>
<td></td>
<td>Poisonous</td>
<td>Sunny</td>
<td>Insecure</td>
</tr>
<tr>
<td></td>
<td>Polluted</td>
<td>Colorful</td>
<td>Helpless</td>
</tr>
<tr>
<td></td>
<td>Rotten</td>
<td>Luxurious</td>
<td>Incompetent</td>
</tr>
<tr>
<td></td>
<td>Defective</td>
<td>Sparkling</td>
<td>Worthless</td>
</tr>
<tr>
<td>Ratings of the degree to which words implicated the self</td>
<td>2.62</td>
<td>3.01</td>
<td>5.82</td>
</tr>
<tr>
<td>Negativity rating</td>
<td>5.92</td>
<td>1.53</td>
<td>6.05</td>
</tr>
<tr>
<td>Positivity rating</td>
<td>1.5</td>
<td>5.82</td>
<td>1.36</td>
</tr>
<tr>
<td>Perceived frequency of words</td>
<td>4.65</td>
<td>5.43</td>
<td>5.97</td>
</tr>
</tbody>
</table>
APPENDIX C

STEREOTYPIC EXPLANATORY BIAS MEASURE USED IN STUDY 1
Version 1

Instructions:
In this task you will see a series of behaviors. These are really the beginnings of various sentences. We would like you to add words to form longer sentences. You can add words to form any type of sentence you would like, as long as it is grammatically correct.

Stereotype Consistent Stems:
1. Bob confronted the man
2. Rich studied the engineering manual
3. Shirley asked for help getting home
4. Jenny went home to cook dinner
5. Katherine baby-sat the neighbor’s kids
6. Bert changed the oil

Stereotype Inconsistent Stems:
1. Marvin let the waiter ignore him for fifteen minutes
2. Lisa went to the auto show
3. Karen paid for their dinner
4. Tom bottle-fed the baby
5. Joanne directed the operation
6. Jeff sewed the button back on

Filler Stems:
1. Linda swatted at the flies
2. Elaine went to Florida on spring break
3. Helen crammed for the test
4. Crystal caught a bad cold
5. Laura ate a sandwich
6. Sam read the newspaper
7. Ted watched the TV news
8. Sarah wiped off the glasses
9. Rebecca brushed her teeth
10. Monica went on a blind date
Version 2

Instructions:
In this task you will see a series of behaviors. These are really the beginnings of various sentences. We would like you to add words to form longer sentences. You can add words to form any type of sentence you would like, as long as it is grammatically correct.

Stereotype Consistent Stems:
1. Shirley let the waiter ignore her for fifteen minutes
2. Rich went to the auto show
3. Tom paid for their dinner
4. Karen bottle-fed the baby
5. Jeff directed the operation
6. Joanne sewed the button back on

Stereotype Inconsistent Stems:
1. Jenny confronted the man
2. Lisa studied the engineering manual
3. Marvin asked for help getting home
4. Bob went home to cook dinner
5. Bert baby-sat the neighbor’s kids
6. Katherine changed the oil

Filler Stems:
1. Linda swatted at the flies
2. Elaine went to Florida on spring break
3. Helen crammed for the test
4. Crystal caught a bad cold
5. Laura ate a sandwich
6. Sam read the newspaper
7. Ted watched the TV news
8. Sarah wiped off the glasses
9. Rebecca brushed her teeth
10. Monica went on a blind date
APPENDIX D

CHAT EXCERPTS USED IN STUDY 2
Instructions

This study examines Internet communications. We have recruited volunteers in the Columbus area who have participated in Internet chats and had records of those chats available. They agreed to give us access to their chat records.

We took these chat records and chose several short segments to use in this study. We have “cleaned up” the typing a little – in other words, we corrected spelling and grammar mistakes and made some minor wording changes – to make the segments easier for you to read.

You will be reading several short segments between one person (the focal person) and another person. The focal person is one of the volunteers who has agreed to let us use his/her chat records in this study.

Note that you will not be reading the entire chat, just small parts of it. Thus, the segments won’t necessarily be related to each other; as the segments pop up on the screen, they might be on completely different topics.
Each short excerpt you read in this study will be presented one at a time on the screen long enough to allow you to read it and understand what you have read. The computer will then automatically go on to display the next excerpt in the set. You will not be able to go back and read previous excerpts.

Please wait while the computer randomly selects one of our volunteer’s chat transcript for you…
The computer has randomly selected a chat transcript for you.

**Volunteer Profile**

Name: Joan  
Age: 73  
Gender: Female  
Residence: Columbus, OH

You will be reading chat excerpts between Joan and another person denoted as "A." Please focus only on Joan’s statements in the excerpts.

When you are ready, click “Continue” to begin.
**Chat Excerpts:**

**Absent-Mindedness Stereotype:**

Joan: I was watching this documentary on TV the other night, about some scandal in California. Halfway through I realized I saw the same program a few months ago.

A: I think I know which one you're talking about - it was the one about the San Francisco Police, right?

Joan: I was going to a friend's housewarming party the other day, and halfway there I realized I didn't bring the directions with me.

A: Did you have to turn around?

**Family Values Stereotype:**

Joan: I like to watch TV, but I don't particularly like the shows with too much gratuitous violence and sex.

A: Yeah, but there definitely are some really good shows lately.

Joan: I really do my best to keep everyone in the family in contact with each other.

A: Oh, yeah, my family is pretty close, too.

**Individuating Information:**

A: Do you like the area where you live?

Joan: I do, actually. Fortunately the traffic's not too loud from where I am.

A: I wouldn't call myself an impulsive person, really.

Joan: I used to think I wasn't, either, but a few weeks ago I bought a painting I saw in a catalog. It was a little out of my price range, but I saw it and just fell in love. I couldn't resist!

A: Oh, my ideal gift right now would be a new printer.

Joan: Mine would definitely be a huge gift certificate from the Candy Shoppe. They know me by name there.

A: You watch ER too? I love that show.

Joan: Yeah, I watch it every week, and I try to catch the reruns, too. I think I've watched it since it began.

Joan: I read that there was going to be some kind of festival yesterday that sounded kind of interesting, but of course it turned out I couldn't go!

A: Oh, that's too bad. I like to go to those kinds of things myself.
A: Do you like to watch movies?
Joan: Oh yes, in fact yesterday I saw a movie on TV that I liked quite a bit.

A: Hopefully I think I'll be going out of town for a brief vacation in a couple of months.
Joan: If I were going on vacation now, I'd go to see an exhibit of Safti's sculptures in New York that I heard about.

A: I have to admit I don't like going to the doctor.
Joan: I would think it was strange if you did! I don't like to, either.

Joan: I'm allergic to certain kinds of pets, but that's about it.
A: You're lucky, because sometimes it seems like I'm pretty much allergic to everything!

A: I don't like writing letters, partly because people say they can't read my writing.
Joan: Yeah, at least that's something you don't have to worry about with typing, I don't have to try to figure out what someone wrote.

Joan: I decided a few months ago not to carry anything really important or money or anything like that in my purse. Too many crimes where people just get assaulted and robbed.
A: I know I'd just freeze if anybody tried something like that with me.

Joan: I got used to dentist's visits a long time ago - you have to when you have as many desserts as I do!
A: So your dentist makes a lot of money off of you?

Joan: I can't imagine anyone wanting to study bugs their whole life!
A: I know, but she says it can be pretty interesting.
APPENDIX E

UNIVERSITY COMPARISON TASK USED IN STUDY 3
Comparing Different Universities

In this study, we are interested in how different universities compare to one another. Through various means, we have collected information on different universities across the North America. You will be given some information on one of these universities.

Please click "Continue" to begin.

Please wait while we load the information...
You will be given some information about

**University of Rochester**

Click 'Continue' to begin.

---

Here are the most frequently mentioned strong and weak features of the University of Rochester.

<table>
<thead>
<tr>
<th>Strong Features</th>
<th>Weak Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. University of Rochester students have plenty of opportunities to work one-on-one with professors.</td>
<td>1. The buildings at the University of Rochester are poorly designed.</td>
</tr>
<tr>
<td>2. University of Rochester students win many prestigious national awards.</td>
<td>2. The professors at the University of Rochester are not very attractive.</td>
</tr>
<tr>
<td>3. University of Rochester students have the highest rate in the country of finding a job within six months after graduation.</td>
<td>3. The marching band at the University of Rochester is not very good.</td>
</tr>
<tr>
<td></td>
<td>4. The University of Rochester does not have a rowing team.</td>
</tr>
<tr>
<td></td>
<td>5. There is a poor selection of items in the vending machines at the University of Rochester.</td>
</tr>
<tr>
<td></td>
<td>6. Some of the gym facilities at the University of Rochester are very old.</td>
</tr>
</tbody>
</table>
Please answer the following questions.

How favorable or unfavorable do you feel about the University of Rochester?

-3  -2  -1  0  1  2  3
Very very unfavorable favorable
unfavorable

Would you recommend someone to attend the University of Rochester?

-3  -2  -1  0  1  2  3
Definitely no definitely yes

If you were to choose a college again, and if out-of-state tuition were not an issue, would you consider the University of Rochester?

-3  -2  -1  0  1  2  3
Definitely no definitely yes

How do you think the University of Rochester compares to the Ohio State University?

-3  -2  -1  0  1  2  3
UR is much worse than OSU the same as OSU much better than OSU
APPENDIX F

SELF-SERVING DEFINITIONS OF SUCCESS MEASURE USED IN STUDY 4
General Instructions

The following survey deals with opinions and beliefs about success after graduating from college.

A 1998 report by the US Department of Human Resources showed that a full 18% of graduates from college experience difficulty in finding full-time employment with a sufficient income within three months after graduation. In an attempt to understand this problem better, the Counseling and Consultation Services (CCS) here at The Ohio State University set out to study what makes someone successful in finding a job and becoming financially stable after graduating from college. One objective of the project was to see if there are certain personality traits that are linked with success versus failure in this domain. With the help of the OSU Alumni Association, the counselors at CCS recruited and interviewed 25 students who had recently graduated from OSU and asked them various demographic and personality questions. They found that indeed, there are personal characteristics that predict employment and financial success and failure. The CCS and the Psychology Department are now collaborating to study the psychological processes that underlie this phenomenon. They think that one important factor in employment and financial success may be people's views and beliefs about what it takes to be successful.

The questionnaire that you will complete is designed to investigate people's opinions about which factors are more likely to facilitate finding a job and being financially stable after graduating from college, and which are likely to contribute to unemployment. Please read the blurb on the following page about one of the participants in the CCS study, and then answer the questions that follow.
Erin [Eric] L. is a recent graduate from The Ohio State University. Less than a month after her [his] graduation, she [he] found a job in a large firm based in San Francisco, with a starting annual salary of $58,000. After having worked there for a year and a half, Erin [Eric] was offered a promotion and a raise. In the interview with the Counseling and Consultation Services, Erin [Eric] reported that she [he] was very happy with her [his] job. She [He] was financially stable and was planning to purchase her [his] first car soon.


Now please rate how important each of Erin's [Eric’s] characteristics was in her [his] outcome (finding a job soon after graduation and being financially stable).

You will be asked to give a rating on a scale between 1 and 9, with 1 being "made employment and financial failure much more likely" and 9 being "made employment and financial success much more likely."

Growing up in a small town
Parents staying married
Being the oldest child
Attending public school
Taking music lessons as a child
Not being involved in sports
Serving on the student council in high school
Being talkative
Being conservative
Erin [Eric] L. is a recent graduate from The Ohio State University. Less than a month after her [his] graduation, she [he] found a job in a large firm based in San Francisco, with a starting annual salary of $58,000. After having worked there for a year and a half, Erin [Eric] was offered a promotion and a raise. In the interview with the Counseling and Consultation Services, Erin [Eric] reported that she [he] was very happy with her [his] job. She [He] was financially stable and was planning to purchase her [his] first car soon. When asked about her [his] childhood, Erin [Eric] reported that she [he] had grown up in downtown Chicago. Erin's [Eric] parents got divorced in her [his] preschool years. Erin [Eric] was the youngest of 3 children. She [He] had an older sister named Kelly, and an older brother named Zachary. She [He] got along with her [his] brother well, but often fought with her [his] sister. Erin [Eric] attended a private school, and had several good friends. Erin [Eric] participated in sports teams at school and in the community, but she [he] never took any musical lessons. In high school, Erin [Eric] was not involved with the student council. Erin [Eric] was a quiet person. She [He] also described herself as liberal.

Now please rate how important each of Erin's [Eric’s] characteristics was in her [his] outcome (finding a job soon after graduation and being financially stable).

You will be asked to give a rating on a scale between 1 and 9, with 1 being "made employment and financial failure much more likely" and 9 being "made employment and financial success much more likely."

Growing up in a big city
Parents being divorced
Being the youngest child
Attending a private school
Not having taken music lessons as a child
Being involved in sports
Not being involved with the student council in high school
Being quiet
Being liberal
Self Questionnaire

Please answer the following questions about yourself.

What is your current marital status?
___ Single
___ Married
___ Divorced

Did your parents divorce, stay married, or never married?
___ Divorced
___ Stayed married
___ Never married

Are you the youngest child, oldest child, middle child, or only child?
___ Youngest
___ Oldest
___ Middle
___ Only

Was your father employed outside the home?
___ Yes
___ No

Was your mother employed outside the home?
___ Yes
___ No

Do you speak a language other than English?
___ Yes
___ No

Did you attend a public school or private school?
___ Public
___ Private

Did you grow up in a small town, suburbs, or big city?
___ Small town
___ Suburbs
___ Big city

Did you attend summer camp as a child?
___ Yes
___ No
Did you take music lessons?
___ Yes
___ No

Did you participate in any sports team at school or in the community?
___ Yes
___ No

Did you work part time during high school?
___ Yes
___ No

Did you serve on the student council in high school?
___ Yes
___ No

Were you ever in a co-op program in high school?
___ Yes
___ No

Were you ever involved in community services (e.g. volunteering at a hospital)?
___ Yes
___ No

For the following personality dimensions, click on the button above the trait that describes you best.

- Honest
- Deceitful
- Emotional
- Rational
- Quiet
- Talkative
- Independent
- Dependent
- Usually tired
- Usually peppy
- Clean
- Messy
- Religious
- Not religious
- Conservative
- Liberal
- Satisfied easily
- Perfectionist
- Procrastinator
- Non-procrastinator