Central and Peripheral Self-Conceptions Are Differentially Influenced by Mood: Tests of the Differential Sensitivity Hypothesis

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This article proposes a *differential sensitivity hypothesis*, according to which central (i.e., relatively high in personal descriptiveness and importance) and peripheral (i.e., relatively low in personal descriptiveness and importance) self-conceptions are differentially influenced by mood: Peripheral self-conceptions are subject to a mood-congruency bias, whereas central self-conceptions are un-affected by mood. In 4 experiments, participants were first placed into a sad, neutral, or happy mood state through a guided imagery task and later completed behavior self-descriptiveness ratings, trait self-descriptiveness ratings, and trait self-descriptiveness judgmental latencies. Strong support for the differential sensitivity hypothesis was obtained. Peripheral self-conceptions were influenced by mood because they were less elaborated and consolidated and were held with lower certainty, thus increasing the likelihood for the occurrence of constructive, affect-infusing processes (J. P. Forgas, 1995a).

Social and personality psychologists show no signs of decline in their continuing fascination with the self-concept, defined for the purposes of this article as the cognitive representation of information pertaining to personal attributes. Recent theorizing and research have focused on several facets of the self-concept, such as its structure (Breckler, Pratkanis, & McCann, 1991; Greenwald & Banaji, 1989; Higgins, Van Hook, & Dorfman, 1988); its memorial and judgmental effects (Carpenter, 1988; Kahan & Johnson, 1992; Sedikides & Skowronski, 1993); its emotional consequences (Higgins, 1987; Higgins, Vookles, & Tykocinski, 1992; Showers, 1992); its motivational implications (Moffitt & Singer, 1994; Oyserman & Markus, 1990; Ruvolo & Markus, 1992); and its content.

The content of the self-concept is rich and diverse. It includes information about one's (a) possessions; (b) demographic characteristics; (c) personality and behavioral attributes; (d) physical qualities; (e) activities and life events; (f) feelings, thoughts, goals, values, standards, and rules for behavioral regulation; and (g) significant relationships with individuals and groups (Belk, 1988; McGuire & McGuire, 1981; Markus, 1983; Markus & Cross, 1990). This large number of self-representations has been summarized through psychological dimensions such as masculinity–femininity, achievement–leadership, congeniality–sociability, conventionality–unconventionality, competence–incompetence, and well-being or adjustment (Monge, 1975; Mortimer, Finch, & Kumka, 1982). Additionally, the content of the self-concept has

been summarized through the dimension of valence (i.e., negativity–positivity; Kendall, Howard, & Hays, 1989; Linville, 1985, 1987; Markus & Nurius, 1986; Ogilvie, 1987; Schwartz, 1986).

The valence dimension of the self-concept is associated with crucial aspects of human thinking, feeling, and behaving. Self-conception valence is involved in such processes as acceptance of interpersonal feedback, self-evaluation, performance in achievement tasks, goal setting, and health behavior (Hooker & Kraus, 1992; Markus & Nurius, 1986; Sedikides, 1993; Swann, 1990; Taylor & Brown, 1988).[1] Given that self-conception valence plays a notable role in human functioning, it is sensible to step back and ask questions about parameters affecting variation in self-conception valence.

Such parameters can be generally conceptualized as either cognitive or affective. Cognitive parameters refer to the constructs that one uses to interpret one's behavior. Research on symbolic interactionism has illustrated that the valence of one's interpretation of one's behavior is consistent with the valence of constructs used by significant others (Backman, Secord, & Peirce, 1963; S. Rosenberg, 1988; Stryker & Statham, 1985). In a similar vein, research on construct availability and accessibility has shown that the valence of one's available and accessible constructs is related to the valence of one's inferences about the self (Bargh & Tota, 1988; Hammen, Marks, deMayo, & Mayol, 1985; Kuiper, Olinger, MacDonald, & Shaw, 1985).

Affective parameters of self-conception valence refer to the ways in which affective (i.e., mood and emotional) states alter the valence of the self-concept. The present research is concerned with the consequences of mood states, sad and happy ones in particular, for self-conception valence.

[1] For research highlighting the role of the valence dimension in the perception and classification of environmental objects, see Eysenck, 1960; Osgood and Suci, 1955; and Scherer, Koivumaki, and Rosenthal, 1972.

On the Consequences of Mood for Self-Conception Valence

In this section, I first define the term *mood* and differentiate it from the term *emotion*. Next, I justify the concern of this research for sad and happy moods. Finally, I summarize the current status of research on the relation between mood and the self-concept, distinguish between central and peripheral self-conceptions, and formulate predictions on the basis of a new comprehensive model (Forgas, 1995a) regarding the differential effects of mood on the valence of central and peripheral self-conceptions.

Defining Mood

Following Forgas (1995a), I assume that the term *affect* can be used as a generic label to define both moods and emotions. Compared to emotions, moods are generally considered more persistent, lower in intensity, more diffuse and global, and often without a traceable antecedent (Clark & Isen, 1982; Forgas, 1992a; Frijda, 1993; Schwarz & Clore, 1988; Sedikides, 1992a). Moods are also viewed as providing information that facilitates judgments about the probability of future events, whereas emotions are viewed as providing information that pertains to goal attainment (Batson, Shaw, & Oleson, 1992). However, these hypothesized differences between moods and emotions are difficult to operationalize and document. Thus, a new working definition of mood was used in the present research. *Moods* are affective states whose consequences (on cognition or behavior) are examined by the experimenter in a *different* context from the one in which moods were induced. *Emotions* are affective states whose consequences are examined in the *same* context in which emotions were induced. In that sense, mood effects are of particular interest because they are likely to be more "enduring, subtle and insidious" (Forgas, 1995a, p. 41; see also Mayer, 1986; Mayer, Gaschke, Braverman, & Evans, 1992; and Sedikides, 1992a).

Focus on Sad and Happy Moods

This research is particularly concerned with sad and happy mood states.[2] There are several reasons for this focus. First, sad and happy mood states have a strong presence in daily life (Csikszentmihalyi & Figurski, 1982) and carry profound consequences for memory, judgment, and behavior (Blaney, 1986; Isen, 1984, 1987; Forgas, 1991; Sedikides, 1992a). Second, sad and happy mood states are especially relevant to clinical phenomena. Sadness, for instance, is a key correlate of depression (Lewinsohn, Hoberman, Teri, & Hautzinger, 1985; Pyszczynski & Greenberg, 1987). Moreover, the maintenance of happy mood states may deter the frequent occurrence of depressive episodes. A third reason for focusing on sad and happy mood states is historical precedent. The overwhelming majority of experiments examining the influence of mood on self-conception valence have manipulated sad versus happy mood states (Salovey & Rodin, 1985; Sedikides, 1992a). By diverting empirical attention to sad and happy mood states, the present investigation builds on the strengths of past research.

Current Status of Research

Sedikides (1992a) reviewed the literature on the consequences of sad and happy moods for self-conception valence. Self-conceptions were broadly defined in terms of "(a) memories and judgments of one's own past or present personality, behavioral and demographic characteristics, (b) goals or expectations involving the self, and (c) behaviors that are originated by the self and are directed toward the self (i.e., self-directed behaviors)" (p. 275). The review revealed strong support for a mood-congruency bias, particularly with regard to judgmental and memorial measures: Mood colors judgments and memories of the self in a valuatively congruent manner (see also Mayer & Hanson, 1995; Mayer, McCormick, Resnick, & Strong, 1995).

Central Versus Peripheral Self-Conceptions

Past research examining the influence of mood on self-conception valence has neglected a critical distinction: the distinction between central and peripheral self-conceptions. Central self-conceptions are relatively high in personal descriptiveness and importance, whereas peripheral self-conceptions are relatively low in personal descriptiveness and importance.[3]

The distinction between central and peripheral self-conceptions has been drawn by several self researchers. M. Rosenberg (1979) maintained that the self is hierarchically organized with some components being central and other components being peripheral to the individual. Similar claims have been made by Gergen (1968), Markus and Wurf (1987), and Stryker (1980).

Markus (1977) demonstrated that central (or self-schematic) and peripheral (or self-aschematic) self-conceptions bear distinct information-processing consequences. She found that information related to central (as opposed to peripheral) self-conceptions is richer, processed faster, and predicted more confidently. Moreover, information that counters central self-conceptions is met with stronger resistance than information that counters peripheral self-conceptions.

Additional research has also provided evidence for the view that central and peripheral self-conceptions are associated with distinct processing consequences. For example, people (a) desire more feedback about and are more likely to affirm central rather than peripheral self-conceptions (Pelham, 1991; Sedikides, 1993; Swann, 1990); (b) regard tasks at which they failed

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[2] Induction of a sad or happy mood state does not guarantee the exclusivity of that state. That is, sad mood may be associated with or lead to additional, usually negative, mood states, and happy mood may be associated with or lead to additional, usually positive, mood states. The present research cannot assess empirically this possibility, because the manipulation check scales that were used probed only for sad and happy mood states. Nevertheless, it can be argued that the predominant (rather than the exclusive) mood states induced were sadness and happiness. Validation for this argument is provided by a study that used identical mood-induction procedures and yielded results typical of sad and happy mood states (Sedikides, 1994).

[3] Peripheral self-conceptions are not defined as conceptions that are non-self-relevant (i.e., self-conceptions that are not a part of the self-concept). Instead, peripheral self-conceptions are defined as conceptions that are less self-relevant (i.e., self-conceptions whose descriptiveness of and importance for the self-system are relatively low).

as less central to the self than tasks at which they succeeded (Campbell, 1986; Hill, Smith, & Lewicki, 1989); and (c) avoid social comparison in which the outcome is projected to be negative when the comparison involves central aspects of the self-concept (Tesser, 1988).

The centrality–peripherality distinction has also been shown to have consequences for social perception. Perceivers possess biased social prototypes: Their positive prototypes that are central to the self consist of highly self-descriptive attributes (Dunning, Perie, & Story, 1991). In addition, perceivers seek social information that is related to their central rather than peripheral self-conceptions (Fong & Markus, 1982; Riggs & Cantor, 1984), with this informational preference resulting in differential evaluation of other people (Sedikides & Skowronski, 1993). Perceivers are even more likely to demonstrate ingroup preference when ethnic identity is important to them than when it is not (Verkuyten, 1991).

The Differential Sensitivity Hypothesis

It is evident from the preceding discussion that the distinction between central and peripheral self-conceptions is well established. I wish to capitalize on this distinction in proposing the *differential sensitivity hypothesis*. This hypothesis states that central and peripheral self-conceptions are differentially sensitive to the influence of mood: Peripheral self-conceptions are subject to a mood-congruency bias, whereas central self-conceptions are unaffected by mood.

Why should the two types of self-conceptions be differentially influenced by mood? What are the attributes of central versus peripheral self-conceptions that would justify proposing the differential sensitivity hypothesis?

Differences Between Central and Peripheral Self-Conceptions

Valence extremity. Central and peripheral self-conceptions may differ in terms of valence extremity. That is, ratings of (positive and negative) central self-conceptions (i.e., behaviors or traits) may near the extremes of the scale, whereas ratings of (positive and negative) peripheral traits may hover around the scale midpoint. Sedikides (1993) found that participants rated their central self-conceptions as either more positive or more negative than their peripheral traits. Simply put, being trustworthy, kind, and friendly (i.e., central self-conceptions) is perceived as more positive than being modest, predictable, and uncomplaining (i.e., peripheral self-conceptions); likewise, being untrustworthy, unkind, and unfriendly is perceived as more negative than being immodest, unpredictable, and complaining.

Diagnosticity. Central and peripheral self-conceptions may differ in terms of perceived diagnosticity. Central self-conceptions may be thought of as more diagnostic of the "true self" than peripheral self-conceptions.

Cumulative elaboration and consolidation. Central and peripheral self-conceptions may differ with regard to elaboration and consolidation. For the purposes of the present article, a distinction needs to be made between cumulative and on-line elaboration. *Cumulative* elaboration refers to the amount of *past* thinking associated with a given self-conception or information

relevant to it. *On-line* elaboration refers to the amount of thinking a given self-conception, or information relevant to it, is *currently* receiving while being processed.

Central self-conceptions are the end result of considerable amounts of cumulative elaboration. People chronically affirm their central self-conceptions through biased information processing (e.g., selective attention to feedback, interpretation of feedback, or recall) and exposure to social environments (e.g., preference for self-verifying others, possessions, or occupational settings; Swann, 1990; see also Kunda, 1990). As a consequence, central self-conceptions form strong interconnections in autobiographical memory or are strongly connected to a core node that is assumed to represent the "self" (Kihlstrom & Klein, 1994). It is as if central self-conceptions are cognitively glued to the self. Central self-conceptions may also be motivationally and emotionally cemented to the self. Perseverance of central self-conceptions is likely to afford a sense of control and predictability (Swann, 1990), which is a motivational gain. Furthermore, changes in central self-conceptions are likely to propel a reorganization of the structure of the self, a process that may initiate aversive emotion. In conclusion, cognitive, motivational, and emotional issues are likely to lead (through cumulative elaboration) to central self-conceptions being characterized by (a) high degrees of knowledge or embellishment, (b) relative invariance, (c) high availability and accessibility, and (d) the capacity for fast and effortless processing of old and new relevant information. Stated otherwise, central self-conceptions represent more consolidated cognitive structures than peripheral self-conceptions.

Certainty. The two types of self-conceptions are likely to differ in certainty. In comparison to peripheral self-conceptions, central self-conceptions are held with higher certainty, probably as a function of their higher degree of cumulative elaboration and consolidation. Results of a recent study by Sedikides (1993, Experiment 4) supported the notion that central self-conceptions are held with higher certainty than peripheral ones.

Rationale for the Differential Sensitivity Hypothesis

The Affect Infusion Model

The theoretical rationale for expecting central and peripheral self-conceptions to be differentially influenced by mood is based on Forgas's affect infusion model (AIM; Forgas, 1995a; see also Fiedler, 1990; Forgas, 1992a, 1992b, 1994a).

Affect infusion is defined as "the process whereby affectively loaded information exerts an influence on and becomes incorporated into the judgmental process, entering into the judge's constructive deliberations and eventually coloring the judgmental outcome" (Forgas, 1995a, p. 39). The AIM distinguishes among four kinds of processing strategies. The *direct access* strategy refers to the direct retrieval of a stored evaluative judgment (instead of the computation of a new one). The *motivated processing* strategy refers to a highly focused information search that is designed to bolster a preexisting goal. Both of these strategies are characterized by low affect infusion potential. In contrast, the *heuristic processing* and the *substantive processing* strategies involve high affect infusion potential. Both strategies occur when a new judgment needs to be computed in

the absence of a preexisting goal. However, minimal processing effort suffices for heuristic processing, whereas constructive processing (i.e., "involving the substantial transformation rather than the mere reproduction of existing cognitive representations, requiring a relatively open information search strategy, and a significant degree of generative elaboration of the available stimulus details"; Forgas, 1995a, p. 39) is essential for substantive processing.

These four strategies are likely to be used under different conditions. The direct access and motivated processing strategies are particularly likely to be used when the stimulus domain is familiar, typical, or unambiguous and when there are no situational forces or personality characteristics that are likely to lead to detailed consideration of the stimulus information. In contrast, the heuristic processing and substantive processing strategies are likely to be used when the stimulus domain is unfamiliar, atypical, or ambiguous and when there are situational forces or personality characteristics that are likely to lead to detailed consideration of the stimulus information.

In sum, the AIM specifies circumstances under which mood effects are (a) unlikely to be obtained (i.e., when the direct access or motivated processing strategy is used), and (b) likely to be obtained (i.e., when heuristic or substantive processing is involved). Additionally, the AIM specifies the resulting type of mood effect. Both heuristic and substantive processing lead to a mood-congruency effect either through an affect-as-information mechanism (i.e., using mood as a heuristic for inferring the evaluative reaction to a stimulus domain) or through an affect-as-priming mechanism (i.e., whereby mood renders similarly valenced associations accessible in memory, which in turn influence the judgmental process), respectively.

The AIM has received ample empirical support (Forgas, 1995a). For the purposes of the present investigation, it suffices to state that mood-congruency effects have been consistently found when substantive processing is instigated by the unfamiliarity, atypicality, or ambiguity of the stimulus domain (e.g., persons, products, conflict episodes, illness symptoms, persuasive arguments; Forgas, 1992c, 1992d, 1994b, 1995b; Petty, Gleicher, & Baker, 1991; Salovey & Birnbaum, 1989; Srull, 1984) as well as by situational factors or personality characteristics (i.e., need for cognition) of the perceiver (Forgas, Bower, & Krantz, 1984; Petty, Schumann, Richman, & Strathman, 1993; Wegener, Petty, & Klein, 1994). Furthermore, heuristic processing has been shown usually to engender mood-congruency effects as long as participants do not become consciously aware of their mood states and the relevancy of their mood states for the ensuing judgment. Instigation of the direct access and motivated processing strategies has not been found to elicit mood effects.

Implications of the AIM for the Centrality–Peripherality Distinction

The counterintuitive and intriguing predictions of the AIM have implications for the distinction between central and peripheral self-conceptions. I propose that people are likely to process information relevant to their central self-conceptions through either a direct access or motivated processing strategy, whereas they are likely to process information relevant to their peripheral self-conceptions through either a substantive processing or heuristic processing strategy.

The preceding proposal is based on the observation that central self-conceptions share attributes of judgmental domains where direct or motivated processing has already been demonstrated to occur, whereas peripheral self-conceptions share attributes of judgmental domains where substantive processing has been shown to take place. That is, central self-conceptions are more familiar, typical, and unambiguous to the individual by definition (i.e., central self-conceptions are highly self-descriptive of the individual); are held with greater certainty; and are more cumulatively elaborated and consolidated—attributes that are likely to instigate the direct access strategy. Moreover, central self-conceptions are very important to the individual: They are attributes that are likely to induce the motivated processing strategy (i.e., speedy confirmation of positive attributes and speedy disconfirmation of negative attributes). In contrast, peripheral self-conceptions are relatively unfamiliar, atypical, and ambiguous; are held with lower certainty; are less cumulatively elaborated and consolidated; and are less important to the individual. These attributes are likely to incite either the substantive or the heuristic processing strategy. Thus, information pertaining to peripheral self-conceptions is processed in a slower and more detailed manner.

The suggestion that either the substantive or the heuristic processing strategy is used when processing information pertaining to peripheral (but not central) self-conceptions leads directly to the differential sensitivity hypothesis: Mood influences peripheral (but not central) self-conceptions. Mood exerts *mood-congruent* effects on peripheral self-conceptions through either the mechanism of affect priming or the mechanism of affect-as-information. Stated otherwise, mood influences judgment by either of two routes: (a) by priming similarly valenced associations and thus increasing the likelihood of such associations being used in the judgmental process, or (b) by providing heuristically useful information regarding the favorableness or unfavorableness of the judgmental outcome. An important aim of the reported research is to distinguish between these two mechanisms.[4]

Present Investigation: An Overview

The present investigation was designed to test the differential sensitivity hypothesis. Four experiments are reported. Experi-

[4] Past research has distinguished between attitudes or judgments that are memory-based and ones that are formed on-line. This past research has shown that attitudes or judgments formed on-line are more susceptible to the influence of contextual variables (e.g., Bassili & Fletcher, 1991; Fazio, 1986; Judd, Drake, Downing, & Krosnick, 1991; Petty & Krosnick, 1994; Strack & Martin, 1987; Tourangeau & Rasinski, 1988). The present conceptualization and research differ from the past ones in several respects. First, both central and peripheral self-conceptions are arguably memory-based. Second, it is the specific nature of differences between central and peripheral self-conceptions that is of theoretical and empirical interest. Third, the theory underlying the present research (the affect infusion model) predicts different patterns of mood effects for central versus peripheral self-conceptions. Finally, one important aim of the present research is to test underlying mechanisms (i.e., affect-as-priming vs. affect-as-information) of mood effects on self-conceptions.

ment 1 attempted to (a) provide an initial test of the hypothesis, and (b) rule out the possibility that the obtained effects are due to the differential valence and diagnosticity of central and peripheral self-conceptions. This experiment operationalized self-conceptions in terms of behaviors. In contrast, Experiment 2 operationalized self-conceptions as traits. This experiment attempted to replicate Experiment 1 and also provide a preliminary test of the notion that the obtained mood effects are due to the differential certainty with which central versus peripheral self-conceptions are held. Experiment 3 examined trait self-descriptiveness judgmental latencies (along with trait self-descriptiveness ratings) in an effort to test conclusively the notion that different degrees of certainty, cumulative elaboration, and consolidation between central and peripheral self-conceptions are responsible for the differential susceptibility of these two types of self-conceptions to the impact of mood. Stated differently, Experiment 3 examined whether judgmental latencies mediate the effects of mood on the valence of peripheral self-conceptions. Experiment 3 also began testing whether substantive as opposed to heuristic processing is involved in judging the self-descriptiveness of peripheral self-conceptions under the influence of mood. Experiment 4 tested directly the relative prevalence of substantive versus heuristic processes in self-descriptiveness judgments by manipulating the degree (i.e., high vs. low) of on-line elaborative processing devoted to peripheral self-conceptions.

Experiment 1: Influence of Mood on Self-Descriptiveness Ratings of Central Versus Peripheral Self-Conceptions

The primary purpose of Experiment 1 was to provide an initial test of the differential sensitivity hypothesis. Self-conceptions were operationalized in terms of behaviors. Behaviors are considered an integral form of self-knowledge representation (Bellezza, 1984; Groninger & Groninger, 1984; Hampson, 1982; Locksley & Lenauer, 1981; Warren, Chattin, Thompson, & Tomsky, 1983). At times, individuals store the concrete behaviors they perform rather than computing abstractions (i.e., traits) by observing their own behaviors. Nevertheless, the concreteness–abstractness dimension is unavoidably muddled in the context of this experiment, because when asked to make behavioral self-descriptiveness judgments, participants are likely to form spontaneous trait inferences (Newman & Uleman, 1989; Uleman, 1989; Winter & Uleman, 1984; for an informative discussion on the concreteness–abstractness dimension of self-knowledge, see Klein & Loftus, 1993).

Experiment 1 served an additional purpose. As stated previously, central self-conceptions are likely to differ from peripheral ones in terms of (a) valence, (b) diagnosticity, (c) cumulative elaboration and consolidation, and (d) certainty. Experiment 1 tested the first two explanations of the differential sensitivity hypothesis. That is, the experiment tested the possibility that differential mood effects on central and peripheral self-conceptions are observed *even when* controlling (i.e., equalizing the self-conceptions) for valence and diagnosticity.

Method

Participants and Experimental Design

One hundred and twenty individuals participated. In this and all subsequent experiments, participants were (a) University of Wisconsin—Madison introductory psychology students participating for extra course credit, and (b) assigned randomly to the between-subjects conditions of the experimental design. The design involved a 3 (mood: sad, neutral, happy) × 4 (behavior presentation order) × 2 (behavior valence: negative behaviors, positive behaviors) × 2 (behavior type: central behaviors, peripheral behaviors) mixed-subjects factorial, with the first two factors being between subjects and the last two factors being within subjects. A balanced Latin-square design was used to generate four orders of the central positive, central negative, peripheral positive, and peripheral negative behaviors.

Behavior Selection

The experiment was run in two sessions. In the first session, 166 students filled out a booklet during the second and third weeks of an academic semester. Participants listed, on separate pages that were presented in random order, (a) four traits that they thought were as positive as possible, described themselves very well, and were very important to them (i.e., central positive traits); (b) four traits that they thought were as negative as possible, described themselves very well, and were very important to them (i.e., central negative traits); (c) four traits that they thought were as positive as possible, did not describe them well, and were not important to them (i.e., peripheral positive traits); and (d) four traits that they thought were as negative as possible, did not describe them well, and were not important to them (i.e., peripheral negative traits). On the fifth page of the booklet, participants listed their names and phone numbers.

Two experimental assistants selected the top three traits from each of the four categories for each participant (143, or 86%, of the participants listed four traits per category). Then, the assistants generated 12 high diagnosticity behaviors for each of the 12 traits. The term *high diagnosticity behavior* was defined for the experimental assistants as "behavior that is highly likely to tell whether the actor has or does not have the underlying trait." This definition was clarified through extended discussion and use of examples.

Following considerable editing by Constantine Sedikides and a new pair of experimental assistants, the 144 high diagnosticity behaviors were administered to a new group of 76 students. These participants rated all behaviors for (a) valence (i.e., how negative or positive is this behavior?) on a 7-point scale (0 = *negative*, 6 = *positive*), and (b) diagnosticity (i.e., how likely is this behavior to tell whether the actor has the underlying trait?) on a 9-point scale (1 = *highly unlikely*, 9 = *highly likely*).

Between the 8th and 14th weeks of the same academic semester, the latter pair of experimental assistants telephoned the initial pool of students and scheduled individual appointments with them for a study on "person perception" (second session). The assistants contacted 129 students in order to secure the 120 individuals who participated in the second session of the experiment (9 students either refused to participate or failed to show up at the scheduled time). For each of the 120 participants, the assistants selected 36 behaviors (i.e., 3 behaviors per trait) that exemplified the traits the particular participant had generated in the first session. The behavior selection process was guided by the stipulation that the mean valence and diagnosticity ratings of the behaviors be approximately equal across the four categories (i.e., central positive, central negative, peripheral positive, and peripheral negative). The selection process was partially successful in equalizing for valence and was successful in equalizing for diagnosticity. With regard to valence, the central negative behaviors ($M = 2.46$) were not

significantly different from the peripheral negative ones (M = 2.52), $F(1, 75)$ = 0.59, $p < .46$; however, the central positive behaviors (M = 4.72) had significantly higher ratings than the peripheral positive ones (M = 4.40), $F(1, 75)$ = 6.89, $p < .01$. With regard to diagnosticity, the central positive behaviors (M = 7.48) were not significantly different from the peripheral positive ones (M = 7.34), $F(1, 75)$ = 0.87, $p < .35$; likewise, the central negative behaviors (M = 7.28) were not significantly different from the peripheral negative ones (M = 7.08), $F(1, 75)$ = 1.40, $p < .24$.

The Mood-Induction Task

Rationale for the construction and use of the mood-induction task. The construction and use of the mood-induction task was based on a distinction offered by Carlson and Miller (1987). These investigators distinguished between attentional focus that is (a) either self-directed or other-directed, and (b) either inward or outward. In the case of self-directed attentional focus, one is led to think about the self as the target of an event, whereas in the case of other-directed attentional focus, one is led to think about another person as the target of an event. Additionally, inward focus refers to thinking about one's own thoughts and feelings, whereas outward focus refers to thinking about another person's thoughts and feelings.

The mood-induction task used in the present investigation involved an other-directed and outward attentional focus because of the particular concern of the investigation with mood effects on *self-conceptions*. Past research has shown that a self-directed and inward attentional focus can elicit a sad mood in individuals with chronically negative self-conceptions (Sedikides, 1992b). The choice of an other-directed and outward attentional focus should suffice to preclude the possibility of confounding between the effects of mood and the unwanted effects of the mood-induction task per se (i.e., attentional focus on the self).

Description of the mood-induction task. Sad mood was induced in one third of the participants, neutral mood was induced in another third, and happy mood was induced in the remaining third. Mood was induced through two-step guided imagery procedures (e.g., Sedikides, 1992c). Participants were put into a *sad mood* state by first imagining that a friend of theirs was burned in a fire and was in critical condition. They imagined for 2 min how their friend would feel and think and were provided with photographs of burn victims to assist them in their imagination. Participants then spent 3 min writing about the friend's feelings and thoughts. Next, participants imagined for 2 min that their friend succumbed to the injuries and died. Subsequently, they wrote for 3 min about the feelings and thoughts that the friend's parents would experience.

Participants were placed in a *neutral mood* state by first imagining for 2 min that a friend of theirs was watching the evening news on television and were provided with photographs of people watching television to assist them in their imagination. Next, they wrote down in 3 min how the friend would feel and think while watching the evening news. Next, participants imagined for 2 min that their friend was riding a bus. Participants subsequently wrote for 3 min about the friend's feelings and thoughts while riding the bus.

Participants were put into a *happy mood* state by first imagining for 2 min that a friend of theirs had won a free cruise to the Caribbean islands and were given travel brochures to aid them in their imagination. They then spent 3 min writing about the friend's feelings and thoughts regarding the prize and the impending trip. Participants subsequently imagined for 2 min that their friend had won $1 million in the state lottery. Participants wrote about the friend's feelings and thoughts for an additional 3 min.

All materials relevant to the mood-induction task were left in front of the participants during the ensuing experimental session to maximize the probability that the induced mood was maintained.

Procedure

A procedural scenario (patterned after Sedikides, 1990) was implemented to conceal the relation between the mood-induction task and the collection of the dependent measures. The implementation of this scenario was considered necessary in light of findings pointing to attenuation or disappearance of mood effects as a function of participants' awareness of the connection between the source of their mood and their subsequent responses (e.g., Berkowitz & Troccoli, 1990; Strack, Schwarz, & Gschneidinger, 1985).

Two experimenters were involved in collecting data from each participant (second session). Experimenter A escorted the participant to the experimental room, introduced himself or herself, and introduced the experiment as a study on perception. Experimenter A added that he or she had to ask the participant a favor. Experimenter A called in Experimenter B (who was waiting outside of the room) and introduced Experimenter B as an honors student doing a thesis on people's ability for imaginative thinking. Experimenter A requested permission from the participant to donate "only a few minutes" in helping out Experimenter B with his or her research. After the participant consented (all of them did), Experimenter A stepped out of the room.

Experimenter B told the participant that the thesis involved people's "ability to imagine vivid life events." The experimenter instructed the participant to imagine an event for 2 min and write about the event for another 3 min; then, the participant imagined a new event for another 2 min and wrote about it for 3 min. This sequence constituted the mood-induction manipulation. Finally, the participant completed five ratings. First, the participant rated the two-step imagination task on a 9-point scale in terms of easiness of imagining (1 = *extremely difficult to imagine*, 9 = *extremely easy to imagine*). Then, the participant indicated how he or she felt on three 9-point scales: sad–happy, elated–depressed, and gloomy–content. The scale values were anchored as follows: 1 = *extremely sad* (elated, gloomy); 2 = *very sad* (elated, gloomy); 3 = *moderately sad* (elated, gloomy); 4 = *slightly sad* (elated, gloomy); 5 = *neither sad* (elated, gloomy) *nor happy* (depressed, content); 6 = *slightly happy* (depressed, content); 7 = *moderately happy* (depressed, content); 8 = *very happy* (depressed, content); 9 = *extremely happy* (depressed, content). (Note that scores on the elated–depressed scale were reversed for data analysis in order for higher scores to reflect happier mood.) Finally, the participant rated the two-step imagination task for easiness of comprehension on a 9-point scale (1 = *extremely difficult to comprehend*, 9 = *extremely easy to comprehend*).

Next, Experimenter B thanked the participant, stepped out of the room, thanked Experimenter A out loud so that the participant could hear, and left. At this point, Experimenter A took over. He or she told the participant that the study on perception was about to begin, distributed a booklet composed of 48 quarter-pages, and asked the participant to fill out the booklet. The quarter-pages contained the 36 behaviors (3 for each of 12 traits) plus an additional 12 "filler" behaviors, which were not used in data analyses. Half of the filler behaviors preceded and the remaining half followed the 36 behaviors of interest. The behaviors were presented in the form "I am the kind of person who would. . . ." Participants rated on a scale ranging from 1 (*definitely not me*) to 9 (*definitely me*) how well each behavior described them. Examples of behaviors diagnostic of the traits intelligent (central positive), socially awkward (central negative), carefree (peripheral positive), and dependent (peripheral negative), respectively, are: "I am the kind of person who would be able to complete both her PhD and MD in 6 years"; "I am the kind of person who would feel and act funny around people I didn't know well"; "I am the kind of person who would easily disappear for a week in the woods of northern Wisconsin just for kicks"; and "I am the kind of person who would follow the advice of his parents for which professional or graduate school to attend."

For the purpose of minimizing the possibility of suspicion on the part of participants, the two experimenters were of different genders, were

dressed differently (relatively formally vs. relatively casually), and administered booklets whose pages were colored differently (green vs. white) and had different font sizes (Helvetika 10 vs. Helvetika 12).

At the conclusion of this and all succeeding experiments, participants (a) were probed for suspicion (none suspected the connection between the two "studies" with the exception of several in Experiment 3—see *Method* section of this experiment); (b) read two pages of Calvin and Hobbes comics intended to alleviate any lingering effects of mood, particularly sad mood; and (3) were thoroughly debriefed, thanked for their participation, and excused.

Results and Discussion

Manipulation Check

Responses to the three mood-assessing scales (i.e., sad–happy, depressed–elated, and gloomy–content) were internally consistent, $\alpha = .81$. The responses were averaged and entered in an analysis of variance (ANOVA) with mood as the between-subjects factor. This analysis indicated that the mood-induction task was effective: mood main effect, $F(2, 117) = 41.90, p < .0001$. Orthogonal contrasts ($p < .0001$) showed that sad-mood participants ($M = 4.05$) reported feeling sadder than neutral-mood participants ($M = 5.55$), who in turn reported feeling less happy than happy-mood participants ($M = 6.88$). Furthermore, participants perceived the mood-induction tasks as essentially equally easy to imagine, $F(2, 117) = 0.29, p < .75$, and comprehend, $F(2, 117) = 0.85, p < .43$.

Influence of Mood on Self-Conception Valence

The differential sensitivity hypothesis was tested by the triple interaction among mood, behavior valence, and behavior type. This interaction was significant, $F(2, 108) = 4.75, p < .01$ (Figure 1). To provide a detailed test of the differential processing hypothesis, I examined the Mood × Behavior Valence interaction separately for central and peripheral behaviors.

Does mood affect central self-conceptions? The Mood × Behavior Valence interaction (considered exclusively for central behaviors) was not significant, $F(2, 108) = 0.005, p < .99$. Mood did not affect central self-conceptions.

Does mood affect peripheral self-conceptions? The Mood × Behavior Valence interaction (considered exclusively for peripheral behaviors) was significant, $F(2, 108) = 5.24, p < .007$. Mood influenced peripheral self-conceptions. A series of orthogonal contrasts was undertaken to examine more specifically effects of mood on peripheral positive and peripheral negative behaviors.

First, the effects of mood on peripheral positive behaviors were examined. Sad mood (a) did not differentially affect self-descriptiveness ratings of these behaviors in comparison to neutral mood, $p < .78$, but (b) led to lower self-descriptiveness ratings of the behaviors than happy mood, $p < .02$, and also (c) induced a directional tendency toward lower self-descriptiveness ratings of the behaviors than neutral–happy moods combined, $p < .14$. Furthermore, happy mood led to higher self-descriptiveness ratings of the behaviors than either neutral mood, $p < .05$, or sad–neutral moods combined, $p < .02$. These results generally demonstrate a mood-congruency bias. Mood altered the self-descriptiveness ratings of peripheral positive
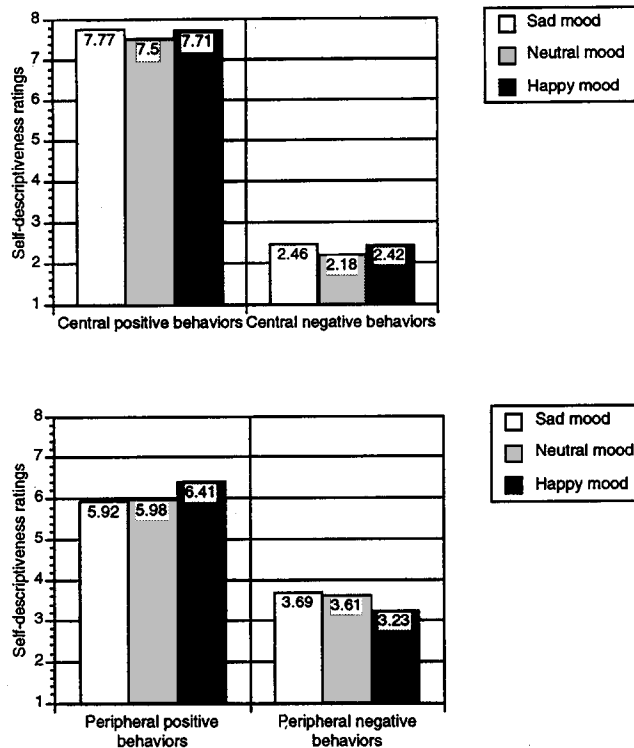

Figure 1. Self-descriptiveness ratings as a function of mood, trait valence, and trait type.

self-conceptions in a mood-congruent fashion. That is, participants in a sad mood tended to be somewhat less willing to endorse peripheral positive behaviors as self-descriptive, whereas those in a happy mood were more willing to endorse peripheral positive behaviors as self-descriptive.

Next, the effects of mood on peripheral negative behaviors were examined. Sad mood (a) did not affect the self-descriptiveness ratings of these behaviors in relation to neutral mood, $p < .66$, but (b) led to higher self-descriptiveness ratings in comparison to happy mood, $p < .02$, and also (c) tended to augment self-descriptiveness ratings in comparison to neutral–happy moods combined, $p < .10$. Furthermore, happy mood (a) led to lower self-descriptiveness ratings of the behaviors in relation to either neutral mood, $p < .05$, or sad–neutral moods combined, $p < .01$. These results show a mood-congruency bias. Sad-mood participants were more willing to endorse peripheral negative behaviors as self-descriptive, whereas happy-mood participants were less willing to endorse peripheral negative behaviors as self-descriptive.

The role of preexisting valence differences between central and peripheral behaviors. As a reminder, the behavior selection process was not completely successful in equalizing for valence. Although the valence of the central negative behaviors was not significantly different from the valence of the peripheral negative behaviors, the valence of the central positive behaviors was significantly higher than the valence of the peripheral positive behaviors.

If the explanation that the observed effects of mood are due to unequal valence between central and peripheral self-concep-

tions is correct, mood effects on the valence of peripheral negative behaviors should parallel mood effects on the valence of central negative behaviors, because the valence of these two categories of behaviors was equalized. At the same time, mood effects on the valence of peripheral positive behaviors should differ from mood effects on the valence of central positive behaviors; in this case, mood should affect the peripheral more powerfully than the central behaviors because of the less extreme valence of the peripheral behaviors.

To assess the unequal-valence explanation, I conducted a mixed-subjects ANOVA using mood and behavior presentation order as between-subjects factors, and behavior positivity (central vs. peripheral behaviors) and behavior negativity (central vs. peripheral behaviors) as within-subjects factors. The unequal-valence explanation does not predict a Mood $\times$ Behavior Negativity interaction but does predict a Mood $\times$ Behavior Positivity interaction. No support for the unequal-valence explanation was found. Both the Mood $\times$ Behavior Negativity interaction, $F(1, 108) = 3.32$, $p < .04$, and the Mood $\times$ Behavior Positivity interaction, $F(1, 108) = 2.93$, $p < .058$, were significant. The differential effects of mood on central and peripheral self-conceptions cannot be accounted for by unequal preexisting valence differences between these conceptions.[5]

Summary

Experiment 1 accomplished two objectives. First, it tested and supported the differential sensitivity hypothesis. Whereas sad-mood participants were less willing to endorse the self-descriptiveness of peripheral positive behaviors, happy-mood participants were more willing to do so. Moreover, whereas sad-mood participants were more willing to endorse the self-descriptiveness of peripheral negative behaviors, happy-mood participants were less willing to do so. Second, Experiment 1 ruled out two explanations for the differential sensitivity hypothesis, namely that central self-conceptions are more susceptible to ceiling effects than peripheral self-conceptions either because they are more extreme in valence or because they are more extreme in diagnosticity. The differential influence of mood on central and peripheral self-conceptions was observed even when controlling for valence and diagnosticity.

Experiment 2: Influence of Mood on Self-Descriptiveness Ratings of Central Versus Peripheral Traits

Experiment 1 represented the first validation of the differential sensitivity hypothesis. An attempt for converging validation is in order. This was one objective of Experiment 2.

Experiment 2 operationalized self-conceptions in terms of traits rather than behaviors. Traits were used for several reasons. First, traits are thought to constitute a substantial form of self-knowledge (Kihlstrom & Cantor, 1984; Kihlstrom, Cantor, Albright, Chew, Klein, & Niedenthal, 1988; Klein & Loftus, 1993; Markus, 1980). Second, the use of traits allows for a more direct test of the differential sensitivity hypothesis because participants generate and are subsequently tested on the same traits; in contrast, behaviors were generated by experimental assistants on the basis of traits that participants provided. Third, traits can be matched directly, meaning by the same participants, for

valence across the four categories of theoretical interest (i.e., central positive, central negative, peripheral positive, and peripheral negative); that is, participants can rate the traits they generate for valence, and these valence ratings can be used later for matching purposes. In contrast, behaviors were matched for valence by experimental assistants. Fourth, and most important, the use of traits permits testing of the notion that differences in certainty between central and peripheral traits are at least partially responsible for the differential sensitivity to mood influence of these two types of self-conceptions; this test can be accomplished by gathering certainty ratings and using these ratings as covariates in the ensuing ANOVAs.

Method

Participants and Experimental Design

One hundred and twenty individuals participated. The experiment involved a 3 (mood: sad, neutral, happy) $\times$ 4 (trait presentation order) $\times$ 2 (trait valence: negative, positive) $\times$ 2 (trait type: central, peripheral) mixed-subjects factorial design. Mood and trait presentation order were between-subjects factors, whereas trait type and trait valence were within-subjects factors. A balanced Latin-square design was used to create four orders of the central positive, central negative, peripheral positive, and peripheral negative traits.

Trait Selection

The experiment was run in two sessions. As part of the first session, 314 participants completed a booklet in the second week of an academic semester. Participants listed (on separate pages that were presented in random order) four central positive, four central negative, four peripheral positive, and four peripheral negative traits. Following this task, participants rated each trait they had generated on two 9-point scales. The first scale assessed trait valence; the scale was defined with 1 (*extremely negative*) and 9 (*extremely positive*). The second scale assessed the certainty with which traits were held; the scale was defined with 1 (*extremely uncertain about having this trait*) and 9 (*extremely certain about having this trait*). On the fifth page of the booklet, participants registered their names and phone numbers.

Two experimental assistants telephoned participants between the 7th and 14th weeks of the same academic semester and scheduled an individual appointment for a "study on perception." The assistants telephoned only those who had listed four traits under each of the four categories (257, or 82%, of participants did). The assistants telephoned 133 students; 2 refused to participate, and 11 failed to show up at the scheduled time and were reluctant to reschedule.

Twelve traits were selected for the remaining 120 participants. The trait selection process was guided by the rule that the mean valence rating be approximately equal across the four categories. The process was only partially successful in equalizing for valence. Specifically, the valence ratings of the central positive traits ($M = 7.73$) did not differ significantly from the valence ratings of the peripheral positive traits ($M = 7.62$), $F(1, 119) = 1.17$, $p < .28$. However, the valence ratings of the central negative traits ($M = 3.81$) were significantly higher than the valence ratings of the peripheral negative traits ($M = 3.05$), $F(1, 119) = 26.95$, $p < .0001$.

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[5] Mood did not influence the overall endorsement pattern of behaviors, $F(2, 108) = 1.64$, $p < .19$. Also, mood entered the four-way interaction, $F(6, 108) = 2.88$, $p < .01$; this interaction revealed a complex but ordinal pattern.

Procedure

Each of the 120 participants was individually met and escorted to the laboratory by an experimental assistant (second session). The same mood-induction and procedural scenario as in Experiment 1 was used. The only difference involved participants rating themselves on traits rather than behaviors. Specifically, each participant rated the self-descriptiveness ($1 = $ definitely not me, $9 = $ definitely me) of each of 12 traits that he or she had listed at the first session plus the self-descriptiveness of another 9 traits that he or she had not listed. The filler traits were included to conceal the purpose of the experiment; data pertaining to them were not analyzed. Five of the filler traits preceded and 4 followed the 12 traits of interest.

Results and Discussion

Manipulation Check

Responses to the three mood-assessing scales were internally consistent, $\alpha = .76$. The ANOVA on the mean of the three scales showed that the mood-induction task was effective, $F(2, 117) = 64.83, p < .0001$. Orthogonal contrasts ($p < .0001$) indicated that sad-mood participants ($M = 3.92$) reported feeling sadder than neutral-mood participants ($M = 5.43$), who in turn reported feeling less happy than happy-mood participants ($M = 6.41$). Additionally, the three mood-induction tasks were essentially equally easy for the participants to imagine, $F(2, 117) = 0.08, p < .92$, and to comprehend, $F(2, 117) = 0.46, p < .63$.

Influence of Mood on Self-Conception Valence

The three-way interaction among mood, trait valence, and trait type was significant, $F(2, 108) = 50.30, p < .0001$ (Figure 2). I proceeded to examine the Mood × Trait Valence interaction separately for central and peripheral traits.

Does mood affect central self-conceptions? The interaction between mood and trait valence with reference to central traits was not significant, $F(2, 108) = 0.29, p < .75$. Mood did not influence central self-conceptions.

Does mood affect peripheral self-conceptions? The interaction between mood and trait valence with reference to peripheral traits was significant, $F(2, 108) = 92.63, p < .0001$. Mood exerted a strong influence on peripheral self-conceptions.

Next, orthogonal comparisons were performed on the peripheral positive traits. The comparisons ($ps < .001$) revealed that mood affected these traits in a mood-congruent fashion. Specifically, sad mood resulted in lower endorsement of these traits than either neutral mood, happy mood, or neutral–happy moods combined. Moreover, happy mood yielded higher endorsement of the traits than either neutral mood or neutral–sad moods combined.

The orthogonal contrasts on the peripheral negative traits also revealed a mood-congruency bias. Sad mood resulted in higher endorsement of these traits than either neutral mood ($p < .05$), happy mood ($p < .0001$), or neutral–happy moods combined ($p < .0001$). Furthermore, happy mood resulted in lower endorsement of these traits in comparison to either neutral mood or sad–neutral moods combined ($ps < .0001$).

Certainty of selected traits. In the first experimental session, participants rated for certainty the traits they generated. Central traits ($M = 6.43$) were held with higher certainty than
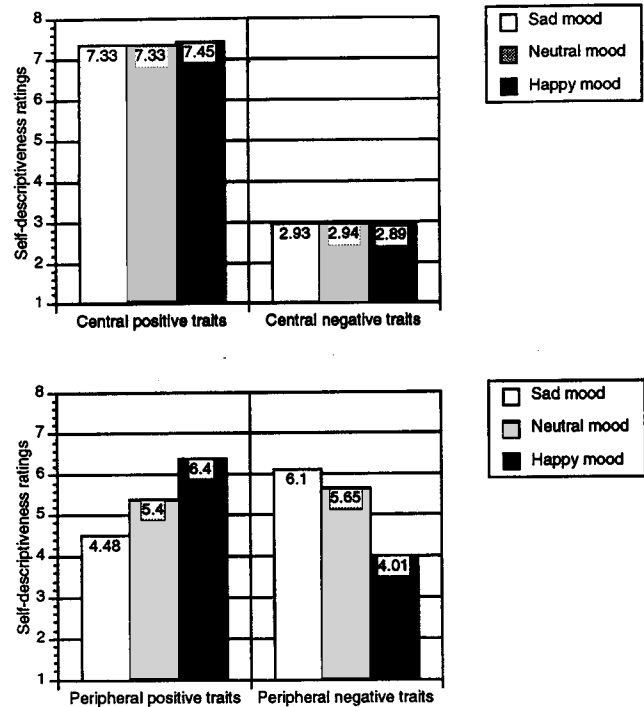

Figure 2. Self-descriptiveness ratings as a function of mood, trait valence, and trait type.

peripheral traits ($M = 5.16$), $F(1, 119) = 166.89, p < .0001$, thus replicating findings by Sedikides (1993).

Can differences in certainty between central and peripheral traits partially account for their differential susceptibility to the influence of mood? To address this question, I conducted an analysis of covariance (ANCOVA) using the same 3 (mood) × 4 (trait presentation order) × 2 (trait valence) × 2 (trait type) design with the addition of certainty for central positive traits, certainty for central negative traits, certainty for peripheral positive traits, and certainty for peripheral negative traits as the four covariates.

The Mood × Trait Type × Trait Valence interaction was still significant, $F(2, 104) = 14.61, p < .0001$, but substantially weakened in comparison to its unadjusted form, $F(2, 108) = 50.30, p < .0001$. Furthermore, the Mood × Trait Type × Certainty for peripheral positive traits covariate interaction was significant, $F(1, 104) = 22.81, p < .0001$, and so was the Mood × Trait Type × Certainty for peripheral negative traits covariate interaction, $F(1, 104) = 7.70, p < .007$.

I conducted an additional ANCOVA using mood and trait presentation order as between-subjects factors, peripheral trait valence (positive, negative) as the within-subjects factor, and certainty for peripheral traits (positive, negative) as the two covariates. The Mood × Peripheral Trait Valence interaction was still significant, $F(2, 106) = 31.68, p < .0001$, but substantially attenuated compared to its unadjusted form, $F(2, 108) = 92.63, p < .0001$. Stated otherwise, the reduction in the error term was significant: Peripheral Trait Valence × Certainty for Peripheral Positive Traits covariate interaction, $F(1, 106) = 27.43, p < .0001$; and Peripheral Trait Valence × Certainty for

Peripheral Negative Traits covariate interaction, $F(1, 106) = 21.70, p < .0001$.

These results provide preliminary support for the explanation that the differential sensitivity to mood influences of central and peripheral self-conceptions is due, in part, to preexisting differences in certainty between these two types of self-conceptions.

The role of preexisting valence differences between central and peripheral traits. The trait selection process was only partially successful in equalizing for valence. The valence ratings of the central positive traits did not significantly differ from the valence ratings of the peripheral positive traits, but the valence ratings of the central negative traits were significantly higher than the valence ratings of the peripheral negative traits.

The unequal valence explanation predicts that mood effects on the valence of peripheral positive traits will parallel mood effects on the valence of central positive traits because of the equalized valence of these two categories of traits. However, mood effects on the valence of peripheral negative traits will differ from mood effects on the valence of central negative traits: Mood will influence the central traits to a greater extent than the peripheral traits because of the less extreme valence of the central traits.

This explanation was tested by a mixed-subjects ANOVA that used mood and trait presentation order as between-subjects factors and trait positivity (central vs. peripheral traits) and trait negativity (central vs. peripheral traits) as within-subjects factors. The explanation does not predict a Mood × Trait Positivity interaction but does predict a Mood × Trait Negativity interaction. Results did not lend support to this explanation. Both the Mood × Trait Positivity interaction, $F(2, 108) = 16.85, p < .0001$, and the Mood × Trait Negativity interaction, $F(2, 108) = 26.63, p < .0001$, were significant. The differential effects of mood on central and peripheral self-conceptions cannot be accounted for by preexisting unequal valences of these conceptions.[6]

Summary

Experiment 2 replicated the results of Experiment 1 in establishing the validity of the differential sensitivity hypothesis: Mood altered the endorsement pattern of peripheral self-conceptions in a valuatively congruent manner but failed to alter the endorsement pattern of central self-conceptions. Additionally, Experiment 2 provided preliminary support for the explanation that certainty is one determinant of the differential susceptibility to mood of central and peripheral self-conceptions. Finally, Experiment 2 replicated Experiment 1 in showing that preexisting valence differences between central and peripheral self-conceptions are not responsible for their differential susceptibility to the impact of mood.

Experiment 3: Influence of Mood on Self-Descriptiveness Latencies of Central Versus Peripheral Traits

If peripheral as opposed to central self-conceptions are less cumulatively elaborated and consolidated in memory, then (a) judging their self-descriptiveness will take longer, and most important, (b) these self-descriptiveness judgmental latencies will

be associated with greater mood effects. Stated somewhat differently, judgmental latencies will mediate the effects of mood on peripheral (but not central) self-conception valence. These predictions were tested in Experiment 3.

Note that Experiment 3 can begin shedding light on an additional issue, namely, whether constructive as opposed to heuristic processing accompanies judgments about the self-descriptiveness of peripheral self-conceptions. If judgmental latencies are found to be associated with self-descriptiveness ratings of peripheral self-conceptions, it will suggest that constructive (i.e., on-line elaborative) as opposed to heuristic processing is involved.

Method

Participants, Experimental Design, Trait Selection, and Procedure

Seventy-two individuals, derived from an initial pool of 237 students, participated in the experiment. Data from an additional 8 participants were discarded because these students indicated suspicion of the connection between aspects of the mood-induction task and the self-descriptiveness task (see below).

The design was identical to the one used in the previous two experiments. The trait selection process was identical to the one used in Experiment 2. The trait selection process was partially successful in equalizing for valence: The central positive traits ($M = 6.17$) were not significantly different from the peripheral positive traits ($M = 6.21$), $F(1, 71) = 0.09, p < .76$; however, the central negative traits ($M = 3.78$) were rated significantly higher than the peripheral negative traits ($M = 3.50$), $F(1, 71) = 5.13, p < .027$.

The procedure was similar to that of Experiment 2, with several exceptions. In the beginning of the mood-induction task, Experimenter B (i.e., the "honors" student) asked participants to sit in front of a Gateway computer and complete two tasks: rate 15 nouns for imaginableness on a 9-point scale (1 = *very easy to imagine;* 9 = *very difficult to imagine*), and rate 15 trait adjectives for the extent to which they described a friend, also on a 9-point scale (1 = *definitely not my friend;* 9 = *definitely my friend*). Each adjective remained on the screen for 3 s. These 30 trials actually served as practice trials for the ensuing self-descriptiveness task. The practice trials familiarized participants with both the computer and the rating scale; that is, participants learned how to associate the 9 points of the scale with different figures and how to press the appropriate button as fast as possible. The mood-induction task followed. Participants were instructed to think of the same friend as the one whom they rated on the 15 trait adjectives. Finally, participants engaged in the self-descriptiveness task. They were instructed to decide as fast as they could how well each of 12 traits described them. They also rated 6 filler traits, 4 of which preceded and 2 of which followed the 12 traits of interest. Each trait was presented on the screen for 3 s. Both the numerical ratings and the judgmental latencies were recorded. Note

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[6] Mood did not affect the overall valence of trait ratings: mood main effect, $F(2, 108) = 1.65, p < .20$. The interaction between mood and trait valence was significant, $F(2, 108) = 43.39, p < .0001$. Endorsement of positive traits increased as a function of mood (mean trait ratings for sad, neutral, and happy moods were 5.90, 6.37, and 6.91, respectively), whereas endorsement of negative traits decreased as a function of mood (mean trait ratings for sad, neutral, and happy moods were 4.51, 4.30, and 3.43, respectively). Finally, the four-way interaction was significant, $F(6, 108) = 2.63, p < .02$; inspection of the means indicated a complex but ordinal pattern.

that there was no overlap between the 15 trait adjectives used to rate a friend and the 18 trait adjectives used to rate the self.

Results and Discussion

Manipulation Check

Responses to the mood-assessing scales were internally consistent, $\alpha = .92$. Mood was induced effectively: mood main effect, $F(2, 69) = 25.32$, $p < .0001$. Orthogonal contrasts demonstrated that sad-mood participants ($M = 3.93$) reported feeling sadder than neutral-mood participants ($M = 5.42$), $p < .0001$, who in turn reported feeling less happy than happy-mood participants ($M = 6.15$), $p < .024$. Additionally, participants found the mood-induction tasks essentially equally easy to imagine, $F(2, 69) = 0.07$, $p < .93$, and comprehend, $F(2, 69) = 2.27$, $p < .11$.

Influence of Mood on Judgmental Latencies

It took participants longer to make judgments about the self-descriptiveness of peripheral ($M = 255$ ms) as opposed to central ($M = 192$ ms) traits: trait type main effect, $F(1, 60) = 178$, $p < .0001$. This finding provides direct evidence for the assertion that peripheral traits are less cumulatively elaborated and consolidated in memory and thus invite the operation of constructive or on-line elaborative processing. (For conceptually similar findings, see Forgas, 1992c, 1994b, 1995b; and Markus, 1977.) Note that this main effect was qualified by a significant Trait Type × Trait Valence interaction: Central positive traits ($M = 176$ ms) were responded to faster than central negative traits ($M = 201$ ms), but peripheral positive traits ($M = 259$ ms) were not responded to faster than peripheral negative traits ($M = 251$ ms), $F(1, 60) = 7.99$, $p < .006$.

The mood main effect was marginally significant. Sad-mood participants ($M = 238$ ms) tended to take more time for their judgments than neutral-mood participants ($M = 219$ ms, $p < .08$) and took more time than happy-mood participants ($M = 213$ ms, $p < .048$), $F(2, 60) = 2.71$, $p < .075$. This result is consistent with reports that sad mood is likely to lead to slower and more detailed processing, whereas happy mood is likely to lead to faster and more holistic processing (Bless, Bohner, Schwarz, & Strack, 1990; Bohner, Crow, Erb, & Schwarz, 1992; Forgas, 1994b, 1995b; Forgas & Bower, 1987).[7]

Most important, the preceding main effects were qualified by a significant Mood × Trait Valence × Trait Type interaction, $F(2, 60) = 10.59$, $p < .0001$ (Figure 3). The triple interaction was decomposed by examining the Mood × Trait Valence interaction separately for central and peripheral traits.

Does mood affect judgmental latencies regarding central self-conceptions? Mood had no influence on the judgmental latencies with regard to central traits, $F(2, 60) = 0.38$, $p < .68$.

Does mood affect judgmental latencies regarding peripheral self-conceptions? Mood affected the judgmental latencies concerning peripheral traits, $F(2, 60) = 16.30$, $p < .0001$. Orthogonal contrasts were performed on the peripheral positive traits. Sad mood resulted in slower judgmental latencies than neutral mood, happy mood, or neutral–happy moods combined (ps < .0001). Happy mood yielded directionally faster judgmental latencies than neutral mood ($p < .17$) and yielded significantly
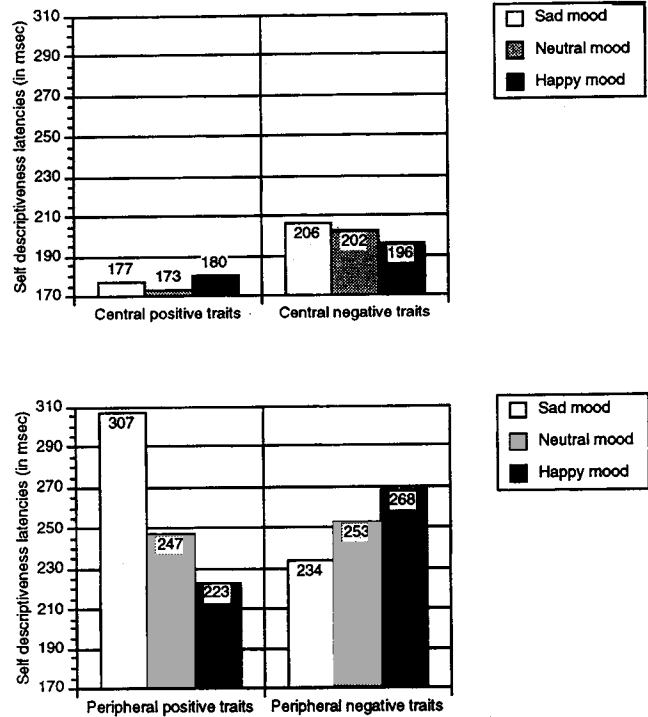

Figure 3. Self-descriptiveness latencies (in milliseconds) as a function of mood, trait valence, and trait type.

faster judgmental latencies than neutral–sad moods combined ($p < .001$).

Orthogonal contrasts were also conducted on the peripheral negative traits. Sad mood led to directionally faster judgments than neutral mood ($p < .23$) and led to significantly faster judgments than either happy mood ($p < .03$) or neutral–happy moods combined ($p < .048$). Happy mood elicited directionally slower judgments than neutral mood ($p < .29$) and elicited marginally significantly slower judgments than sad–neutral moods combined ($p < .057$).

Influence of Mood on Self-Conception Valence

The Mood × Trait Valence × Trait Type interaction was significant, $F(2, 60) = 26.01$, $p < .0001$ (Figure 4). Subsequently, the Mood × Trait Valence interaction was examined separately for central and peripheral traits.

Does mood affect central self-conceptions? The Mood × Trait Valence interaction regarding central traits was not significant, $F(2, 60) = 1.76$, $p < .18$. Mood did not influence central self-conceptions.

Does mood affect peripheral self-conceptions? The Mood ×

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[7] The Mood × Trait Valence interaction was significant, $F(2, 60) = 10.39$, $p < .0001$. Two trends were evident: Positive traits were responded to slower by sad-mood participants ($M = 242$ ms) followed by neutral-mood ($M = 210$ ms) and happy-mood ($M = 201$ ms) participants, whereas negative traits were responded to faster by sad-mood participants ($M = 219$ ms) followed by neutral-mood ($M = 226$ ms) and happy-mood ($M = 232$ ms) participants.
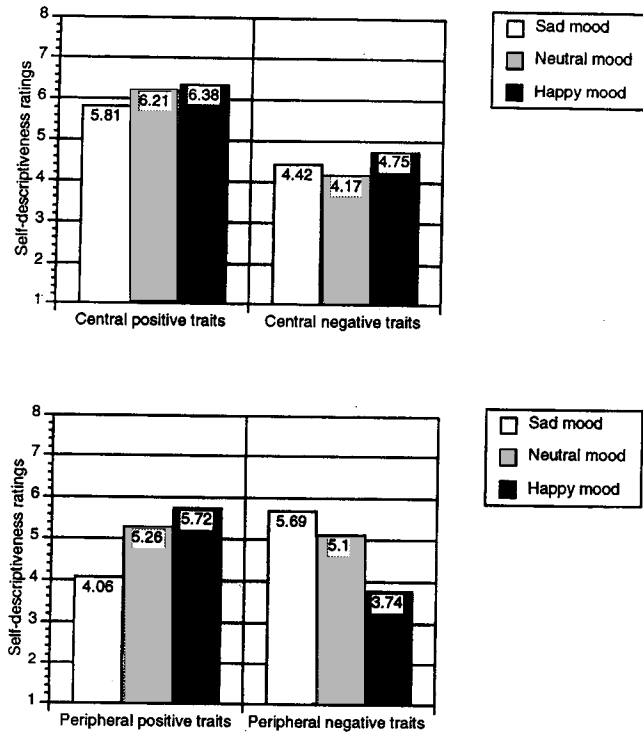
Figure 4. Self-descriptiveness ratings as a function of mood, trait valence, and trait type.

Trait Valence interaction regarding peripheral traits was significant, $F(2, 60) = 65.25, p < .0001$. Mood influenced peripheral self-conceptions.

The next step was to perform orthogonal comparisons on the peripheral positive traits. The comparisons showed that mood influenced the self-descriptiveness ratings on these traits in a mood-congruent way. Sad mood led to lower endorsement of these traits in comparison to neutral mood, happy mood, and neutral-happy moods combined ($ps < .001$). Moreover, happy mood resulted in higher endorsement of the traits than either neutral mood ($p < .042$) or neutral-sad moods combined ($p < .0001$).

In a similar vein, the contrasts on the peripheral negative traits showed a mood-congruency bias. Sad mood led to higher endorsement of these traits than neutral mood ($p < .004$), happy mood ($p < .001$), or neutral-happy moods combined ($p < .001$). Furthermore, happy mood led to lower endorsement of the traits than either neutral mood or sad-neutral moods combined ($ps < .0001$).

The role of preexisting valence differences between central and peripheral traits. The central positive traits did not differ significantly from the peripheral positive ones, but the central negative traits did differ significantly from the peripheral negative ones. A mixed-subjects ANOVA was conducted that used mood and trait presentation order as between-subjects factors, and trait positivity (central, peripheral) and trait negativity (central, peripheral) as within-subjects factors. Both the Mood × Trait Positivity interaction, $F(2, 60) = 5.11, p < .009$, and the Mood × Trait Negativity interaction, $F(2, 60) = 25.08, p$

$< .0001$, were significant. Consistent with the findings of the previous two experiments, these results showed that the differential effects of mood on central and peripheral self-conceptions cannot be accounted for by the unequal valence of these conceptions.[8]

Mediational Analyses

Do judgmental latencies mediate the effects of mood on the valence of peripheral (but not central) self-conceptions? To address this question, I conducted two path analyses looking at the effects of mood on self-descriptiveness ratings of peripheral and central self-conceptions. I reversed the scales for both peripheral negative and central negative self-conceptions so that there would be one-to-one correspondence between mood valence and self-conception valence (i.e., weak effects of both sad and happy mood were manifested by low self-conception valence scores, whereas strong effects of both sad and happy mood were manifested by high self-conception valence scores). Sad mood was coded as 0, neutral mood was coded as 1, and happy mood was coded as 2.

As the top panel of Figure 5 shows, mood had direct effects on the valence of peripheral self-conceptions. Most important, the effects of mood were mediated by judgmental latencies. Longer self-descriptiveness latencies were associated with more positive and more negative self-descriptiveness ratings. In contrast, as the bottom panel of Figure 5 shows, mood had neither direct nor mediated effects on the valence of central self-conceptions. The results of the path analyses verify the prediction that judgmental latencies would mediate the effects of mood on peripheral but not central self-conceptions.

Summary

Experiment 3 replicated the previous two experiments in obtaining support for the differential sensitivity hypothesis. Furthermore, Experiment 3 yielded results consistent with the notion that differences in cumulative elaboration and consolidation between central and peripheral self-conceptions are responsible for the differential influence of mood on them. Peripheral self-conceptions were found to be less cumulatively elaborated and consolidated than central self-conceptions, as indicated by judgmental latencies associated with these traits.

Most important, Experiment 3 showed that judgmental latencies mediated the effects of mood on peripheral self-conception valence. Constructive (or on-line elaborative) thinking and its accompanying affect infusion entered the judgment of peripheral but not central self-conceptions, as predicted by the AIM. Equally important, the fact that longer judgmental laten-

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[8] Mood did not influence the overall valence of trait ratings: mood main effect, $F(2, 60) = 1.48, p < .24$. The interaction between mood and trait valence was significant, $F(2, 60) = 5.43, p < .007$. Endorsement of positive traits increased as a function of mood (mean trait ratings for sad, neutral, and happy moods were 4.93, 5.74, and 6.05, respectively), whereas endorsement of negative traits decreased as a function of mood (mean trait ratings for sad, neutral, and happy moods were 5.06, 4.63, and 4.24, respectively). Finally, the four-way interaction was marginally significant, $F(6, 60) = 1.89, p < .10$.
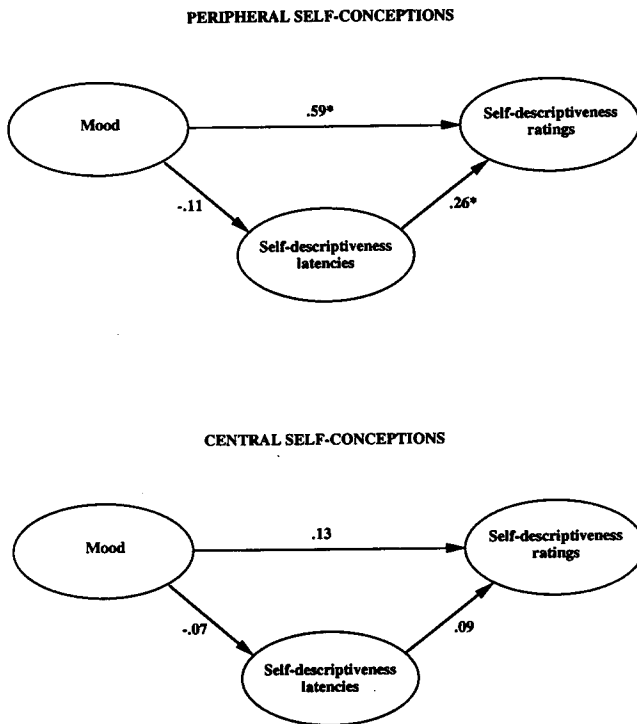
PERIPHERAL SELF-CONCEPTIONS

CENTRAL SELF-CONCEPTIONS

Figure 5. Top panel: Direct and mediated effects of mood on the self-descriptiveness of peripheral self-conceptions. Bottom panel: Direct and mediated effects of mood on the self-descriptiveness of central self-conceptions. *$p < .05$.

cies were associated with greater mood effects suggests that it was substantive rather than heuristic processing that was implicated in the self-descriptiveness ratings.

Experiment 4: Influence of Mood Under High and Low On-line Elaboration

In the context of the AIM, the mood-congruency effect on peripheral self-conceptions is due to either substantive or heuristic processing. Substantive processing is carried out through an affect-as-priming mechanism (Forgas & Bower, 1987): Mood primes similarly valenced cognitions, which color the evaluative tone of the self-descriptiveness judgments. Heuristic processing (Schwarz & Clore, 1988) is carried out through an affect-as-information mechanism: Mood is used as an informational source for inferring the evaluative tone of the self-descriptiveness judgments.

Experiment 4 was designed to test directly the relative prevalence of the two mechanisms. If affect-as-priming (i.e., substantive processing) is implicated, then high on-line elaboration should lead to stronger mood-congruency effects than low on-line elaboration, because in the former condition mood is more likely to permeate through priming the inferential process. In contrast, if affect-as-information (i.e., heuristic processing) is implicated, then low on-line elaboration should lead to a stronger mood-congruency bias than high on-line elaboration, because in the latter condition participants ought to rely less

and less on their mood and more and more on the attributes of the task at hand in forming a judgment.

Method

Participants, Experimental Design, Trait Selection, and Procedure

Participants were 120 individuals derived from an initial pool of 237 students (the same pool as the one used in Experiment 3). The experimental design was a 3 (mood: sad, neutral, happy) $\times$ 2 (elaboration: low, high) $\times$ 2 (trait presentation order) $\times$ 2 (trait valence: negative, positive) mixed-subjects factorial. Mood, elaboration, and trait presentation order were between-subjects factors, whereas trait valence was a within-subjects factor.

The trait selection procedure was similar to the one used in Experiment 3, with two exceptions. First, only peripheral traits were selected; three of them were positive ($M = 5.84$) and three were negative ($M = 4.23$), $F(1, 119) = 276$, $p < .0001$. Second, the traits selected were the top three traits listed by participants (i.e., most participants listed a fourth trait, which was not selected).

The mood-induction task was identical to the one used in Experiments 1 and 2. After mood was induced, participants were provided with six half-pages containing the six traits. Participants in the *low on-line elaboration* condition were asked to try to "decide whether you have each of these traits." They were paced through the traits at the rate of 5 s per trait. Participants were subsequently asked to work for another 5.5 min on two letter-matrices trying to locate the names of famous psychologists on one and the names of past United States presidents on the other (the names appeared on the same page as each matrix). Participants in the *high on-line elaboration* condition were also provided with six half-pages containing the six traits but were given the following instructions:

> Try to decide whether you *have* or *do not have* each of the following 6 traits; ask yourself whether friends and relatives *could* or *could not* describe you accurately using each of these traits. Why *would* and why *would not* friends and relatives describe you accurately using these traits? Please think of two behaviors that *would* justify describing you with each of these traits; then, think of two behaviors that *would not* justify describing you with these traits. What are these behaviors? How *likely* or *unlikely* are you to perform each behavior?

As is evident, participants were encouraged to engage in the self-inference process in a nonevaluative manner. The instructions were repeated at the top of each half-page. Participants were allotted 1 min to think in conjunction with each trait. At the end of the 6-min period, participants in both conditions completed the trait self-descriptiveness ratings.

Results and Discussion

Manipulation Check

Responses to the mood-assessing scales were internally consistent, $\alpha = .79$. The mood-induction task was successful: mood main effect, $F(2, 117) = 47.19$, $p < .0001$. Orthogonal contrasts ($p < .0001$) showed that sad-mood participants ($M = 4.05$) reported feeling sadder than neutral-mood participants ($M = 5.42$), who in turn reported feeling less happy than happy-mood participants ($M = 6.26$). Furthermore, participants found the mood-
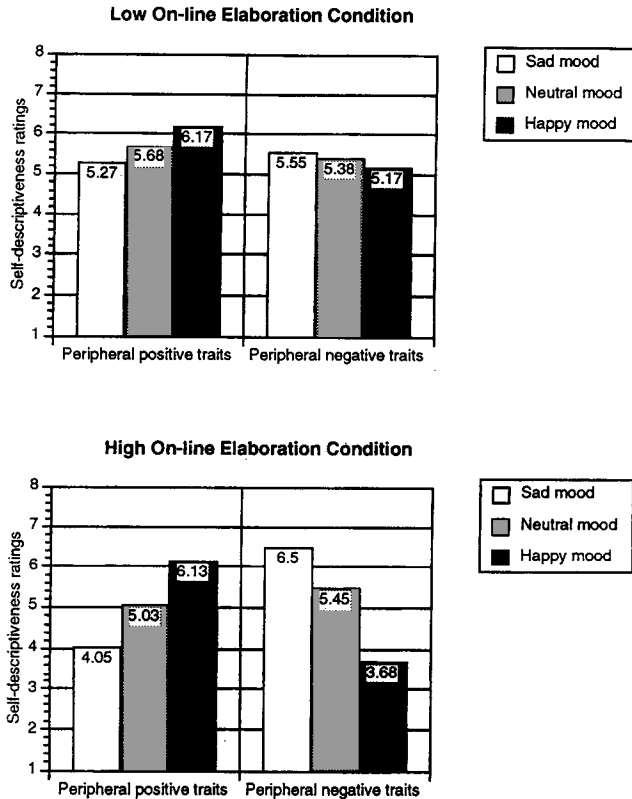
Low On-line Elaboration Condition

High On-line Elaboration Condition

Figure 6. Self-descriptiveness ratings as a function of mood, trait valence, and on-line elaboration.

induction tasks equally easy to imagine, $F(2, 117) = 1.50$, $p < .23$, and comprehend, $F(2, 117) = 0.63$, $p < .53$.

Influence of Mood on Self-Conception Valence

The three-way interaction among mood, trait valence, and elaboration was significant, $F(2, 108) = 25.82$, $p < .0001$ (Figure 6). To find out whether mood affected peripheral traits differently under low versus high on-line elaboration conditions, I examined the Mood $\times$ Trait Valence interaction separately for low and high on-line elaboration.

Does mood affect peripheral self-conceptions in the low online elaboration condition? The Mood $\times$ Trait Valence interaction in the case of low on-line elaboration was significant, $F(2, 54) = 4.87$, $p < .01$. Mood influenced peripheral self-conceptions.

Mood affected peripheral positive self-conceptions in a mood-congruent fashion. Sad mood elicited directionally lower endorsement of such traits than neutral mood ($p < .13$) and led to lower endorsement of these traits than either happy mood ($p < .002$) or neutral–happy moods combined ($p < .008$). Happy mood tended to lead to higher endorsement of these traits than neutral mood ($p < .08$) and led to higher endorsement of these traits than sad–neutral moods combined ($p < .005$).

The effects of mood on peripheral negative self-conceptions were not significant but were nevertheless in the direction of a mood-congruency bias.

Does mood affect peripheral self-conceptions in the high online elaboration condition? The Mood $\times$ Trait Valence interaction in the case of high on-line elaboration was significant, $F(2, 54) = 139.23$, $p < .0001$. Mood exerted a strong influence on peripheral self-conceptions.

Mood changed the endorsement pattern of peripheral positive self-conceptions in a mood-congruent manner. Sad mood led to lower self-descriptiveness ratings than neutral mood, happy mood, or neutral–happy moods combined. Additionally, happy mood led to higher self-descriptiveness ratings than either neutral mood or sad–neutral moods combined. All ps were $< .0001$.

Mood also altered the endorsement pattern of peripheral negative self-conceptions in a mood-congruent way. Sad mood led to higher self-descriptiveness ratings than neutral mood, happy mood, or neutral–happy moods combined. Furthermore, happy mood led to lower endorsement ratings than either neutral mood or sad–neutral moods combined. All ps were $< .0001$.

Summary

Mood was more likely to infuse the self-inference process under high than under low on-line elaboration conditions. The results are consistent with the notion that an affect-as-priming mechanism is likely to be more strongly implicated in the judgmental process than an affect-as-information mechanism.

General Discussion

Theoretical and Empirical Summary

The present research was concerned with affect-induced variation in the self-inference process and, more specifically, with the ways in which mood states alter central and peripheral self-conceptions. These two types of self-conceptions were thought to differ in terms of at least the following attributes: valence, diagnosticity, cumulative elaboration and consolidation, and certainty. The differential sensitivity hypothesis was proposed, according to which peripheral self-conceptions are modified in a mood-congruent manner, but central self-conceptions are unaltered by mood. This hypothesis was based on predictions derived from the AIM, which posits that mood is more likely to infiltrate the inference-making process in the case of domains that are relatively unfamiliar, atypical, or ambiguous, and in the case of domains that require relatively high degrees of constructive or on-line elaborative thinking. Peripheral self-conceptions qualify as such a domain, given that they are not firmly anchored and do not represent strong preconceived notions on which people can fall back.

Four experiments converged on the notion that peripheral self-conceptions are modified in a mood-congruent fashion, whereas central self-conceptions are unaffected by mood. Although there were minor variations in the outcomes of individual experiments, the results of all experiments taken together uphold strongly the differential processing hypothesis.

The results of these experiments ruled out two explanations for the differential sensitivity hypothesis, namely that the observed mood effects are due to peripheral self-conceptions being less ex-

treme in valence than central self-conceptions (Experiments 1–3) and peripheral self-conceptions being less diagnostic than central self-conceptions (Experiment 1). At the same time, the results furnished support for explanations that stress differences in cumulative elaboration, consolidation, and certainty between central and peripheral self-conceptions. Mood has a strong impact on peripheral self-conceptions because these conceptions are less cumulatively elaborated, are less consolidated, and are held with lower certainty than central self-conceptions.

The results of all experiments were consistent with the AIM. The AIM predicted the absence of mood effects in reference to central self-conceptions but the presence of a mood-congruency bias in reference to peripheral self-conceptions. Affect-as-priming was the proposed mediating mechanism. Mood was theorized to prime similarly valenced cognitions, which in turn would enter the inferential process and color the endorsement of peripheral self-conceptions. This proposition was supported in Experiment 4, which demonstrated that high on-line elaboration magnifies the mood-congruency bias. Affect-as-priming is likely the main vehicle that carries the effects of mood on peripheral self-conceptions.

Implications

Relevancy for Self-Esteem and Depression

One helpful feature of the reported research is that it frees up self-conception centrality as the sine qua non of null mood effects on self-perception. Central self-beliefs are not invariably unresponsive to mood effects. Instead, they are unresponsive *only* when they are held with certainty (as they usually are).

This point is better illustrated in the context of persons who are low in self-esteem and depressed. Compared to persons high in self-esteem, persons low in self-esteem (a) are more uncertain about the attributes of their self-concept (Baumgardner, 1990; Campbell, 1990, Experiment 1); (b) have self-concepts that are more temporally unstable (Campbell, 1990, Experiments 2 and 3), less internally consistent (Campbell, 1990, Experiment 4), and less evaluatively consistent (Campbell & Fehr, 1990); and (c) depend more on external cues for their self-evaluation and affective states (Campbell, Chew, & Scratchley, 1991). It is reasonable, therefore, to speculate that the central self-conceptions of persons who are low in self-esteem are more amenable to the influence of mood than the central self-conceptions of persons high in self-esteem. In fact, it is reasonable to speculate that a similar pattern is likely for depressed persons: Their central self-conceptions are more amenable to the impact of mood than are the central self-conceptions of persons who are not depressed.

There is another way in which the present findings are relevant to depression. Depressed persons process atypical and unusual information in a detailed, effortful, and complex manner (Weary, Jordan, & Hill, 1985; see also Gleicher & Weary, 1991). To the extent that information pertaining to peripheral self-conceptions qualifies as atypical and unusual, sad mood is more likely to spiral ruminative thought in depressed persons when they process information pertaining to their peripheral rather than central self-conceptions.

Relevancy for Other Individual Differences and Situational Factors

Besides self-esteem and depression, there are other individual-difference factors, as well as situational variables, that are likely to moderate the differential sensitivity effect.

Individual differences. Individual-difference variables likely to moderate the differential sensitivity effect are variables associated with the degree to which individuals are eager to expend thought or time on problems or, alternatively, reconsider solutions to problems. Four examples of such variables include Type A/Type B (Glass, 1977), need for cognition (Cacioppo & Petty, 1982), need for closure (Kruglanski, 1990), and need for structure (Neuberg & Newsom, 1993). The central self-conceptions of persons who have Type B personalities (see Rhodewalt, Strube, & Wysocki, 1988), high need for cognition, low need for closure, and low need for structure may be more amenable to the influence of mood than the central self-conceptions of their counterparts.

Situational factors. Future research will also need to consider situational factors likely to moderate the differential sensitivity effect. Such situational factors are social environments that are likely to necessitate a reorganization of the structure of the self or a new self-definition (e.g., relocation, divorce, death of a loved one).

Role of Time Delay

In all four experiments, the effects of mood were assessed once through self-descriptiveness judgments. It is arguable, however, that had sad-mood participants been given the time to freely describe themselves, mood-incongruent rather than mood-congruent effects would have been observed on peripheral self-conceptions. That is, time for free self-description may lead to attempts at management of sad mood. In that case, sad mood may be washed out or even converted to neutral mood. This mood management process may result over time in neutral-valenced self-descriptions, a finding that was recently reported by Sedikides (1994; see also Erber & Erber, 1994). In the language of the AIM, with the passage of time (perhaps after sad mood reached a threshold of aversiveness), participants came to rely more on a motivated processing strategy to repair their mood.

Additional Differences Between Central and Peripheral Self-Conceptions

The present investigation concentrated on such differences between central and peripheral self-conceptions as valence, diagnosticity, cumulative elaboration and consolidation, and certainty. Additional differences between the two types of self-conceptions are worth considering. For example, central self-conceptions may be held with higher intensity (Cantril, 1946), may more often be the result of direct experience (Regan & Fazio, 1977), may have higher latitudes of rejection (Sherif, Sherif, & Nebergall, 1965), and may have higher affective-cognitive consistency (M. Rosenberg, 1956) than peripheral self-conceptions. Whether these differences are likely to moderate the differential sensitivity effect is a question that needs to be dealt with empirically.

Expanding to Other Affective States

As a starting point, the present research focused on sad and happy mood states. However, the role of other affective states (such as guilt, fear, anger, and pride) in changing the perception of the self should also be explored.

A Concluding Note

The results of the present investigation qualified the conclusion reached by Sedikides (1992a), namely that "self valence is affected by mood in a congruent manner" (p. 301). The results suggested that mood-congruent effects are not general, but rather are constrained to the realm of peripheral self-conceptions. Future research will need to focus on whether these results are qualified by personality and situational factors, as well as by additional differences between the attributes of central and peripheral self-conceptions. Research exploring the influence of mood on the self-inference process has an exciting future.

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