

THE SELF-REPORT OF MOODS: EFFECTS OF SELF-FOCUSED ATTENTION
ON MOOD-INDUCTION AND MOOD PERCEPTION

by

© Brian Sveinson

A thesis
presented to the University of Manitoba
in partial fulfillment of the
requirements for the degree of
Ph.D.
in
Psychology

Winnipeg, Manitoba

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ISBN 0-315-33893-8

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BRIAN SVEINSON

A thesis submitted to the Faculty of Graduate Studies of
the University of Manitoba in partial fulfillment of the requirements
of the degree of

DOCTOR OF PHILOSOPHY

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ABSTRACT

This study tested the assumptions that individuals experience their moods as being more intense when they are self-focused, and that the veridicality of mood-descriptions improves when a state of self-awareness is present. The self-awareness induction procedure (being confronted with a mirror) was manipulated such that one-third of the 120 participants were self-focused while reading the Velton (1967) mood-induction statements, one-third were self-focused during the self-reporting of moods, and one-third had no exposure to the mirror. Prior to mood induction, participants were administered the Center for Epidemiological Studies Depression Scale (CES-D), the Self-Consciousness Scale (SCS), and the Profile of Mood States (POMS). The CES-D was used to screen depressed subjects from the experimental sample. POMS subscales were used to measure mood intensities, while the veridicality of self-reports were assessed via subscale intercorrelations and internal consistency indices. Anova, multiple regression, and correlational analyses were conducted to assess the effects of induced and predispositional self-awareness on mood-induction and mood descriptions. Results of the study indicated that: (1) the expected intensification effects were not present, (2) individuals who were more highly

attuned to their thoughts and feelings tended to report more intense mood levels as a rule, (3) discriminability among moods improved when attention was self-focused, and (4) self-awareness tended to promote more accurate perceptions of individual moods. These results provided support for the assumption that self-focused attention improves the veridicality of self-reports. It was suggested that pre-experimental mood levels and sensitivity to experimental demand may interact with self-awareness manipulations. Experimental and clinical implications of the results were discussed and recommendations for future research were presented.

ACKNOWLEDGEMENTS

I would like to express my gratitude to my advisor, Dr. D. G. Martin, for his consistent support, encouragement, and friendship throughout the course of this study. The members of my committee, Drs. J. Adair, P. Leichner, and F. Marcuse, have improved the quality of this work through their insightful reviews and suggestions.

To my wife, Pam, whose support and caring made this task a much lighter burden, I owe a debt of gratitude. To our daughter, Jillian, I dedicate this volume, celebrating the joy of her new life.

This research was supported by a Graduate Fellowship made available by the University of Manitoba.

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CHAPTER I

The theory of self-consciousness (cf. Buss, 1980) states that self-focused attention will modify the experience of moods such that affective charge is intensified--the angry person becomes angrier, the sad person more depressed. Secondly, the attentional process purportedly mediates a clearer, more distinct perception of one's affective state. Research to date has produced evidence confirming a modification in the perception of privately-experienced affect. Studies have suggested that emotions are experienced as being more intense when individuals attend to their feeling-state (Scheier & Carver, 1977), and that the predictive validity of self-report measures of affect improves when a state of self-awareness is induced or is predispositionally present at the time of testing (Scheier, 1976; Scheier, Buss, & Buss, 1978).

Overall, research on self-awareness and moods has supported the predicted intensification effect. In comparison, the hypothesis that emotions are perceived more clearly when one is self-focused has not been tested directly. Moreover, primarily the effects of self-awareness on existing affect states have been studied, with less being known on how self-attention affects the induction of a mood.

The present study was designed to investigate the influence of self-focused attention on mood-perception and mood-induction. A secondary intent was to conceptually replicate and extend some of the previous research in this area.

Self-Focused Attention

Theory

In the original formulation of self-awareness theory (Duval & Wicklund, 1972), a basic distinction was made between attending to one's self and attending to nonself stimuli. The self in this context came to be viewed as a multifaceted schema of cognitions, affects, attitudes, and somatic states that had regulatory functions (Wicklund & Frey, 1980; Wicklund, 1982). Certain motivational properties were associated with the focus of attention. Specifically, heightened self-awareness was expected to lead to cognizance of discrepancies between one's behaviors and one's standards. Duval and Wicklund (1972) predicted that this state would be aversive to the individual and would motivate him or her to either reduce the perceived discrepancy, or to move out of the state of self-awareness by becoming involved in activities that would require attention to be directed to nonself stimuli.

Although subsequent research has modified this position in that not all states of self-awareness have been found to be aversive (Wicklund, 1975), experimentation has generally

supported the proposition that self-focusing has associated motivational qualities. For example, Gibbons (1978) examined the relationship between attitudes toward pornography and reactions to pornographic material when this material was presented under conditions of low and high self-awareness. He found that both males and females in the high self-awareness condition tended to show greater consistency between their attitudes toward erotic materials and their subsequent ratings of pictures of nude women or of erotic passages of text than did subjects in the low self-awareness condition. In a similar vein, Pryor, Gibbons, Wicklund, Fazio, and Hood (1977) had subjects respond to a sociability questionnaire under conditions of low and high self-awareness and subsequently assessed their levels of social interaction (via ratings and word counts) in an experimental situation involving a confederate. The correlation between self-report and behavior improved significantly under the high self-awareness condition ($r = .73$) in comparison to the low self-awareness condition ($r = .28$). Turner (1978) demonstrated analogous results in a study of dominance.

The increased concordance between self-report and behavior was attributed to a process whereby attending-to-self accentuated the standards of conduct salient to the setting that the individual was in (Stephenson & Wicklund, 1983). A desire to act in accordance with one's values and

standards purportedly mediated the noted improvement in predictive validity (Gibbons, 1983).

One problem associated with this explanation was that it did not predict what may occur when regulatory functions were not engaged. For example, what effect did self-awareness have on the individual when his or her emotional functioning became the salient aspect of the self which was focused upon? Scheier, Buss, and Buss (1978) addressed this issue by administering the Buss-Durkee Hostility Inventory (Buss & Durkee, 1957) to two groups of subjects, one low in predispositional Self-Consciousness and the other high on the trait. Subsequently, each participant was angered by an accomplice and given the opportunity to retaliate by delivering shocks to the confederate for poor performance on a learning task. In their analysis, Scheier et al. (1978) found correlations between self-rated aggressiveness and shock intensity to be significantly higher for the predispositionally high self-aware group ($r = .66$) than for the low self-aware group ($r = .09$). This discrepancy was attributed to differences in self-knowledge.

In another investigation, individuals moderately afraid of snakes and unsure of their ability to handle them were found to withdraw sooner if they were self-focused than if they were not (Carver, Blaney, & Scheier, 1979). This replicated, conceptually, an earlier study by Carver (1974) who reported that angered subjects became more aggressive

when self-aware. Thus, it seems that self-awareness of one's emotional functioning promoted more accurate conceptions of how one will respond to affect-inducing situations, and mediated a greater reactivity to one's emotional state.

Experimental results such as those presented above have been construed as support for the "veridicality hypothesis" which proposed that "the increase in awareness of self associated with self-focused attention should be reflected in more accurate self-assessment and greater consistency between self-report and behavior" (Gibbons, 1983, p. 518). Of note in this statement is the assumption that self-focusing leads to a less biased view of one's self, which is comprised of one's "attitudes, cognitions, and affective and somatic states" (Gibbons, 1983, p. 517).

One explanation of this effect (i.e., greater accuracy in self-perception) has evolved from the differentiation of automatic and consciously-controlled behaviors (cf. Kimble & Perlmutter, 1970). From this perspective, self-focused attention was viewed as a function which disrupted the automatic processing of internally-generated information and thereby promoted a more extensive conscious search procedure. Through this process, more of the internal feedback was made available to awareness with the result that self-reports became more veridical (Wegner & Giuliano, 1980; Wicklund, 1982).

Given that self-awareness has been found to have such an effect in studies of attitudes and emotional traits, it may be expected that similar analyses of self-focused attention and affective states will confirm the presence of a comparable effect. Before examining this proposal, a clarification of how self-awareness is operationalized and measured is in order.

Self-Awareness: Manipulation and Measurement

State: Self-Awareness. Initially, self-awareness was viewed as a temporally-limited focusing of attention upon an aspect of one's self (Duval & Wicklund, 1972). In terms of the state-trait dichotomy, it was perceived only as a state. The individual's environment was seen as being influential in promoting self-awareness and in delimiting the object of self-focus. Consequently, a state of self-awareness was presumed to exist when the individual was confronted with environmental stimuli which drew the person's attention toward the self.

In laboratory situations, some of the stimuli used for such an induction have included the presence of a camera, tape-recordings of the subject's voice, and the person's mirror image (Wicklund, 1982). While these procedures were initially considered to be interchangeable, recent experimentation has suggested that different effects may be obtained depending on whether one uses a camera or a mirror.

Scheier and Carver's (1980) investigation indicated that the camera predisposed the subject to become more aware of himself or herself as a social object whereas the mirror induced greater awareness of internal thoughts and feelings.

Buss (1980) noted that the frequent use of mirrors in daily life (referring here to mirrors of the size found on bathroom cabinets which reflect only the image of the head and shoulders) leads to an habituation effect such that people are less susceptible to becoming socially self-aware when viewing such an image. The proposed effect of the mirror was described by Buss (1980) as follows:

[The] image of the mirror is of your own face. As such it directs your attention to yourself. In the absence of public self-consciousness, long since waned, the only remaining self-focus is private self-awareness. When you gaze into a mirror you should become aware of the private, unshared aspects of yourself, that is, the familiar litany of bodily processes, moods, emotions, motives, fantasies, and self-evaluations....The logic of the argument, in brief, is that in older children and adults, the self-awareness elicited by the small mirror is private. If this hypothesis is correct, confronting a person with a small mirror should turn on the inferred processes of private self-awareness. It should increase the veridicality of self-perception and polarize affects. (p. 19)

To repeat, these effects are associated with the use of small mirrors (approximately 45 centimeters by 60 centimeters). Generalization of effects to larger mirrors is precluded by an absence of empirical testing.

As may be expected, the use of a mirror has been the most common procedure used in experiments involving self-awareness induction. Beyond its ready accessibility, the popularity of the mirror has been attributed to its "...minimal, unconfounded nature--it is largely free of artifact that might clutter the meaning of the results" (Wicklund, 1982, p. 165). Further the validity of viewing such procedures as manipulations of self-awareness has received empirical support through a number of studies.

Davis and Brock (1975) found that individuals interpreting pronouns from a foreign language gave significantly more first-person pronouns when the task was done in the presence of a mirror. On the basis of an assumption that self-focus is associated with a propensity to give self-related words, these researchers concluded that the presence of the mirror led to self-focused attention.

Using a modified version of the Stroop color-word test, Geller and Shaver (1976) found that color-naming latencies for self-referent words increased in the presence of television camera and mirror together. This result was expected on the basis of Warren's (1974) research which has shown that:

the color-naming latency for a word increases if that word has been seen or heard recently, suggesting that the threshold for the word response (which competes for expression with color naming) is lowered by recent activation. Moreover, if a semantically or associatively related word precedes presentation of the target words, color-naming latency for the target word increases. In general, it appears that latency of color naming for a particular word will increase whenever a subject has been thinking about something related to that word. (Geller and Shaver, 1976, p. 101).

Thus, if the experimental manipulation (presence of a mirror and camera) activates self-referent thoughts, one would expect a greater color-naming latency for self-relevant words as compared to neutral words. Given this finding, Geller and Shaver's (1976) results were interpreted as supporting the notion that the manipulation did cause the individual to focus on his or her 'self'.

A third study, which was designed specifically to assess the hypothesis that a mirror increases self-awareness, used Exner's (1973) sentence completion blank as a measure of egocentricity (Carver and Scheier, 1978). These researchers found that significantly more self-focused answers were given when the inventory was completed in the presence of a mirror than when the mirror was absent.

These validation studies rest on the assumption that measures of self-referent responding are adequate operationalizations of self-awareness (Carver & Scheier, 1981, offer further evidence in support of this position). Given that this proposition is accepted, it would seem that, on the basis of the evidence given above, the utilization of mirrors and related induction procedures can be validly interpreted as manipulations of self-focused attention.

Trait: Private Self-Consciousness. Fenigstein, Scheier, and Buss (1975) noted that none of the earlier approaches to self-focused attention considered defining this concept in terms of individual differences. Subsequent consideration of how this might be accomplished led to a reconceptualization of the self-awareness construct as both a dispositional and situational variable (Carver & Scheier, 1981).

Questions arising from this new perspective provided the impetus for the development of a scale to assess individual differences in self-consciousness (Fenigstein, Scheier, & Buss, 1975). To date, this Self-Consciousness Scale (SCS) remains the most popular measure of the construct.

Factor analyses of the scale have yielded three relatively pure factors: Private Self-Consciousness, Public Self-Consciousness, and Social Anxiety; the first two being considered as major components of self-consciousness. These factors were defined as follows:

The private self-consciousness factor was concerned with attending to one's inner thoughts and feelings, e.g., "I reflect about myself a lot." The public self-consciousness factor was defined by a general awareness of the self as a social object that has an effect on others, e.g., "I'm very concerned about the way I present myself." The third factor, social anxiety, was defined by a discomfort in the presence of others, e.g., "I feel anxious in the presence of others." (Fenigstein, et al., 1975, p. 523)

Evidence for both the divergent and convergent validity of the test has been provided (Carver & Scheier, 1981). Because the present study is primarily concerned with Private Self-Consciousness, the validity of this subscale will be dealt with more extensively. The other two scales have been shown to have important consequences and have been examined in greater detail by Buss (1980) and Carver and Scheier (1981).

With regard to the Private Self-Consciousness subscale of the SCS, a common validation procedure has involved comparing high private self-consciousness subjects with subjects situationally-induced to be self-aware. Since both groups are presumed to be self-focused, experimental results should be similar. Testing this hypothesis, Buss and Scheier (1976) demonstrated that persons high in private self-consciousness and subjects induced to be self-aware

through the use of a mirror similarly tended to engage in greater self-attribution of responsibility. In this study, the effect of private self-consciousness was found to be more significant than the effect of the mirror. Analogous results were noted by Scheier (1976) in his study of aggression, wherein both the presence of a mirror and high private self-consciousness were found to be associated with increased levels of angry aggression.

A more direct approach to validating the Private Self-Consciousness Scale employed Exner's (1973) Self-Focus Completion Blank. With this instrument, Carver and Scheier (1978) found that high private self-consciousness subjects gave significantly more self-focused completions compared to the number given by low private Self-Consciousness subjects. Their analysis indicated "...that private self-consciousness was significantly related to the self-focus index ($r = .29$, $p < .01$), but public self-consciousness was not ($r = .07$, $p < .2$)" (Carver & Scheier, 1978, p. 327).

A third procedure used to evaluate the SCS has focused on the convergent and discriminant validity of the scale (cf. Campbell & Fiske, 1959). Turner, Scheier, Carver, and Ickes (1978) reported that scores on private Self-Consciousness were significantly correlated with the Guilford-Zimmerman Thoughtfulness Scale (Guilford & Zimmerman, 1949) and with the Paivio Imagery Inventory (Hiscock, 1976). These correlations were expected as "...persons high in the

private dimension [of Self-Consciousness] report themselves to be generally reflective, and to create and use mental images in dealing with both personal and impersonal problems" (Carver & Scheier, 1981, p. 48).

In their examination of the discriminant validity of the SCS, Carver and Glass (1976) noted that Private Self-Consciousness scores did not correlate significantly with intelligence quotient, need for achievement, activity level, test anxiety, sociability, impulsivity, or emotionality. The findings of a minimal relationship between Self-Consciousness subscales and measures of emotionality and test anxiety were replicated by Turner et al. (1978) who also found the subscales to be relatively independent of the social desirability response set. Furthermore, Davies (1982) reported that the private Self-Consciousness scale shared little variance with the 16 PF measures (Cattell, Eber, & Tatsuoka, 1970).

As Carver and Scheier (1981) noted, these results are important not only because they supported the validity of the SCS but also because they provided a counterpoint to alternative interpretations of self-awareness effects. Liebling, Seiler, and Shaver (1974) posited that self-awareness induction led to a heightened drive state which mediated the emission of dominant responses. However, findings that self-consciousness did not correlate with measures of activity level, test anxiety, or emotionality

(factors which appear to be clearly related to drive level) served to undermine the validity of this interpretation.

A second alternative stated that self-awareness effects could be due to experimental demands (cf. Orne, 1973). As with the 'drive' interpretation, experimental data has not supported this position. The low correlations found between measures of self-consciousness and social desirability are not predictable on the basis of this interpretation, just as findings that high private self-conscious subjects are less susceptible to placebo effects (Gibbons, Carver, Scheier, & Hormuth, 1979) would not be expected.

Summary

The experimental findings described in this section provide the beginnings of an empirical foundation for the theory of self-awareness and a validation grounding for the experimental manipulations and measures of this construct. This conceptualization of self-awareness is intended to serve as a context for an examination of self-awareness effects on mood-perception and mood-induction.

The theory of self-awareness is predicated upon the assumption that self-focused attention has predictable effects on behavior and self-perception. Embedded in this theory are two propositions regarding the influence of self-awareness on affective states. The first assumption states

that self-focused attention will promote an intensification effect in that the affective charge of the mood will be experienced as more intense. Secondly, as a result of self-focusing, the individual will attain a clearer, more distinct perception of one's mood-state. Buss (1980) has termed this the clarification effect.

The present study was developed in response to these hypotheses. The purpose was to investigate the validity of the propositions as they applied to extant affective-states and to mood-induction processes. To date, both hypotheses have undergone some empirical testing. Each will be reviewed in turn.

Self-Focused Attention and Mood States

Mood States: Definition

An affective state is defined as a transitory emotional experience that is associated with specific environmental stimuli. It is distinguished from an affective trait which is defined as an individual's proneness to experience a certain emotion over time (cf. Becker, 1977; Spielberger, 1972). In line with this description, the operational definition of affective states in this study focused on phenomenological/experiential aspects of emotional functioning, to the exclusion of physiological or behavioral definitions.

Experiential approaches have been confronted with the problem of how to adequately appraise private events. A common solution has centered on the use of self-report measures. Since the results of such scales have been used as indicants of the presence and intensity of moods, a conceptualization of how people self-report and of how self-awareness interacts with this process may assist in laying the groundwork for the present study.

The Self-Report Process

Our understanding of how individuals respond to personality items has been influenced by developments in the information-processing paradigm, as is evident, for example, in Rogers' (1974) stage theory of self-report. Using the reaction-time methodology developed by Sternberg (1969), he gathered evidence demonstrating that the decision-making process involved in responding to self-report items could be conceptualized as consisting of two independent stages. The first, which he termed the Self Report Decision (SRD), entailed a "...relating of the internalized item content to the 'self-concept'" (p. 130). Once this process had been completed and some form of matching to memory had been achieved, the individual then moved into the second stage, Response Selection, in which s/he chose the best response from among an array of possible alternatives.

Ericsson and Simon (1980), elaborating on the self-report process, placed greater emphasis on the source of the information reported (i.e., short or long term memory) and the degree of processing required. Two elements of their commentary clarify aspects of the process of self-reporting emotional states. Noting the importance of time as a variable affecting recall, they distinguished between concurrent and retrospective verbalizations. The former is less susceptible to interference because material is being recalled immediately from short-term memory. It would seem that self-reporting emotional states exemplifies concurrent self-report when the presence or intensity of existing states is being questioned.

Secondly, Ericsson and Simon (1980) conceptualized three types of verbalization which were associated with varying levels of complexity in processing, depending on the task requirement. For probes of emotional states, a 'Level 2' verbalization would be needed. This process required only that "the internal representation in which the original information is originally encoded is not in verbal code but has to be translated into that form" (p. 219). The translation process, at its simplest, involves the application of labels or names to these representations.

Using Ericsson and Simon's (1980) analysis to expand upon Rogers' (1974) schema, the following conceptualization of how individuals self-report on emotional states was

developed. Given that the probe or item orients the individual toward that aspect of self known as 'feelings':

1. Some form of self-perception occurs in which the individual scans for the presence or absence of the emotion, and for various qualities of that emotion as demanded by the probe.
2. A matching process then occurs in which awareness of an internal state is associated with a specific label.
3. On the basis of this label and/or judgment of the intensity of the emotion, the individual chooses, from among the response alternatives available, the one which best represents his or her self-perception.

It is not assumed that these stages necessarily occur in the order as given. Rather, the process by which emotional states are recognized and labeled is seen as a complex phenomenon with multiple paths leading to the self-report. For example, recent research indicated that there are specific physiological changes associated with individual emotions (Roberts & Weerts, 1982). This suggested that such changes may influence one's perception of his or her environment during the search for cues that will aid in labelling the emotion. On the other hand, the presence of strong environmental cues may also affect how one perceives internal physiological change. A label may lead to the monitoring of specific physiological locations in an attempt

to verify the presence of the named emotion (Pennebaker, 1980).

Because the model involves processes other than self-awareness, it highlights adjunctive issues which need to be considered when examining self-reports of emotional states. For example, do the individuals being studied show a common repertoire of 'labels' to attach to their feeling states? Davitz (1969) suggested that an affirmative answer to this question may be assumed for certain groups of subjects. He has shown that educated individuals display a high degree of consensus regarding the characteristics of particular emotions. Such a finding reflects the influence of common cultural experiences on the self-report process. Wessman (1979) comments on this factor:

While the naive conviction may be that private subjective experiences are immediately and directly known, it must be acknowledged that most discussion and thinking about ourselves and our experiences use concepts and interpretations shaped by the norms of our linguistic culture and our social judgment processes.
(p. 80)

Thus, given individuals who have been raised in similar cultural fields and who have passed through a common educational system, one may assume that variability in the process of matching labels to internal affective states will not significantly affect self-report outcomes.

A second issue highlighted by the model is the possibility that self-reports are potentially affected by various biases and expectations inherent in the interpersonal context of the assessment. Past investigations in this area have articulated a number of such biases: social desirability, acquiescence, evaluation apprehension, and so on (cf. Rosenthal and Rosnow, 1969; Silverman, 1977).

Focusing specifically on the participants in experimental studies, Weber and Cook (1972) have suggested that subjects could be classified on the basis of differences in motivation. They proposed four categories of subjects: cooperative, negative, faithful, and apprehensive. Each of these groupings purportedly reflected a difference in how the subjects would react to experimental manipulations. Further, such predispositions would manifest themselves through non-random response biases influencing the dependent measures.

Critics of this approach (e.g., Adair, Spinner, Carlopio, & Lindsay, 1983) have questioned the validity of these roles. Alternative means of examining experimenter-interpreted response bias have been suggested. For example, Adair and Spinner (1983) recommended that a process-oriented approach focusing on the phenomenology of the subject (i.e., how s/he interprets the experimental situation and arrives at some conclusion regarding the experimental hypotheses) would be more productive than role-constructs.

Despite variations in the interpretation of the process, this research, as a whole, has supported the proposition that an individual may or may not represent his or her emotional state accurately, for reasons independent of the experimental manipulation. As examples, a subject may not wish to be seen in a bad light and therefore not admit to the presence of an emotion, such as anger, which is not socially approved (Averill, 1982), or may respond in a manner s/he feels s/he is expected to; that is, in response to demand characteristics (Orne, 1973). It is thus important to control for these 'biasing-influences' in the design of the study as much as possible, and to interpret results in the context of the subject's perception of the experimental situation--to the extent that this can be gauged (cf. Page, 1973; Carlopio, Adair, Lindsay, & Spinner, 1983).

As a final note, a discussion of the self-report process would be incomplete without reference to the controversy raised by Nisbett and Wilson (1977). On the basis of their review, these researchers concluded that subjects could not be expected to report on their cognitive processes. They suggested that people respond on the basis of "a priori, implicit causal theories" (p. 248) derived from culturally or idiosyncratically generated rules.

Responses to Nisbett and Wilson (1977) have generally been critical. As examples, Ericsson and Simon (1980)

replied that the methodologies of the studies critiqued by Nisbett and Wilson (1977) were inadequate for the tasks assessed. They suggested that procedures requiring subjects to attend to specific aspects of their cognitive processing (e.g., by having them think aloud) would provide veridical verbal reports of mental processes. From a different perspective, Adair and Spinner (1981) criticized Nisbett and Wilson for their selective review of the literature, bypassing studies in which accurate verbal reports had been obtained, and for not being sensitive to a 'demand' interpretation as a plausible alternative explanation of the experimental results they examined.

When the subject of the verbal report is an individual's feeling-state, the issues raised by Nisbett and Wilson (1977) seem less relevant as the subject is being asked to describe a state he or she is experiencing rather than to report on a developing cognitive process. On the other hand, the process of translating the emotional experience to a verbal description may be affected by 'implicit personality theories' (cf. Mischel, 1968; Bem & Allen, 1974). Wilson, Hull and Johnson (1981) have demonstrated that "self-reports about internal states are generated by an explanatory system that is partially independent of those states mediating behavior" (p. 70). Thus, it is possible that the reports of individuals who are not self-focused are affected by expectations regarding how they 'should' be

feeling (e.g., feeling 'bad' may entail sadness, anger and anxiety). If, however, they are directed to attend to their feeling-state (in line with the recommendations of Ericsson & Simon, 1980) such 'implicit' theorizing (automatic processing) would be tempered by the cognizance of relevant affective information.

In summary, the self-report model, as presented above, outlined a process which was seen as susceptible to a number of intra- and interpersonal influences, including variability in labeling, experimental demand, and differences in self-awareness. Recognition of these was perceived as allowing for a more sensitive examination of self-awareness effects. The existence of such effects have been demonstrated in experimental investigations, as will be shown.

The Intensification Hypothesis

To repeat, this hypothesis stated that self-focused attention should result in a more intense experience of moods, on the condition that the affective state of the individual is salient to the given situation. Empirical support for this proposition has been obtained through a number of studies.

Scheier (1976) had subjects angered through harassment and gave them the opportunity to retaliate under the

conditions of mirror-present or mirror-absent. Subsequently, the participants were asked to rate their experienced anger on a unidimensional scale as part of a postexperimental inquiry. It was found that greater self-awareness was associated with higher intensities of self-reported anger ($p < .01$). As part of the same study, he also compared the anger ratings of high and low private self-consciousness groups who were subjected to the same anger-induction procedure. As expected, the high self-consciousness group reported more intense anger, although the effect was less significant than that achieved with the mirror manipulation. In his discussion of these findings, Scheier (1976) suggested that "self-directed attention may provide the basis for a feedback cycle whereby the anger incubates and increases in intensity" (p. 639).

A further series of experiments by Scheier and Carver (1977) conceptually replicated Scheier's (1976) procedures. In two of their studies, these researchers asked (a) low and high private self-consciousness subjects and (b) subjects in the presence or absence of a mirror to read a set of elation-inducing or depression-inducing cards (cf. Velton, 1967). Subsequently, they were also asked to self-report on their affective states. The dependent variable was a summed score of the 'negativeness' or 'positiveness' of the subject's affective reports. As predicted, participants in the mirror-present condition reported either greater elation

or greater depression (congruent with the set of cards read) than did the subjects in the no-mirror condition. Similar results were demonstrated for the dispositional self-consciousness groups in the 'depression' condition. However, differences between the low and high private self-consciousness groups on the reported-elation measure were not significant.

The intensification effect has also been demonstrated by having subjects attend to their physical states. Borkovec and O'Brien (1977) reported that subjects who were directed to be more aware of their bodily feedback reported increased intensity in the emotion being experienced.

These studies support the hypothesis that self-focused attention promotes greater intensity of affective states (as this is reflected in self-reports). However, because intensity may be equated with arousal, this hypothesis was susceptible to an alternative explanation based on drive theory (cf. Liebling, et al., 1974, 1975). This approach suggested that self-focused attention led to an increase in the individual's level of arousal, and that this arousal mediated the activation of habitual behaviors. With this explanation, it was not necessary to invoke any form of cognitive mediation.

In response, Scheier and Carver (1977) documented four findings which appeared to favor the self-consciousness conceptualization over the drive-theory interpretation:

1. Paulis, Annis, and Risner (1978) have shown that exposure to a mirror decreases palmar sweat. If the mirror were to enhance arousal, increased palmar sweat (as a physiological indicator of arousal) would be expected.
2. The correlation between the SCS Social Anxiety scores and reported mood intensities has been found to be negligible. In drive theory, arousal has been associated with anxiety. If increased drive underlay the increase in measured mood intensities, a concurrent rise in anxiety may be expected. The absence of such a finding counters a drive interpretation.
3. Self-focused attention resulted in weakened placebo effects (cf. Gibbons et al., 1979). An arousal-based interpretation would predict that more of the effects associated with placebo drug ingestion would be reported if an individual was in a state of greater arousal. It follows, on the basis of this finding, that self-focused attention was not associated with increased levels of attention.
4. Private Self-Consciousness scores, as reported earlier, did not correlate significantly with measures of emotionality, anxiety, or arousability, yet produced results similar to the mirror-manipulation. If the common effects of the mirror-manipulation and the level of private self-

consciousness were due to increased drive, one would expect greater correlations with various indicants of arousal level.

Further, Hormuth (1982) compared the two theories by creating a situation in which the dominant responses were incongruent with internal standards. His finding that subjects confronted with self-focusing stimuli acted more in accordance with their internal standards than did control subjects supported the validity of the 'self-awareness' interpretation.

The intensification hypothesis is thus supported by evidence which directly confirms predictions based on self-awareness theory, and by evidence which detracts from the validity of alternative explanations of the demonstrated effects. As will be seen, support for the clarification hypothesis is less clear.

The Clarification Hypothesis

As previously noted, this hypothesis stated that self-focused attention should promote a more accurate perception of private events. A review of research done to date indicates that primary support for this proposition has been derived from studies of self-report validity, experimental demand, and the like.

With the automaticity/conscious-control interpretation of self-awareness effects (see above, pp. 5-6), it would seem that people who are highly self-aware and who therefore perceive their internal states more accurately should be less susceptible to demand characteristics which call for changes in internal experiences. Two studies have produced support for this proposition.

As part of their procedure, Scheier, Carver and Gibbons (1979) showed males moderately arousing pictures of nude females under two levels of demand: telling the subjects beforehand that the pictures would be either (a) highly arousing, or (b) not very arousing. Half of the subjects self-reported on their level of arousal with a mirror present, and the other half with no mirror. While demand effects were apparent across both levels of self-awareness, results from the study indicated that subjects in the high self-awareness condition were significantly less affected by the demand than were the low self-awareness subjects.

The placebo effect was tested by Gibbons, et al. (1979) with similar results. Subjects were told that a drug (placebo) they were to ingest would cause "a slight increase in heart rate, sweatiness in the palms of your hands, and a tightness in your chest" (p. 266). High self-aware subjects reported significantly fewer ($p < .04$) of the predicted effects than did subjects in the low self-awareness condition. The investigators stated that the level of self-

awareness influenced both the degree of arousal and the number of placebo 'symptoms' reported. They concluded that high self-awareness "...could substantially reduce the suggestibility phenomenon known as the placebo effect" (Gibbons et al, 1979, p. 271). Results from a second study (Gibbons & Gaeddert, 1984) substantiated this finding.

Further evidence for the clarification hypothesis has accrued from examinations of the effects of self-focused attention on self-reports. As previously mentioned, self-awareness has been associated with improved predictive validity for measures of sociability (Pryor et al., 1977), hostility (Scheier et al., 1979), and dominance (Turner, 1978). The explanations of these results considered the subject to be more accurately perceiving and reporting on the specific aspect of self that was being probed.

This 'accuracy of perception' hypothesis was also implicitly supported in a study by Mullen and Suls (1982). These researchers examined the effect of life stressors on dispositionally high or low self-conscious people. They found an inverse relationship between the two in that highly self-conscious people were less susceptible to illness and less influenced by the effects of undesirable, uncontrollable life events. In their discussion of these results, Mullen and Suls (1982) suggested that individuals who are highly self-conscious are more acutely aware of (i.e., accurately perceive) the effects of stressors and are

able, on the basis of this knowledge, to take instrumental actions to cope with them.

While all of these studies underscored the validity of the clarification hypothesis in general, none directly approached the issue of whether mood-states can be perceived more clearly when attention is self-focused. An examination of this issue would involve assessing possible ramifications of more accurate self-perceptions. Two such effects seem likely. First, increased accuracy of perception should improve the reliability of mood inventories. According to classical test theory, an obtained score from such an inventory is a summation of true and error scores (Cliff, 1973); the latter being, in part, a result of within-subject variability. It follows that improving the accuracy of self-perception should reduce the error-score variability and thereby increase the reliability of the measure.

Secondly, clarification connotes a distinction between figure and ground. The individual, when self-focused, should be able to better discern or differentiate the object of attention from the background of other self-aspects that could be focused upon. For example, a saddened person should be better able to discriminate his mood of sorrow from other possible moods; given that such discrimination is possible.

The issue of discriminability among affective states was recently addressed by Polivy (1980, 1981). In her investigation of experimental mood-induction procedures, she found a rather consistent phenomenon: participants not only reported the induced affect, but tended to disclose the presence of other emotions as well. This finding was congruent with previous concerns regarding a lack of mood discriminability (particularly between anxiety and depression) found in both experimental and clinical settings (Becker, 1974; Cattell, 1973; Zuckerman, Plesky, Eckman, & Hopkins, 1967; Zuckerman, 1980). More recently, Diener and Emmons (1985) have demonstrated that emotions of the same polarity covary strongly.

Explanations of this phenomenon have focused either on subject characteristics or on features of the experimental design. Izard (1972), for example, emphasized the former. In his analysis, he interpreted the high intercorrelations among mood-inventory subscales as accurate representations of human emotionality. That is, an emotional experience was perceived to be a complex synthesis of a number of pure emotions. According to his theory, a single affect is rarely experienced as "one emotion can almost instantaneously elicit another emotion that amplifies, inhibits, or interacts with the original emotional experience" (Izard, 1972, p. 77).

On the other hand, design features have also been seen as responsible for the poor discriminability results. Averill (1980) noted that self-reports of emotions may become more difficult in experimental settings:

In most instances (i.e., during the course of everyday affairs) the verbal expression of emotion is unambiguous and straightforward. However, if the subject is placed in an unusual situation, such as a psychology experiment or a clinical setting, then the meaning of a self-report may become questionable...because the rules governing behavior are often unclear when taken out of their ordinary context, and self-reports become correspondingly ambiguous....Perhaps the best we can--or should--hope for is that the subject will be able to make some gross distinctions along such dimensions as positive or negative, and perhaps levels of activations. (p. 40)

Other researchers have faulted the measures used. Zuckerman (1980), addressing the high intercorrelations of the Anxiety, Hostility, and Depression subscales of his Multiple Affect Adjective Check List (MAACL), concluded that "...as far as discriminant validity went, the MAACL was a mackerel" (p. 73). In part, test construction seems to have contributed to the mood-score covariance. Evidence for this derives from the lower intercorrelations between anxiety and depression scores found on newer mood inventories such as the Profile of Mood States ($r = .56$) in comparison to the

degree of association shown on the MAACL ($r = .75$) for samples of college students.

Polivy's (1981) results, in part, tended to support a within-subjects interpretation such as Izard's (1972) over an explanation based on experimental features. Using a multimethod, multimeasure approach, she reported that poor discriminability was evident regardless of either the assessment format (i.e., multiple affect questionnaire, bipolar scale, or open-ended questions), or the induction procedure used (i.e., confrontation, reading mood-induction statements, threat, or naturalistic study). This finding indicated the presence of a robust within-subjects factor affecting discriminability.

However, these experimental outcomes did not address the nature of this factor. Findings that some people are capable of discriminating among mood-states suggested that it was an individual differences variable rather than a common feature of human emotionality as Izard (1972) proposed. Wessman and Ricks (1966; Wessman, 1979) found, as part of their sample, a group of "stable" men who were able to make finer discriminations among their feeling-states. As well, Polivy (1981) reported that a subgroup of subjects in one of her experiments were capable of discriminating among states of anxiety, depression, and hostility.

On the basis of the self-report model described above, it would seem that this individual differences variable may be related to the ability of subjects to accurately perceive and utilize the affective information available to them. If so, it may be possible for subjects to improve their discriminability.

Consequently, if manipulations designed to increase self-awareness were successful in facilitating better discrimination, it may be concluded that higher correlations found among state measures of various mood-states were due to an "introspective laziness" (Polivy, 1981) or "mindlessness" (Langer & Newman, 1979) of the perceptual processes of the individual rather than to the nature of emotions themselves. Results showing improvement would argue for an individual-differences explanation of Polivy's (1981) results. These would also imply that most people describe their emotional states with terms (as on mood adjective checklists) that they would not use if they were more self-aware.

If, as suggested herein, people tend to self-report automatically, (i.e., with little self-reflection), then lower intercorrelations among mood scale scores may be expected when they become more self-focused. It follows that such a test would more directly assess the clarification hypothesis as it applies to affective states in that better discriminability would be expected to follow from improved accuracy in self-perception.

It should be noted, however, that negative results from such a study would preclude clear, unambiguous interpretations. At the root of this problem is the lack of any mood-inventory which produces non-significant intercorrelations among, for example, anxiety and depression subscale scores (the best found to date has been the Profile of Mood States which intercorrelates at .56 on these two scales). Given this state of affairs, non-significant outcomes may be interpreted as resulting from either (a) the actual presence of 'clustered' emotions as Izard (1972) predicts, or (b) the poor discriminant validity of the test subscales.

Summary

Research data supports the proposition that self-focused attention leads to an increase in the intensity of experienced moods. The hypothesis that such moods may be perceived more accurately has received only indirect endorsement. In response to the latter finding, it was proposed that an examination of the effects of self-awareness on (a) the reliability of mood inventories, and (b) the ability of individuals to discriminate among affective states would provide a more direct test of the hypothesis. Further, the possibility exists that such studies may have ramifications for current conceptualizations of emotional functioning, specifically Izard's (1972) notion of 'clustered' emotions.

Self-Focused Attention and Mood Induction

Mood states were defined as transitory emotional reactions to specific stimuli. Implicit to this definition is a process whereby certain phenomena promote a change in an individual's affective functioning. Considering that self-focused attention affects mood-states, the question arose as to whether attending to one's self would have an influence on this process of 'becoming emotional'.

A problem in examining this issue was associated with the fact that the range of potential mood-inducing stimuli is extremely diverse. In the context of the present study, a need to select a representative of these for the investigation was evident. The solution, a decision to focus on mood-inducing statements (cf. Velton, 1968), was based on a number of factors. First, this procedure had been used in previous studies of self-focused attention and mood. Secondly, the investigation of such stimuli held promise as a test of other views of emotional functioning, notably Beck's (1967) theory of depression. Further, the process itself was less intrusive than many 'confrontational' procedures, and it allowed for greater stimulus control in comparison to methods such as autobiographical recollection (cf. Williams, 1980).

The Velton Mood-Induction Procedure

As part of his investigation of Ellis' (1963) rational-emotive therapy and Phillips' (1956) assertion-structured therapy, Velton (1967) developed three lists of 60 statements designed to elicit specific emotional responses. He asked subjects to read a set of increasingly depressive, increasingly elating, or neutral statements and subsequently tested for the presence of a shift in mood-state. Sample items from each of the lists included: "My thoughts are so slow and downcast. I don't want to think or talk." and "I'm discouraged and unhappy about myself." for the depressive condition; "Life is so much fun; it seems to offer so many sources of fulfillment." and "I have a sense of power and vigor." for the elating condition; and "It was their sixth consecutive bestseller." and "Utah is the Beehive State." for the neutral condition (Velton, 1967).

In his assessment of the effect of this procedure, Velton (1968) found that individuals in the elation and depression mood-induced conditions differed significantly on five of seven mood-relevant behaviors including scores on the Multiple Affect Adjective Check List (Zuckerman & Lubin, 1965), writing speed, decision time, word association (reaction times), and spontaneous verbalizations. As well, responses to the postexperimental questionnaire supported the conclusion that both elation and depression had been successfully induced. The neutral statements were not

associated with any affective responses except possibly for a degree of self-reported boredom.

Subsequent research with this technique has focused primarily on the induction of depressive moods. Strickland, Hale, and Anderson (1975) found that the procedure affected self-reported mood, self-description, and preference for social/active versus solitary/inactive behaviors. In a similar study, Carson and Adams (1980) demonstrated that the affect-induction procedures changed or intensified mood-states and that they also affected the rated 'pleasantness' of various activities. Other investigators have shown the technique to differentially affect the accessibility of happy and unhappy memories (Teasdale & Taylor, 1981), to influence the perceived locus of control (Natale, 1978), and to affect performance on a cognitive (anagrams) task (Raps, Reinhard, & Seligman, 1980).

Frost, Graf, and Becker (1979) questioned the conceptual framework of the induction procedure by demonstrating that the somatic suggestion statements (e.g., "I feel terribly weak.") were more effective inducers of depressive mood than were the self-devaluation cards (e.g., "I'm discouraged and unhappy about myself."). However, subsequent investigations (Goodwin & Williams, 1983; Riskind, Rholes, & Eggers, 1982) failed to replicate the results of Frost et al.

In a comparison study, the Velton technique was found to be less effective than an autobiographical recollection procedure in the induction of depression and anxiety as determined by self-report measures (Brewer, Doughtie, & Lubin, 1980). Further, Williams (1980), while admitting the potency of Velton's procedure as a manipulator of moods, suggested that it was less effective in producing behavioral changes. A further possible drawback of the induction procedure was addressed by Polivy and Doyle (1980) who questioned Velton's (1968) conclusion that affective responses to his statement lists were not determined by demand characteristics of the experimental situation. On the basis of their replication and extension of Velton's (1967) original investigation, these researchers concluded that demand characteristics did contribute to the results. However, they also noted that "it thus appears that despite the contamination of demand characteristics, the procedure of reading and getting into mood relevant statements...might produce some true mood shifts, as Coleman (1975) had previously surmised" (Polivy & Doyle, 1980, pp. 289-290).

Despite the ambiguity in conceptualizations as to exactly what process underlies the induction (i.e., being some combination of self-devaluation, somatic suggestion, and response to demand characteristics for the depressive condition), a recent review (Goodwin & Williams, 1982) has concluded that the Velton procedure is "...a potent

manipulator of moods" (p. 73). This conclusion was based on experimental results which demonstrated mood changes associated with the Velton technique on measures such as the Multiple Affect Adjective Check List (Frost et al, 1979; Velton, 1968), the Personal Feelings Scale (Natale, 1977), Wessman and Ricks' (1966) Elation versus Depression Scale (Coleman, 1975), and the Beck Depression Inventory (Brewer, Doughtie, & Lubin, 1980).

Intensification and Clarification Hypotheses

Little research has focused specifically on self-focused attention as it may affect the induction of mood states. In the first study to do so, Scheier and Carver (1977) reported that high private self-conscious participants were more affected by the mood-induction procedure (reading Velton's depressive statements) than were low private self-conscious subjects. However, a later investigation of the effect failed to replicate the finding (Goodwin & Williams, 1983). These investigators noted that Scheier and Carver (1977) failed to report the initial mood ratings and therefore "...the possibility remains that high self-consciousness is associated more with high self-ratings of despondency than with a greater susceptibility to a mood manipulation" (p. 18).

Furthermore, the expectation that high private self-consciousness subjects will be more affected by a mood-

induction procedure such as Velton's (1967) seems to be counter to evidence regarding the influence of self-focused attention on experimental demands (cf. Gibbons et al., 1979; Scheier, et al., 1979). This research suggested that self-aware subjects were more acutely aware of their internal states. Therefore, a statement such as "I feel tired" should be less effective with these individuals. Rather than automatically adopt the statement as a valid portrayal, they would use their state of 'tiredness' as a criterion to accept, reject, or modify this descriptor.

On the basis of this analysis, it was suggested that self-focused attention should lead to a decrease in reported intensity of mood when the individual is self-aware during the induction phase. If this proposition is valid, then it follows that discriminability among emotions will also decrease. The figure/ground distinction is lessened by the 'equalizing' of intensities of the different possible affects probed for.

Statement of the Problem

In summary, this study was developed to address certain shortcomings in the literature on self-awareness and mood. Buss (1980) posited that self-focused attention would have two effects on experienced mood: affective charge would be of greater intensity (the intensification effect), and affective experience would be more accurately perceived (the

clarification effect). The problems addressed by this study had to do with the validity of these hypotheses as they applied to (a) the mood-induction process, and (b) the experience/perception of existing moods.

If attention is self-focused during the mood perception stage, the theory of self-awareness predicts that the mood will be experienced as more intense and that the mood will be perceived more clearly. Research (cf. Scheier, 1976; Scheier & Carver, 1977) has provided substantiation for the predicted intensification effect. In contrast, researchers have not yet addressed the possibility that self-awareness improves the accuracy with which existing moods are perceived. This study attempted to remedy this omission in the research literature, using measures of mood-inventory reliability and mood-discriminability to test for the clarification effect.

On the other hand, if attention is self-focused during the mood-induction stage, it is not clear, from research to date, that either intensification or clarification effects would be evident in subsequent self-reports of mood-states. Investigators have shown that placebo and experimental demand effects were attenuated by self-focused attention. Given these results, and assuming that demand characteristics influence mood-induction procedures, it was predicted that self-awareness during the induction process would result in the individual being less affected by the

mood-inducing stimuli. In other words, the mood would not be experienced as intensely because the self-attentional process would lessen the effect of the induction. As a specific mood would not be induced to the degree necessary for differentiation to occur, poorer discriminability would be expected.

Hypotheses

The hypotheses for this study predict relationships between self-attending and three outcome measures: mood intensity, mood discriminability, and mood-scale reliability. As the design, in part, replicates earlier research, some previously tested hypotheses will be addressed as part of this study.

1. A drive theory interpretation of self-awareness effects (cf. Liebling, et al., 1974) predicts that the presence of a mirror will increase the level of reported affect. Thus, when no mood-induction is in effect, mood scores of mirror-present subjects should be significantly higher than the scores for subjects who have no exposure to the mirror.

Testing for intensification effects arising from self-focused attention during the self-report stage, it was proposed that:

2. Saddened subjects who are self-focused during the self-report of mood states will report higher mood

levels than saddened subjects who have no exposure to the mirror.

Testing for intensification effects arising from self-focused attention during the mood-induction stage, it is proposed that:

3. Self-focused attention during the mood-induction stage will decrease the effects of Velton's (1968) depression mood-induction procedure. That is, subjects who have no exposure to a mirror will report significantly higher mood levels than will subjects who read the depression mood-induction statements in the presence of a mirror.

Some evidence has indicated that predispositional self-consciousness may interact with the Depression mood-induction procedure. However, Goodwin and Williams (1983) have suggested that this finding may be due to a tendency of high self-conscious subjects to report higher mood levels. They recommend using pretest mood scores as a covariate. To test this proposition, it is proposed that:

4. High private self-conscious subjects who read the Depression-induction statements will report significantly higher levels of mood than will low self-conscious subjects (who read the same cards), given that neither group has been exposed to a mirror during the experimental procedure.

Furthermore, research suggests that predispositional self-consciousness may interact with self-awareness

manipulations. Scheier and Carver (1977) have demonstrated a 'ceiling' effect for high private self-conscious subjects but not for low private self-conscious subjects. In line with their finding, it is proposed that:

5. Having read the Depression mood-induction statements, high self-conscious subjects who self-report in the presence of a mirror will report approximately the same level of mood as the high self-conscious subjects who have no access to a mirror. In contrast, low self-conscious subjects who self-report in the presence of a mirror will report a significantly higher level of mood than low self-conscious subjects who are not exposed to a mirror.

Finally, testing for clarification effects arising from self-focused attention during the self-report state, it is proposed that:

6. Saddened subjects who are self-focused during the self-report stage will show significantly greater discriminability among their own mood states (as reflected in lower correlations between mood scale scores) than will saddened subjects who are not self-focused during the experiment.
7. Self-focused attention during the self-report state will improve the internal consistency of affective-state measures as compared to internal consistency estimates for conditions in which no self-focusing has occurred.

CHAPTER II

Method

Subjects

One-hundred and fifty-three students enrolled in Introductory Psychology classes at the University of Manitoba participated in this study to partially fulfill course requirements. Given the verbal nature of the induction procedure, participation was restricted to individuals whose first language was English.

Four subjects failed to follow instructions correctly and two were given incorrect materials during the experiment. The data from these six were excluded from further analyses. Another 27 subjects were screened-out on the basis of pretreatment Depression scores, leaving an n of 120 subjects.

Design

The design involved three independent variables of which two were manipulated and one was a subject factor. One manipulation involved subjects receiving either the Neutral or Depressive sets of mood-induction statements. The second entailed assignment of subjects to one of three conditions

of self-awareness induction: a) mirror-presence during the reading of the mood-induction statements, b) mirror-presence during the self-reporting of mood-states after the induction procedure, and c) no exposure to the mirror during the experiment. A subject factor, private Self-Consciousness as measured by the SCS, was the third variable examined during the study. The dependent measures were the subscale and full-scale scores from the Profile of Mood States (POMS), the product-moment correlation between subscale scores, and internal consistency coefficients for the full-scale and various subscales of the POMS.

Materials and Experimental Setting

The following materials were used during the study:

1. A typed list of introductory instructions (Appendix A).
2. A written 'Note to Participants' briefly describing the study and informing subjects of their right to withdraw, confidentiality and the like (Appendix B).
3. A typed copy of the tape-recorded instructions (Appendix C).
4. Copies of the Center for Epidemiologic Studies Depression Scale, Self-Consciousness Scale (Appendix D), and Profile of Mood States with answer forms and pencils.

5. Three sets of fifty mood-statements typed individually on 7.6 centimeter by 12.9 centimeter index cards. Each set was designed to elicit a different affective response: Depression, Neutral, or Elation (Appendix E). The Depression and Elation cards were arranged with 'neutral' statements at the beginning and increasingly 'emotional' statements towards the end.
6. A box large enough to hold the index cards.
7. A tape recorder and cassettes with recorded instructions (two variations).
8. A free-standing mirror, approximately 24 centimeters by 34 centimeters.
9. A postexperimental questionnaire (Appendix F).

The experimental setting consisted of two tables and two chairs within a single room. The mirror was placed on one of the tables in such a manner that a person sitting at that table would see the image of his or her face while the same reflection was not visible to someone sitting at the other table. The mirror was located at a distance of (approximately) one metre from the subject. A note reading "For use in Perception Experiment C-3. Do not move." was attached to the mirror. The tape recorder, set of fifty index cards, self-report inventories, and lists of instructions were located on the tables in accordance with the experimental conditions to which the subject was

assigned (i.e., whether the mood-induction or self-report was to be completed in the presence of the mirror).

Pretest/Posttest Measures

The Center for Epidemiologic Studies Depression Scale. The CES-D (Radloff, 1977) served as a screening device for this study. This instrument was developed as a measure of depressive symptomatology, with emphasis on assessing depressive mood. It differs from clinical instruments such as the Beck Depression Inventory (cf. Burns & Beck, 1978) in that it was designed for use with a general population.

In response to twenty items describing feelings or behaviors, the respondent is asked to report (on a four-point scale) how often s/he has felt or behaved that way over the past week. Internal consistency of the scale was high (.85) in the general population, with test-retest reliability figures falling in the moderate range. Evidence in support of the scale's concurrent and construct validity was strong (Radloff, 1977).

A cutoff score of 16 was established as a tentative point for discriminating between psychiatric inpatients and the general population (Radloff, 1977). For this study, any participant who scored 16 or greater was presumed to be experiencing more severe levels of depression and was, therefore, not asked to participate in the Depression mood-induction procedure.

The Self-Consciousness Scale. The SCS (Fenigstein, Scheier, & Buss, 1975) was used to assess private self-consciousness (PrivSC). The scale consists of 23 items, each rated on a scale from 0 (extremely uncharacteristic) to 4 (extremely characteristic). Test reliability assessed over a two-week period was .80 for the whole scale and .79 for the Private Self-Consciousness subscale (Fenigstein, et al., 1975). No gender differences were evident in the normative data.

As previously noted, factor analyses of the SCS have produced three relatively robust factors: Private Self-Consciousness, Public Self-Consciousness, and Social Anxiety. Discriminant and convergent validity studies have supported the conceptual basis for the scale, and demonstrated differential effects associated with the subscales (cf. Buss, 1980; Carver & Scheier, 1981). Correlations among the subscales were not significant; supporting the proposal that each assesses an independent factor. Evidence regarding the validity of the Private Self-Consciousness subscale was presented above (see pp. 10-14).

The Profile of Mood States. The POMS (McNair, Lorr, & Droppleman, 1971) served as one of the pretests and as the posttest for this study. This scale was constructed to be "a rapid, economical method of identifying and assessing transient, fluctuating affective states" (McNair, et al.,

1971, p.5). Evidence gathered through factor analytic studies, comparisons of diagnostic groups, and treatment evaluations seems to suggest that the test is fulfilling its mandate (Eichman, 1978; Weckowicz, 1978).

The POMS consists of 65 adjectives scored on a five-point rating scale; the subject in response to a question of how the adjective describes his or her feeling-state may answer: not at all (0), a little (1), moderately (2), quite a bit (3), or extremely (4). Factor analytic studies have identified subscales which assess six identifiable mood-states: Tension-Anxiety, Depression-Dejection, Anger-Hostility, Vigor-Activity, Fatigue-Inertia, and Confusion-Bewilderment. In the initial factor analytic studies, subjects were asked to describe how they were feeling "during the past week including today" (McNair, et al., 1971, p.5). A replication modifying the rating period to "right now" (which was used in this study) did not appreciably alter the factor structure.

The POMS scales were defined as follows:

1. Factor T [Tension-Anxiety] is defined by adjectives descriptive of heightened musculoskeletal tension....The defining scales include reports of somatic tension which may not be overtly observable...as well as psychomotor manifestations.

2. Factor D [Depression-Dejection] appears to represent a mood of depression accompanied by a sense of personal inadequacy....It is best defined by scales indicating feelings of personal worthlessness regarding the struggle to adjust...A sense of emotional isolation from others...sadness...and guilt...
3. Factor A [Anger-Hostility] appears to represent a mood of anger and antipathy toward others.
4. Factor V [Vigor] is defined by adjectives suggesting a mood of vigorousness, ebullience, and high energy.
5. Factor F [Fatigue] represents a mood of weariness, inertia, and low energy level...While negatively weighted, F and V appear to be independent factors and not opposite poles of a single, bipolar factor.
6. Factor C [Confusion] appears to be characterized by bewilderment and muddleheadedness...There is some doubt as to whether the factor represents a trait of cognitive inefficiency, a mood state or both.
(McNair, et al., 1971, pp. 7-9).

Internal consistency indices for the scales were comparably high (at or near .90). Correlations among scales were seen as being rather large by the authors; for example: Depression/Anxiety, $r = .56$; Depression/Anger, $r = .70$ Anxiety/Anger, $r = .50$; for a sample of male undergraduates (McNair, et al., 1971).

In support of the validity of the scale, the authors noted that six factor analytic replications were carried out during the development of the measure. As well, research has shown the POMS to be sensitive to (a) changes associated with psychotherapy, (b) short-term changes associated with doses of mild tranquilizers, and (c) responses to emotion-inducing situations (McNair, et al., 1971). Concurrent validity was supported by studies demonstrating significant correlations between the Manifest Anxiety Scale (Taylor, 1953) and the Tension-Anxiety Scale (up to .80); between the Inpatient Multidimensional Psychiatric Scale (Lorr, Klett, McNair, & Lasky, 1963) and the POMS Depression-Dejection scale (.30); and between the Interpersonal Behavior Inventory Hostility Ratings and the POMS Anger-Hostility Scale (.32); among others. All scales except for Anger were found to be independent of the social desirability factor (cf. Crowne & Marlowe, 1964). An analysis of the available norms for college students suggested that the sex of the subjects accounted for less than one percent of the factor score variance (McNair, et al., 1971).

Procedure

Each subject was randomly assigned to one of six treatment conditions with the constraints that there be equal numbers within each condition and that males and females be equally represented within each cell. All

subjects were tested individually, with the sessions lasting an average of 50 to 55 minutes.

On arrival, the subject was escorted to the experimental room, seated at the No-mirror table, and oriented to a set of typed instructions (Appendix A) asking him or her to read the 'Note to Participants' and complete the CES-D, SCS, and POMS. The order of test presentation was randomized, with the constraint that an equal number of subjects be assigned to each of the six possible combinations. On completing these tests, the subject was instructed to open the door to the room and await further instructions. At that time, the experimenter took the three completed scales and scored the CES-D. To avoid the possibility of exacerbating emotional difficulties, individuals who scored above 15 on this test (into the more severe depression ranges) were not asked to participate in the Depressive mood-induction condition. Rather, they were given the Neutral mood-statements and asked to complete the POMS. Twenty-seven subjects fell above this cutoff point. All data obtained from these subjects were excluded from the study. For those subjects whose CES-D score fell below 15, no adjustment was made to the procedure.

On returning to the room, the experimenter handed the subject a second set of instructions (Appendix C) and oriented him or her towards the tape recorder and set of index cards (either the Neutral or Depressive mood-list).

In the Mirror Induction condition, the subject was moved to the table with the mirror; in the No-Mirror Induction condition, the subject remained at the same table.

The first note on the second set of instructions requested the subject to turn the tape recorder on. The following introduction and instructions (a modified version of the instructions used by Scheier and Carver, 1977, Study 3) were given orally via the tape-recorder and available for reading on the set of typed materials given to the subject:

Typed on Page 2 of your instructions is a transcript of what I am about to say. Please turn to Page 2 and follow along with me.

The experiment you are participating in today is a study of thinking, attention, and feelings. Your task will be to read a series of statements; and later, to answer two questionnaires.

On the table in front of you, you will notice a set of index cards under a blue piece of paper. One statement is typed on each card.

You are to begin reading these cards once a signal is given. As you look over each statement, focus your attention only on that one. This is not a memory task, so do not try to memorize them.

These statements may create a certain mood. Respond to the idea in each statement and allow any suggestion to act upon you without resistance. Attempt to respond

to any feeling suggested by any statement. Your success at coming to experience this mood will largely depend on your willingness to accept and respond to the idea in each statement and to allow each suggestion to act upon you without resistance.

If you feel the urge to laugh, it will probably be because humor is a good way to counteract unwanted feelings, or it might be because you feel yourself going into a mood. Try to avoid this reaction.

The tape recorder will help you time your reading of each card. When you hear a click such as this ____, remove the blue sheet and read the first card aloud. Concentrate on it for about 10 seconds until you hear another click___. When you hear the second click, put the card you have been reading upside down into the empty box and begin concentrating on the second card after reading it aloud. When the click is heard again, put that card upside down in the box and read the third card aloud, concentrating on it for 10 seconds, until the click is heard again. Follow this procedure until all of the cards have been read and placed into the box.
NOW BEGIN___.

Fifty 10-second pauses with clearly audible clicks at each 10-second interval followed. At the conclusion of this section of the tape, the same voice relayed the following:

The cards should now be done. Turn to page 3 of your instructions and read along. You will notice a green

sheet of paper [on this table] or [on the other table]. Under the green paper is Questionnaire IV. Read the instructions typed on the green paper and complete the questionnaire. When you are finished, open the door and the experimenter will let you know what else is to be done. Please turn-off the tape recorder, [seat yourself at the other table] and begin. Thank-you.

Subjects who were to respond to the final questionnaire in the presence of a mirror were thus asked to move to the table with the mirror. Others who had been reading the statements while facing the mirror moved to the No-mirror table. Subjects who were to complete the procedure with no exposure to the mirror were instructed to remain at the No-mirror table.

Once the door was opened, the experimenter had the subject move to the No-mirror table if s/he was sitting at the other table. If the subject was in the Depressive mood-statement condition, s/he was asked to read the Elation mood-list at his or her own speed and subsequently, to complete the Postexperimental Questionnaire (PEQ). All other subjects were asked to respond to the PEQ only. The reading of the Elation mood-list was intended as a counter-induction to remove any remaining effects of the depression-induction procedure.

The PEQ question asking for a description of how the individual feels now in comparison to how s/he felt prior to

the experiment was examined at the conclusion of the experiment. If the subject reported feeling worse, time was given to discussing the study and the individual's reaction to it until s/he reported feeling better. On completion, the subject was excused with the urging not to talk about study with other potential subjects. Following completion of the study, a description of the research and preliminary results were made available to each participant.

Postexperimental Questionnaire

This was a modification of a questionnaire developed by Spinner (1979). Its purpose was to assess the subjects' perceptions of and reactions to the experimental procedures. The first question served as a check on any residual mood-induction effects as subjects were asked to indicate how they felt at the conclusion of the experiment as compared to when they first started. The next five questions probed for any reactions, perceptions, and expectations that the subject had developed during the experiment. These, for example, ask the subject to rate the degree of anxiousness or defiance that s/he felt during the experiment, to comment on any influence the experimenter may have had, and to state any expectations s/he held about the card-reading procedure before and during his or her participation.

The last six questions, in line with Spinner's (1979) format, constituted a funnel-type suspiciousness

questionnaire (Page, 1973). In answering these questions, the subjects were asked to articulate any impressions they may have had regarding the expectations of the experimenter, the objective of the study, and the purpose of the experimental manipulations.

CHAPTER III

Results

The following presentation has been divided into four sections; the first three of which examine the effects of experimental factors on each of the major dependent variables of this study: mood intensity, mood discriminability, and internal consistency of mood-scales. Within each section, a similar format has been used. Manipulation checks, consisting of an evaluation of pretreatment group differences and an analysis of the effects of nonexperimental design factors (i.e., sex of subject and order of pretests), are presented first followed by a description of the treatment effects. The fourth section of this chapter details the subjects' retrospective perceptions of their participation as drawn from their responses to the Postexperimental Questionnaire.

For the sake of brevity and ease of presentation, abbreviated terms have been used to represent experimental conditions in the following discussion. The two manipulated variables in this study are the type of induction (Neutral or Depression) associated with the Velton mood-induction procedure (CARDMOOD), and the presence or absence of a

mirror which is used to induce self-focusing (MIRROR). The three conditions of the latter include the presence of a mirror while reading the mood-inducing statements (IndM), the presence of a mirror while self-reporting on one's mood state (SRM), and the absence of a mirror during the entire experimental procedure (NoM). As well, consideration is given to the effects of predispositional private Self-Consciousness (PrivSC) on the reported mood levels. Tables not included in the following chapter are presented in Appendices G through J.

Dependent Variable: Mood Intensity

Mood intensity has been operationally defined as summed scores on the various subscales of the Profile of Mood States (POMS). Of these, the Depression subscale has been singled out for special study because of the depression mood-induction procedure used in this investigation. A Total Mood Disturbance Score (TD), calculated by summing the six POMS subscales, with the Vigor scores weighted negatively (McNair, et al., 1971), has been examined in instances when comparison with past research required its use.

Manipulation Checks

A regression of posttreatment TD scores on pretreatment TD scores was used to test for outliers. Using residual scores which were equal to or greater than three in absolute units as a criterion (Cohen & Cohen, 1983), two extreme scores were located. An examination of these cases suggested that the scores were likely a result of over-responsiveness to demand characteristics of the experiment. That is, the two subjects reported very high levels on all of the 'negative' moods and very low on the Vigor scale. Because of this apparent response bias, these two cases were dropped from subsequent analyses.

Occasionally, the assumption of homogeneity of variance was not met, as determined by Cochran's test for the univariate case (cf. Winer, 1971) or Box's M for the multivariate procedure (cf. Harris, 1975). As a rule, groups with higher means tended to have higher variances. Hays (1973) has claimed that the analysis of variance tends to be robust with respect to such violations, particularly when cell frequencies are equal. Nonetheless, to address this problem, logarithmic transformations of the data were used when heteroscedasticity was at issue. Replications using the untransformed data were also carried out. In no case was the decision regarding significance of treatment effects reversed as a result of the transformation process.

Analyses of variance were used to determine whether experimental groups differed in state or trait mood levels or in predispositional self-awareness prior to the introduction of the experimental manipulations. The results indicated that the pretreatment groups could not be discriminated on the basis of the Centre for Epidemiological Studies-Depression scale (CESD) scores, $F(5,112) = 1.01$, $p > .40$, the subscale scores of the Self-Consciousness Scale (SCS), $F(15,336) = 1.14$, $p > .30$, or on the six subscales and TD scores of the pretreatment POMS, $F(35,555) < 1$. On the basis of these results, it was concluded that pretreatment group differences in mood and self-consciousness did not significantly bias the results.

Since both males and females were included in the original sample, there was a possibility of sex differences in pretreatment levels of mood and self-consciousness, and therefore the possibility that these differences may have had an effect on the outcome measures. Even if no pretreatment differences existed, it was still possible that subject gender may have differentially influenced the experimental outcomes.

To assess for any such influence, multivariate and univariate analyses of variance were performed for subject gender on the three pretests and on the outcome measure. The results of these analyses indicated that male and female groups did not differ significantly on any of the

pretreatment measures (all p s $> .15$) Further, it was apparent that subject gender was not a significant main effect, $F(6,101) = 1.01$, $p > .40$, nor was there any significant interaction between subject gender and the two experimental manipulations (all p s $> .20$) on the outcome measures.

A separate analysis of variance was performed to evaluate the effect of the ordering of the pretests on the outcome measures. Because six alternate orderings were used in the design, it was possible that certain orderings may have had an influence on the results of the investigation. However, results indicate that the main effect and interactions involving this factor were not significantly influential (all p s $> .10$).

Because experimental hypotheses predicted only MIRROR effects, it was necessary to assume that the CARDMOOD manipulation had been effective. Individuals who read the Depression cards were expected to report higher levels of moods associated with depression than those who were given the Neutral cards. A multivariate analysis of variance performed on the posttreatment POMS scores showed a significant effect for CARDMOOD, $F(7,110) = 6.34$, $p < .001$. An examination of the univariate analyses of CARDMOOD on each of the subscales revealed that, in comparison to the Neutral cards, the use of the Depression cards resulted in greater reported Depression ($F(1,116) = 29.75$, $p < .001$),

Fatigue ($F(1,116) = 12.86, p < .001$), and Total Mood Disturbance ($F(1,116) = 11.61, p < .01$). Moreover, comparisons on the Hostility ($F(1,116) = 3.48, p < .07$) and Confusion ($F(1, 116) = 3.01, p < .09$) scores both approached significance.

Tukey's multiple comparison procedure was used to assess the significance of CARDMOOD effects within conditions of the MIRROR factor for each of the significant (and near significant) univariate results. Table 1 presents the results of this analysis.

Insert Table 1 about here

An examination of Table 1 indicates that, in terms of number of moods significantly altered, the CARDMOOD procedure affected the NoM group most (significant differences on the Depression, Hostility, Fatigue, Confusion, and Total Mood Disturbance scales). The IndM group (Depression, Hostility, and TD scales) and the SRM group (Depression, Fatigue, and TD scales) were affected less. Given that the NoM group had no exposure to a mirror during the experiment, it may be argued that the mood scores for this group reflected most clearly the pure effects of the CARDMOOD manipulation. Given the acceptability of this proposition, it follows that the assumption regarding the effectiveness of the CARDMOOD manipulation was valid (keeping in mind that the nature of this effect is not at issue at this point).

TABLE 1

Cell Means and Standard Deviations of the Posttreatment POMS Scores

POMS Scale	CARDMOOD	MIRROR		
		IndM	SRM	NoM
Depression	Depression	9.26** (7.04) n=19	6.50** (5.58) n=20	8.53** (9.29) n=19
	Neutral	1.95 (2.14) n=20	2.45 (2.52) n=20	3.15 (3.94) n=20
Anxiety	Depression	7.47 (4.59) n=19	5.25 (4.24) n=20	6.05 (5.51) n=19
	Neutral	5.85 (4.33) n=20	6.25 (3.11) n=20	4.75 (4.03) n=20
Hostility	Depression	5.11* (6.35) n=19	3.85 (5.86) n=20	4.63* (6.10) n=19
	Neutral	2.45 (3.56) n=20	2.10 (1.77) n=20	2.05 (3.12) n=20
Vigor	Depression	12.52 (7.15) n=19	11.40 (6.31) n=20	14.68 (6.59) n=19
	Neutral	13.60 (7.94) n=20	14.40 (7.65) n=20	15.85 (8.28) n=20

TABLE 1 (Con't)

Cell Means and Standard Deviations of the Posttreatment
POMS Scores

POMS Scale	CARDMOOD	MIRROR		
		IndM	SRM	NoM
Fatigue	Depression	9.26 (7.13) n=19	9.95** (5.84) n=20	10.26** (7.64) n=19
	Neutral	8.55 (8.67) n=20	5.10 (4.61) n=20	4.30 (3.73) n=20
Confusion	Depression	7.57 (4.35) n=19	5.40 (3.50) n=20	6.89* (4.71) n=19
	Neutral	5.80 (4.41) n=20	5.65 (2.98) n=20	4.50 (3.25) n=20
Total Mood Disturbance	Depression	26.15* (28.54) n=19	19.45* (19.41) n=20	21.68** (30.85) n=19
	Neutral	11.00 (22.17) n=20	7.15 (14.82) n=20	2.90 (20.30) n=20

Note: Probability estimates refer to within cell comparisons. Standard deviations are presented in parentheses. For each subscale, a higher score represents greater intensity of mood. IndM = Mirror presence during mood induction. SRM = Mirror presence during self-report. NoM = No mirror present.
*p < .05. **p < .01.

Treatment Effects

Manipulated Self-Focused Attention. Liebling, Seiler and Shaver (1974) argued that manipulations which induce self-attending are drive-inducing in and of themselves. This hypothesis was tested by examining the effects of mirror-presence when no mood had been induced (i.e., when the Neutral cards had been given). To this end, a multiple analysis of variance was performed on the posttreatment POMS scores for subjects in the Neutral CARDMOOD condition. Overall results failed to show any significant effect for MIRROR, $F(12,106) < 1$. Univariate tests of the individual POMS subscales were also non-significant (all $ps > .20$). Thus contrary to the hypothesis that the mirror-manipulation is drive-inducing, the results of this study offer little evidence that the presence of a mirror, by itself, significantly alters mood scores (again, assuming that an alteration in drive level could be associated with a change in affect).

Two of the experimental hypotheses predicted specific effects of self-focused attention on the intensity of moods as reported by subjects who read the Depression mood-induction statements. It was expected that those individuals who were self-focused during the self-report phase (SRM) would report a higher level of depression/sadness after reading the Depression mood-inducing statements than would saddened individuals who had

no visual contact with the mirror (NoM). In comparison to this same control group (NoM), an opposite effect (i.e. a lower level of reported mood) was expected from those individuals who were self-focused while reading the mood-inducing statements (IndM).

Insert Figure 1 about here

Given these predictions, an examination of the mean posttreatment depression scores revealed some unexpected results. Individuals in the Depression CARDMOOD condition who were self-focused while responding to the second POMS reported, on average, a less intense feeling of sadness ($M = 6.50$, $SD = 5.58$), while those who were self-focused during the induction phase reported approximately the same level of mood ($M = 9.26$, $SD = 7.04$) compared to individuals who had no exposure to a mirror during the experiment ($M = 8.53$, $SD = 9.29$).

To test differences between the NoM control group and the SRM and IndM groups, an analysis of covariance was performed on the posttreatment POMS depression scores; the covariate being the pretreatment POMS Depression score which had been found to correlate significantly ($r = .53$, $p < .001$) with the posttreatment Depression score. No main effect of the MIRROR was found, $F(2,54) < 1$.

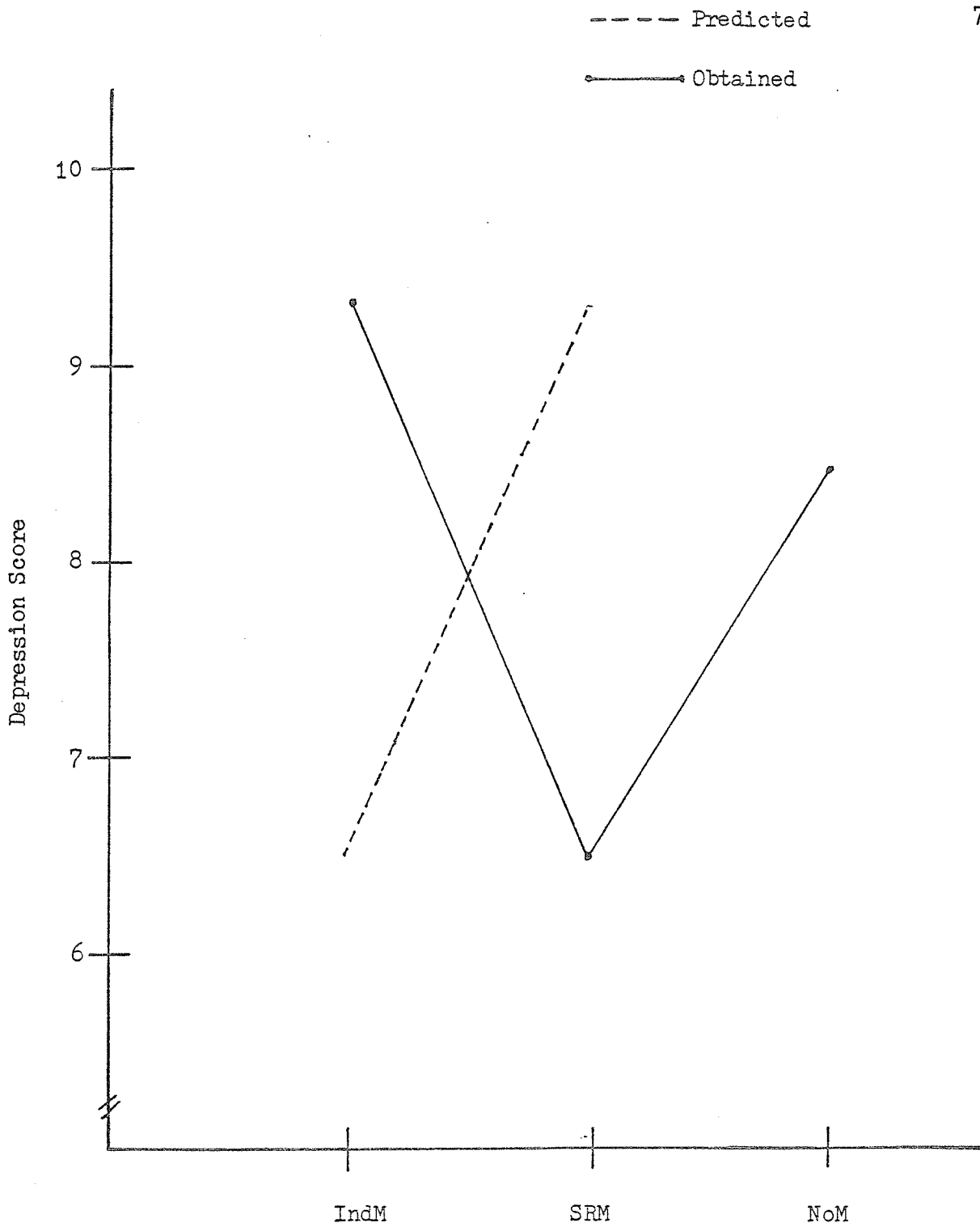


Figure 1: Predicted (approximate) and Obtained Depression Scores across MIRROR Conditions

Given the possibility that the MIRROR factor may have influenced one of the other subscales of the POMS, a multivariate analysis of variance was performed on the scores for the six subscales and Total Mood Disturbance score of the posttreatment POMS. Again, the MIRROR main effect, $F(12,216) < 1$, was not associated with significant changes in any of the dependent measures, nor was the MIRROR by CARDMOOD interaction significant, $F(12,216) = 1.14$, $p > .30$. An examination of the univariate tests of the interaction effect on each of the subscales revealed no significant results (all p s $> .15$).

Considering that the original study of mirror effects on reported mood intensities used scores derived by summing across various mood measures (Scheier & Carver, 1977), analyses of variance and covariance were also run on the transformed Total Mood Disturbance (TD) scores from the posttreatment POMS, using pretreatment TD scores as the covariate (pretest and posttest TD scores correlated at $r = .72$, $p < .001$). This approximate replication provided results similar to the analyses on the posttreatment Depression scores, in that no significant effect was found for the MIRROR main effect (ANOVA, $F(2,112) > 1$, ANCOVA, $F(2,111) > 1$), or for the MIRROR by CARDMOOD interaction (ANOVA, $F(2,112) > 1$, ANCOVA, $F(2,111) = 1.19$, $p > .30$). Thus, the results of this study failed to show the predicted MIRROR effects on reported mood levels.

In summary, previous research had suggested that a mirror may be drive-arousing and that seeing one's self in a mirror would therefore induce more intense moods. A comparison of MIRROR effects within the Neutral CARDMOOD condition failed to support this proposition. It appeared that the presence of the mirror did not significantly alter the level of reported moods for subjects who were not, on average, cognizant of any dominant mood.

For subjects who were saddened (i.e., having read the Depression-induction statements), the mirror was expected to have opposite effects, depending on when one was exposed to it. Again, the hypotheses did not hold. Individuals who were self-focused while reporting on their mood states after the induction reported less intense feelings of sadness in comparison to those who had no exposure to the mirror. Although the difference was not found to be significant, it was notable in that it was in a direction opposite to that found in previous research (Scheier & Carver, 1977). Participants who read the Depression-induction statements in the presence of a mirror reported approximately the same level of sadness as did those who had no opportunity to see their own reflections, whereas it had been predicted that they would report less intense feelings of depression.

The remaining hypotheses concerning mood intensity predicted effects due to private self-consciousness. We now turn to an examination of these.

Predispositional Self-Consciousness. A third hypothesis of this study predicted that levels of predispositional self-consciousness would correlate positively with levels of pretreatment mood. Specifically, individuals who scored higher in self-consciousness were expected to have higher pretreatment depression scores. If this was found, previous findings that high PrivSC people were more strongly affected by the Depression CARDMOOD manipulation than were low PrivSC people may have been confounded by pretreatment mood levels.

To test the hypothesis concerning pretreatment mood levels, the group of subjects in the NoM condition who received the Depression mood-induction were assigned to the low or high PrivSC groups using the median value ($Md = 23$, $n = 118$). This procedure resulted in subgroups with 7 members (high PrivSC) and 12 members (low PrivSC). As expected the high PrivSC subjects reported a higher level of pretreatment depression on the POMS ($M = 5.86$, $SD = 5.33$) than did the low PrivSC individuals ($M = 2.08$, $SD = 3.82$); a difference which was significant, $t(17) = 1.77$, $p < .05$. (For the entire sample, the difference between the high PrivSC subjects, $M = 4.21$, $SD = 3.74$, and the low PrivSC subjects, $M = 3.28$, $SD = 3.80$, approached significance, $t(116) = 1.43$, $p < .10$). The difference between the posttreatment depression scores for the high PrivSC group ($M = 11.43$, $SD = 12.46$) and low PrivSC group ($M = 6.83$, $SD = 6.94$), while in the expected direction, was not significant, $t(17) = .90$, $p > .15$.

To avoid the loss of information which results when the median-split procedure is used in analyses of variance, a hierarchical multiple regression procedure has been recommended (Cohen & Cohen, 1983). In this approach, emphasis is placed on the contribution of variables to R^2 , the proportion of variance shared with the dependent variable.

Regressing the posttreatment depression scores on the PrivSC scores resulted in an R^2 of .18, $F(1,17) = 3.69$, $p = .07$. However, when pretreatment POMS depression scores were entered into the equation first, the increment in R^2 due to PrivSC was found to be only .01, $F(1,16) = .24$, $p > .60$. The decreased contribution of PrivSC to R^2 following the introduction of the covariate indicated that pretreatment mood levels contributed to the interaction effect. These results suggested that the interaction between levels of predispositional Self-Consciousness and the depressive mood-induction procedure is less influential when viewed in the context of pretreatment mood levels, as Goodwin and Williams (1983) had suggested.

Considering that the CARDMOOD procedure does not appear to interact significantly with the subject's level of predispositional self-consciousness, the next question that arose was whether or not the MIRROR manipulation would do so. There has been some question in the literature as to whether a 'ceiling' effect exists. Highly self-conscious

subjects were thought to be predispositionally self-focused to a degree that the mirror could increase their level of self-attending only minimally. On the other hand, low self-conscious subjects were expected to become relatively more self-focused when the mirror was present. If this was the case, little difference should be noted between mood scores for the high PrivSC group that was exposed to the mirror during self-report and mood scores for the high PrivSC group that had no exposure to the mirror. In comparison, the low PrivSC group that was exposed to the mirror during self-report would be expected to experience higher levels of self-awareness than the low PrivSC group that had no exposure to the mirror. As research has suggested that higher self-awareness is associated with higher mood scores, a MIRROR by PrivSC interaction effect on reported mood levels of depression was predicted.

Since previous results had indicated that low and high PrivSC groups differed on pretreatment depression scores, a method of controlling this factor was required (particularly since the correlation between pretreatment and posttreatment Depression scores was significant, $r = .53$, $p < .001$). Cronbach and Furby (1970) have argued that using pretreatment scores as a covariate would address this need.

Through a multiple regression procedure (Cohen & Cohen, 1983), the contribution of the PrivSC by Mirror interaction effect to R^2 , was found to be significant, $F(1,35) = 7.48$, p

< .05. When the pretreatment Depression score were used as a covariate by entering these scores into the regression procedure first, a slight drop in significance was noted, $F(1,34) = 3.73, p < .07$.

An examination of group means clarified the nature of this interaction (see Figure 2). The low PrivSC subjects reported approximately the same level of depression whether they were in the NoM group ($M = 6.83, SD = 6.94$) or in the SRM group ($M = 7.90, SD = 7.13$). In contrast, the high PrivSC participants in the NoM group reported a higher level of depression ($M = 11.43, SD = 12.46$) than did those in the SRM group ($M = 5.10, SD = 3.25$). This difference approached significance, $t(15) = 1.44, p < .10$ (one-tailed test). In other words, it appeared that the high self-conscious subjects who were not exposed to the mirror reported more depression than did the depressed high PrivSC subjects who self-reported in the presence of the mirror. In contrast, a comparison of low PrivSC scores across mirror conditions did not show any appreciable differences. Thus, the results of this study supported the presence of a MIRROR by PrivSC interaction for the NoM and SRM groups. However, the nature of this interaction was not congruent with the expected 'ceiling' effect. A further comparison of the IndM and NoM groups failed to show any main effects or interactions associated with PrivSC across these two groups.

Insert Figure 2 about here

In summary, considering that people had been found to differ in predispositional sensitivity to their internal thoughts and feeling-states, analyses were performed to assess whether or not this factor had an influence on reported mood levels. A previous finding that highly self-conscious subjects became significantly more depressed (as determined from self-reports) than low self-conscious subjects when exposed to a depression mood-induction technique was not supported. Rather, it would seem that high PrivSC individuals tend to report higher mood levels as a rule, and that this tendency may account for posttreatment differences more so than the posited interaction between self-consciousness and mood-induction manipulation.

An effect approaching significance was found when the interaction between predispositional self-consciousness and induced self-focusing was examined. The presence of a mirror during the self-reporting of mood-states resulted in highly self-conscious subjects admitting to a lower level of depression, on average, than highly self-conscious subjects who were not exposed to the mirror. Low PrivSC subjects apparently were not differentially affected by the manipulation of self-focus. Thus, the lowered mood scores for the group who had read the Depression cards and

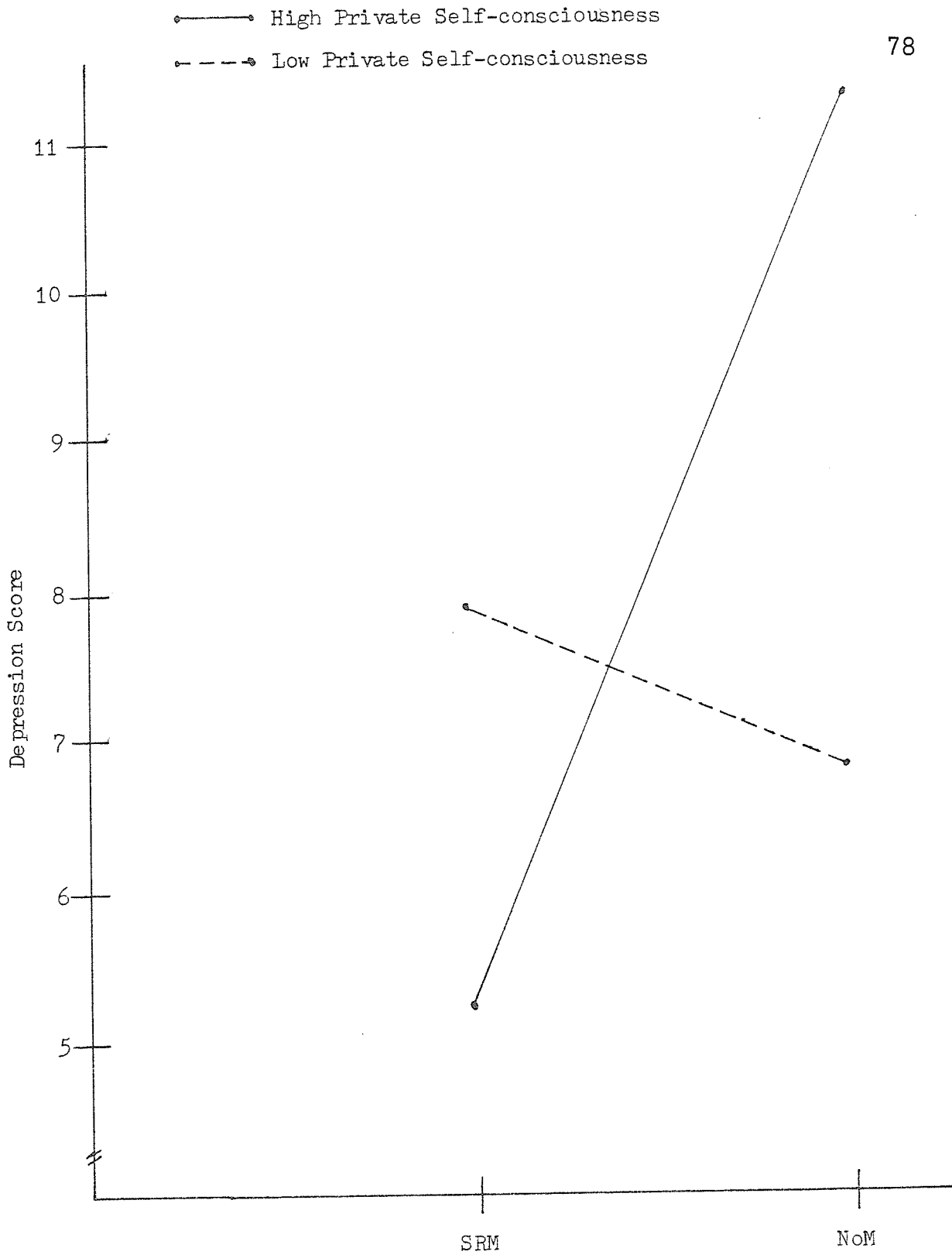


Figure 2: Scores of Low and High Private Self-Conscious Subjects across SRM and NoM MIRROR Conditions

subsequently self-reported in the presence of a mirror was a result of lowered mood levels reported by the highly self-conscious subjects (as compared to highly self-conscious participants in the two other MIRROR conditions).

Dependent Variable: Mood Discriminability

Discriminability has been operationally defined as a correlation between two mood subscale scores; a low correlation representing better discriminability and a high correlation indicating an inability to distinguish between moods. Following the precedent set by previous research (e.g., Polivy, 1981) this investigation focused on the participants' abilities to discriminate among Depression (D), Anxiety (Ax), and Hostility-Anger (HA). In this and the following section, analyses of PrivSC were not included as sample sizes for such analyses were small and the reliability of correlation coefficients would have consequently been low.

Manipulation Checks

Using a test for the significance of differences among correlation coefficients (cf. Marascuilo, 1966), it was found that the six pretreatment groups did not differ significantly on the D/Ax, D/HA, or Ax/HA correlations. Further, subject gender was not associated with significant differences in discriminability at pretest or posttest, nor

did the ordering of the pretests significantly affect the outcome correlations.

Treatment Effects

On the assumption that self-focused attention would improve subjects' abilities to discern inner states, it was predicted that participants who self-reported on their moods in the presence of a mirror would show better discriminability than those who were not similarly self-aware. Thus, saddened subjects who were exposed to the mirror were expected to discriminate between sadness and other feelings better than depressed subjects who were not induced to be self-aware. Discriminations among feelings other than sadness were not expected to improve as depression should be the salient affect, given the specific mood-induction used. An examination of correlations across MIRROR conditions suggests that the results from this study generally supported this proposition (see Table 2 and Figure 3).

Insert Table 2 and Figure 3 about here

As expected, subjects who self-reported in the presence of a mirror showed a significant improvement in their ability to discriminate feelings of sadness from feelings of anger. A tendency toward better discriminability between

TABLE 2
Mood Score Correlations Across MIRROR Conditions

Correlation	MIRROR		
	IndM ¹	SRM ²	NoM ¹
D/Ax	.447	.306	.576
D/HA	.580ab	.386a	.796b
Ax/HA	.529	.548	.750

Note: Probability estimates refer to within row comparisons. Correlations without common subscripts differ at the .05 level. IndM = Mirror present during mood induction. SRM = Mirror present during self-report. NoM = No mirror present. D = Depression. Ax = Anxiety. HA = Hostility-anger.
¹n = 39. ²n = 40.

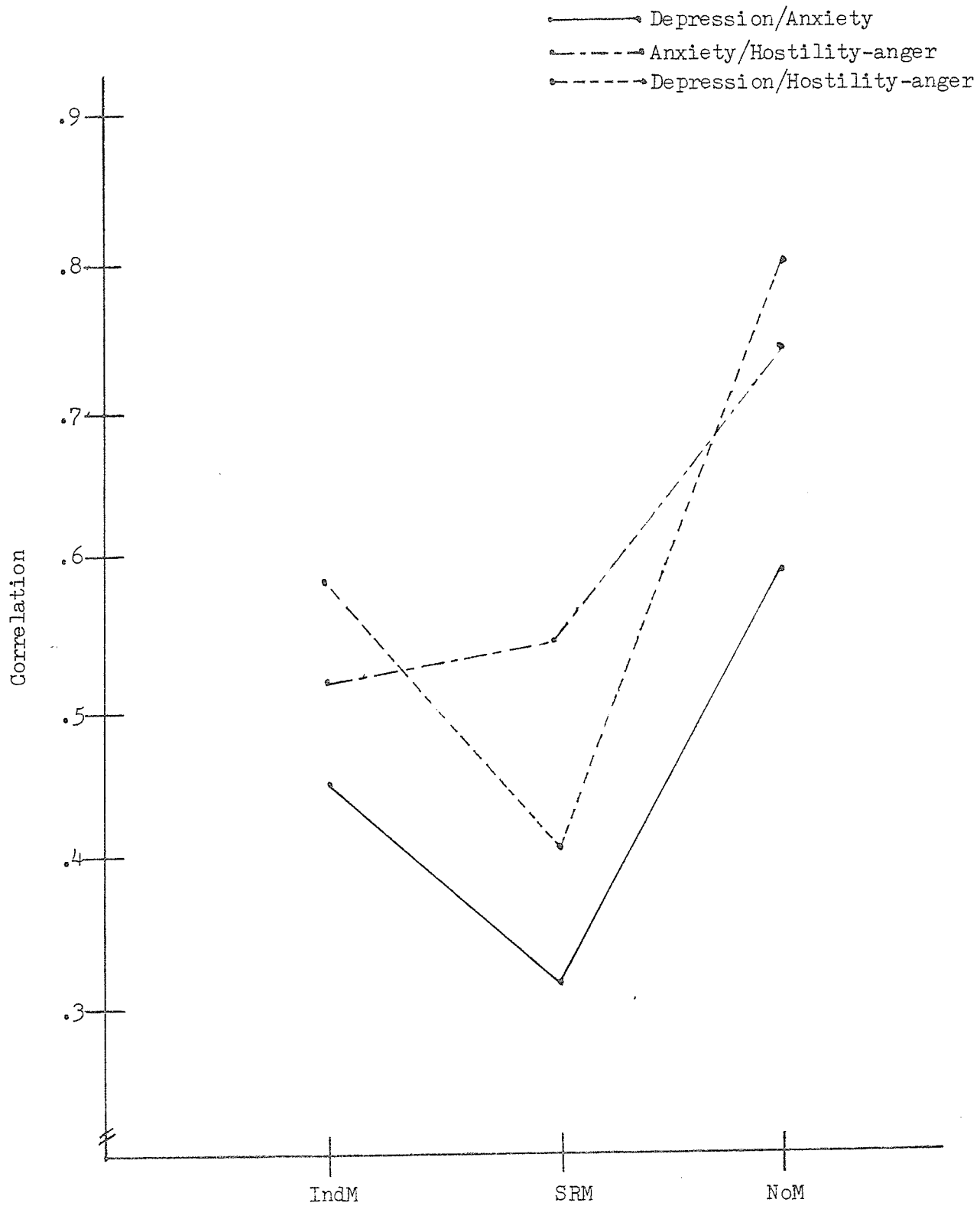


Figure 3: Correlation between Mood Scores across MIRROR Conditions

Depression and Anxiety was also evident for the SRM subjects, although the difference between SRM and NoM groups was not significant. The correlations between Anxiety and Hostility scores were not significantly different across MIRROR conditions. In all instances, the correlations for the IndM group were less than those of the NoM group but these differences were not found to be significant.

A secondary analysis carried out to assess the effect of CARDMOOD produced the following results (see Table 3).

Place Table 3 about here

Only for the Ax/HA correlation was the 'Depression' coefficient significantly greater than the 'Neutral' coefficient, although in all cases the 'Neutral' correlations were lower than the 'Depression' correlations. This may be expected, in general, if subjects do tend to report on the basis of the 'goodness' or 'badness' of the affective tone they are experiencing. If so, the presence of sadness, anxiety, or anger would result in the self-reporting of greater intensities of the other two.

To examine these results in greater detail, correlations were obtained for each of the six CARDMOOD by MIRROR experimental groups (see Table 4 and Figure 4).

Insert Table 4 and Figure 4 about here

TABLE 3
Mood Score Correlations Across CARDMOOD Conditions

Correlation	CARDMOOD	
	Neutral ¹	Depression ²
D/Ax	.323	.570
D/HA	.444	.615
Ax/HA	.280a	.774b

Note: Probability estimates refer to within row comparisons. Correlations without common subscripts differ at the .05 level. D = Depression. Ax = Anxiety. HA = Hostility-anger.
¹n = 60. ²n = 58.

TABLE 4

Mood Score Correlations across Experimental Conditions

CARDMOOD	MIRROR	Correlation		
		D/Ax	D/HA	Ax/HA
Neutral	IndM ¹	.073	.307	.185
	SRM ¹	.434	-.163	-.005
	NoM ¹	.610	.843	.529
Depression	IndM ²	.602	.607	.712
	SRM ¹	.413	.410	.770
	NoM ²	.511	.767	.846

Note: IndM = Mirror present during mood induction. SRM = Mirror present during self-report. NoM = No mirror present. D = Depression. Ax = Anxiety. HA = Hostility-anger.
¹n = 20. ²n = 19.

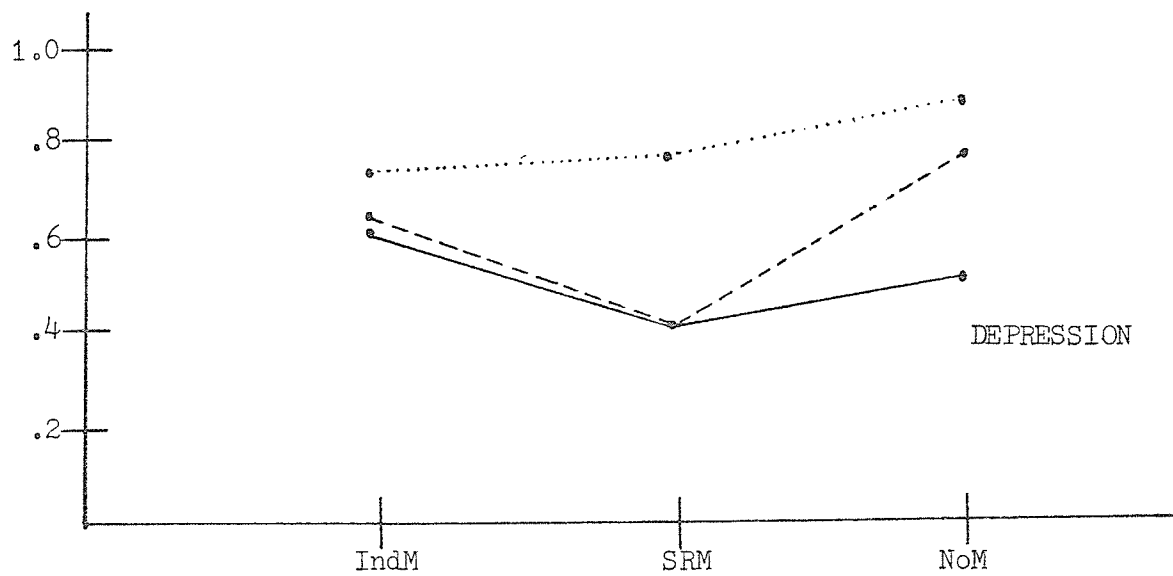
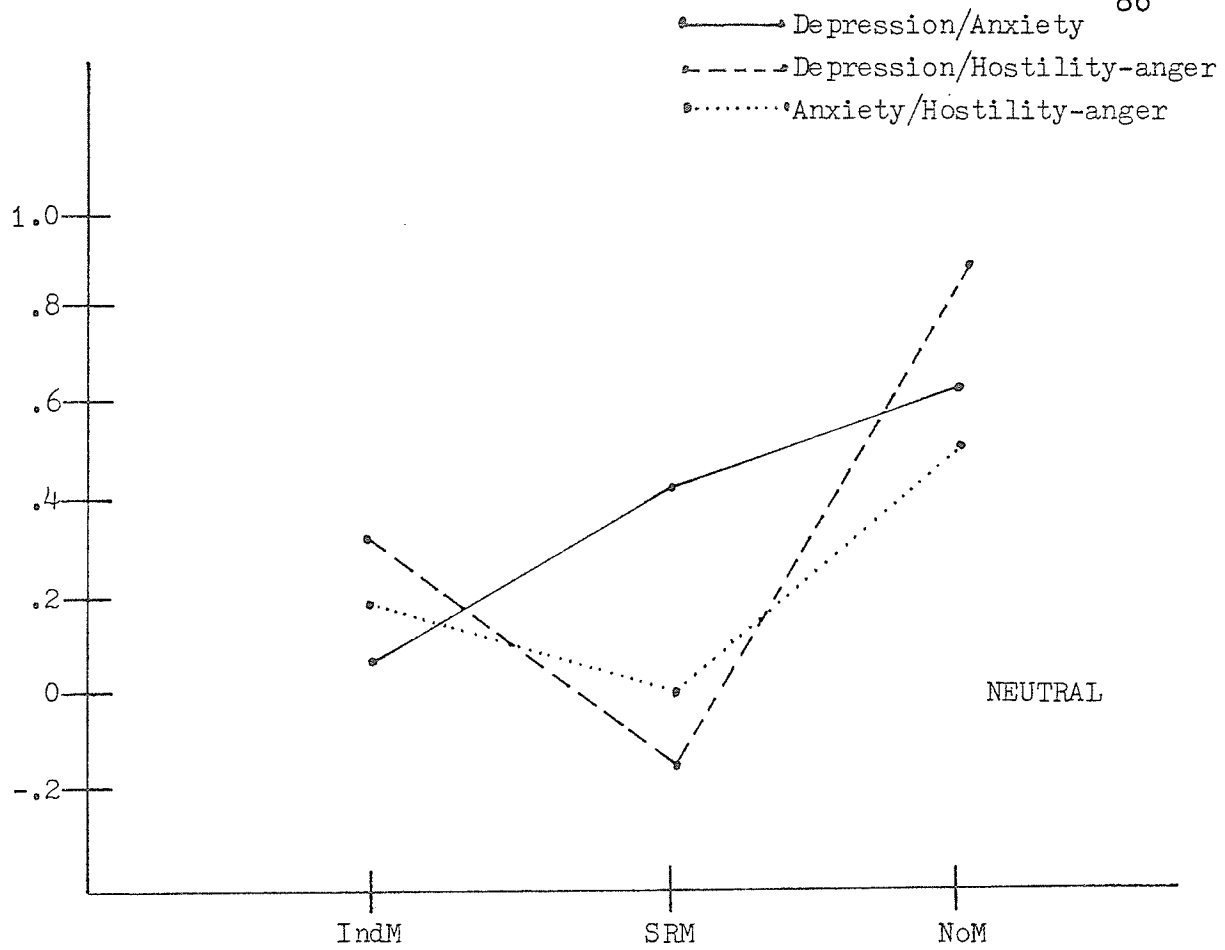


Figure 4: Mood Score Correlations across Experimental Conditions

Across CARDMOOD conditions, two patterns are evident. For the Depression CARDMOOD condition, subjects in the SRM group tended to produce lower interscale correlations (D/Ax, D/HA) than did subjects in the NoM or IndM groups. Secondly, within the Neutral CARDMOOD condition, the subjects who were exposed to a mirror (i.e., in both the IndM and SRM conditions) tended to report lower correlations between mood scales (D/Ax, D/HA, Ax/HA) than did the NoM subjects. Both of these trends suggest that the induction of self-awareness is associated with better discriminability.

Dependent Variable: Internal Consistency

As part of this study, the effects of self-focused attention on the internal consistency of the mood measure was also examined. For this purpose, coefficient alphas (cf. Cronbach, 1951) were calculated for the Full Scale and for the Depression, Anxiety, and Anger-Hostility subscales of the POMS within the various experimental conditions.

As a procedure for evaluating the significance of differences among coefficient alphas (which are averaged product-moment correlations) was not found, the omnibus test for assessing the significance of differences among product-moment correlations (Cohen & Cohen, 1983; Marascuilo, 1966) was used in this analysis. This was done with an understanding that this procedure may be found to have potential limitations in this application.

Manipulation Checks

Using this procedure, the pretreatment groups were not found to differ significantly in terms of the alphas calculated for each group on the pretreatment POMS ($p > .30$). As well, neither the effect of gender on pretreatment alphas nor the effects of gender and pretest ordering on the posttreatment alphas were found to be significant.

Treatment Effects

On the basis of classical test theory, it was predicted that self-focused attention during the self-reporting of mood states would improve the internal consistency of the particular mood-measure. An examination of the alphas calculated for the Depression, Anxiety, and Anger-Hostility subscales and for the Full Scale of the POMS (see Table 5 and Figure 5) suggested that this hypothesis was inaccurate. If anything, self-focused attention during the self-reporting phase seemed to result in lower internal consistency values.

Place Table 5 and Figure 5 about here

No significant effects were noted for the subscales or for the full scale of the POMS.

A secondary analysis examining the effect of CARDMOOD on the measures of internal consistency showed similar results to the discriminability findings (see Table 6).

TABLE 5
Coefficient Alpha's across MIRROR Conditions

POMS Scale	MIRROR		
	IndM ¹	SRM ²	NoM ¹
Depression	.916	.814	.905
Anxiety	.734	.604	.641
Anger-Hostility	.877	.827	.840
Full Scale	.821	.853	.881

Note: IndM = Mirror present during mood induction. SRM = Mirror present during self-report. NoM = No mirror present.
¹n = 39. ²n = 40.

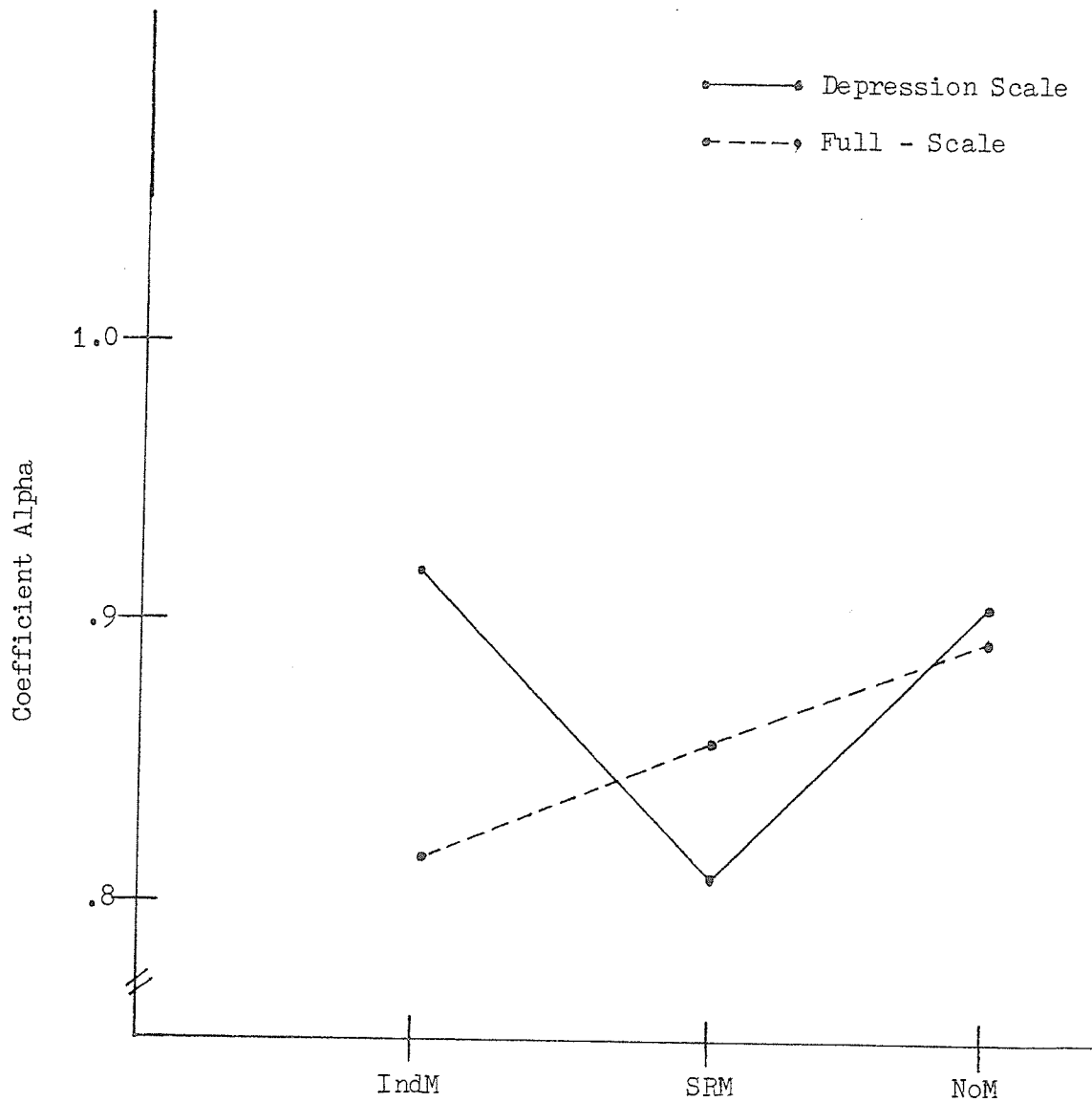


Figure 5: Internal Consistency Effects across MIRROR Conditions

Place Table 6 about here

The differences between alphas on the Full Scale and Anxiety subscale were not significant. However, for the Depression and Anger-Hostility subscales, the differences between Depression and Neutral coefficients were significant ($p < .05$).

An examination of the alphas for the Depression subscale across the six experimental conditions (see Table 7) shows a similarity to the results obtained in the assessment of discriminability.

Place Table 7 and Figure 6 about here

For the Depression CARDMOOD condition, the coefficient alpha for the SRM group was lower than for the other two groups. As well, for the Neutral CARDMOOD condition, the alpha values for both the IndM and SRM groups were lower than the NoM value. This pattern replicates that shown in Table 4, suggesting that increased self-awareness may not only lead to better discriminability among moods, but may also improve the perception of individual moods.

As previously noted, the meaning of results is affected by the subjects' perceptions and reactions to the experimental procedures. As such, consideration of responses to the PEQ is now in order.

TABLE 6
Coefficient Alpha's across CARDMOOD Conditions

POMS Scale	CARDMOOD	
	Neutral ¹	Depression ²
Depression*	.676	.819
Anxiety	.624	.681
Anger-Hostility*	.623	.894
Full Scale	.817	.869

Note: Probability estimates are for within-row comparisons.

¹n = 60. ²n = 58.

*p < .05.

TABLE 7

POMS Depression Scale: Coefficient Alpha's across
Experimental Conditions

CARDMOOD	MIRROR		
	IndM	SRM	NoM
Depression	.912 (19)	.807 (20)	.922 (19)
Neutral	.485 (20)	.596 (20)	.750 (20)

Note: n of subjects presented in parentheses. IndM = Mirror present during mood induction. SRM = Mirror present during self-report. NoM = No mirror present.

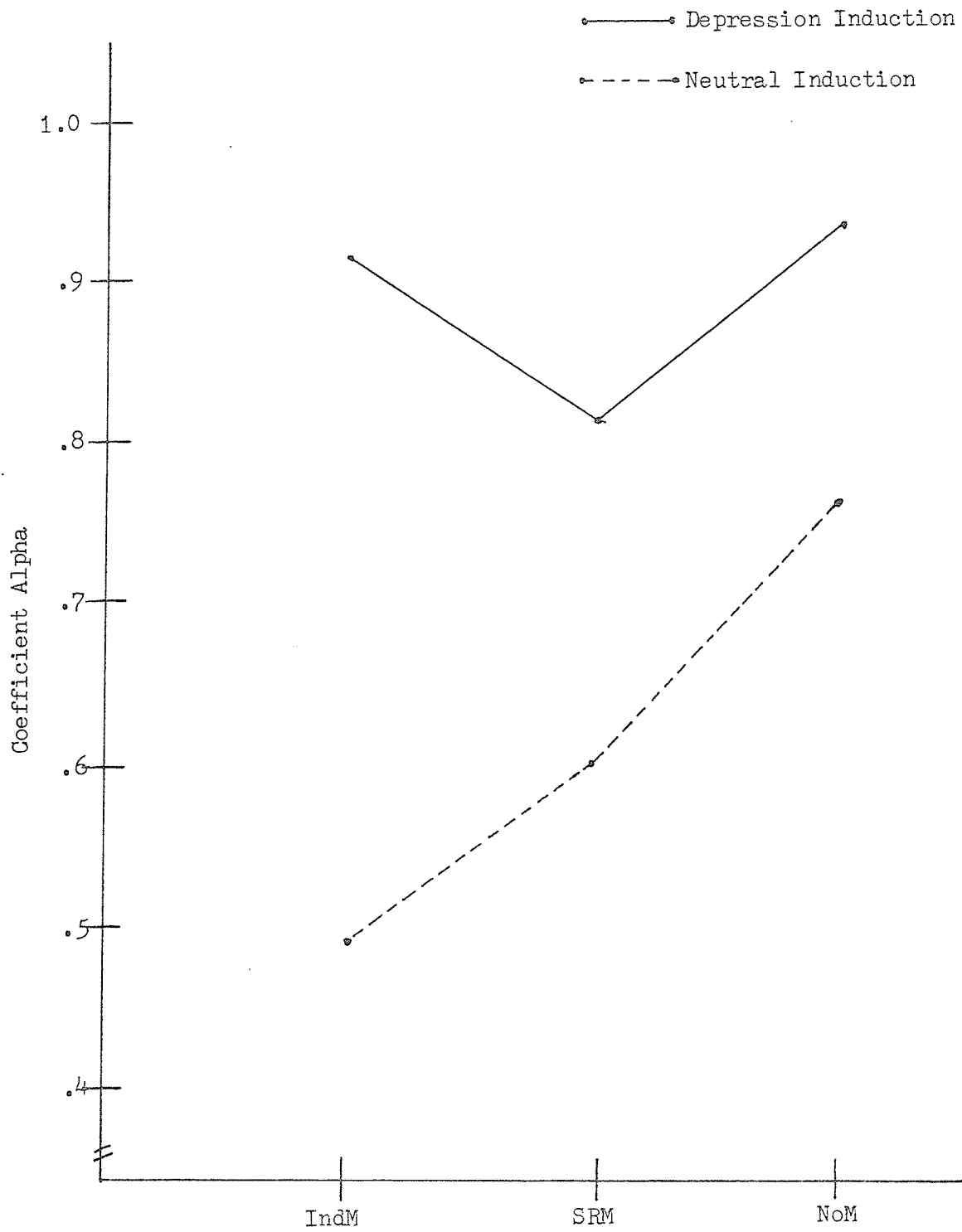


Figure 6: Internal Consistency Effects across Experimental Conditions

Postexperimental Questionnaire Results

Over four-fifths of the participants felt that the purpose of the study was to assess mood change. None speculated that the purpose of the experiment was associated with either self-consciousness or mirror effects. Furthermore, none of the subjects reported any previous acquaintance with this type of study nor did they (with the exception of one) report suspicions of being deceived about the experimental set-up. The one exception questioned the veridicality of the note on the mirror but did not comment on any purpose the mirror might have had.

Experimental Demand

In response to questions regarding experimenter expectations, subjects who read the Depression CARDMOOD statements felt, overall, that the experimenter wanted them to feel and report specific emotions (generally those elicited by the mood-induction procedure). In contrast, the participants who read the Neutral CARDMOOD statements were less certain about the experimenter's expectations, suggesting that he may have expected them to experience and report feelings of frustration, uncertainty, curiosity, and boredom, among others. The difference between the two groups was significant, $p < .001$.

High self-conscious subjects who had read the Depression statements seemed more aware of a demand effect than were the low self-conscious subjects who read the same cards. In contrast, low and high self-conscious subjects who read the Neutral statements differed little in their perceptions of experimenter expectations (interaction effect significant at $p = .05$).

Given these results and the nature of the induction procedure, it was not surprising to find that subjects who read the Depression cards reported having been affected by the procedure significantly more than the participants who read the Neutral statements. On the other hand, the latter group reported that they expected the induction procedure to have a greater effect prior to reading the cards than was expected by the Depression CARDMOOD group.

Reactions to the Experiment

Examining the reports on how the subjects felt during the experimental task, it was found that the Depression CARDMOOD group reported greater levels of sadness than did the Neutral group ($p < .01$), and that high self-conscious subjects also tended to report higher levels of sadness than low self-conscious subjects ($p = .07$).

An examination of other moods rated on the PEQ revealed two trends. High self-conscious participants who had no

exposure to the mirror reported somewhat higher levels of Anxiety, Apprehension, and Comfort than did any of the other PrivSC by MIRROR groups. Furthermore, high self-conscious subjects who self-reported in the presence of a mirror were somewhat more concerned about how they were doing than were participants in the other groups (interaction effect, $p = .055$). This finding supports Fenigstein's (1984) contention that highly self-aware subjects tend to attribute greater responsibility to themselves.

Self-Awareness

On PEQ questions related to self-awareness, findings of differences among groups supported both the effectiveness of the awareness induction procedure and the validity of the self-consciousness concept. With respect to awareness induction, subjects who were exposed to the mirror tended to see themselves as being more aware of their thoughts and feelings (in comparison to other people) than did the subjects who had no exposure to a mirror ($p < .05$). High self-conscious participants tended to report that they became self-focused during the experiment more often than was reported by low self-conscious subjects ($p = .07$). On a Likert-type item asking subjects to rate their degree of self-consciousness during the experiment, a MIRROR by PrivSC interaction was noted ($p < .05$). An examination of cell means revealed a difference across PrivSC conditions in that

low self-conscious subjects who were not exposed to a mirror reported being less self-conscious during the experiment than did low self-conscious subjects who faced a mirror at some point during the study. In contrast, high self-conscious subjects who were not exposed to a mirror described themselves as being more self-conscious than subjects who were exposed to a mirror. The former finding was in line with the expectation that exposure to a mirror would increase self-attending. In contrast, the latter result was unexpected, although it was congruent with previous findings which showed a tendency for the high self-conscious subjects who were not exposed to a mirror to (indiscriminantly) produce higher scores on ratings of internal states in comparison to high self-conscious participants who were exposed to the mirror.

Purpose of the Mirror

An examination of responses to a question regarding the purpose of the mirror highlighted an interesting, and unexpected, difference between the SRM and IndM groups. For the subjects who were exposed to the mirror while reading the mood-induction cards, the most common answer to this question focused on the mirror as a means by which people could induce themselves to feel the specific emotions suggested by the cards. Sample answers included:

To watch your facial expressions while reading the first set of cards aloud. You can't read a card that says, "I'm sad" and watch yourself laugh in a mirror. Your face takes on the emotion that you're reading about. "Aloud" is important. It influences you more than if you just talk to yourself.

So I could see my own reactions to the reading of the cards.

Perhaps to look at or rather into yourself while concentrating on the statements of the first set of cards.

To get you more emotionally involved by seeing your face.

In contrast, participants who saw their reflections during the self-reporting of moods tended to perceive the mirror as a means by which they could better perceive their internal states. For this group, some examples of responses included:

Possibly to help you discern your own emotional state by looking in the mirror.

That one would become more in tune with your true feelings, because they would be expressed on the face. It would make the person more self conscious and therefore more in touch with his feelings.

Perhaps to make me look at myself as I wrote down my answers and reflect upon (sic) my feelings etc.

The mirror being used to make people scrutinize themselves more closely. [Occured] when I looked up from Questionnaire IV to see myself and wonder if I was feeling anxious or not (I wasn't).

A content-based breakdown of responses across levels of Private Self-Consciousness suggested that high self-conscious subjects in both the SRM and IndM conditions were more likely to report the specific mirror purposes outlined above than were the low self-conscious subjects. These results call into question the assumption that the mirror is a manipulation unconfounded by experimental demand, and have implications that need to be addressed in explaining the experimental results.

CHAPTER IV

Discussion

Previous research had suggested that focusing attention upon one's feeling state would intensify the experience of aroused emotions and increase the veridicality of self-perceptions. This study was designed to examine both propositions. The results demonstrated that the intensification hypothesis was of limited generalizability, while the clarification hypothesis received greater support. Moreover, the analysis of outcomes emphasized the importance of taking experimental demand effects into consideration in studies such as this.

The Intensification Hypothesis

A Failure to Replicate

In the original study of self-focused attention and the experience of emotion (Scheier & Carver, 1977), subjects who read the Velton Depression mood-inducing statements reported feeling more depressed when they could see their reflections in a mirror than when they could not. This finding, in part, contributed to a conclusion that this manipulation heightened sensitivity to mood. In comparison, the present

study failed to replicate this finding in that subjects who were exposed to the mirror while responding to a mood-inventory reported less depression than subjects who were not able to see their reflections. Further examination suggested that this outcome was a result of high private self-conscious subjects reporting less intense feelings of sadness when confronted with a mirror, compared to high PrivSC subjects who had no exposure to a mirror.

One design feature which may have had an impact on the failure to replicate was the exclusion of subjects who evidenced higher levels of pretreatment depression in the present study. This group, which comprised approximately one-fifth of the total sample, was included in the Scheier and Carver (1977) study. A consideration of how this subgroup might have contributed to the reversed (although not statistically significant) outcomes highlighted two issues--emotional intensity and experimental demand--that appear to be of some importance in understanding the obtained results.

Scheier, Carver, and Gibbons (1981) noted that emotional intensity may modify the effects of self-focused attention. When an emotion such as fear is strong, behavior is more likely to be disrupted as the individual reacts (via self-awareness) to his or her feeling state. However, when the emotion is less intense, the individual is more likely to attend to standards relevant to his or her situation. When

a standard of conduct is salient, the person is (purportedly) motivated to modify his or her behavior until congruency with the standard is achieved (this state exists as long as the individual is self-attending).

To date, research has suggested that moods induced by reading the Velton statement-lists are of mild to moderate intensity. Goodwin and Williams (1982) noted that the depression-induction has been shown to be a potent manipulator of mood as assessed by a number of self-report scales. However, its ability to affect behavioral measures (primarily assessments of psychomotor speed) has not been clearly demonstrated (cf. Polivy & Doyle, 1980; Williams, 1980). One study which revealed some psychomotor retardation (the task being to count from one to ten) excluded individuals for whom the Velton procedure was less effective (Teasdale & Taylor, 1981). Given this evidence, it was assumed that subjects in the present study would similarly experience only mild to moderate levels of sadness as a result of the Velton mood-induction procedure. If this assumption is correct, the lower mood-intensities obtained in the present study would be of insufficient intensity to have taken precedence over standards salient to the experimental setting when self-attending was induced.

In contrast, Scheier and Carver's (1977) sample would have included an (apparently substantial) group of individuals who were experiencing more intense levels of

depression prior to the induction. For such individuals, the mirror would serve to self-focus on the feeling-state which would take precedence over other aspects of the self because of its intensity. When this occurs, a different process is engaged. Scheier (1976) posited a feedback cycle whereby the emotion "incubates and increases in intensity" (p. 639). Alternatively, Wegner and Giuliano (1980) speculated that people predispositionally low in self-esteem may experience strong self-criticism when self-focus is induced. Either process would result in the report of more intense feelings of sadness when depressed individuals are self-focused.

Two studies provide evidence in support of this proposition. Gur and Sackheim (1979) found that self-confrontation was aversive to individuals who had negative attitudes about themselves. This qualified Duval and Wicklund's (1972) original proposal that self-awareness was invariably aversive. Rather, some researchers have suggested that self-focused attention is aversive only when it brings to awareness a negative real-ideal discrepancy that the individual perceives as unalterable (cf. Steenbarger & Aderman, 1979; Franzoi & Brewer, 1984). When such negative discrepancies are not activated, no self-awareness effect is expected (given that an emotion is not salient at the time of introspection). This may explain, in part, the lack of independent MIRROR effects for Neutral

CARDMOOD subjects in the present study, in that the more intensely depressed subjects who would have a greater likelihood of experiencing such discrepancies were screened from the experimental sample.

In a second study, researchers compared the self-reports of non-depressed psychiatric patients and depressed psychiatric patients under conditions of self-awareness and non-self awareness (Gibbons, Smith, Ingram, Pearce, Brehm & Schroeder, 1985). Two aspects of their results are noteworthy. First, non-clinically depressed subjects reported less negative affect when self-focused than was reported when nonself-focused. This is comparable to results obtained in the present study. Secondly, clinically depressed subjects showed a marked increase in self-reported negative affect when self-focused. Thus, the failure to replicate may be associated with with the exclusion of more intensely depressed subjects from the present study, given evidence that these subjects report higher levels of negative affect when self-focused.

The failure to replicate may also be a function of reactivity to experimental demand. Results from the PEQ indicated that individuals who are highly self-conscious (PrivSC) tend to report higher mood levels and seem to be more sensitive to demand aspects of the experiment. It is possible that the individuals who were excluded from the present study were also more self-conscious (on average)

than those included, and more sensitive to experimental demand as well. The difference between the Scheier and Carver (1977) study and the present investigation may be due not only to (or alternatively to) differences in pretreatment mood-intensities, but also to differences in predispositional private self-consciousness across the two samples. This possibility received some support in that Scheier and Carver (1977) reported a PrivSC median value of 26.1 for one of their studies whereas the median value for the present study was 23. Thus, the difference across the studies could be attributable to differences in responsivity to experimental demand (associated with high PrivSC) whereby increased responsivity results in higher negative affect scores (e.g., reporting feelings of greater sadness).

However, for this proposition to be valid, a more complex state of affairs is required. If high PrivSC subjects were randomly assigned to Scheier and Carver's (1977) experimental conditions, it would be expected that increased mood scores resulting from sensitivity to demand would occur in both self-focused and non-self-focused conditions. Yet, the argument requires that the effect be greater for the self-focused condition. A 'PrivSC by MIRROR' interaction is required such that highly self-conscious subjects exposed to a mirror become more cognizant of demand phenomena (than the high PrivSC subjects who were not exposed to the mirror) and report higher levels of negative mood in response to this.

Results from the present study revealed an opposite effect in that high PrivSC subjects who were exposed to a mirror reported lower levels of negative mood. However, this finding does not negate the explanation based on demand effects. Differences across levels of private Self-Consciousness may produce opposite effects just as differences in pretreatment mood-intensities have been shown to reverse the effects of self-focused attention. Moreover, as replication is invariably an approximation, differences in demand phenomena across experiments are likely. As such, responsivity to experimental demand cannot be ruled out as a cause of outcome differences.

In summary, the failure to replicate the Scheier and Carver (1977) mirror effects was attributed to Scheier and Carver's inclusion of subjects who were more intensely depressed as part of their sample, and the exclusion of these subjects from the present study. Two explanations were presented: one considered how more-depressed subjects may respond to self-attending in a manner different from less-depressed subjects; and the second examined the possibility that the two groups differed in responsivity to experimental demand. Empirical findings provide stronger support for the former interpretation but do not rule out the possibility that differential sensitivities to demand are implicated in the contrasted outcomes.

Self-Focused Attention during the Self-Report of Moods

Contrary to expectations, subjects who read the Velton depression statements and subsequently self-reported in the presence of a mirror reported feeling less depressed than subjects who read the same statement-list and self-reported with no mirror present. Further analyses revealed that this difference was due to saddened high PrivSC subjects reporting less depression in the presence of a mirror compared to those who self-reported with the mirror absent. Saddened low PrivSC subjects in mirror-present and mirror-absent conditions did not differ significantly in terms of reported mood levels.

These results pose two questions. What accounts for the difference between the high PrivSC groups? And secondly, why did the MIRROR manipulation differentially affect the high PrivSC subjects but not the low PrivSC subjects? Each question will be addressed in turn.

Previous research (cf. Polivy and Doyle, 1980) had indicated that the Velton depression mood-induction procedure has significant effects on self-reports of moods and that these effects result from some combination of true mood-induction and experimental demand. Because (as noted previously) the Velton procedure induces less intense feelings of sadness in non-depressed subjects, standards relevant to the experimental situation are more likely to

become salient when attention is focused on the self than is the individual's feeling-state.

An overview of the design of the present study suggests two dominant demands that are placed on the subjects. The first is that they cooperate with the experimenter and attempt to experience (or, at least, self-report) the emotions that the statements are supposed to induce. Secondly, they are asked to respond honestly to a post-induction mood-questionnaire. Thus, comparing the NoM and SRM groups, a modification in demand coincides with the introduction of the mirror.

Given this understanding of the induction procedure and of the experimental demands, three explanations of the difference between high PrivSC groups' depression scores in the mirror-present (SRM) and mirror-absent (NoM) conditions are possible. Each places a different emphasis on the relative contribution of (a) actual mood states and (b) demand effects to the self-report outcomes.

First, mirror-induced self-focusing may serve to reduce the level of depressive mood. This assumes that the self-reports accurately reflect mood levels and that the mirror somehow serves to attenuate the intensity of negative moods. This possibility is weakened by a lack of empirical support. Self-focused attention has not been demonstrated to have inherent relaxing, calming, or elating effects. Nor, in a

broader context, has self-attending generally been shown to have attenuating effects on the intensity of extant moods, although Lanzetta, Biernat, and Klett (1982) have presented an argument in favor of the existence of such effects. Rather, research has indicated that self-focused attention is more likely to be associated with increased intensities of negative moods (cf. Archer, Hormuth, & Berg, 1982).

A second interpretation follows from the assumption that the induced level of depression is sufficiently low to allow for behavioral standards to become salient when self-focusing occurs. It is assumed that both groups experience the same degree of depression mood-induction and are equally sensitive to the demand for cooperation in 'becoming depressed'. This demand was explicit in the instructions and was also implicit in the design through the use of identical pre- and posttreatment measures (cf. Allen, 1970; Orne, 1973). However, at the point when the mirror was introduced, a second demand (i.e., for 'honesty') was articulated. The new standard presumably conflicted with the demand for cooperation in reporting more intense mood levels because the induction procedure was not sufficiently effective to create intense feelings of sadness. The obtained results indicate that the mirror-induced self-focus promoted greater compliance with the 'honesty' demand, yielding (more accurate) self-reports of lower mood-levels.

Previously discussed research (Scheier, et al., 1979; Gibbons, et al., 1979) supported this interpretation in that the presence of a mirror has been shown to reduce placebo and demand effects. Scheier, et al. (1979) reasoned that "...self-directed attention should minimize suggestibility phenomena in cases where external suggestion contradicts one's internal experience" (p. 1577).

If this interpretation is valid, an intriguing question arises. Considering that manipulated self-awareness and predispositional self-consciousness are presumed to have similar effects, why did the high PrivSC subjects who were not exposed to the mirror not switch to the standard of 'honesty' when it was explicitly stated in the instructions for the posttreatment measure? These subjects are purportedly more sensitive to the intentions and behaviors of others (Agatstein & Buchanan, 1984; Klesges & McGinley, 1982), and more likely to conform to social standards (Gibbons & Wright, 1983), and therefore should have modified their self-reports to be more 'honest' when this demand was placed on them.

The most parsimonious explanation seems to be that the mirror-presence increased the saliency of the new demand for 'honesty'. In line with past research, the mirror serves to increase the individual's level of self-awareness and consequently his or her sensitivity to situational standards that are internalized as the subject attempts to determine

what is expected of himself or herself (i.e., in establishing an Aufgabe, or preparatory set to respond). When standards are conflictual, as they were in this instance, subjects chose to follow the most recently adopted one, as Wicklund (1982) has suggested.

This interpretation has implications for one of the hypotheses of this study. If the mirror serves to increase the level of self-awareness of high PrivSC subjects, the assumption that these subjects are at a 'ceiling' in terms of self-awareness is questionable.

A third possible explanation for the difference in depression scores for the high PrivSC subjects in the SRM versus NoM conditions is that the mirror itself served as a demand cue for the reporting of less sadness. However, two features argue against this interpretation. First, the experimental demand for subjects in this condition was to report higher Depression scores in line with the experimental hypothesis and expectations of the experimenter. Secondly, results from the PEQ tended to discount the possibility that subjects perceived the purpose of the experiment and equipment in a manner that led them to report less intense feelings of sadness. Subjects who read the Depression mood-statements speculated that the purpose of the experiment was to assess mood change, often mentioning the perceived expectation that the change should be in the direction of more negative moods. As well,

saddened subjects who had the mirror present while self-reporting on their moods saw the mirror as being present to help them perceive their affective states more clearly. These reports do not support an interpretation of the mirror itself cueing subjects to report less intense mood levels.

In summary, three explanations have been given to account for the lower depression scores (i.e., reports of feeling less sad) for high PrivSC subjects who self-reported in the presence of a mirror compared to those for whom no mirror was present. In the context of previous research findings and conceptualizations, the interpretation of the mirror as effecting greater salience of a new demand (i.e., for 'honest' responding) and as promoting increased self-awareness appears to have the greatest empirical support and fits best with previous theorizing.

Given this accounting of the difference between high PrivSC subjects who self-reported in the conditions of high versus low self-awareness, the finding that the mirror differentially affected high PrivSC subjects in the NoM and SRM conditions but did not affect low PrivSC subjects across these conditions remains to be addressed. It had been expected that low PrivSC subjects who were exposed to a mirror would become relatively more self-focused than would high PrivSC subjects who also confronted a mirror. Given the previous interpretation of mirror effects on high PrivSC subjects, an opposite effect is apparent in the results of this study.

Recent theorizing has suggested some reasons for this finding. Franzoi and Brewer (1984) have suggested that low PrivSC subjects are less likely to self-focus if they are in an unpleasant state or expect to feel negatively as a result of self attending. These researchers posited a "selective self-attending hypothesis" to account for the tendency of low PrivSC individuals to avoid self-evaluation (Gibbons, 1983), avoid confrontation with personal discrepancies (Franzoi, 1983), and avoid self-awareness after unpleasant experiences (Franzoi and Brewer, 1984).

Moreover, Diener and Srull (1979) have indicated that individuals low in self-awareness tend to respond more to personal standards than to social standards. As a result, they would be less sensitive to demand characteristics in the interpersonal field of the experimental setting. This proposition is supported by results from the PEQ which suggested that high PrivSC subjects were more aware of experimental demand than were low PrivSC subjects.

In light of these findings, it is possible that low PrivSC subjects reported less intense moods than high PrivSC subjects because they were less sensitive to experimental demands and also less willing to experience negative feeling-states. The lack of mirror effects across low PrivSC groups may have been a result of these factors.

Self-Focused Attention during the Induction of Mood

Self-attending during the induction of moods was expected to counteract the demands inherent in the Velton statements and thereby decrease the effects of the mood-induction procedure. This proposition was based on the premise that greater self-awareness would allow the individual to better assess the accuracy of statements such as "I'm discouraged and unhappy about myself" against his or her state at the time. For non-depressed subjects, the result would be to lessen the effect of the statements.

The hypothesis was not supported, as subjects who read the Depression mood-statements in the presence of a mirror reported a slightly higher but non-significant level of depression than did subjects who were not exposed to a mirror. Comparisons with low and high PrivSC groups across these MIRROR conditions were non-significant.

Responses to a PEQ question regarding the purpose of the mirror suggested that an effect other than the one predicted was present. Participants who read the Depression mood-statements while self-focused most frequently stated that the mirror was present to help them take on the feelings suggested by the statements. In other words, the mirror was more commonly used as an aid in meeting the demand to experience specific emotions.

Given this perception, was the mirror an effective aid? That is, did the individuals who faced the mirror during induction use the visual feedback to modify their facial expressions in a way that promoted the experience of the called-for emotions as the 'facial-feedback hypothesis' (Tomkins, 1981) would suggest? If so, the higher mood scores of these subjects (compared to the scores of individuals in the Neutral CARDMOOD condition who also faced a mirror during induction) would accurately reflect the existence of more intense levels of depression. On the other hand, the mirror may not have resulted in any intensity effects as the subjects experienced low to moderate levels of mood subsequent to the induction and responded to the experimental demand in a way similar to the NoM subjects.

Of these two options, a choice is not clear although available evidence tends to support the 'demand' interpretation. First, as previously noted, subjects who read the depression induction-statements in the presence of a mirror were not able to discriminate among their moods significantly better than those who had no exposure to the mirror. Secondly, in a study of the same hypothesis, Ickes and Wolfe (1976) found that mirror-presence during the induction procedure led to lower levels of reported mood. Noting that these researchers had a mirror present during both induction and self-report and given that self-attending

during self-report has been shown to counter demand effects, the results of their investigation suggest that the higher scores produced by self-focused individuals in the present study are a result of experimental demand.

The Clarification Hypothesis

Discriminability

Investigation of this hypothesis produced the most interesting and possibly most useful results of the study. The hypothesis predicted that saddened subjects who were exposed to the mirror during self-report would show improved discriminability among moods. The results generally supported this proposition in that these participants were better able to distinguish their feelings of sadness from feelings of anger and, to a less significant extent, from feelings of anxiety. In comparison to previous studies (cf. Polivy, 1981), the correlations from the present study which fell in the range of .30 to .40 showed a marked improvement in discriminability (although these could be due, in part, to the use of a different mood-inventory).

In line with previous theorizing, these results suggested that self-perception is more veridical if subjects are self-focused while reflecting on their mood states. When demand characteristics become more influential (as for the NoM and IndM groups in the Depression CARDMOOD condition), a tendency to report higher scores on all mood scales was

evident and discriminability was poorer. Past theorizing has suggested that individuals who are not attending to their inner states tend to self-report on the basis of less-than-optimal information; a process that promotes the use of 'a priori' theories. These, in turn, lead to response sets congruent with the perceived demand. For example, a non-self-focused individual who read the Depression mood-induction statements may perceive him or herself as feeling 'bad' and subsequently respond to all items which refer to a negative mood state, such as anxiety, guilt, boredom, irritability, sadness, and so on. This response set 'fits' with the demand to show a shift toward more negative moods.

In the context of the intensity and discriminability results, the induction of self-awareness is seen as having two effects: first, increasing accessibility to internal information for the self-report process thus making it more of a 'mindful' process (Langer & Newman, 1979); and secondly, counteracting the influence of experimental demands to report more intense negative moods. As a result of these two effects, self-awareness resulted in more accurate self-perceptions that had the effect (in this study) of lowering mood-scores and improving discriminability.

Other results indicated that subjects who received the Depression mood-induction procedure reported, as a rule, higher intercorrelations between moods than did those who

read the Neutral statements. On examining the pattern of results within these conditions, it was noted that the NoM and IndM groups tended to be less capable of distinguishing between feelings of depression and anxiety and between depression and anger than was the group that self-reported in the presence of a mirror (given that all three groups had been in the Depression mood-induction condition). In the Neutral CARDMOOD condition, both the IndM and SRM groups tended to discriminate among feelings better than the group which had no exposure to the mirror (NoM). This pattern of results suggests that the mirror enhances the veridicality of self-perceptions.

Internal Consistency

The internal consistency measures provided an interesting dimension to this study in that it was possible to examine within-mood discriminability. For example, does feeling sad involve feeling some or all of: listless, unhappy, hopeless, blue, and so on. Initially, classical test theory was used to predict that self-focused attention should decrease intra-individual variability and thereby improve reliability scores. The results, however, suggested the presence of an opposite effect. If the nature of the scales had been taken into account, an opposite prediction may have been more appropriate. Assuming that self-focused attention increased veridicality of perceptions, greater variability

might be expected in that one saddened subject may report him or herself as being blue and unhappy but not as listless or hopeless; whereas another may report an opposite description. With greater discriminability, the internal consistency index would be lowered. This explanation would account for the finding that saddened subjects reported relatively lower internal consistency values when they self-reported in the presence of a mirror than when the mirror was absent.

The pattern of internal consistency values replicates the pattern of discriminability correlation coefficients. In general, subjects who read the Neutral statements produced smaller internal consistency figures than those who read the Depression statements. Subjects who read the Depression statements tended to give an internal consistency correlation that was lower when a mirror was present during self-report, than when they were in the NoM or IndM conditions. In the Neutral CARDMOOD condition, both the IndM and SRM groups showed relatively lower correlations (that is, better discriminability) than the NoM group.

The similarity of this pattern to the pattern of discriminability results is noteworthy in that it suggests that self-focused attention not only improves discriminability between moods but also promotes a clearer perception of an extant mood, as would be expected on the basis of the 'veridicality hypothesis' (Gibbons, 1983). It

should be noted that these trends are suggestive of such effects. As overall internal consistency results were not statistically significant, conclusions were based on the parallel trends evident in the patterns of discriminability and internal consistency results.

Implications and Future Directions

Experimental Applications

An important, although somewhat serendipitous, finding of this investigation was that the use of a mirror as a manipulation of self-awareness was not as free of artifact as was expected (cf. Wicklund, 1982). Some individuals who saw their reflections while self-reporting on their feeling-states reported that they perceived the mirror as being a device which could be used to help discern emotions. Other subjects who were confronted with the mirror during mood-induction saw it as a means by which they could meet the demands to experience certain moods. Thus, the presence of the mirror may have helped some subjects (in the depression-induction condition) arrive at specific conceptualizations of what was expected of them. This (apparent) increase in awareness of experimental demand leads to a question of whether mirror-effects in the present study and in past research are results of changes associated with increased self-awareness or of changes associated with increased clarity of experimenter expectations.

The overall pattern of results from the present study suggested that the mirror improved the accuracy of perceptions when emotions were the object of attention. The lower levels of depression reported by subjects who read the depression mood-induction statements and subsequently self-reported in the presence of a mirror and the patterns of mood-scale correlations and internal consistency values were consistent with an explanation based on improved discriminability. It is not clear whether the self-focus induced by the mirror led directly to more accurate perceptions or whether the mirror highlighted the demand for 'honesty' which, in turn, promoted a more extensive internal search process that resulted in better discriminability. Either way, subjects were seen as being able to improve the veridicality of their self-reports. The results of this study in the context of past research suggest that some combination of these processes would be a reasonable interpretation.

An alternative interpretation which questions the validity of the study would be that the results are simply a result of experimental demands, having no basis in the individual's experience. However, such an interpretation could not easily account for the lowered depression scores given by saddened subjects who self-reported in the presence of a mirror nor for the changed intra-mood discriminability (as evident through the internal consistency indices). The

most parsimonious explanation seems to be one which assumes improved discriminability.

Nonetheless, the finding that the mirror may increase awareness of experimental demands suggests that researchers using this manipulation need to be cognizant of the possibility that results may be influenced by this process. In line with this proposal, the results of Gibbons, et al. (1985) suggest that a self-awareness manipulation may decrease the veridicality of self-reports in some situations (in their study, assessing the affect levels of clinically depressed subjects). It seems likely that this loss of accuracy could be due, in part, to a responsivity to perceived demands.

The comparison of low versus high private self-conscious subjects also highlighted the issue of 'demand', as the high PrivSC group tended to report both high mood-levels and a greater awareness of experimental demands. In responding to mood-inventories, these individuals may report high levels of mood simply because they perceive that that is what is expected of them. The degree to which this is the case or to which they are more attuned to their internal states is difficult to disentangle. Some clarification could be achieved by having high self-conscious subjects report on their mood-states in the presence or absence of a mirror without any mood-induction. From the present investigation, it was apparent that high PrivSC individuals more accurately

reported on their internal states when self-awareness was situationally-induced.

A basic assumption of this study has been that the Velton Depression mood-induction procedure did effect changes in mood-states. This assumption was supported by the experimental and PEQ results and by previous research (cf. Goodwin & Williams, 1982). Further substantiation of such effects in future research would be possible through the inclusion of other measures such as the Pleasant Events Schedule (MacPhillamy & Lewinsohn, 1971), a self-esteem inventory, or with physiological and/or behavioral indices. Alternative measures also bring certain problems in that questions arise as to whether self-report mood-inventories and these other approaches tap the same construct. Moreover, self-awareness manipulations may differentially affect different measures.

The discriminability results for this investigation have some ramifications for the study of emotion. There is some evidence that people can make better discriminations among moods if they are self-focused while self-reporting. This would not be expected if, as Izard (1972) has suggested, emotional experiences are complex syntheses of a number of pure emotions. On the other hand, the data support conceptualizations that consider self-reports to be affected by 'a priori' theories (cf. Nisbitt & Wilson, 1977). When increased information is made available to awareness through

increased self-focus, individuals are more capable of differentiating among their emotions. Further support for this proposition could be attained by examining the effect private self-consciousness has on discriminability. Given the results of this study, Polivy's (1981) and Wessman and Rick's (1966) 'discriminators' could well be individuals who would score high on Private Self-Consciousness.

On the other hand, some individuals have been found to have difficulty in verbally describing their emotional state; a problem clinically categorized as alexithymia (Lesser & Lesser, 1983). The results for low private self-conscious subjects may have implications for this group in terms of the avoidance of self-awareness. In line with this finding, it was not unexpected to discover that psychosomatic problems are associated with alexithymia (Lesser & Lesser, 1983).

The examination of self-awareness effects on internal consistency indices also highlights certain questions. The first concerns the process which results in greater intra-mood variability on self-report inventories. Past research with the Velton mood-induction procedure has questioned whether its effects are primarily due to somatic or devaluative suggestions (cf. Frost et al., 1979; Riskind et al., 1982). If self-awareness increases veridicality of self-reports, it may be possible to better understand what aspects of their functioning (e.g., somatic feedback, guilt,

feelings of sadness) people focus on when self-attending and whether any consistencies in this focusing process exists across individuals.

The second issue that arises out of these results concerns test construction. State measures often have poor test-retest reliabilities which are expected given the definition of 'state'. In response, test constructors often present high internal consistency figures as evidence in favor of their inventories. The results of this study indicate that these figures may be somewhat inflated by 'consistency' response sets (i.e., responding in a manner that is consistent with both 'a priori' theories and perceived experimental demands) and that more accurate values may be achieved by having respondents become more self-focused.

As a final note, the present investigation also has implications for the use of the Velton mood-induction procedure as a depression-analogue procedure. As the intensification results of this study were similar to those found by Gibson et al. (1985) for non-depressed psychiatric patients and as both of these results differed markedly from the pattern of results given by depressed psychiatric patients, one must question the validity of using the Velton mood-induction procedure with non-depressed subjects as a means of inducing 'experimental' depression (insofar as generalization to clinical populations is desired).

Clinical Applications

The results of this study do not demarcate a clear role for self-focus manipulations such as mirror-reflections in the practice of clinical psychology. Given evidence that self-focused attention may improve the veridicality of self-reports, the use of mirrors may be expected to enhance the validity of psychometric instruments. However, other research has suggested that psychiatric patients may experience exacerbations in levels of affect and distress when self-focused (Schmitt, 1983; Smith & Greenberg, 1981). If so, the use of self-focusing techniques with these individuals may decrease the validity of such measures, assuming that more intense feeling-states will affect judgments regarding one's self. The degree to which mirrors are therapeutic with clients who present an 'absence' of affect (e.g. such as some obsessive-compulsive individuals) is an issue requiring further empirical testing. Overall, the results of this study in conjunction with Gibbon's et al. (1985) findings suggest that the usefulness of self-focused manipulations for psychological testing will depend on the issue being assessed (i.e., whether "hot" or "cold" topics are being addressed), the level of affect and/or distress being experienced by the individual, the degree to which the person is predispositionally self-conscious, and the demand features implicit in the assessment situation.

Self-focusing techniques have become increasingly popular in treatment through the use of various feedback procedures such as biofeedback, audiotapes, and videotapes. Moreover, psychotherapies vary in the degree to which each demands self-focusing, with some (e.g., Perls, Hefferline, & Goodman, 1951) requiring a high level of self-examination. The usefulness and therapeutic value of self-confrontation procedures are in contention (cf. Gur & Sackeim, 1978; Sanborn, Pyke & Sanborn, 1975). Schmitt (1983), from a more extreme position, has argued that inhibiting self-focused attention may be the treatment of choice with certain affective disorders such as depression.

With respect to the effects of self-focused attention on psychotherapy, the results of this study have two implications. For individuals who fall within the 'normal' range of psychological functioning and who wish to enter psychotherapy, self-focusing manipulations such as those mentioned above are likely to have the beneficial effect of increasing the accuracy of self-perceptions. Secondly, the degree to which clients are predispositionally attuned to their own thoughts, feelings, attitudes, and physical states may have an impact on the treatment modality. Speculation suggests that it may be more judicious to choose an action-based, behavioral approach to treatment for low self-conscious individuals who may not be receptive to interpretation-based interventions. Again, further

experimentation is required to test the validity of this assumption.

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Appendix A
INSTRUCTIONS - I

Please read and follow the instructions in the order that they are given to you.*

1. On the table in front of you is a typed 'Note to Participants'. Please read this carefully.
2. Three questionnaires are located to your left along with answer sheets for each. Read each set of instructions carefully. Please answer each frankly and honestly. When you have completed the three questionnaires, open the door and wait for further instructions from the experimenter.

* Each instruction was given on a separate sheet.

Appendix B

NOTE TO PARTICIPANTS

Parts of this experiment are designed to study thinking, attention, and feelings, and how they interact. You will be asked to read a set of cards and to answer some questionnaires.

No individual is under any obligation to participate in this study. If you should wish to stop any time once the study has begun, you are free to do so without penalty.

Every participant is assured of confidentiality and anonymity in the use made of his or her answers. No record associating any one individual with any specific set of answers will be kept.

A written description of the study and preliminary results (if available) will be given to you before your course has finished. Copies of the summary will be distributed during class time.

Appendix C
INSTRUCTIONS - II

Please read and follow the instructions in the order that they are given to you.*

1. In front of you is a set of cards with a blue sheet on top of them. Instructions regarding how to use them have been put on the tape recorder and on Page 2 of these instructions. Please turn the tape recorder on by pressing down on the ON button, and read along with the taped instructions. If you have any problems, open the door and the experimenter will be there to assist.

2. The experiment you are participating in today is a study of thinking, attention, and feelings. Your task will be to read a series of statements; and later, to answer two questionnaires.

On the table in front of you, you will notice a set of index cards under a blue piece of paper. One statement is typed on each card.

You are to begin reading these cards once a signal is given. As you look over each statement, focus your attention only on that one. This is not a memory task, so do not try to memorize them.

These statements may create a certain mood. Respond to the idea in each statement and allow any suggestion to act upon you without resistance. Attempt to respond to any feeling suggested by any statement.

If you feel the urge to laugh, it will probably be because humor is a good way to counteract unwanted feelings, or it might be because you feel yourself going into a mood. Try to avoid this reaction.

The tape recorder will help you time your reading of each card. When you hear a click such as this ____, remove the blue sheet and read the first card aloud. Concentrate on it for about 10 seconds until you hear another click___. When you hear the second click, put the card you have been reading upside down into the empty box and begin concentrating on the second card after reading it aloud. When the click is heard again, put that card upside down in the box and read the third card aloud, concentrating on it for 10 seconds, until the click is heard again. Follow this procedure until all of the cards have been read and placed into the box. NOW BEGIN___.

3. The cards should now be done. You will notice a green sheet of paper [on this table] or [on the other table]. Under the green paper is Questionnaire IV. Read the instructions typed on the green paper and complete the questionnaire. When you are finished,

open the door and the experimenter will let you know else is to be done. Please turn-off the tape recorder, [seat yourself at the other table] and begin. Thank-you.

* Each instruction was given on a separate page.

Appendix D

THE CENTER FOR EPIDEMIOLOGIC STUDIES DEPRESSION SCALE

Below is a list of the ways you might have felt or behaved. Please report how often you have felt this way during the past week.

Make your responses in pencil on the accompanying IBM sheet. Please do not make any marks on this questionnaire itself. It does not matter if you have filled out this scale in the past. Just respond to each statement as honestly and frankly as you can.

Please make sure the question number on the IBM sheet corresponds to the number of the statement you are responding to, and that you respond to each statement.

Answer each statement about how you have felt or behaved over the past week by filling in one bubble on the IBM sheet ("A1", "B2", "C3", or "D4") according to the following:

- A1 Rarely or None of the Time (less than 1 day)
- B2 Some or Little of the Time (1-2 days)
- C3 Occasionally or a Moderate Amount of Time (3-4 days)
- D4 Most or All of the Time (5-7 days)

Now please turn the page and begin.

1. I was bothered by things that usually don't bother me.
2. I did not feel like eating; my appetite was poor.
3. I felt that I could not shake off the blues even with help from my family or friends.
4. I felt that I was just as good as other people.
5. I had trouble keeping my mind on what I was doing.
6. I felt depressed.
7. I felt that every thing I did was an effort.
8. I felt hopeful about the future.
9. I thought my life had been a failure.
10. I felt fearful.
11. My sleep was restless.
12. I was happy.
13. I talked less than usual.
14. I felt lonely.
15. People were unfriendly.
16. I enjoyed life.
17. I had crying spells.
18. I felt sad.
19. I felt that people dislike me.
20. I could not get "going."

THE SELF-CONSCIOUSNESS SCALE

On the pages that follow you will find a number of statements that an individual might make about himself or herself. We would like you to read these statements carefully, and decide how typical or atypical each one is of you.

Make your responses in pencil on the accompanying IBM sheet. Please do not make any marks on this questionnaire itself. It does not matter if you have filled out this scale in the past. Just respond to each statement as honestly and frankly as you can.

Please respond to each of the statements on the following page using this scale:

extremely A1 B2 C3 D4 E5 extremely
 uncharacteristic characteristic

If a statement is extremely uncharacteristic of you (that is, you are very much unlike the statement) then fill in the bubble marked "A1" for that statement on the IBM sheet. If a statement is extremely characteristic of you (that is, you are very much like the statement), then fill in the bubble marked "E5" for that statement on the IBM sheet. If you are somewhere in between these two extremes, then fill in the bubble ("B2", "C3", or "D4") that best describes how characteristic the statement is of you.

Please make sure the question number on the IBM sheet corresponds to the number of the statement you are responding to, and that you respond to each statement.

Now please turn the page and begin.

1. I'm always trying to figure myself out.
2. I'm concerned about my style of doing things.
3. Generally, I'm not very aware of myself.
4. It takes me time to overcome my shyness in new situations.
5. I reflect about myself a lot.
6. I'm concerned about the way I present myself.
7. I'm often the subject of my own fantasies.
8. I have trouble working when someone is watching me.
9. I never scrutinize myself.
10. I get embarrassed very easily.
11. I'm self-conscious about the way I look.
12. I don't find it hard to talk to strangers.
13. I'm generally attentive to my inner thoughts.
14. I usually worry about making a good impression.
15. I'm constantly examining my motives.
16. I feel anxious when I speak in front of a group.
17. One of the last things I do before I leave my house is look in the mirror.
18. I sometimes have the feeling that I'm off somewhere watching myself.
19. I'm concerned about what other people think of me.
20. I'm alert to changes in my mood.

21. I'm usually aware of my appearance.
22. I'm aware of the way my mind works when I work through a problem.
23. Large groups make me nervous.

Appendix E

DEPRESSION MOOD-STATEMENTS

1. Today is neither better nor worse than any other day.
2. However, I feel a little low today.
3. I feel rather sluggish now.
4. Every now and then I feel so tired and gloomy that I'd rather just sit than do anything.
5. It has occurred to me more than once that study is basically useless, because you forget almost everything you learn anyway.
6. I've had important decisions to make in the past and I've sometimes made the wrong ones.
7. Perhaps college takes more time, effort and money than it's worth.
8. I just don't seem to be able to get going as fast as I used to.
9. There have been days when I felt weak and confused, and everything went miserably wrong.
10. Just a little bit of effort tires me out.
11. I've had daydreams in which my mistakes kept occurring to me----sometimes I wish I could start over again.
12. I'm ashamed that I've caused my parents needless worry.
13. I feel terribly tired and indifferent to things today.
14. Just to stand up would take a big effort.

15. I'm getting tired out. I can feel my body getting exhausted and heavy.
16. I'm beginning to feel sleepy. My thoughts are drifting.
17. At times I've been so tired and discouraged that I went to sleep rather than face important problems.
18. My life is so tiresome----the same old thing day after day depresses me.
19. I couldn't remember things well right now if I had to.
20. I want to go to sleep----I feel like just closing my eyes and going to sleep right here.
21. I'm not very alert; I feel listless and vaguely sad.
22. I've doubted that I'm a worthwhile person.
23. I feel worn out. My health may not be as good as it's supposed to be.
24. It often seems that no matter how hard I try, things still go wrong.
25. I've noticed that no one seems to really understand or care when I complain or feel unhappy.
26. I'm discouraged and unhappy about myself.
27. I've lain awake at night worrying so long that I hated myself.
28. Things are worse now than when I was younger.
29. The way I feel now, the future looks boring and hopeless.
30. My parents never really tried to understand me.
31. I feel tired and depressed; I don't feel like working on the things I know I must get done.

32. I feel horribly guilty about how I've treated my parents at times.
33. I have the feeling that I just can't reach people.
34. Things are easier and better for other people than for me. I feel like there's no use in trying again.
35. It takes too much effort to convince people of anything. There's no point in trying.
36. I fail in communicating with people about my problems.
37. It's so discouraging the way people don't really listen to me.
38. I've felt so alone before, that I could have cried.
39. Sometimes I've wished I could die.
40. My thoughts are so slow and downcast. I don't want to think or talk.
41. I just don't care about anything. Life just isn't any fun.
42. Life seems too much for me anyhow----my efforts are wasted.
43. I'm so tired.
44. I don't concentrate or move. I just want to forget about everything.
45. I have too many bad things in my life.
46. Everything seems utterly futile and empty.
47. I feel dizzy and faint. I need to put my head down and not move.
48. I don't want to do anything.

49. All of the unhappiness of my past life is taking possession of me.

50. I want to go to sleep and never wake up.

NEUTRAL MOOD-STATEMENTS

1. Oklahoma City is the largest city in the world in area, with 631.166 square miles.
2. Japan was elected to the United Nations almost fourteen years after Pearl Harbour.
3. At the end appears a section entitled "Bibliography Notes."
4. This book or any part thereof must not be reproduced in any form.
5. Agricultural products comprised seventy per cent of the income.
6. Saturn is sometimes in conjunction, beyond the sun from the earth, and is not visible.
7. Some streets were still said to be listed under their old names.
8. The system is supervised by its board of regents.
9. There is a large rose-growing center near Tyler, Texas.
10. The typography, paper, and bind were of the highest quality.
11. The machine dominated county posts for as long as anyone could remember.
12. The desk was old, and scratched into its surface was a profusion of dates, initials, and pleading messages.
13. The Orient Express travels between Paris and Istanbul.
14. When the banyan tree bent down under its own weight, its branches began to take root.

15. There isn't a scientific explanation for every U.F.O. sighting.
16. The Hope diamond was shipped from South Africa to London through the regular mail service.
17. The review is concerned with the first three volumes.
18. The ship was ancient, and would soon be retired from the fleet.
19. Slang is a constantly changing part of the language.
20. There is a small article in the local newspaper which indicates acceptance of the kidnappers' terms.
21. There are some forms in which no oath is required.
22. The names on the Christmas mailing list are alphabetically ordered.
23. Significantly, these changes occur during the full moon.
24. West Samoa gained its independence in 1965.
25. 99.1% of Alaska is owned by the federal government.
26. Two men dressed as repairmen will appear shortly after the van pulls up.
27. The wood was discolored as if it had been held in a fire.
28. A light was noticed in the dark outside, and it moved eerily towards the house.
29. Painting in a few other non-European countries is treated in a separate volume.
30. Provoked arousal and orientation are accompanied by steeper negative shifts.
31. The magazine's report was slanted, as usual.
32. The map would prove useless unless as a beginning guide.

33. Black and white pictures are arranged in ten sections.
34. The papers had been front-paging it for days.
35. The notice made it clear that coffee breaks were being limited.
36. No man worked harder than he.
37. Potter wrote numerous satires on social cynicism.
38. The doorkeeper was dressed in red.
39. During the next ten years, the group participated in politics.
40. The organization depended on the people for support.
41. In 1965, Elizabeth made the first state visit by a British monarch to Germany in 56 years.
42. It was their sixth consecutive best seller.
43. It all fitted in with the officer's story.
44. The merger did not change the company's policy.
45. The mansion was rented by the delegation.
46. Utah is the Beehive State.
47. Changes were made in transport of lumber after the border incident.
48. The Chinese language has many dialects, including Cantonese, Mandarin, and Wu.
49. Things were booming once again in the little gold rush town of Angel.
50. At low tide, the hulk of the old ship could be seen.

ELATION MOOD-STATEMENTS

1. Today is neither better nor worse than any other day.
2. I do feel pretty good today, though.
3. I feel light-hearted.
4. This might turn out to have been one of my good days.
5. I feel cheerful and lively.
6. On the whole, I have very little difficulty in thinking.
7. My parents are pretty proud of me most of the time.
8. For the rest of the day, I bet things will go really well.
9. I'm pleased that most people are so friendly to me.
10. My judgment about most things is sound.
11. I'm full of energy and ambition----I feel like I could go a long time without sleep.
12. This is one of those days when I can grind out schoolwork with practically no effort at all.
13. When I want to, I can make friends extremely easily.
14. If I set my mind to it, I can make things turn out fine.
15. I feel enthusiastic and confident now.
16. There should be opportunity for a lot of good times coming along.
17. My favorite song keeps going through my head.
18. Some of my friends are so lively and optimistic.
19. I'm able to do things accurately and efficiently.
20. I know good and well that I can achieve the goals I set.
21. Now that it occurs to me, most of the things that have depressed me wouldn't have if I'd just had the right attitude.

22. I have a sense of power and vigor.
23. I feel so vivacious and efficient today----sitting on top of the world.
24. It would really take something to stop me now!
25. In the long run, it's obvious that things have gotten better and better during my life.
26. I know that in the future I won't over-emphasize so called "problems".
27. I'm too absorbed in things to have time for worry.
28. I'm feeling amazingly good today!
29. I am particularly inventive and resourceful in this mood.
30. I feel superb! I think I can work to the best of my ability.
31. Things look good. Things look great!
32. I feel that many of my friendships will stick with me in the future.
33. I'm optimistic that I can get along very well with most of the people I meet.
34. I can find the good in almost anything.
35. I feel an exhilarating animation in all I do.
36. I feel highly perceptive and refreshed.
37. My memory is in rare form today.
38. In a buoyant mood like this one, I can work fast and do it right the first time.
39. I can concentrate hard on anything I do.

40. Life is so much fun; it seems to offer so many resources of fulfillment.
41. Things will be better and better today.
42. I can make decisions rapidly and correctly; and I can defend them against criticism easily.
43. I feel industrious as heck----I want something to do!
44. Life is firmly in my control.
45. This is great----I really do feel good. I am elated about things.
46. I'm really feeling sharp now.
47. This is just one of those days when I'm ready to go!
48. I feel like bursting with laughter----I wish somebody would tell a joke and give me an excuse!
49. I'm full of energy.
50. God, I feel great!

Appendix F
POSTEXPERIMENTAL QUESTIONNAIRE

At this point in this experiment, we would like to get your ideas and thoughts about what you have done up until now. Please answer each of the following questions frankly and honestly. Please do not go on to the next question until you have completed your answer to the previous one. Please turn over the pages one at a time.*

1. On the scale below please indicate how you feel now as compared to when you started the experiment.

worse _ _ _ _ _ better

2. What do you think the purpose of this experiment is?
When did this first occur to you?
3. Please indicate on the scales below how you felt during the experimental task.

Anxious:

very much _ _ _ _ _ not at all

Self-conscious:

very much _ _ _ _ _ not at all

Cooperative:

very much _ _ _ _ _ not at all

Comfortable:

very much _ _ _ _ _ not at all

Apprehensive:

very much _ _ _ _ _ not at all

Sad:

very much _ _ _ _ _ not at all

Like I was being evaluated:

very much _ _ _ _ _ not at all

Defiant:

very much _ _ _ _ _ not at all

Concerned over how I would do:

very much _ _ _ _ _ not at all

4. Do you think you are more or less aware of your thoughts and feelings than other people are aware of their thoughts and feelings?

much more aware _ _ _ _ _ much less aware

5. At any time during the experiment, did you find yourself being more aware of your thoughts and feelings?

If yes, when did this occur?

6. Before you started reading the cards, did you expect them to have an effect on you?

a large effect _ _ _ _ _ little effect

7. While you were reading the cards, did you feel they were having an effect on you?

no, not at all _ _ _ _ _ yes, very much

If yes, what effect did reading the cards have on you?

8. Do you think the Experimenter wanted you to feel any emotions in particular?

If yes, what emotions?

When did this first occur to you?

9. Do you think the Experimenter wanted you to report any emotions in particular?

If yes, what emotions?

When did this first occur to you?

10. Do you think you were deceived (i.e., not told the truth) in this experiment?

If yes, exactly what do you think you were being deceived about?

When did this first occur to you?

11. Do you think the mirror and equipment had any purpose in the experiment?

If yes, what purpose?

When did this first occur to you?

12. Have you hear or read of this sort of experiment before?

If yes, exactly what did you hear or read?

Please provide the following information:

Age: _____

Sex (circle one): Male Female

Language first learned as a child: _____

* Each question originally on a separate sheet.

Appendix G

ANALYSES: INTENSIFICATION RESULTS

Table G-1

Analysis of Variance of CESD Scores as a Function of Treatment Groups

Source	SS	df	MS	F	p
Group	81.9	5	16.4	1.01	.412
Error	1806.4	112	16.1		

Note: CESD = Center for Epidemiological Studies - Depression Scale.

Table G-2

Multiple Analysis of Variance of SCS Subscale Scores as a Function of Treatment Groups

Source	df	F	p
Group	15	1.14	.315
Error	336		

Univariate F-tests with (5,112) df

Source	SS	MS	F	p
PrivSC	63.1	12.6	.41	.844
Error	3488.0	31.1		
PubSC	81.7	16.3	.50	.778
Error	3688.0	32.9		
SA	270.0	54.0	1.91	.099
Error	3169.3	28.3		

Note: PrivSC = Private Self-Consciousness. PubSC = Public Self-Consciousness. SA = Social Anxiety.

Table G-3

Multiple Analysis of Variance of Pretreatment POMS
Subscales as a Function of Treatment Groups

Source	df	F	p
Group	30	.55	.977
Error	555		

Univariate F-tests with (5,112) df

Source	SS	Ms	F	p
Depression Error	13.1 1657.8	2.6 14.8	.17	.971
Anxiety Error	27.2 2008.2	5.4 17.9	.30	.910
Hostility Error	17.8 1460.7	3.6 13.0	.27	.927
Vigor Error	330.8 10245.0	66.2 91.5	.72	.607
Fatigue Error	168.1 3810.7	33.6 34.0	.99	.428
Confusion Error	8.1 1137.8	1.6 10.2	.16	.976

Table G-4

Analysis of Variance of CESD Scores as a Function of Gender

Source	SS	df	MS	F	p
Sex	11.0	1	11.0	.68	.412
Error	1877.4	116	16.2		

Table G-5

Multiple Analysis of Variance of SCS Subscale Scores as a Function of Gender

Source	df	F	p
Sex	3	1.68	.175
Error	114		

Univariate F-tests with (1,116) df

Source	SS	MS	F	p
PrivSC	78.1	78.1	2.61	.109
Error	3472.9	29.1		
PubSC	73.3	73.3	2.30	.132
Error	3696.4	31.9		
SA	32.6	32.6	1.11	.294
Error	3406.7	29.4		

Table G-6

Multiple Analysis of Variance for Pretreatment POMS Subscale Scores as a Function of Gender

Source	df	F	p
Sex	6	.58	.742
Error	111		

Univariate F-tests with (1,116) df

Source	SS	MS	F	Sig
Depression	12.9	12.9	.90	.344
Error	1658.0	14.3		
Anxiety	9.2	9.2	.53	.469
Error	2026.1	17.5		
Hostility	13.6	13.6	1.07	.302
Error	1464.9	12.6		
Vigor	61.2	61.2	.68	.413
Error	10514.6	90.6		
Fatigue	15.7	15.7	.46	.500
Error	3963.2	34.2		
Confusion	.2	.2	.02	.884
Error	1145.7	9.9		

Table G-7

Multiple Analysis of Variance for Pretreatment POMS Subscale Scores as a Function of Sex, CARDMOOD, and MIRROR.

Source	df	F	p
Sex (A) Error	6 101	1.01	.426
CARDMOOD (B) Error	6 101	7.13	.000
MIRROR (C) Error	12 204	.83	.615
A X B Error	6 101	1.00	.427
A X C Error	12 204	.88	.568
A X B X C Error	12 204	1.25	.253

Note: Logarithmically-transformed scores.

Table G-8

Multiple Analysis of Variance for Posttreatment POMS Subscale Scores as a Function of Pretest Ordering, CARDMOOD, and MIRROR

Source	df	F	p
Preorder (A) Error	30 410	.65	.924
CARDMOOD (B) Error	6 78	6.56	.000
MIRROR (C) Error	12 158	1.21	.280
A X B Error	30 410	.87	.673
A X C Error	60 498	.81	.850
A X B X C Error	54 498	1.19	.178

Note: Preorder = Six possible orderings of the three pretreatment tests (CESD, POMS, SCS). Logarithmically-transformed scores.

Table G-9

Multiple Analysis of Variance for Posttreatment POMS Subscale
Scores as a Function of CARDMOOD

Source	df	F	p
CARDMOOD	7	6.37	.000
Error	110		

Univariate F-tests (1,116) df

Source	SS	MS	F	p
Depression	23.3	23.3	29.75	.000
Error	90.9	.8		
Anxiety	.0	.0	.06	.798
Error	57.6	.5		
Hostility	3.0	3.0	3.47	.065
Error	101.0	.9		
Vigor	.2	.2	.38	.538
Error	54.1	.5		
Fatigue	9.6	9.6	12.86	.000
Error	86.6	.7		
Confusion	1.3	1.3	3.01	.085
Error	48.3	.4		
TD	3.8	3.8	11.65	.001
Error	38.4	.3		

Note: TD = Total Mood Distribution score. Logarithmically-transformed scores.

Table G-10

Means and Standard Deviations of Depression Change Scores

CARDMOOD	MIRROR		
	IndM	SRM	NoM
Neutral	-1.55 (2.44)	-1.20 (2.97)	-.50 (2.21)
Depression	4.79 (5.32)	2.80 (6.09)	5.05 (6.72)

Note: Change scores were calculated by subtracting pretreatment POMS Depression scores from posttreatment Depression scores. Standard deviations are in parentheses.

Table G-11

Multiple Analysis of Variance for Posttreatment POMS Subscale Scores (for the Neutral CARDMOOD Condition) as a Function of MIRROR

Source	df	F	p
MIRROR	12	1.17	.311
Error	106		

Univariate F-tests with (2,57) df

Source	SS	MS	F	p
Depression	14.5	7.3	.82	.444
Error	502.5	8.8		
Anxiety	24.1	12.1	.81	.449
Error	848.1	14.9		
Hostility	1.9	1.0	.11	.665
Error	485.7	8.5		
Vigor	52.0	26.0	.41	.665
Error	3610.2	63.4		
Fatigue	204.0	102.0	2.77	.071
Error	2097.0	36.8		
Confusion	20.2	10.1	.78	.463
Error	738.8	13.0		

Table G-12

Analysis of Covariance for Posttreatment POMS Depression Scores
 as a Function of MIRROR with Pretreatment POMS Depression Scores
 as the Covariate (Scores from the Depression CARDMOOD Condition only)

Source	SS	df	MS	F	p
Covariate	1010.2	1	1010.2	26.91	.000
MIRROR	59.5	2	29.7	.79	.458
Error	2027.2	54	37.5		

Table G-13

Multiple Analysis of Variance for Posttreatment POMS Subscale Scores as a Function of MIRROR (Scores from the Depression CARDMOOD Condition only)

Source	df	F	p
MIRROR	12	1.07	.394
Error	102		

Univariate F-tests with (2,55) df

Source	SS	MS	F	p
Depression Error	80.3 3037.4	40.2 55.2	.73	.458
Anxiety Error	49.2 1267.4	24.6 23.0	1.07	.351
Hostility Error	15.7 2048.7	7.9 37.3	.21	.810
Vigor Error	108.0 2459.6	54.0 44.7	1.21	.307
Fatigue Error	10.0 2616.3	5.0 47.6	.10	.901
Confusion Error	48.7 973.2	24.3 17.7	1.37	.261

Table G-14

Analysis of Variance for Posttreatment POMS Total Mood Disturbance Scores as a Function of CARDMOOD and MIRROR

Source	SS	df	MS	F	p
CARDMOOD (A)	6960.3	1	6960.3	12.93	.000
MIRROR (B)	900.4	2	450.2	.84	.436
A X B	208.3	2	104.1	.19	.824
Error	60295.9	112	538.4		

Table G-15

Analysis of Covariance for Posttreatment POMS Total Mood Disturbance Scores as a Function of CARDMOOD and MIRROR using Pretreatment POMS Total Mood Disturbance Scores as the Covariate

Source	SS	df	MS	F	p
Covariate	34429.7	1	34429.7	147.74	.000
CARDMOOD (A)	6450.9	1	6450.9	27.68	.000
MIRROR (B)	344.5	2	172.3	.73	.480
A X B	553.2	2	276.6	1.19	.309
Error	25866.2	111	233.0		

Table G-16

Means and Standard Deviations of Posttreatment
POMS Depression Scores

CARDMOOD	PrivSC	MIRROR		
		IndM	SRM	NoM
Neutral	Low	1.00 (1.41) n=8	1.18 (1.25) n=11	3.60 (5.16) n=10
	High	2.58 (2.35) n=12	4.00 (2.87) n=9	2.70 (2.35) n=10
Depression	Low	7.69 (6.29) n=9	7.90 (7.13) n=10	6.83 (6.93) n=12
	High	10.50 (7.76) n=10	5.10 (3.25) n=10	11.43 (12.46) n=7

Note: PrivSC = Private Self-Consciousness. IndM = Mirror present during induction. SRM = Mirror present during posttreatment self_report. NoM = No mirror present. Standard deviations are parenthesized. Higher scores represent more intense levels of depression.

Table G-17

Regression of Private Self-Consciousness (PrivSC) on Posttreatment POMS Depression Scores (for the Depression CARDMOOD/No MIRROR Treatment Group)

Analysis	Entered	R ² (change)	F (change)	df	p
1.	PrivSC	.18	3.69	1,17	.072
2.	PrePOMD	.52	18.88	1,16	.000
	PrivSC	.01	.24	1,16	.629

Note: PrePOMD = Pretreatment POMS Depression Scores

Table G-18

Regression of MIRROR and Private Self-Consciousness (PrivSC) on Posttreatment POMS Depression Scores. Pretreatment POMS Depression Scores Entered First in the Second Analysis. (Scores from Depression CARDMOOD groups in the NoM and SRM MIRROR Conditions)

Analysis	Entered	R ² (change)	F (change)	df	p
1.	MIRROR (A)	.02	.69	1,35	.412
	PrivSC (B)	.01	.22	1,35	.642
	A X B	.17	7.48	1,35	.010
2.	PrePOMD	.28	14.59	1,34	.000
	MIRROR (A)	.02	1.17	1,34	.286
	PrivSC (B)	.00	.14	1,34	.716
	A X B	.07	3.74	1,34	.062

Note: PrePOMD = Pretreatment POMS Depression scores.

Appendix H

MANIPULATION CHECK DATA: DISCRIMINABILITY

Table H-1

Pretreatment POMS Depression (D), Anxiety (Ax), and Hostility-Anger (HA) Intercorrelations by Treatment Groups

CARDMOOD	MIRROR	D/Ax	D/HA	Ax/HA
Neutral	IndM ¹	.15	.57	-.23
	SRM ¹	.35	-.36	-.13
	NoM ¹	.30	.66	.20
Depression	IndM ²	.42	.38	.58
	SRM ¹	.13	.62	.53
	NoM ²	.62	.61	.51

Note: IndM = Mirror present during mood induction. SRM = Mirror present during self-report. NoM = No mirror present.
¹n = 20. ²n = 19.

Table H-2

POMS Depression (D), Anxiety (Ax), and Hostility-Anger (HA) Intercorrelations by Gender

POMS	Gender	D/Ax	D/HA	Ax/HA
Pretreatment	Female	.26	.36	.29
	Male	.42	.55	.27
Posttreatment	Female	.43	.58	.54
	Male	.50	.68	.65

Note: n of subjects = 59 for each correlation.

Table H-3

Posttreatment POMS Depression (D), Anxiety (Ax), and
Hostility-Anger (HA) Intercorrelations by
Pretest Orderings

Order	D/Ax	D/HA	Ax/HA
A ¹	.50	.53	.74
B ²	.13	.33	.36
C ¹	.84	.81	.78
D ²	.19	.79	.36
E ²	.61	.74	.72
F ²	.59	.67	.80

¹n = 19. ²n = 20.

Appendix I

MANIPULATION CHECK DATA: INTERNAL CONSISTENCY

Table I-1

Coefficient Alphas for the Pretreatment POMS Depression (D), Anxiety (Ax), Hostility-Anger, (HA), Full Scales across Treatment Groups

CARDMOOD	MIRROR	POMS Scale			
		D	Ax	HA	Full
Neutral	IndM ¹	.51	.41	.34	.76
	SRM ¹	.66	.48	.18	.69
	NoM ¹	.68	.51	.72	.79
Depression	IndM ²	.85	.35	.83	.69
	SRM ¹	.68	.21	.91	.67
	NoM ²	.82	.48	.37	.82

Note: IndM = Mirror present at induction. SRM = Mirror present at self-report. NoM = No mirror present.
¹n = 20. ²n = 19.

Table I-2

Coefficient Alphas for the POMS Depression (D), Anxiety (Ax), Hostility-Anger (HA), and Full Scales across Gender

POMS	Gender	D	Ax	HA	Full
Pretreatment	Female	.79	.38	.75	.76
	Male	.64	.46	.63	.76
Posttreatment	Female	.91	.63	.76	.84
	Male	.87	.68	.88	.87

Note: n of subjects = 59 for each alpha.

Table I-3

Coefficient Alphas for the Posttreatment POMS
 Depression (D), Anxiety (Ax), Hostility-Anger (HA),
 and Full Scales across Pretest Orderings

Order	D	Ax	HA	Full
A ¹	.93	.69	.87	.90
B ²	.81	.69	.85	.71
C ¹	.85	.76	.76	.89
D ²	.73	.56	.85	.68
E ²	.92	.62	.79	.85
F ²	.91	.55	.89	.90

¹n = 19. ²n = 20.

Appendix J

ANALYSES: POSTEXPERIMENTAL QUESTIONNAIRE

Table J-1

Regression of Experimental Variables on PEQ 'Anxious' Scale

Entered	R ²	R ² (change)	F (change)	p
CARDMOOD (A)	.00	.00	.03	.859
MIRROR (B)	.00	.00	.41	.522
PrivSC (C)	.03	.03	3.13	.079
A X B	.03	.00	.07	.791
A X C	.03	.00	.17	.678
B X C	.09	.05	6.48	.012
A X B X C	.09	.00	.26	.615

Table J-2

Means and Standard Deviations of PEQ 'Anxious' Scores Across
MIRROR X PrivSC Conditions

PrivSC	MIRROR		
	IndM	SRM	NoM
Low	2.76 (1.86) n=17	2.33 (1.56) n=21	2.23 (1.63) n=22
High	2.95 (1.81) n=22	2.89 (1.88) n=19	3.12 (1.83) n=17

Note: Scale range: 1 to 7. 1 = Experienced little anxiety. 7 = Experienced very much anxiety during the experiment. Standard deviations are in parentheses. IndM = Mirror presence during induction. SRM = Mirror presence during posttreatment self-report. NoM = No mirror present. PrivSC = Private Self-Consciousness.

Table J-3

Regression of Experimental Variables on PEQ 'Self-Conscious' Scores

Entered	R ²	R ² (change)	F (change)	p
CARDMOOD (A)	.01	.01	1.47	.228
MIRROR (B)	.02	.01	1.00	.318
PrivSC (C)	.09	.07	8.18	.005
A X B	.09	.00	.00	.971
A X C	.09	.00	.38	.539
B X C	.13	.04	4.50	.036
A X B X C	.14	.01	1.72	.192

Table J-4

Means and Standard Deviations of PEQ 'Self-Conscious' Scores across MIRROR X PrivSC Conditions

PrivSC	MIRROR		
	IndM	SRM	NoM
Low	3.35 (2.47) n=17	3.05 (2.11) n=21	2.45 (1.79) n=22
High	3.86 (2.32) n=22	3.79 (1.93) n=19	4.06 (2.08) n=17

Note: Scale range: 1 to 7. 1 = Not self-conscious. 7 = Very self-conscious during the experiment. Standard-deviations are in parentheses. IndM = Mirror present during mood-induction. SRM = Mirror present during posttreatment self-report. NoM = No mirror present. PrivSC = Private Self-Consciousness.

Table J-5

Regression of Experimental Variables on PEQ 'Comfortable' Scores

Entered	R ²	R ² (change)	F (change)	p
CARDMOOD (A)	.00	.00	.54	.465
MIRROR (B)	.01	.00	.36	.552
PrivSC (C)	.01	.00	.36	.549
A X B	.03	.02	1.91	.170
A X C	.04	.01	1.69	.196
B X C	.07	.03	3.61	.060
A X B X C	.07	.00	.00	.987

Table J-6

Means and Standard Deviations of PEQ 'Comfortable' Scores across MIRROR X PrivSc Conditions

PrivSC	MIRROR		
	IndM	SRM	NoM
Low	5.71 (1.49) n=17	5.76 (1.41) n=21	5.82 (1.30) n=22
High	5.27 (1.67) n=22	5.16 (1.46) n=19	5.47 (1.81) n=17

Note: Scale range: 1 to 7. 1 = Very uncomfortable. 7 = Felt very comfortable during the experiment. Standard deviations are in parentheses. IndM = Mirror present during mood-induction. SRM = Mirror present during posttreatment self-report. NoM = No mirror present. PrivSC = Private Self-Consciousness.

Table J-7

Regression of Experimental Variables on PEQ 'Apprehensive' Scores

Entered	R ²	R ² (change)	F (change)	p
CARDMOOD (A)	.04	.04	4.64	.033
MIRROR (B)	.04	.00	.03	.857
PrivSC (C)	.05	.01	.98	.325
A X B	.05	.00	.50	.481
A X C	.05	.00	.00	.989
B X C	.08	.03	3.38	.069
A X B X C	.08	.00	.27	.603

Table J-8

Means and Standard Deviations of PEQ 'Apprehensive' Scores across CARDMOOD Conditions

Neutral	Depression
3.38 (1.98) n=60	2.64 (1.76) n=58

Note: Standard deviations are in parentheses.

Table J-9

Means and Standard Deviations of PEQ 'Apprehensive'
Scores across MIRROR X PrivSC Conditions

PrivSC	MIRROR		
	IndM	SRM	NoM
Low	3.35 (2.06) n=17	3.05 (1.85) n=21	2.68 (1.88) n=22
High	2.86 (1.98) n=22	2.89 (1.88) n=19	3.41 (1.93) n=17

Note: Scale range: 1 to 7. 1 = Not apprehensive. 7 = Felt very apprehensive during mood-induction. Standard deviations are in parentheses. SRM = Mirror present during self-report. NoM = No mirror present. PrivSC = Private Self-Consciousness.

Table J-10

Regression of Experimental Variables on PEQ 'Sadness' Scores

Entered	R ²	R ² (change)	F (change)	p
CARDMOOD (A)	.09	.09	11.9	.001
MIRROR (B)	.09	.00	.05	.825
PrivSC (C)	.12	.03	3.33	.071
A X B	.12	.00	.05	.823
A X C	.12	.00	.42	.519
B X C	.14	.02	2.56	.112
A X B X C	.17	.02	3.14	.079

Table J-11

Means and Standard Deviations of PEQ 'Sadness' Scores
across CARDMOOD X MIRROR X PrivSC Conditions

CARDMOOD	PrivSC	MIRROR		
		IndM	SRM	NoM
Neutral	Low	1.00 (.00) n=8	1.36 (.81) n=11	1.30 (.95) n=10
	High	3.00 (2.06) n=9	2.10 (1.91) n=10	2.08 (1.51) n=12
Depression	Low	1.58 (.79) n=12	2.67 (1.94) n=9	1.50 (.97) n=10
	High	2.40 (1.51) n=10	2.20 (1.14) n=10	4.00 (2.83) n=7

Note: Scale range: 1 to 7. 1 = Least sadness. 7 = Felt great sadness during the experiment. Standard deviations are in parentheses. IndM = Mirror present during mood-induction. SRM = Mirror present during posttreatment self-report. NoM = No mirror present. PrivSC = Private Self-Consciousness.

Table J-12

Regression of Experimental Variables on PEQ 'Concerned' Scores

Entered	R ²	R ² (change)	F (change)	p
CARDMOOD (A)	.03	.03	3.55	.062
MIRROR (B)	.03	.00	.12	.726
PrivSC (C)	.04	.01	1.02	.314
A X B	.04	.00	.43	.513
A X C	.04	.00	.13	.716
B X C	.08	.03	3.77	.055
A X B X C	.08	.00	.16	.686

Table J-13

Means and Standard Deviations of PEQ 'Concerned' Scores across MIRROR X PrivSC Conditions

PrivSC	MIRROR		
	IndM	SRM	NoM
Low	2.71 (1.69) n=17	2.67 (1.56) n=21	2.45 (2.13) n=22
High	2.82 (2.08) n=22	3.21 (2.02) n=19	2.82 (2.30) =17

Note: Scale range: 1 to 7. 1 = Least concerned. 7 = Very concerned about one's performance during the experiment. Standard deviations are in parentheses. IndM = Mirror present during mood-induction. SRM = Mirror present during posttreatment self-report. NoM = No mirror present. PrivSC = Private Self-Consciousness.

Table J-14

Regression of Experimental Variables on PEQ 'Cooperative',
'Evaluated', and 'Defiant' Scores

Criterion	Entered	R ²	R ² (change)	F (change)	p
Cooperative	CARDMOOD (A)	.00	.00	.32	.570
	MIRROR (B)	.02	.01	1.48	.226
	PrivSC (C)	.02	.00	.00	.947
	A X B	.02	.00	.14	.714
	A X C	.02	.01	.91	.342
	B X C	.03	.01	1.03	.312
	A X B X C	.03	.00	.09	.771
Evaluated	CARDMOOD (A)	.02	.02	1.96	.164
	MIRROR (B)	.03	.01	1.72	.192
	PrivSC (C)	.03	.00	.17	.679
	A X B	.04	.01	.97	.328
	A X C	.06	.02	2.17	.143
	B X C	.08	.02	2.28	.134
	A X B X C	.09	.01	1.24	.268
Defiant	CARDMOOD (A)	.00	.00	.04	.852
	MIRROR (B)	.00	.00	.03	.886
	PrivSC (C)	.00	.00	.36	.549
	A X B	.02	.01	1.51	.221
	A X C	.02	.00	.45	.503
	B X C	.02	.00	.24	.623
	A X B X C	.02	.00	.02	.877

Table J-15

Regression of Experimental Variables on PEQ 'Comparable
Self-Awareness' Scores

Entered	R ²	R ² (change)	F (change)	p
CARDMOOD (A)	.00	.00	.07	.800
MIRROR (B)	.04	.04	5.19	.025
PrivSC (C)	.05	.01	1.24	.268
A X B	.06	.00	.17	.683
A X C	.07	.01	1.46	.230
B X C	.07	.00	.49	.485
A X B X C	.08	.01	1.34	.250

Table J-16

Means and Standard Deviations of PEQ 'Comparable
Self-Awareness' Scores across MIRROR Conditions

IndM	SRM	NoM
5.33 (1.06) n=39	5.48 (1.09) n=40	4.72 (1.36) n=39

Note: Scale range: 1 to 7. 1 = Much less self-aware. 7 = Much more self-aware than others. Standard deviations are in parentheses. IndM = Mirror present during moodinduction. SRM = Mirror present during posttreatment self-report. NoM = No mirror present.

Table J-17

Regression of Experimental Variables on PEQ 'Degree of Self-Awareness during the Experiment' Ratings

Entered	R ²	R ² (change)	F (change)	p
CARDMOOD (A)	.01	.01	1.48	.226
MIRROR (B)	.02	.00	.50	.479
PrivSC (C)	.05	.03	3.43	.067
A X B	.06	.01	1.78	.185
A X C	.06	.00	.29	.594
B X C	.08	.02	1.90	.170
A X B X C	.09	.01	.84	.360

Table J-18

Means and Standard Deviations of PEQ 'Degree of Self-Awareness during the Experiment' Ratings across Levels of PrivSC

Low	High
1.55 (.50) n=60	1.76 (.43) n=58

Note: Dichotomous variable. 1 = No change in self-awareness during the experiment. 2 = Experienced greater self-awareness during the experiment. Standard deviations are in parentheses.

Table J-19

Regression of Experimental Variables on PEQ 'Expected Cards to Have an Effect' Ratings

Entered	R ²	R ² (change)	F (change)	p
CARDMOOD (A)	.02	.02	2.85	.094
MIRROR (B)	.02	.00	.04	.834
PrivSC (C)	.03	.00	.20	.653
A X B	.03	.00	.28	.597
A X C	.04	.01	.833	.363
B X C	.04	.00	.29	.589
A X B X C	.04	.00	.29	.589

Table J-20

Means and Standard Deviations of PEQ 'Expected Cards to have an Effect' Ratings across CARDMOOD Conditions

Neutral	Depression
3.02 (1.80) n=60	2.51 (1.65) n=58

Note: Scale range: 1 to 7. 1 = Expected little effect. 7 = Expected the cards to have a strong effect. Standard deviations are in parentheses.

Table J-21

Regression of Experimental Variables on PEQ 'Felt Effect
due to Reading the Cards' Ratings

Entered	R ²	R ² (change)	F (change)	p
CARDMOOD (A)	.19	.19	27.39	.000
MIRROR (B)	.19	.00	.06	.808
PrivSC (C)	.20	.01	1.02	.314
A X B	.20	.00	.01	.942
A X C	.20	.00	.24	.625
B X C	.21	.01	1.20	.276
A X B X C	.21	.00	.04	.842

Table J-22

Means and Standard Deviations of PEQ 'Felt Effects due to
Reading the Cards' Ratings across CARDMOOD Conditions

Neutral	Depression
2.75 (2.03) n=60	4.53 (1.65) n=58

Note: Scale range: 1 to 7. 1 = Cards had little effect.
7 = Cards had a strong effect. Standard deviations are in
parentheses.

Table J-23

Regression of Experimental Variables on PEQ 'Did the
Experimenter want Subjects to Experience Certain Feelings'
Ratings

Entered	R ²	R ² (change)	F (change)	p
CARDMOOD (A)	.40	.40	76.20	.000
MIRROR (B)	.40	.01	1.36	.246
PrivSC (C)	.40	.00	.00	.962
A X B	.40	.00	.00	.979
A X C	.40	.00	.01	.919
B X C	.40	.00	.13	.718
A X B X C	.41	.00	.21	.652

Table J-24

Means and Standard Deviations of PEQ 'Did the Experimenter
want Subjects to Experience Certain Feelings?' Ratings
across CARDMOOD Conditions

Neutral	Depression
1.13 (.34) n=60	1.76 (.43) n=58

Note: Dichotomous variable. 1 = No. 2 = Yes. Standard deviations are presented in parentheses.

Table J-25

Regression of Experimental Variables on PEQ 'Did the
Experimenter want Subjects to Report Certain Emotions'
Ratings

Entered	R ²	R ² (change)	F (change)	p
CARDMOOD (A)	.14	.14	19.55	.000
MIRROR (B)	.15	.01	1.00	.320
PrivSC (C)	.16	.01	1.14	.288
A X B	.16	.00	.31	.577
A X C	.19	.03	3.91	.050
B X C	.20	.01	1.05	.308
A X B X C	.21	.01	1.00	.319

Table J-26

Means and Standard Deviations of PEQ 'Did the Experimenter
expect Subjects to Report certain Emotions?' Ratings
across CARDMOOD X PrivSC Conditions

PrivSC	CARDMOOD	
	Neutral	Depression
Low	1.21 (.41) n=29	1.48 (.51) n=31
High	1.19 (.40) n=31	1.67 (.48) n=27

Note: Dichotomous variable. 1 = No. 2 = Yes. Standard deviations are in parentheses. PrivSC = Private Self-Consciousness.