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

by

© Brian Sveinson

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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.

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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.

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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 ($\underline{r}$ = .73) in comparison to the low self-awareness condition ($\underline{r}$ = .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 & Perlmuter, 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 validational 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 ($\underline{r}$ = .29, $\underline{p}$ < .01), but public self-consciousness was not ($\underline{r}$ = .07, $\underline{p}$ < .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 validational 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 repetoire 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, by-passing 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 occured.

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, ebulience, 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, $\underline{r}$ = .56; Depression/Anger, $\underline{r}$ = .70 Anxiety/Anger, $\underline{r}$ = .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 your 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 card 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 ps > .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 ps > .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 ps > .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 acceptibility 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

		MIRROR		
POMS Scale	CARDMOOD	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

		MIRROR		
POMS Scale	CARDMOOD	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 postreatment Depression score. No main effect of the MIRROR was found, $F(2,54) < 1$.

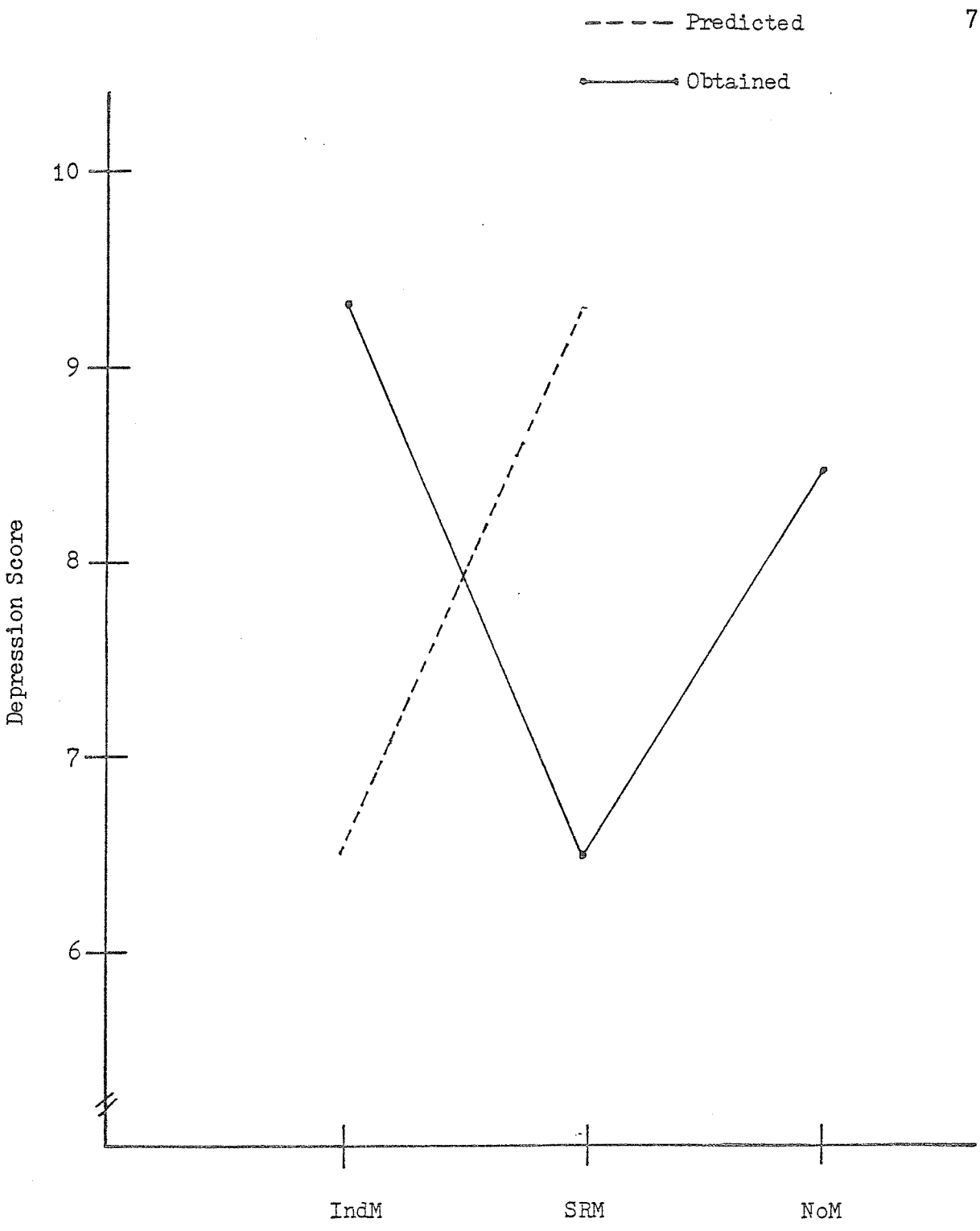

Figure 1: Predicted (approximate) and Obtained Depression Scores across MIRROR Conditions

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 ps $> .15$).

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, $\underline{r} = .53$, $\underline{p} < .001$). 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 $\underline{R^2}$, was found to be significant, $\underline{F}(1,35) = 7.48$, $\underline{p}$

< .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 moreso 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

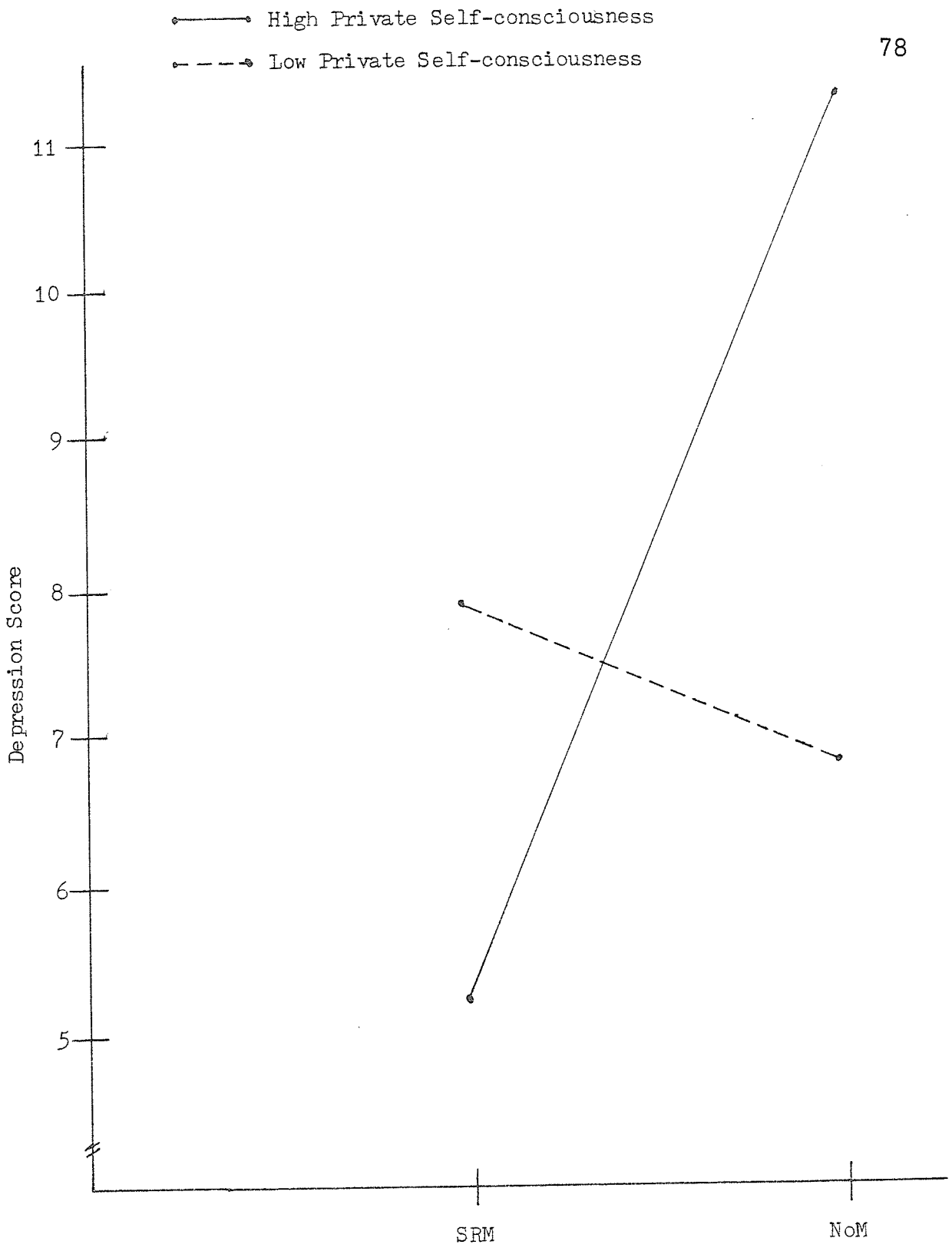

Figure 2: Scores of Low and High Private Self-Conscious Subjects across SRM and NoM MIRROR Conditions

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

	MIRROR		
Correlation	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.
[1]n = 39. [2]n = 40.

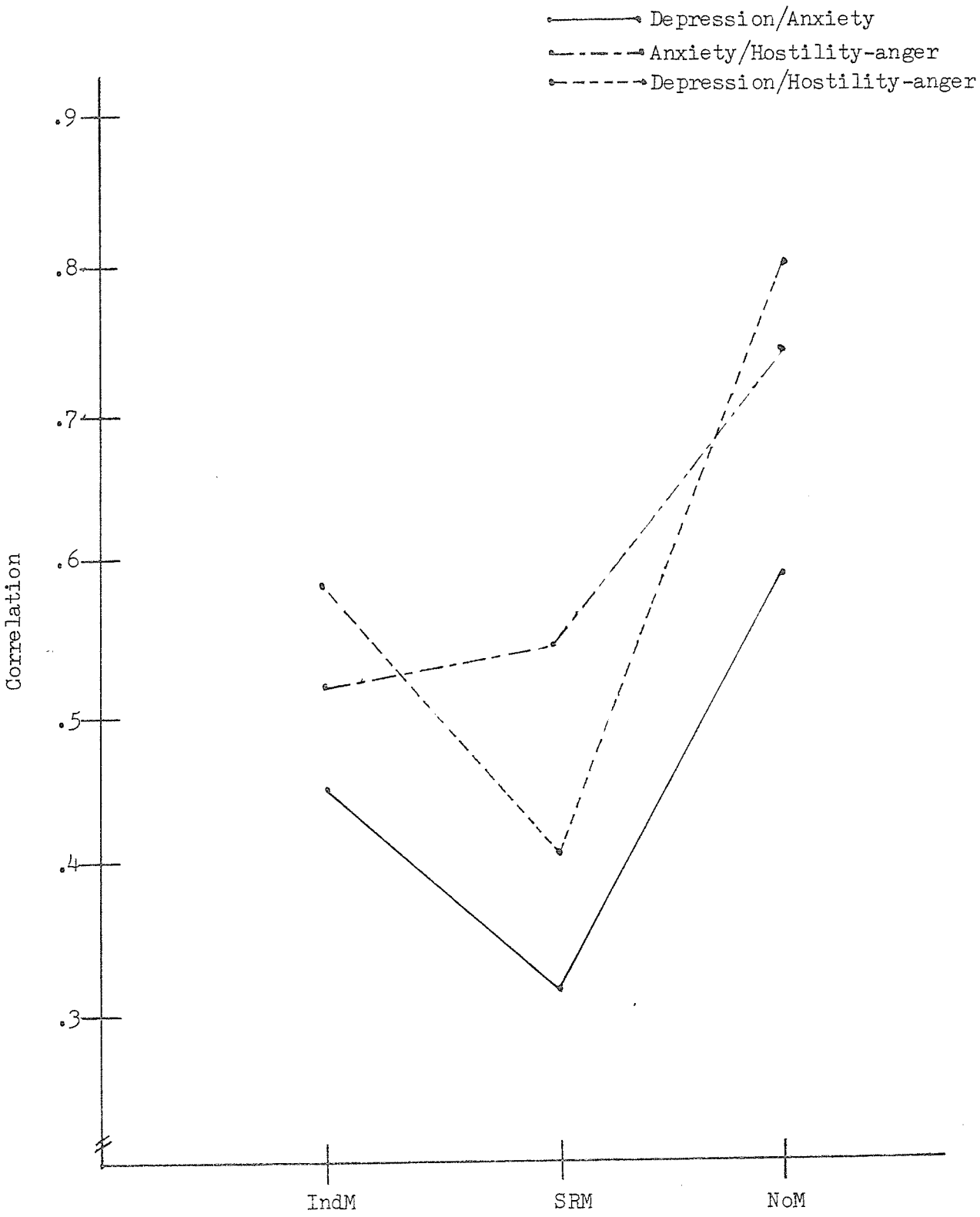

Figure 3: Correlation between Mood Scores across MIRROR Conditions

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.
[1]n = 60. [2]n = 58.

TABLE 4

Mood Score Correlations across Experimental Conditions

CARDMOOD	MIRROR	Correlation D/Ax	Correlation D/HA	Correlation 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.
[1]n = 20. [2]n = 19.

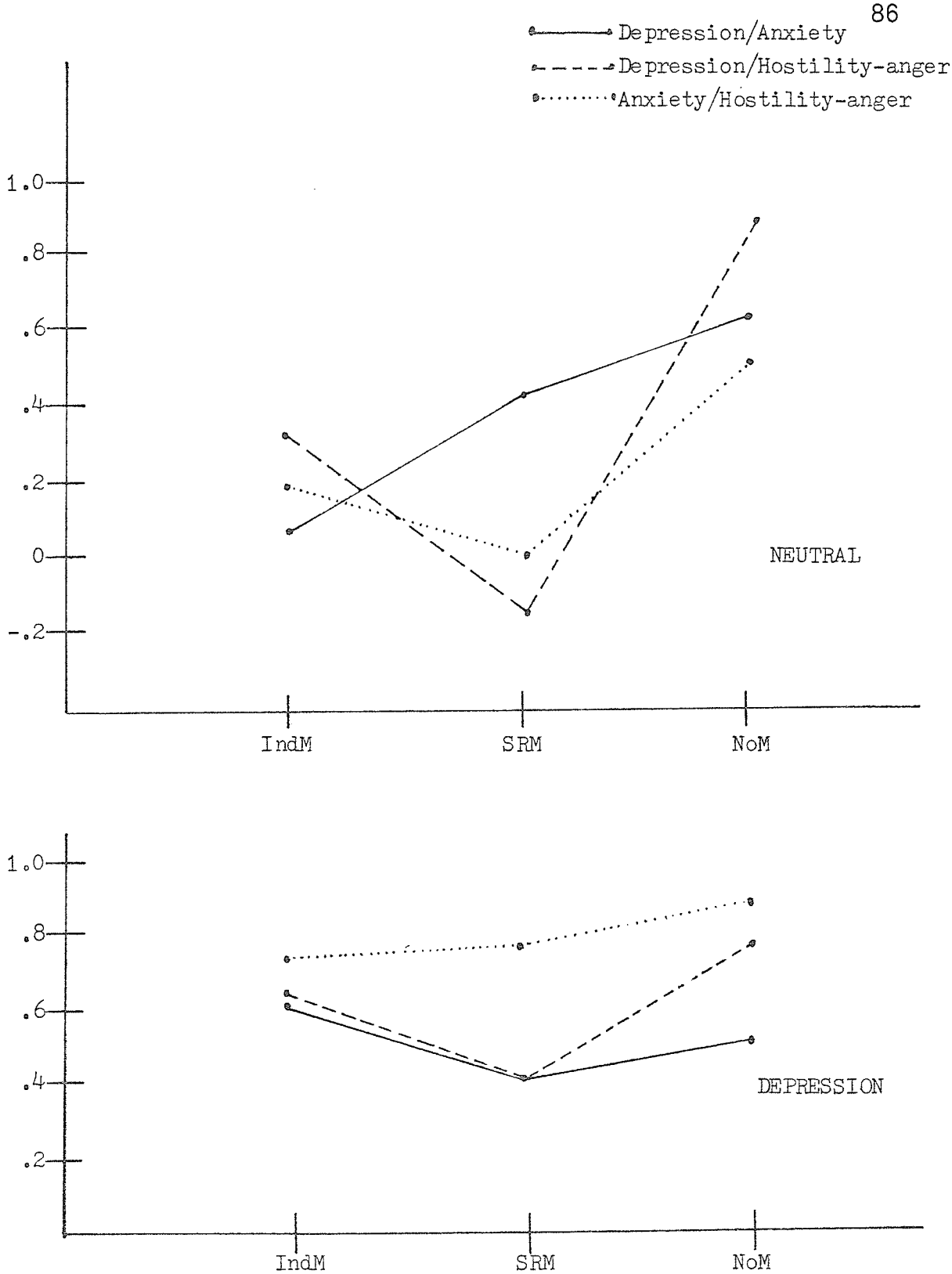

Figure 4: Mood Score Correlations across Experimental Conditions

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, coefficent 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

	MIRROR		
POMS Scale	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. [1]n = 39. [2]n = 40.

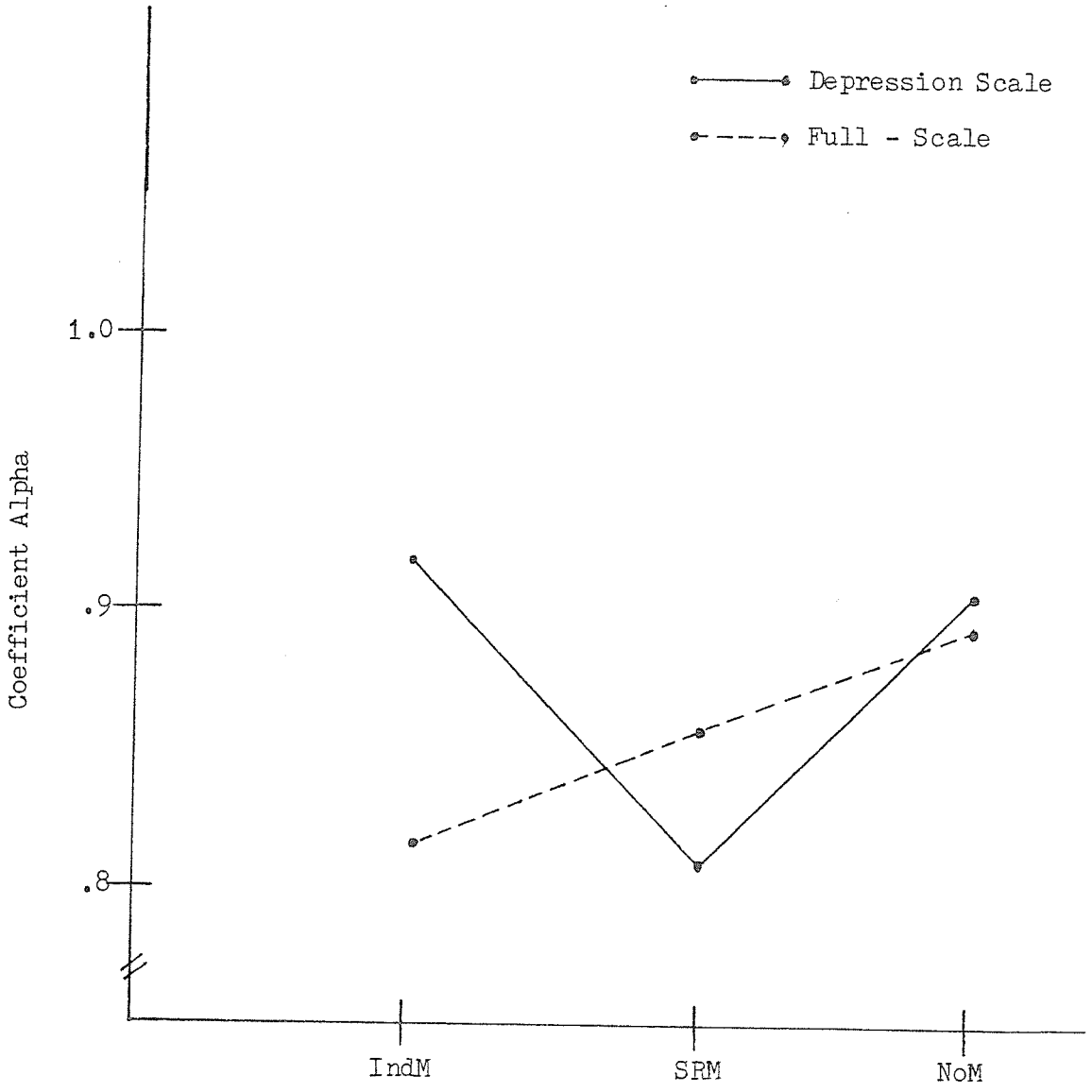

Figure 5: Internal Consistency Effects across MIRROR Condtions

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 (ps < .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.
[1]n = 60. [2]n = 58.
*p < .05.

TABLE 7

POMS Depression Scale: Coefficient Alpha's across Experimental Conditions

	MIRROR		
CARDMOOD	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.

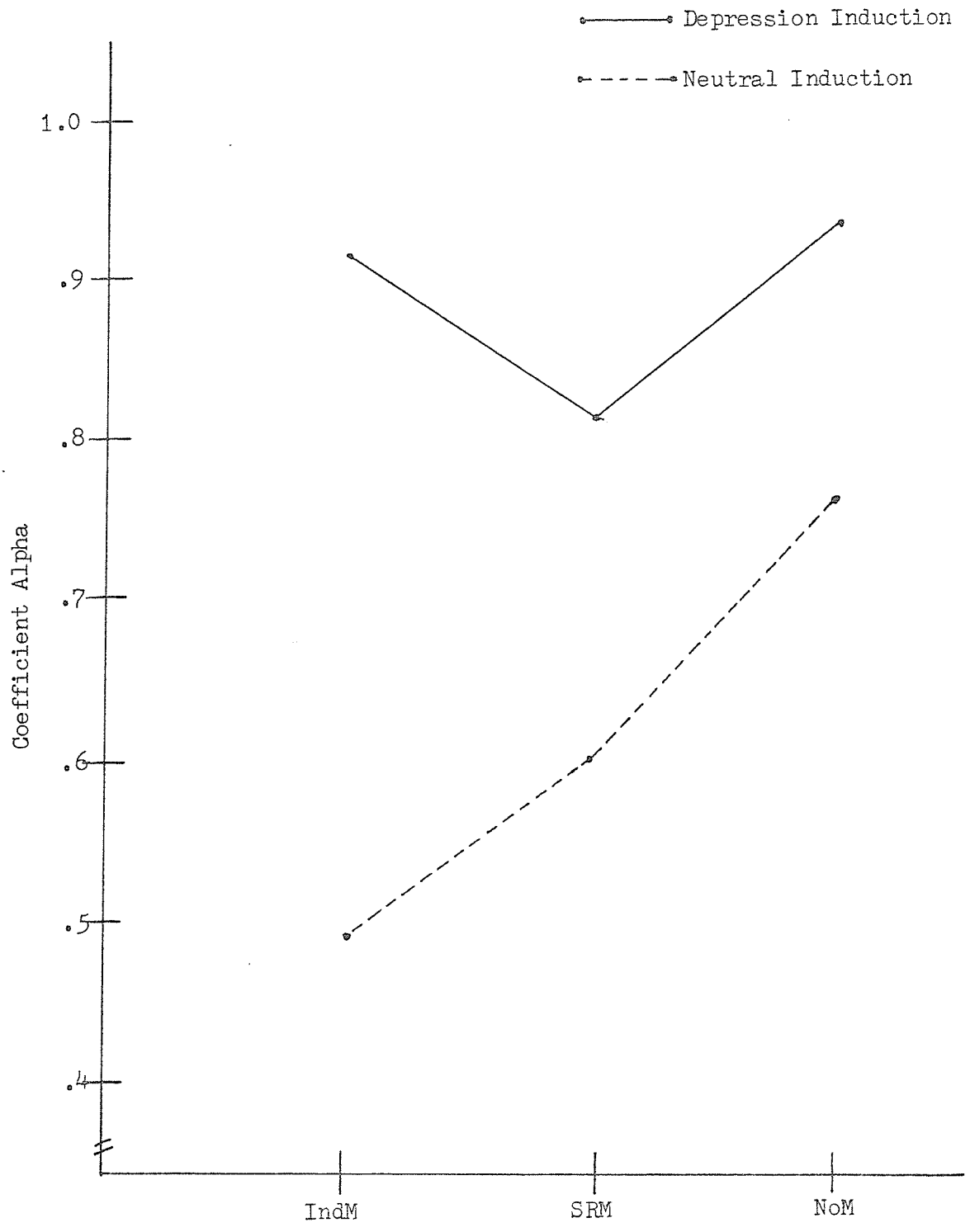

Figure 6: Internal Consistency Effects across Experimental Conditions

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. Futhermore, 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 questionned 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, curiousity, 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 suprising 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 apon (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 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