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DEPRESSED AND NONDEPRESSED COLLEGE STUDENTS' INTERPRETATIONS
OF AND MEMORY FOR FEEDBACK ABOUT SELF AND OTHERS

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By
Carol D. Javna, A.B., M.A.

* * * * *

The Ohio State University
1981

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Much appreciation and boundless gratitude are expressed for my adviser, Dr. Herbert Mirels, for alternately serving as my mentor, support system, and friend, not only during the dissertation process, but throughout my graduate school career. Thank you, Herb. I would also like to express my gratitude to members of my reading committee, Drs. Don Dell and Gifford Weary for their invaluable assistance in the planning of this project, and to Dr. Robert MacCallum, June Hahn, and Keith Widamen who provided excellent statistical assistance at various points in this project.

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Any discourse on depression requires careful consideration of the meaning of the term. In clinical settings, the diagnosis of depression has been applied to clients experiencing mild dysphoria in response to situational stresses, as well as to individuals who are suicidal, delusional, and who evidence diverse somatic difficulties. A major issue concerns the heterogeneity of clinical symptoms which are included under the heading of depressive disorders, as well as the diversity in clinical course and levels of severity. Although it is necessary to keep in mind that depressive symptoms occur in varying combinations and to differing degrees, four clusters of common depression indicators, as outlined by Beck (1967), can be distinguished:

1. **Emotional manifestations** refer to changes in feelings or changes in behavior directly attributable to emotional states. These include dejected mood (as described by such terms as miserable, hopeless, blue, sad, lonely, etc.), self-dislike, loss of gratification, declining emotional involvement with others, crying spells, and loss of sense of humor.

2. **Cognitive manifestations** encompass diverse phenomena. These include an unrealistically low or negative self-evaluation, a high
degree of pessimism about the future, a tendency to attribute specific failures and other negative outcomes to a personal character defect, and difficulty in making decisions (either because of overanticipation of negative consequences of various choices or because of a lack of "motivation" to go through the mental problem-solving processes to reach solutions).

3. **Motivational manifestations** include "paralysis of the will" (Beck, 1967) (i.e., loss of desire to engage in usual, daily activities), withdrawal and avoidance behavior, loss of desire to live, and increased desire to rely upon others for assistance.

4. **Somatic manifestations**, often taken as support for a physiologic basis for depression, include loss of appetite and subsequent weight loss, sleep disturbance, lack of sexual desire, and fatiguability.

The **cognitive formulation of depression**, which has been most thoroughly articulated by Beck (1967, 1974, 1976), emphasizes the role of covert thought processes in both the etiology and maintenance of depression. According to this model, the emotional, motivational and somatic symptoms of depression outlined above are considered to be secondary manifestations which develop from maladaptive or irrational cognitions. Beck (1967) posited that the depressed person's behavior reflects a "primary triad" of cognitive predispositions. The first facet of the triad concerns the negative manner in which depressives view themselves. They tend to see themselves as inadequate and unworthy, and to internalize the blame for their unpleasant experiences
and presumed deficiencies. The second facet of the triad concerns the depressive's overly negative, pessimistic interpretation of his/her interactions with the environment. These interactions are misconstrued as representing defeat and deprivation, even when alternative, more positive interpretations are available. The depressed person views the world as presenting insurmountable obstacles to meeting his/her objectives. The third facet concerns the depressive's proclivity towards viewing the future in a pessimistic manner, assuming that current difficulties will continue indefinitely.

For Beck, the concept of the "schema" is critical to an understanding of depression. A schema is a relatively stable cognitive pattern which assists the individual in organizing and interpreting the vast array of stimuli available in any given situation. Schemas form the basis for reasonably consistent interactions across a set of related situations. Beck (1967) argues that the depression-prone person has developed a constellation of three sets of negative schemas, regarding the self, the world, and the future. These schemas are presumed to have developed early in life from the individual's particular set of experiences, from the attitudes and opinions conveyed to him/her by others, and from identification with significant individuals in the environment. According to Beck's formulation, depression in adulthood is likely if these schemas are activated. Such activation may be

---

A more complete discussion of the way in which schemas function in structuring experience can be found in Beck (1967), pp. 282-284, and in Markus (1977).
provoked by specific environmental stressors to which the individual has
become sensitized through his/her particular learning history. The
events which originally established the negative attitudes making up the
depressive constellation are prototypes of the events which may later
activate these cognitions and lead to depression. In addition, Beck has
posited that nonspecific stressors (i.e., those which do not engage the
person's particular sensitivities) in the form of overwhelming stress or
in the form of a series of traumatic events can also activate these
depression-inducing cognitions (Beck, 1967).

As implied, depressive schemas can remain inactive for extensive
periods of time, but can be energized by various stress-producing
environmental factors. When these dysfunctional schemas are evoked, the
person begins to distort experiences in such a way as to maintain
consistency with them. That is, "reality," rather than modifying the
schema, is assimilated to and distorted by it. Beck, Rush, Shaw and
Emery (1979) have suggested that such distortion is reflected in the
following "errors" of logic:

1) Arbitrary inference: drawing conclusions which are either not
 supported by sufficient evidence or which are inconsistent with
 available evidence.

2) Selective abstraction: giving excessive attention to one or a
 few details with insufficient attention to the context in which they
 occur, and structuring experience on the basis of such minimal
 information.

3) Overgeneralization: drawing a general conclusion about one's
 worth or ability on the basis of a single event.

4) Magnification and minimization: exaggerating self-deprecating,
 and minimizing self-enhancing information.

5) Personalization: relating external, impersonal events to
 oneself when there is no realistic basis for this connection.
These errors in thinking "fuel" the depressive schemas and perpetuate and intensify the depressive disorder by causing these schemas to become increasingly prepotent over more adaptive ones.

In a discussion of the process of "selective abstraction," Beck (1976; p. 119) noted that the depressed person maintains a negative constellation of cognitions by the manner in which he/she "overinterprets daily events in terms of loss and is oblivious to more positive interpretations; he is hypersensitive to stimuli suggestive of loss and is blind to stimuli representing gain." This clinical observation of depressive functioning suggests that the depressed individual may misinterpret events and personal feedback in a manner which is consistent with a negative view of the self. Beck (1976; p. 119) has also observed that the depressed person demonstrates distortions in memory, showing negative selectivity in recalling past experiences, such that he/she "is facile in recalling unpleasant experiences, but may 'draw a blank' when questioned about positive experiences." In the past decade, a modest body of literature has developed relevant to the notion of differential reactions to stimuli and selective memory processes in depression. The following sections will consider each of these areas of research.

Reactions to Aversive Events

Several studies have provided indirect support for the hypothesis that depressed persons misperceive or misinterpret personally relevant data. In general, such research has examined the manner in which depressives respond to positive and negative feedback and experiences,
and has found that relative to normal and psychiatric controls, depressed persons are unusually reactive to aversive stimuli. This reactivity has been demonstrated with behavioral, physiological, and self-report measures.

**Behavioral reactions to aversive events.** In an unpublished masters thesis, Stewart (Note 1; reported by Lewinsohn, 1975) hypothesized that depressed persons would be affected by the quality of social reinforcement elicited by their behavior to a greater extent than would nondepressed persons. Stewart found that in general, depressives exhibited greater response latencies in reacting verbally to others. However, as hypothesized, the greatest difference between depressed and nondepressed persons occurred following negative social reactions (e.g., being disagreed with or ignored). Depressed subjects also reported somewhat greater dislike of these negative reactions than did nondepressed subjects. However, the latter finding did not reach statistical significance.

Libet, Lewinsohn, and Javorek (Note 2; reported by Lewinsohn, 1975) examined the extent to which an individual's behavior was attenuated by interactions with the most aversive person in a group setting. Consistent with Stewart's findings, Libet et al. found that the behavior of depressed subjects was consistently more attenuated by interactions with this person than was the behavior of nondepressed subjects.

**Physiological reactions to aversive events.** A study by Golin, Hartman, Klatt, Munz, and Wolfgang (1977) investigated physiological
reactivity to a self-esteem manipulation among depressed and nondepressed college students. The authors hypothesized that depressives would be unusually vulnerable or sensitive to failure experiences, and would therefore exhibit greater physiological arousal than nondepressed subjects after a failure, but not after a success, experience.

In that study, depressed and nondepressed college students were given spurious feedback on several previously administered personality tests. This feedback was in the form of ratings (e.g., above average, inferior) on nine personality dimensions. Each subject received either a positive or a negative personality evaluation. Following this, physiological arousal (i.e., skin conductance) was recorded while subjects viewed a film. Arousal data evidenced a significant interaction between depression status and the type of feedback received. As predicted, depressed subjects demonstrated a greater change in skin conductance than nondepressed subjects, but only following negative feedback. The two groups did not differ from each other following positive feedback. These findings support the hypothesis that depressives are particularly sensitive to aversive feedback. However, a questionnaire item asking subjects how pleased they were with the feedback did not yield a parallel Depression x Feedback interaction, although depressives did express less satisfaction with either type of feedback. It is possible that this particular self-report item was not sufficiently sensitive to demonstrate results comparable to those obtained from the physiological data.
Self-reported reactions to aversive events. A few studies have, however, suggested that self-report data can be sufficiently sensitive to reflect differences in the subjective experience of pleasant and unpleasant events between depressed and nondepressed persons. Lewinsohn and his colleagues at the University of Oregon devised a method for monitoring both the occurrence and subjective impact (in terms of pleasantness and aversiveness) of everyday events. Using lengthy lists of interpersonal, and other types of pleasant and unpleasant events, subjects are asked to record whether each event has occurred within a given time period, and the degree to which it was experienced as pleasant or unpleasant. Using this method, both the frequency of events and the total amount of obtained pleasure or displeasure (defined as the summed cross-products of events frequency with subjective pleasantness or aversiveness) can be assessed for a given individual.

In one of several studies reported by Lewinsohn, Youngren, and Grosscup (1979), depressed patients, psychiatric controls, and normal controls monitored both the occurrence of interpersonal, and other pleasant and unpleasant events, as well as the subjective impact of these events, on a daily basis. The findings of this study indicated that the amount of total aversiveness experienced by depressed subjects was higher than that experienced by either psychiatric or normal control subjects. Of special interest is the fact that the greater total aversiveness experienced by the depressed subjects could not be attributed to the occurrence of a greater number of unpleasant events. Rather, the difference reflected the fact that the depressives rated the
unpleasant events as more aversive than did subjects in either the psychiatric or normal control groups.

Hammen and Krantz (1976) examined personal reactions of depressed and nondepressed college student women to positive and negative feedback. Subjects completed a task which purportedly assessed respondents' level of therapeutic ability. Subjects then received spurious success or failure feedback on several therapeutic ability dimensions (e.g., self-confidence, flexibility, tolerance, openness). Finally, participants were asked to complete various measures, including a bipolar-adjective self-rating scale. This scale contained items which pertained directly to dimensions on which subjects had previously received feedback, as well as new but conceptually related items. Overall self-ratings indicated that the depressed and nondepressed success-feedback groups did not differ from one another. However, depressed failure-feedback women rated themselves significantly less favorably than the nondepressed failure-feedback women. These results were obtained for both the directly and conceptually related items, suggesting that a generalization process was operating. This study also indicated that, in contrast to nondepressed subjects, depressed subjects demonstrated differential self-ratings as a function of success or failure feedback. Specifically, depressed subjects who received failure feedback subsequently provided less favorable self-ratings than depressed subjects who received either positive or no feedback. The latter finding is consistent with the more general finding that depressives react in a relatively more extreme manner to unpleasant
situations than do nondepressed persons.

In summary, physiological, behavioral, and self-report data have indicated that depressed persons tend to be unusually reactive to various types of aversive events. Lewinsohn et al. (1979) have suggested that such sensitivity may lead to withdrawal and attenuation of behavior. Such reactions could cause the depressive to forego potentially rewarding or reinforcing experiences which, in turn, might alleviate the depressed state.

**Proposed explanatory mechanisms.** There are a number of mechanisms which might be invoked to explain the depressive's hypersensitivity to unpleasantness. This discussion will be limited to a consideration of mechanisms related to perceptual and cognitive processes, although it is recognized that these processes have physiological/biochemical concomitants (Golin et al., 1977). First, depressives may demonstrate behavior attenuation following an aversive experience because they may have more negative expectancies regarding the outcomes of future experiences. However, research regarding future expectancies and expectancy changes following success and failure among depressives has yielded inconsistent findings (cf. Abramson, Garber, Edwards, & Seligman, 1978; Hammen & Krantz, 1976; Loeb, Beck, & Diggory, 1971; O'Leary, Donovan, Krueger, & Cysewski, 1978).

A second possibility is that different attribution patterns among depressed and nondepressed persons could underlie the observed differential sensitivity to unpleasant events. Weiner, Russell, and Lerman (1978) have suggested that the type of causal ascriptions (e.g.,
internal versus external, stable versus unstable) made for a particular outcome can influence the intensity of an affective reaction. Specifically, internal attributions tend to intensify such reactions, whereas external attributions tend to minimize them. Kuiper (1978) and Rizley (1978) independently found that depressed persons tended to make more internal attributions for their failures than did nondepressed persons. Thus, depressives may react in a more extreme manner to aversive experiences because they take more personal responsibility for them.

Beck (1967, 1976) has observed that depressives interpret environmental input in such a way as to maintain a negative view of the self and the world. Specifically, Beck noted that depressive "is hypersensitive to stimuli suggestive of loss and is blind to stimuli representing gain" (Beck, 1976, p. 119). This observation suggests that when presented with unfavorable feedback, the depressive may interpret such feedback as being more negative than do nondepressives. Similarly, we might infer that depressives would interpret feedback of neutral or mixed valence in a negatively toned manner. Finally, Beck's formulation suggests that depressives would construe positive feedback in a relatively less favorable light than would nondepressives.

DeHombreun and Craighead (1977) developed an ingenious methodology for investigating the hypothesis that depressives may misconstrue personal feedback. In this study, subjects (clinical depressives, psychiatric and normal controls) completed a visual matching task. After making each response, subjects were presented with a slide of one
of five possible shades of gray which purportedly signalled the
correctness of the subject's response. In fact, the feedback was
pre-planned and was not contingent upon the subject's response. The
feedback slides indicated that the subject's response was either 100%
acceptable, 75% acceptable, 75% unacceptable, or 100% unacceptable.
Subjects were unaware of the existence of a fifth type of slide,
intermediate in color intensity between the 75% acceptable and 75%
unacceptable slides, which served as "neutral" feedback. Immediately
following the presentation of each feedback slide, subjects were asked
to indicate what they inferred the feedback to mean about the
acceptability of that particular response. Results indicated that there
was no distortion in subjects' immediate perception of feedback. All
subjects were fairly accurate in their perceptions of the meanings of
the four unambiguous feedback slides. Moreover, the neutral feedback
slides were not differentially perceived by depressed and nondepressed
subjects. Subjects believed that the neutral slides signalled
acceptable and unacceptable responses on approximately 50% of the
trials, respectively.

Although this study represents an important contribution in its
examination of the immediate perception process in depression, the

It should be noted that DeMonbreun and Craighead (1977) presented
their research as an examination of feedback perception. However, it
appears that they were actually engaging a higher-level process
involving the inferences and interpretations that subjects were making
regarding the meaning of the feedback stimuli.
absence of significant depressed-nondepressed differences is not conclusive. First, the use of feedback slides of varying color intensity may have provided relatively unambiguous performance information for subjects. Much real life feedback is considerably less clear-cut than that used in this study. Second, there is evidence that depressive distortions are most likely to occur in situations which are highly important or ego-involving to the individual (Zarantonello, Johnson & Petzel, 1979). The task used in DeMonbreun and Craighead's (1977) experiment did not, in all probability, evoke a high level of personal investment. One purpose of the present study was to assess the inferences drawn from feedback of different evaluative valences which was designed to be highly involving and relatively more similar to the feedback which one receives in day to day situations.

**Selective Memory in Depression**

As noted earlier, Beck's (1976) theory also posits that depressives demonstrate a proclivity towards negative distortions in memory. That is, relative to the nondepressed person, the depressed person is presumed to demonstrate a selective bias toward memory for negative or unpleasant experiences which, in turn, contribute to the perpetuation of the depressive disorder. A number of studies have investigated memory processes in depressives by examining global estimates of past successes and failures (Buchwald, 1977; DeMonbreun & Craighead, 1977; Nelson & Craighead, 1977; Wener & Rehm, 1975), while others have investigated memory for specific events or stimuli (Lloyd & Lishman, 1975; Roth & Rehm, 1980; Zuroff, Note 3).
Global recall. Wener and Rehm (1975) obtained partial support for Beck's selective memory hypothesis. They found that on a bogus "social intelligence" test consisting of a common word-associates task, depressed subjects (nursing students) underestimated the percentage of trials on which they had given a correct response. Since unambiguous feedback in the form of a flashing light was provided after each response, the authors concluded that depressed subjects selectively distorted the amount of positive reinforcement (i.e., feedback indicating a correct response) received. It should be noted, however, that the depressives in this study consisted of subjects scoring above a T-score of 50 (i.e., the population median) on the D scale of the MMPI. Since a T-score of 70 is more commonly used to select a depressed sample, Wener and Rehm's group may have differed from the depressives in most other studies.

Buchwald (1977) obtained similar results in a conceptual replication of Wener and Rehm's (1975) study. Male and female college students completed a paired-associates learning tasks consisting of four lists, and were immediately told whether each response was correct or incorrect. Following each list, subjects were required to estimate the percentage of responses on which they had been correct. Overall, subjects tended to underestimate the percentage of correct responses. More important for present purposes was the finding that partial correlations between mood (as assessed by the D-30) and score estimates (partiallyling out the actual number of correct responses) yielded small but significant negative associations between the two measures,
indicating that depression is correlated with the tendency to underestimate the amount of positive feedback received.

Nelson and Craighead (1977) examined recall of both positive and negative experimentally controlled feedback in nondepressed and depressed college students. In an ambiguous "perceptual vigilance" task, subjects received either positive or negative feedback at either a high (70%) or low (30%) rate, and were asked to estimate the percentage of feedback they had received. In the positive feedback ("reward") condition, subjects were credited with 5¢ for each correct response. They were debited 5¢ for each incorrect response in the negative feedback ("punishment") condition. It was hypothesized that depressed subjects would underestimate the amount of positive feedback received, and overestimate the amount of negative feedback received. It was further expected that this effect would be especially marked at the high positive feedback rate (70%) and at the low negative feedback rate (30%), since these constituted the two conditions which would be least consistent with the depressed person's negative self-schema, and therefore, most vulnerable to distortion.

In partial support of these predictions, it was found that depressives estimated having received less positive and more negative feedback than nondepressives, but only under the high reward and low punishment rates. This is consistent with a cognitive distortion model. However, it is interesting to note that depressives did not overestimate the amount of punishment received. Rather, group differences were obtained because nondepressives underestimated the amount of punishment
received. The authors suggested that depressives may be accurately attuned to aversive feedback while normal individuals screen out a certain amount of such feedback to maintain a positive self-concept.

In a study mentioned earlier (p. 11), DeMonbreun and Craighead (1977) attempted to ascertain whether Nelson and Craighead's (1977) findings would extend to a clinically depressed outpatient sample, and to determine whether depressives' tendency towards negatively biased recall was due specifically to depression or to more general psychopathological functioning. As described earlier, depressed subjects, psychiatric controls, and normal controls participated in a visual matching task and were given spurious trial-by-trial feedback (in the form of slides of varying color intensities) signalling the acceptability of their responses. During the first block of 40 trials, subjects were randomly given equal numbers of presentations of each of five different feedback slides. At the completion of the 40 trials, subjects were asked to recall the number of times they had received feedback indicating that their response was, to some degree, acceptable. During the second block of 40 trials, half of the subjects received a high rate of positive ("acceptable") feedback, while the other half received a low rate of positive feedback. At the completion of the second block of trials, subjects were again asked to estimate the number of trials for which they had received positive feedback.

As noted earlier, when asked for immediate perceptions of the meaning of the feedback, all subject groups demonstrated accuracy. However, when asked to recall the amount of positive feedback received,
depressed subjects significantly underestimated the amount relative to both the normal and psychiatric control groups. Consistent with the findings of Nelson and Craighead (1977), distorted recall occurred only at the high (70%) rate of positive reinforcement. These results suggest that cognitive distortion occurs in recall, rather than in immediate perception.

Memory for specific stimuli. In reviewing the literature on memory biases in depressives, Roth and Rehm (1980) have noted that the aforementioned studies (Buchwald, 1977; DeMonbreun & Craighead, 1977; Nelson & Craighead, 1977; Wener & Rehm, 1975) did not assess memory for specific stimuli. Rather, subjects in these studies have simply been asked to make global estimates of the percentage of trials on which they had been given positive feedback. Roth and Rehm (1980) have suggested that such estimates may have reflected distortions in expectancies or in memories of base rates for previous success and failure experiences, as opposed to distortion in the memory for specific stimuli. Two studies have attempted to assess memory differences for specific stimuli among depressed and nondepressed subjects. One of these studies (Zuroff, Note 3) examined recognition memory for spurious descriptive feedback, while the other (Roth & Rehm, 1980) examined both recall and recognition memory for self-generated personal descriptors.

Zuroff (Note 3) examined the role of distortion in memory in nondepressed, currently depressed, and formerly depressed college students. The presence of distortions was investigated using a modification of a technique devised by Mischel, Ebbesen, and Zeiss
The latter authors found that when presented with feedback on their personal assets and liabilities, and then given a test of recognition memory, subjects who had previously experienced success on an unrelated task remembered significantly more assets than those who had previously experienced failure. Assuming that depressed subjects would be overly responsive to a failure experience, and would be unresponsive to experimenter-defined success, Zuroff hypothesized that depressed subjects would be biased towards recognizing more negative feedback on personal liabilities after failure, but would not be biased toward recognizing more feedback on personal assets after success. He also predicted that following a non-evaluative experience, depressives would be biased towards remembering relatively more feedback on their personal liabilities. Finally, following Beck's theory of depression, Zuroff hypothesized that the alleged "latent" tendency in formerly depressed persons (those presumably predisposed to depression) to distort information would be activated by a failure experience, and would result in biased recognition of personally relevant negative feedback.

Depressed, formerly depressed, and never-depressed female college students were given either a success, failure, or non-evaluative experience on an "empathy" test. They were then exposed to spurious feedback, presented in the form of descriptive phrases, about their intellectual and personality assets and liabilities. The feedback was purportedly based on questionnaire data which subjects had provided at an earlier testing session. Reading time for feedback on assets and
liabilities was controlled to prevent selective attention to either type of information. Subjects were then given a recognition memory test in which phrases from the feedback were interspersed with unfamiliar, but content-related phrases. Subjects indicated whether or not they had seen the phrase before, and rated their certainty on a 4-point scale. Using a d' statistic for comparing the certainty of recognizing previously seen items with the certainty of incorrectly "recognizing" unfamiliar items, strength of recognition memory was measured for each of the four types of feedback.

Analyses of variance on a measure of selective recognition memory for personality feedback (i.e., d' for assets minus d' for liabilities) yielded no group differences nor interactions, disconfirming the study's hypotheses and failing to replicate Mischel et al.'s (1976) findings. Results for recognition of intellectual feedback yielded a complex interaction: Normal subjects demonstrated no memory bias under the success, failure, or non-evaluative conditions. Depressed subjects failed to demonstrate negative memory biases in the neutral and failure conditions. Former depressives, however, demonstrated the expected memory distortions in their bias towards memory for negative intellectual information after "failing" the empathy task.3

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3 Subjects were asked to indicate how satisfied they were with the empathy test results. Although there was a success-failure difference, there were no interactions with depression status. Since Zuroff expected memory differences to occur as a result of differential reactions to success and failure on the empathy test, the failure to obtain differential reactions may have confounded the results of the study.
Zuroff offered the post-hoc hypothesis that for formerly depressed persons, the failure experience may have aroused dissonance and led to subsequent elaborative rehearsal of feedback on personal assets in an effort to restabilize their self-concepts. In comparison, depressed subjects may have experienced their failure as congruent with a negative self-concept, which would have aroused no dissonance and stimulated little rehearsal of feedback on their personal liabilities. In attempting to account for the failure to find memory differences between depressed and nondepressed subjects, Zuroff noted that studies reporting such differences employed recall rather than recognition tasks. Accordingly, he suggested that his failure to find selective memory effects may be attributable to the possibility that recognition tasks such as the one he employed provide such a complete set of memory search cues as to preclude detection of differences between depressed and nondepressed subjects.

Zuroff's suggestion that memory differences between depressed and nondepressed persons reflect a difference in recall rather than recognition appears particularly reasonable in light of results of a study by Isen, Shalker, Clark, and Karp (1978). These investigators hypothesized that mood itself can function as a retrieval cue for information in memory. Subjects in Isen et al.'s study were presented with several positive, negative, and neutral (non-personally relevant) trait adjectives in an intentional learning paradigm. In a within-subjects design, mood was manipulated (by having subjects win or lose a computer game) at the time of acquisition and at retrieval. Mood
at time of retrieval, but not at time of acquisition, yielded significant effects. Specifically, subjects in the positive mood induction condition were able to recall significantly more positive trait adjectives than were subjects in the negative mood induction condition. (It is noted that comparable results were not obtained in the negative mood induction condition. These subjects did not demonstrate enhanced recall of negatively valenced words.) Thus, to the extent that the relatively strong cues provided by recognition tasks obscure the influence of mood as a mediator of memory, such tasks would be less sensitive than recall tasks in detecting differences between depressed and nondepressed persons.

A study by Lloyd and Lishman (1975) supports Isen et al.'s (1978) contention that depressed mood can facilitate recall of negatively toned information. Lloyd and Lishman investigated the proclivity of depressed psychiatric inpatients to recall positive and negative life experiences. Depressed patients were asked to recall personal life events in association to a standard set of stimulus words. In response to some words, subjects were required to retrieve a pleasant experience, and in response to other words, an unpleasant experience. The ratio of recall latencies for negative to latencies for positive events constituted the primary dependent variable. Thus, smaller recall ratios indicated quicker retrieval of unpleasant events. As hypothesized, a highly significant negative association between depression scores (BDI) and recall ratios was obtained. Dating of positive and negative events in a subsample of subjects suggested that the obtained results could not be
attributed simply to a preponderance of unpleasant events in the 6-month time period preceding the experiment. Consistent with Isen et al.'s (1978) finding that good mood increased the recall of positively toned words without affecting recall of negatively toned ones, depression served to quicken recall of unpleasant events without affecting the speed of recall of pleasant events. It should be noted, however, that the subjects in this study were quite severely depressed (mean BDI score = 26), and whether a significant relationship would be obtained in a mildly or moderately depressed sample is unknown.

A study by Roth and Rehm (1980) examined recall for specific, personally relevant stimuli. As one phase of a larger project, the authors assessed recall and recognition memory for trait adjectives in 20 depressed and 20 nondepressed Veterans Administration Hospital inpatients. Subjects were first asked to rate themselves on lists of 20 positive and 20 negative trait adjectives, and then to circle the 10 adjectives on each list which best characterized them. After completing a filler task, subjects were asked to recall the 20 adjectives they had circled. This was followed by a test of recognition memory in which subjects were given two decks of cards, each consisting of 20 positive and 20 negative adjectives. Ten cards in each deck contained the adjectives which had been circled as most personally relevant, while the remaining cards contained distractor adjectives which had not been previously presented. Subjects were asked to sort out the 10 cards with the adjectives they had previously endorsed as most self-descriptive.

Analyses of covariance (depressed vs. nondepressed patients X
positive vs. negative adjectives) were performed on both recall and recognition scores, with personal relevance of the adjective as a covariate. Although mean recall scores were in the predicted direction, neither recall nor recognition distortions were evident to a significant degree.

A procedural problem in this study which may have militated against finding selective memory effects for negative adjectives pertains to the initial self-rating task. As low self-esteem is a major component of depressive disorders (Beck, 1967), it is possible that the depressed subjects in the Roth and Rehm study had more difficulty (relative to nondepressed subjects) selecting the positive adjectives which best characterized them. They would therefore have had to attend more intensely to and spend more time in selecting positive than negative adjectives. Such differential attention to positive information could easily have obscured any potential depressed vs. nondepressed differences in recall. Consistent with this suggestion is the fact that depressed subjects rated the positive adjectives as significantly lower in personal relevance than did the nondepressed subjects.

In light of the methodological problems which cloud the interpretation of the selective memory literature, one goal of the present study was to investigate potential negative biases in the memory for specific, externally-provided feedback. Memory for such feedback is critical because it can serve as an important source of information about oneself. To the extent that depressives fail to integrate and recall favorable feedback about themselves, but can easily access memory
for unfavorable feedback, a perpetuation of the depressed state would be expected.

**Interpretation of and Memory for Personally Relevant Vs. Non-Personally Relevant Feedback**

In his descriptions of depressive cognitive distortions, Beck (1967) did not clearly specify those conditions under which depressive schemas are evoked, and information misinterpreted in a negative manner. It should be noted that the kinds of negative distortions shown by depressives might be accounted for by a generalized tendency to distort information. Beck implies, however, that depressives filter their experiences through a cognitive schema which specifically promotes self-detraction. This would suggest that although depressives may distort personally relevant information and experiences, they do not necessarily evidence a global, generalized pattern of negative cognitive distortions. In the present study, it was hypothesized that depressives would demonstrate misconstruals of feedback and selective memory biases only when such information was presented as personally relevant. More specifically, it was anticipated that when the same kind of feedback that was presented to subjects as pertaining to themselves was alleged to pertain to another individual, depressives would not show negativity biases in interpretation or memory. 4

In a study relevant to this hypothesis, Shrauger and Terbovic (1976) asked low and high self-esteem subjects to work on a concept formation task, and then to evaluate their own performance. Subsequently, subjects viewed a videotape either of their own performance, or the performance of "another subject" (actually a
confederate who imitated the subject's performance as closely as possible). Subjects then evaluated the videotaped performance by estimating the number of problems which were correctly solved, and the percentage of people who would do better than either themselves (self condition) or the "other subject" (other condition).

High and low self-esteem subjects did not differ in their evaluations when they believed they were rating another subject. However, high self-esteem subjects rated their own performance more favorably than did low self-esteem subjects in spite of the fact that there were no objective performance differences between the two groups. Furthermore, the ratings of high self-esteem subjects did not differ as a function of whether they were evaluating themselves or others. In contrast, low self-esteem subjects provided less favorable evaluations for themselves than for the identical performance provided by someone else. That is, the latter subjects showed a negative bias when evaluating their own performance, but not when evaluating what was

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4 One study (Matkom, 1963) has considered the perception of others as a function of the perceiver's level of adjustment. In Matkom's (1963) study, well-adjusted and maladjusted subjects viewed videotapes of an individual being interviewed. Subjects were asked to rate the filmed interviewee on his/her apparent and real personality characteristics. Matkom found that the maladjusted subjects rated both the apparent and real personalities of the stimulus person less favorably than did the well-adjusted subjects. Although Matkom's findings are relevant to (and inconsistent with) one of the hypotheses of the present study, several methodological problems cloud the interpretation of results. For example, subjects' level of adjustment was based on the experimenter's "clinical impression" of the quality of Rorschach responses, with no check on inter-rater reliability. Moreover, the experimenter's ratings of subjects' adjustment correlated poorly with subjects' self-ratings of adjustment.
alleged to be someone else's performance. However, the present study differed from Shrauger and Terbovic's study in its examination of subjects' interpretation of feedback rather than evaluation of performance, use of a depressed subject sample, and use of a personally relevant and highly involving task (i.e., an intelligence test).

The Present Study

According to Beck's model of depression, the manner in which the depressive interprets feedback about him/herself may exert a greater influence on behavior and mood than do objective characteristics of the feedback. Beck's cognitive theory would suggest that depressives misconstrue evaluative input in such a manner as to maintain consistency with a negative, depressive self-schema. One purpose of the present study was to assess the inferences that depressed and nondepressed subjects draw from feedback of different evaluative valences. DeMonbreun and Craighead (1977), employing a task unlikely to have evoked a high degree of ego-involvement, failed to obtain evidence for misconstrual of feedback. The present study, however, hypothesized that a more personally involving task requiring interpretations of relatively more ambiguous feedback would elicit such misconstrual.

The general finding that depressives are more sensitive to aversive experiences suggested that depressed subjects would interpret negative feedback as representing a relatively less favorable personal evaluation than would nondepressed subjects. Beck's theory also predicted that depressed subjects would interpret neutral and positive feedback as representing a relatively less favorable personal evaluation than would
nondepressed subjects. However, some previous research (cf. DeMonbreun & Craighead, 1977; Nelson & Craighead, 1977) has found that depressive distortions occurred only when feedback was least consistent with the depressed person's self-image. In order to allow for the possible demonstration of depressive distortions only under extremely inconsistent feedback conditions, the present study used three differently-valenced levels of feedback (positive, neutral, negative).

Beck's model also suggests that negative distortions occur in the recall process. Studies which have required subjects to make global estimates of their performances (cf. Buchwald, 1977; DeMonbreun & Craighead, 1977; Nelson & Craighead, 1977; Wener & Rehm, 1975) have demonstrated that depressives underestimate the amount of positive feedback received. However, investigations requiring the recall and recognition of specific stimuli (cf. Roth & Rehm, 1980; Zuroff, Note 3) have failed to demonstrate that depressives exhibit selective negative memory distortions. As noted earlier, methodological problems in these studies rendered their results inconclusive. The present study attempted to provide a conceptual replication of the finding that depressed persons evidence negative memory biases in making global estimates regarding the feedback they have received. In addition, recall and recognition of specific feedback statements were assessed in light of the hypothesis that depressed persons are more efficient at retrieving negative personal feedback than are nondepressed persons.

Finally, it was anticipated that depressed subjects would demonstrate the aforementioned negative biases only when depressive
self-schemas were evoked. That is, interpretation and memory processes in depressed and nondepressed subjects were not expected to differ for feedback which was allegedly generated for a person other than the subject. Findings consistent with this expectation would suggest that depressives do not have a generalized predisposition to misinterpret and selectively remember negative feedback, but rather that they show such inclinations only when feedback is self-relevant.

Hypotheses

The present study tested five major hypotheses derived primarily from Beck's (1967, 1974, 1976) cognitive theory of depression.

1. Depressed subjects who receive feedback alleged to be about their own intellectual abilities will evaluate such feedback as less favorable when it is positive, and more unfavorable when it is negative, than will nondepressed subjects.

2(a). Depressed subjects, in a manner consistent with the maintenance of a negative self-conception, will evaluate feedback alleged to be about themselves more negatively than they will evaluate the same feedback when it is alleged to be about another person.

2(b). Nondepressed subjects, in a manner consistent with a predisposition toward enhancement of self-esteem, will evaluate feedback alleged to pertain to themselves more positively than they will evaluate the same feedback when it is alleged to pertain to another person.

3. Depressed subjects, in attempting to remember the number of negative and positive self-relevant intellectual feedback statements received, will recall having received more negative and fewer positive
statements relative to nondepressed subjects. Such recall differences will not be evident, or will be evident to a lesser degree, when the same feedback is alleged to pertain to another person.

4. Depressed subjects, in attempting to recall the specific content of intellectual feedback statements received, will accurately recall a higher proportion of negative statements than will nondepressed subjects. Such recall differences will not be evident, or will be evident to a lesser degree, when the same feedback is alleged to pertain to another person.

5. Depressed subjects, in performing a recognition memory task, will make relatively more "false alarm" errors on unfavorable statements, and "miss" errors on favorable statements, than will nondepressed subjects. Such recognition memory differences will not be evident, or will be evident to a lesser degree, when the same feedback is alleged to pertain to another person.

Isen et al.'s (1978) conclusion that mood served as a retrieval cue for non-personally relevant material would allow for the possibility of depressed-nondepressed memory differences in the present study even when feedback is alleged to pertain to another person. This point is also applicable to Hypotheses 4 and 5.
Overview and Design

Depressed and nondepressed college student subjects were selected on the basis of depression screening questionnaires administered in their introductory psychology classes. Some of these subjects were then invited to participate in a second, allegedly unrelated study. During the experimental session, subjects first completed a brief "intelligence" test, and then filled out several questionnaires (including a readministered depression inventory to verify their original depression classification) while purportedly waiting for computer-generated feedback on their intelligence tests. Half of each of the depressed and nondepressed subjects received spurious personal feedback, while the remaining subjects received what they believed to be someone else's feedback while purportedly waiting for their own.

Within each of these two conditions, subjects received either positive, neutral, or negative feedback in the form of a simulated computer printout which consisted of 10 "Barnum"-type feedback statements. The favorableness level of each of the three types of feedback had been pre-established in a pilot study and was determined by the relative number of favorable vs. unfavorable statements in the
document. After reading the feedback, subjects completed several questionnaires assessing perceived favorableness of the feedback, current mood state, satisfaction with and accuracy of the feedback, memory for the feedback, attributions made for the perceived intelligence test performance, expectations for future performance, personal perceptions of intellectual attributes, and desire for further feedback.

The study was designed as a 2 (Depression Status: depressed, nondepressed) X 2 (Feedback Target: "self," "other") X 3 (Type of Feedback: positive, neutral, negative) factorial. Subject sex was counterbalanced across the 12 conditions.

Subjects

The subjects for this study were 90 male and 96 female college students selected from a pool of approximately 1100 students who were enrolled in the Ohio State University introductory psychology course during Spring and Summer quarters, 1979. Subjects received either 2 experiment credits in partial fulfillment of the course's research requirement (N=169) or token payment ($2.00) if they had already completed the research requirement (N=17). The following instruments (see Appendix A for cover-sheet instructions to subjects) were administered during class time to select potential subjects for the study:

1) Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979): The BDI consists of 21 groups of 4 statements pertaining to depressive symptoms and attitudes. Originally designed to assess depth of depression in diagnosed depressives (Beck, 1967), it has been found to be a valid measure of depression in college student populations (Bumberry, Oliver & McClure, 1978). Respondents are asked to circle the statement in each cluster which best represents the way he or she has
been feeling during the "PAST WEEK, INCLUDING TODAY!"

2) D-30 (Dempsey, 1964): The D-30 is a depression scale composed of 30 of the 60 items from the Depression scale of the Minnesota Multiphasic Personality Inventory. Data indicate that it discriminates between depressed and nondepressed persons in both normal and psychiatric populations.

The instruments were administered either by the experimenter (N=117), the class instructor (N=59), or by a psychology graduate student (N=10). Students were asked for their cooperation in completing the questionnaires as part of a psychology department research project, and to leave their names and telephone numbers in the spaces provided in order that a random sample of respondents could be contacted to participate in a second, purportedly unrelated study for experimental credit or payment. Students were assured of the confidentiality of their questionnaire responses.¹

Students who scored 10 or higher on both the BDI and D-30 (T-score=60) were considered to be at least mildly depressed and were contacted by the experimenter and invited to participate in the present study. Students who obtained BDI scores of 1 to 5 and D-30 scores of

¹At the beginning of the study, the BDI and the Malevolent-Benevolent Questionnaire (MBQ; Gregory, Steiner, Brennan & Detrick, 1978) were administered in classes in order to obscure the purpose of the study. The screening procedure was changed to include the BDI and D-30 (Dempsey, 1964) in an attempt to make the criteria for inclusion in the depressed sample more stringent and thereby diminish the loss of depressed subjects through increased depression inventory scores upon readministration of the BDI during the actual experiment. A total of 17 study participants were screened using the original procedure.
less than 10 were considered to be nondepressed and were also invited to participate. (Persons with scores of 0 on the BDI were excluded because it was felt that they were attempting to present an unrealistically favorable impression). Subjects were scheduled for participation in the study as rapidly as possible. Lag time between initial screening and participation averaged 3.30 days (S.D.=1.85) for depressed, and 5.97 days (S.D.=3.07) for nondepressed, subjects. The BDI was readministered at the time of experiment participation, and the data from subjects originally classified as depressed who scored less than 9 and subjects originally classified as nondepressed who scored greater than 8 when they participated in the actual study were replaced by data from subjects who met inclusion criteria. Mean depression scores obtained during screening and at retest for the final sample of 186 subjects are presented in Table 1. The depressed group's scores generally fell within the range which Beck has classified as mild to moderate depression.

A total of 247 subjects (121 males, 126 females) participated in

Of the original subject pool, 34 subjects originally classified as depressed (18 males, 16 females) were replaced because their retest BDI scores fell below a cut-off score of 9. Three nondepressed male subjects were replaced because their BDI scores increased to 9 or greater at retest. Seven subjects (three males, four females) were replaced because they had marked difficulties (as evidenced by questions posed to the experimenter) in understanding one or more tasks. Eight subjects (two males, six females) were replaced because they either expressed suspicions that the feedback was spurious or discerned the true purpose of the study. Data from nine subjects (five males, four females) were not included in the analyses because optimal cell size in the experimental conditions to which they were assigned had already been attained.
Table 1
Means and Standard Deviations on the D-30 and Beck Depression Inventory (BDI) at Screening and Experimental Session

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Depressed</th>
<th>Nondepressed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>D-30</td>
<td>15.80</td>
<td>4.44</td>
</tr>
<tr>
<td>BDI(1)</td>
<td>16.89</td>
<td>6.12</td>
</tr>
<tr>
<td>BDI(2)</td>
<td>15.16</td>
<td>6.12</td>
</tr>
</tbody>
</table>

\(^{a}\) Administered during the screening procedure.
\(^{b}\) Administered at the experimental session.
the experiment in order to yield a final sample of 186 subjects who met criteria (42 male and 48 female depressed subjects, 48 male and 48 female nondepressed subjects). Due to a loss of subjects primarily through decreases in BDI scores from screening to experiment participation, only 42 depressed males were included in the final sample. There were six, rather than eight, depressed male subjects in the following conditions: negative-self, negative-other, neutral-other. Of the 186 subjects, 152 participated during Spring quarter, 1979, and 34 participated during Summer quarter, 1979. There was no significant difference in the relative number of depressed and nondepressed subjects participating during each of the two quarters. Depressed and nondepressed subjects did not differ significantly in age (M = 19.5 and 19.2, respectively), university status (mode = freshman), or cumulative grade point average (mode = 2.5-2.9).

Subjects were seen in small, mixed-sex groups each consisting of four to eight participants (M = 6.4). Within each Depression Status X Sex cell, subjects were assigned to experimental conditions using a random procedure modified to ensure inclusion of subjects in several experimental conditions within the same session.

**Stimulus Materials**

Before conducting the present study, two pilot studies were necessary to develop feedback materials. Seventy-four introductory psychology students participated in the first pilot study during Winter quarter, 1979 in exchange for one experimental credit. These subjects completed the BDI and the D-30 scale. They were also asked to read 35
feedback statements (derived, with modifications, from the "Barnum" statements used by Snyder & Cowles, 1979) concerning intellectual abilities, and to rate each, on 5-point scales, for evaluative tone (Very Positive — Very Negative) and for personal applicability (Completely False — Completely True). One purpose of this procedure was to verify that experimenter-defined positive and negative statements were viewed in a similar manner by subjects. (The 20 statements and their personal desirability ratings are presented in Appendix B.) The second purpose of the pilot study was to select statements whose personal applicability ratings were not significantly associated with depression scores to reduce the likelihood that significant group differences in the present study could be attributed to differences in personal applicability for depressed and nondepressed subjects. This was considered to be important as there is evidence that memory for feedback is affected by personal relevance (Cartwright, 1956).

For each of the 35 feedback statements, chi-square tests were performed, examining the associations between Depression Status (using scores of 0 — 9, and 10 or greater, to define nondepressed and depressed categories) and response category (using five categories, from 1 = Completely False, to 5 = Completely True). Response categories were combined, when necessary, to achieve the criterion of having fewer than 25% of cells in each chi-square table with expected frequencies of less than 5. From the original group of 35 statements, 16 (8 basic content statements, each with a favorable and an unfavorable version) were chosen because of their non-significant (i.e., p>.05) association with
depression scores. Four additional statements (two basic content statements, each with a favorable and an unfavorable version) were selected because only one version of each was endorsed as more personally applicable by depressed, compared to nondepressed, subjects. In one case, depressives rated the unfavorable version as more personally applicable than did nondepressed subjects. In the other case, depressives rated the favorable version as more personally applicable.

A second pilot study was conducted during early Spring quarter, 1979, to select those combinations of the 10 positive and negative feedback statements (selected in the first pilot) which would produce an overall positive, neutral, or negative impact on subjects as a function of the content, order, and relative number of positive and negative statements. Students in several upper-level undergraduate psychology classes were asked to read one sequence of 10 feedback statements and to imagine "how positive (favorable) an evaluation or negative (unfavorable) an evaluation this description would represent to you if it were applied to you personally." They were then asked to indicate their overall impression of the description on a 9-point scale (Very Negative — Very Positive).

Data from this pilot indicated that the optimal balance between favorable and unfavorable statements to produce maximal discrimination between the three levels of feedback (expressed as number of favorable : unfavorable statements) were 8:2 (positive feedback), 6:4 (neutral feedback) and 3:7 (negative feedback). In order to increase
generalizability and prevent stimulus-specific effects in the present study, four feedback sequences were generated for each of the three types of feedback (positive, neutral, negative). For each type of feedback, two sequences of the basic content statements were generated (to be designated as sequences A and B). Subsequently, the serial positions in which positive or negative versions of the basic content statements occurred were varied to produce two additional versions of each of the A and B sequences (to be designated as versions 1 and 2).

In summary, for each type of feedback, four feedback sequences were selected (A1, A2, B1, B2) from all the piloted sequences to provide significant discrimination between the three types of feedback, and no significant differences (within each level) among the four feedback sequences. The mean favorableness ratings (on a 9-point scale) were 6.98 for the positive sequences, 4.98 for the neutral sequences, and 2.65 for the negative sequences. The mean favorableness ratings for the 12 sequences are presented in Table 2. A3 (Type of Feedback) X 2 (Sequences A, B) X 2 (Versions 1, 2) analysis of variance yielded, as desired, a significant effect of Type of Feedback, $F(2, 112) = 93.42$, $p < .001$, and an absence of significant effects for Sequences A, B, $F(1, 112) = 2.98$, $p = .09$, or Versions 1, 2, $F(1, 112) < 1$, N.S. The trend for A sequences to be perceived as more favorable than B sequences was not felt to be problematic in the actual study since equal numbers of subjects assigned to each type of feedback received sequences A and B. Samples of positive, neutral and negative feedback sequences are presented in Appendix C.
<table>
<thead>
<tr>
<th>Feedback Sequences</th>
<th>M</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Feedback</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1</td>
<td>7.89</td>
<td>.78</td>
<td>9</td>
</tr>
<tr>
<td>A2</td>
<td>7.00</td>
<td>1.15</td>
<td>10</td>
</tr>
<tr>
<td>B1</td>
<td>6.60</td>
<td>.93</td>
<td>10</td>
</tr>
<tr>
<td>B2</td>
<td>6.43</td>
<td>1.35</td>
<td>8</td>
</tr>
<tr>
<td>Neutral Feedback</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1</td>
<td>5.30</td>
<td>1.23</td>
<td>10</td>
</tr>
<tr>
<td>A2</td>
<td>5.12</td>
<td>2.03</td>
<td>8</td>
</tr>
<tr>
<td>B1</td>
<td>4.59</td>
<td>1.91</td>
<td>11</td>
</tr>
<tr>
<td>B2</td>
<td>5.00</td>
<td>1.85</td>
<td>8</td>
</tr>
<tr>
<td>Negative Feedback</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1</td>
<td>2.78</td>
<td>.83</td>
<td>9</td>
</tr>
<tr>
<td>A2</td>
<td>2.55</td>
<td>1.53</td>
<td>10</td>
</tr>
<tr>
<td>B1</td>
<td>2.36</td>
<td>1.12</td>
<td>11</td>
</tr>
<tr>
<td>B2</td>
<td>3.00</td>
<td>1.25</td>
<td>9</td>
</tr>
</tbody>
</table>

Note. Favorableness ratings range from 1=Very Negative to 9=Very Positive.
Procedure

Depressed and nondepressed subjects were contacted within a few days of screening by the investigator. They were invited to participate in another, allegedly unrelated, study which was purportedly designed to assess characteristics of Ohio State University students. Potential subjects were offered two experimental credits in partial fulfillment of their introductory psychology course requirement or token payment ($2.00) for the 2 hour study if they had already completed the experiment requirement.

After subjects had arrived for a given session, the investigator (who served as the only experimenter) took attendance and distributed envelopes containing the experiment materials to each subject. Each envelope was coded with a 3-digit number which subjects were asked to use on the pretext of insuring anonymity. The code numbers were actually to be used by the experimenter as a means of targeting distribution of the "computer printout" feedback documents later in the session. While distributing the materials, the experimenter surreptitiously noted the seating arrangement of the subjects in order to later be able to distribute the "printouts" representing preassigned experimental conditions to the correct subjects.

Subjects were first instructed to complete the questionnaires contained in their envelopes. (Complete experimenter instructions can be found in Appendix D.) These questionnaires asked for demographic information, and for subjects' opinions (on 9-point scales) of the
importance of personality and intelligence tests, their confidence in and experience with such tests, and their interest in receiving personal feedback. (Questionnaires and forms devised specifically for this study can be found in Appendix E.) Subjects were specifically told not to write their names on any of the forms or questionnaires. The experimenter then explained that a "random sample" of students who had completed the questionnaires in class had been invited to participate in the present study. She further explained that this was not an experiment in the usual sense, but rather that it was part of a larger project comparing personality and intellectual characteristics of introductory psychology students at O.S.U. with characteristics of O.S.U. students who did not intend to take this course. It was explained that such a comparison would provide information about generalizability of other studies conducted by the Psychology Department. Subjects were told that they would first complete a brief test of intellectual abilities called the Wonderlic Personnel Test. To maximize personal involvement in the task, the experimenter explained that the test provided a good indication of intellectual strengths and weaknesses, and that scores were highly correlated with college performance and post-graduate occupational level. She explained that subjects would also be asked to complete a few other questionnaires "designed to assess ... attitudes about various issues and situations, and to assess how common certain events are in the lives of college students."

Subjects were then told that as a bonus for participating in the
study, they would each receive computer-generated feedback on their intelligence test performance using a computer program developed by a group of industrial psychologists. It was explained that while subjects were working on the various questionnaires, the psychology secretary would have have the tests processed at the nearby branch of the university computer center, and that after subjects received their feedback, the researchers would want to assess subjects' impressions of the feedback. Finally, the experimenter explained that not all of the evaluations could be processed at once, and that they would be returned from the computer center in two groups. In order to keep even those participants who had not yet received their feedback occupied, it was explained that each subject would actually read and respond to some questions about two computer evaluations. Allegedly, one of these evaluations would be their own, while the other would be one generated for a subject who had participated in the study during the previous quarter. The experimenter noted that some participants would receive their own evaluations first, while the remaining participants would receive their own evaluations second. Following a between-subjects design, each subject actually received only one evaluation—either "their own" or "someone else's." Subjects were asked to code their Wonderlic Tests with the 3-digit number on their envelopes in order to maintain confidentiality regarding their final test results, and were told that the feedback documents would be computer-coded and returned to them using this number. Following this explanation of the experimental procedure, subjects signed consent forms for study participation.
Subjects then completed the Wonderlic Personnel Test, Form IV (Wonderlic, 1959), a 12-minute test consisting of 50 verbal and nonverbal items. After collecting the tests, the experimenter explained that she would distribute the remaining questionnaires. She noted that subjects might be completing one or two of them for the second time since she had been distributing a variety of different questionnaires to introductory psychology classes and hadn't kept track of which individuals had received which type of questionnaire. She asked that subjects deal with any possible redundant questionnaires by simply completing them again, since they were to be used in separate research projects. (Actually, it was intended that all subjects would complete the BDI for a second time. The purpose of these instructions was to diminish possible suspicions that might be aroused by the readministration of this instrument.) The major purpose of administering the following instruments was to provide a filler activity (taking approximately 15 minutes) while the computerized feedback was ostensibly being generated. However, the specific instruments employed were selected to provide potentially useful information.

The experimenter then distributed the following:

1) Malevolent-Benevolen Questionnaire (MBQ; Gregory et al., 1978): This is a 22-item questionnaire which, according to preliminary data, appears to assess internal vs. external locus of control for positive and negative outcomes. Respondents indicate, on a 7-point scale, the extent to which various factors (organizations, associates, nature, luck) have influenced favorable and unfavorable outcomes (Very Often — Almost Never).

She then left the room briefly, purportedly to give the Wonderlic Tests to the secretary so that the latter could deliver them to the
computer center. After subjects had completed the MBQ, the experimenter distributed the following instruments one at a time:

2) Dysfunctional Attitude Scale (DAS), Form A (Weissman & Beck, Note 4): This is a 40-item instrument consisting of attitudes which are believed to be depression-engendering. The respondent's task is to indicate (on a 7-point scale) the extent to which each attitude reflects his/her own viewpoint (Totally Agree — Totally Disagree).

3) Beck Depression Inventory (Beck et al., 1979): (This instrument was described earlier, p. 31.)

4) Social and Collegiate Readjustment Rating Scale (SCRRS; Harris, 1972): This is a 49-item life events scale which was adapted from the Social Readjustment Rating Scale (Holmes & Rahe, 1967) in order to be more appropriate for use with a college student population.

While subjects completed the final questionnaire, the experimenter left the room for a few minutes, and then returned with the (simulated) computer printouts. It had been predetermined that approximately half of the subjects in a given experiment session would receive "self" feedback, and half, "other" feedback. The experimenter announced that some of the evaluations were ready to return to subjects, and then reiterated the information pertaining to the Wonderlic Test's ability to predict college and occupational success. She cautioned subjects to read the printout carefully, even if the evaluation was not their own, as they would subsequently be asked to share their impressions of the feedback. After distributing the spurious "self" printouts, and then the "other" printouts, subjects were given 50 seconds to read the evaluation. Subjects were then told to put the printouts aside temporarily while responding to the following (dependent variable)

3 Although selective attention to positive and negative statements could not be controlled by this procedure, Hammen (1977) found that depressed and nondepressed subjects did not differ in the amount of time spent in reading about their positive and negative attributes.
Dependent Variables

Favorableness of feedback. The experimenter then distributed the questionnaire designed to assess subjects' impressions of the favorableness of the feedback they had just received (either "their own" or "someone else's"). This constituted the variable of primary interest in the present study. The questionnaire explained that computer-generated feedback documents of this type would be produced for several hundred O.S.U. students during the quarter, and that these evaluations would be ranked by the computer according to their overall favorableness. The instructions further explained that the researchers were "interested in how accurate people can be in predicting how the computer will rank these intellectual evaluations. Try to predict as accurately as you can the percentage (from 0% to 100%) of the evaluations that the computer will rank as more favorable than the one you just read." Subjects were then asked to provide such a percentage, and to put these questionnaires in the envelopes with their other materials.

Depression Adjective Check List. On the pretext of having forgotten to distribute one of the questionnaires in the earlier part of the session, the experimenter then asked subjects to take a few moments to complete a mood inventory. She then distributed a "state" version of the Depression Adjective Check List (DACL), Form G, (Lubin, 1965), an instrument consisting of 34 adjectives describing depressed and nondepressed mood states. The instructions asked that respondents
"check all the words that describe how you feel at this very moment."
The purpose of the DACL was to assess the impact of the various types of feedback on subjects' mood state.

Accuracy, pleasure, and expectations. The experimenter then distributed a single questionnaire with separate sections for "self" and "other" subjects. Subjects were asked to answer the questions in the appropriate section. In part, this procedure served to verify whether subjects correctly understood that they had received "self" or "other" feedback. Subjects in the "self" condition completed a section which asked them to rate the following three variables on 9-point scales: (1) the extent to which the feedback provided an accurate description of their intellectual abilities (Very Inaccurate — Very Accurate), (2) how pleased the subject was with the feedback (Very Displeased — Very Pleased), and (3) the extent to which the feedback was more or less favorable than the subject had expected (Much Less Favorable — Much More Favorable). The section designed for subjects in the "other" condition asked them to use their "intuition" to respond to three similar items, asking them to estimate how accurately the feedback described the "actual recipient's" intellectual abilities, how pleased they thought the recipient had been with the feedback, and the extent to which the feedback was more or less favorable than the recipient had expected.

Memory measures. After completing these questionnaires, three memory tasks were administered consecutively to assess the other variables of major interest in the present study. To enable assessment
of free recall for the feedback, subjects were instructed to write down, on a form which the experimenter provided, as many of the feedback statements as possible, without being concerned with order, spelling, or exact wording. To enable assessment of global recall for the feedback, subjects, after being "reminded" that the test evaluation they had read (either their own or someone else's) probably consisted of both favorable and unfavorable statements, were asked to estimate the number of each type of statement that had appeared in the printout. Recognition memory was assessed using booklets containing 32 feedback statements (16 content statements presented in both their favorable and unfavorable forms). A single random order of statements was generated and given to all subjects. Subjects were asked to read each statement and decide whether this specific statement, word for word, had appeared in the evaluation they had read by circling "yes" or "no." They were further asked to indicate, on a 4-point scale (Guess — Completely Certain), how certain they were that their response ("yes" or "no") was correct.

Attributions. The experimenter then distributed a questionnaire (containing instructions appropriately modified for the "self" and "other" variations) designed to assess subjects' attributions either for their own or for the other person's performance on the Wonderlic Test. The instructions outlined the ways in which four factors (skill and ability, effort, task difficulty, luck) could affect performance on any task. Subjects in the "self" condition were asked to consider each factor, indicate whether it had "Helped," "Hurt," or had had "No Effect"
on their performance. If they indicated that it had helped or hurt, they were to further indicate, on a 7-point scale, the extent to which it had affected their performance (A Little — Very Much). Subjects in the "other" condition were asked to use their intuition to make comparable judgments about the "feedback recipient's" performance.

After distributing this questionnaire and explaining the task, the experimenter left the room with the announcement that she would find out whether the remaining evaluations were ready. Upon returning, she apologetically explained that the secretary had not yet returned from the computer, and suggested that rather than cause a delay by waiting for the secretary to return, it would be sensible for subjects to simply complete the remaining instruments for the study at this point. She indicated that she would distribute the remaining evaluations just as soon as the secretary returned with them. (The purpose of this deception was to provide a plausible reason for having each subject read only one evaluation, as required by the between-subjects experimental design).

**Expectations for future performance, and self-attitudes.** A number of the remaining questionnaire items assessed subjects' expectations for future performance on a task similar to the Wonderlic Test, and subjects' personal attitudes regarding their own intellectual strengths and weaknesses. The first of these items asked subjects to indicate, on a 9-point scale, how they believed they would perform if they were to take a test similar to the Wonderlic a week later (Very Poorly — Very Well). The next twelve items asked subjects to rate themselves on
9-point bipolar adjectives which loosely corresponded to the descriptors in the feedback documents (e.g., Verbally Skilled — Verbally Unskilled, Poor Problem Solver — Good Problem Solver, etc.). A final item in this set called for subjects' ratings of their own overall intellectual ability level (Poor — Excellent).

Desire for further feedback. As an additional, somewhat indirect means of assessing reactions to the various types of feedback, subjects were asked to indicate the extent of their inclination to participate in other studies which would provide personal feedback. Specifically, the experimenter told subjects that the Psychology Department currently had a shortage of subjects for their research projects, and that participants in the present study could leave their names and telephone numbers if they would be willing to assist the department by serving as subjects in other personal feedback studies. She then distributed a form that first asked subject to indicate (on a 9-point scale) their interest (No Interest — A Great Deal of Interest) in participating in other research projects in which they could receive psychological test feedback, although no experimental credit or payment could be offered for such participation. The form had spaces for interested subjects to write in their names and telephone numbers.

Next, the experimenter distributed a suspicion probing form to all subjects, and then left the room, purportedly to obtain the remaining evaluations from the secretary. Upon returning, she explained that the evaluations were still not ready, but that she would leave them in the department office where subjects could pick them up the following day.
She cautioned subjects who had not yet received their evaluations to make a note of their 3-digit code numbers in order to be able to identify their evaluations. (It was necessary to carry the deception through to this point since a few subjects were generally still in the process of completing the suspicion probing form when the experimenter re-entered the room without the "remaining printouts.")

Finally, subjects were thoroughly debriefed and dehoaxed using the procedure advocated by Mills (1976).
CHAPTER III
RESULTS

Judgments of Favorableness of Feedback

Table 3 shows the mean percentages of evaluations which were estimated by subjects to be more favorable than either their own ("self") or someone else's ("other") feedback. A 2 (Depression Status: depressed, nondepressed) X 2 (Feedback Target: "self," "other") X 3 (Type of Feedback: positive, neutral, negative) unweighted means univariate analysis of variance (ANOVA) on the estimated percentages yielded the following results: As anticipated, there was a significant effect for Type of Feedback, \( F(2,174) = 69.78, p<.001 \). Neuman-Keuls post-hoc comparisons indicated that positive feedback (\( M = 32.05\% \)) was perceived as significantly (\( p<.05 \)) more favorable than neutral feedback (\( M = 38.18\% \)) which, in turn, was perceived as significantly (\( p<.01 \)) more favorable than negative feedback (\( M = 62.17\% \)).

The design of the present study was counterbalanced by subject sex. However, inclusion of this variable as a fourth factor in the ANOVA would have created an inappropriately small cell size. In order to determine whether there were any overall effects of subject sex on this dependent measure, an F-ratio was constructed evaluating the pooled mean squares for each effect involving subject sex against the mean square error. This procedure indicated that subject sex did not exert a significant effect on this variable (i.e., perceived favorableness of feedback), \( F(12,162) = 1.29, \text{ N.S.} \).
### Table 3

Means and Standard Deviations for the Percentages of Evaluations Rated as More Favorable Than the Evaluation Received by the Subject

<table>
<thead>
<tr>
<th>Group</th>
<th>Positive Feedback</th>
<th>Neutral Feedback</th>
<th>Negative Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Depressed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>37.58</td>
<td>19.28</td>
<td>38.50</td>
</tr>
<tr>
<td>Other</td>
<td>31.19</td>
<td>17.16</td>
<td>41.93</td>
</tr>
<tr>
<td>Nondepressed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>25.12</td>
<td>10.59</td>
<td>30.75</td>
</tr>
<tr>
<td>Other</td>
<td>34.31</td>
<td>14.70</td>
<td>42.00</td>
</tr>
</tbody>
</table>

Note. Smaller percentages reflect more favorable evaluations of feedback.

a These cell means and standard deviations were based on N = 14. All other figures are based on cell sizes of N = 16.
A significant effect for Depression Status ($F(1, 174) = 9.83, p<.002$), with depressed subjects rating the feedback as relatively less favorable overall, was importantly moderated by a significant Depression Status X Feedback Target interaction, $F(1, 174) = 5.99, p<.02$. An analysis of this interaction using simple effects tests revealed the following: As hypothesized, in the "self" condition, depressed subjects ($M = 48.01\%$) judged the evaluations to be significantly less favorable than did nondepressed subjects ($M = 36.58\%$), $F(1, 174) = 13.35, p<.001$, while in the "other" condition, depressed and nondepressed subjects did not differ in their judgments (Depressed $M = 45.91\%$; Nondepressed $M = 45.08\%$), $F(1, 174) < 1$, N.S. Further analysis of the interaction using simple effects tests indicated that, consistent with the hypothesis that nondepressed "self" subjects would demonstrate a predisposition for enhancement of self-esteem, these subjects judged the feedback as significantly more favorable ($M = 36.58\%$) than did nondepressed "other" subjects ($M = 45.08\%$), $F(1, 174) = 7.52, p< .01$. Contrary to expectation, a significant "self"-"other" difference was not obtained for depressed subjects ("Self" $M = 48.01\%$; "Other" $M = 45.91\%$), $F(1, 174) < 1$, N.S. The ANOVA yielded no interactions with Type of Feedback, indicating that this pattern of results was consistent across the three levels of feedback.\(^2\)

\(^2\) It is noted that subjects' evaluations of feedback could potentially have been influenced by actual performance on the Wonderlic Test (particularly in the case of "self" subjects). However, an ANOVA on Wonderlic scores yielded no significant group differences. On average, depressed subjects correctly completed 25.42 (out of 50 possible) items, and nondepressed subjects, 24.43 items.
To recapitulate briefly, depressed subjects evaluated self-relevant feedback, but not other-relevant feedback, more negatively than did nondepressed subjects. Further, as would be expected from a predisposition toward self-esteem enhancement, nondepressed subjects evaluated feedback as more favorable when it was presumed to refer to themselves than when it was presumed to refer to another person. Depressed subjects' evaluations were not significantly influenced by feedback target.

Memory for Feedback

Global recall. This measure was defined as the percentage of total feedback statements subjects recalled as being favorable (i.e., estimated number of favorable statements/estimated number of favorable + unfavorable statements). An examination of the distribution of data for this variable suggested that several subjects misunderstood what was meant by the items comprising the measure. Specifically, 11 subjects "recalled" a total number of statements (favorable + unfavorable) between 20 and 50, where the actual total was ten. All of the remaining subjects estimated a total of 15 or fewer statements. These 11 subjects were not included in the analysis of global recall scores, and cell means were substituted for the missing data. Mean percentages of favorable statements globally recalled are presented in Table 4.

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3 It seems likely that the former subjects thought that the estimation items referred to the number of favorable and unfavorable adjectives on the DACL (which was the questionnaire administered immediately prior to the global recall task).
Table 4

Means and Standard Deviations for Global Estimates of Percentages of Positive Feedback Statements

<table>
<thead>
<tr>
<th>Group</th>
<th>Positive Feedback</th>
<th>Neutral Feedback</th>
<th>Negative Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Depressed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>75.81</td>
<td>8.15</td>
<td>57.85</td>
</tr>
<tr>
<td>Other</td>
<td>69.16</td>
<td>19.19</td>
<td>56.06</td>
</tr>
<tr>
<td>Nondepressed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>75.31</td>
<td>7.47</td>
<td>62.31</td>
</tr>
<tr>
<td>Other</td>
<td>70.29</td>
<td>8.77</td>
<td>55.93</td>
</tr>
</tbody>
</table>

Note. The actual percentages of positive feedback statements in the positive, neutral, and negative feedback conditions were 80%, 60%, and 30%, respectively.
A 2 X 3 X 2 ANOVA on the percentage of positive statements globally recalled yielded no significant effects for nor interactions with Depression Status. The analysis yielded a main effect for Type of Feedback, $F(2,174) = 142.12$, $p<.001$, which was expected because of the actual differences in the percentage of positive statements in the three types of feedback. This effect was modified by a significant interaction with Feedback Target, $F(2,174) = 5.47$, $p=.005$. Simple effects tests indicated that in the negative feedback condition, "self" subjects ($M = 34.00$) estimated a smaller percentage of positive statements than did "other" subjects ($M = 41.08$), $F(1,174) = 5.36$, $p<.025$. The reverse pattern was obtained in the positive feedback condition, $F(1,174) = 3.96$, $p<.05$, such that "self" subjects ($M = 75.56$) estimated a larger percentage of positive statements than "other" subjects ($M = 69.73$). No "self"-"other" differences were obtained in the neutral feedback condition ($Ms = 60.08$ and $55.99$, respectively), $F(1,174) = 1.86$, N.S. Examination of mean percentages suggests that "self" subjects, relative to "other" subjects, provided estimates which were relatively closer to the actual proportion of positive statements in the negative, neutral, and positive conditions (30%, 60%, and 80%, respectively).

Free recall. On this task, a statement was considered to be correctly recalled if (1) the basic content was clearly recognizable as one of the feedback statements the subject had actually read, and (2) the recalled statement was given the correct (favorable or unfavorable) evaluative valence. A 2 X 3 X 2 ANOVA on the total number of specific
feedback statements accurately recalled by subjects revealed a significant effect only for Feedback Target, \( F(1,174) = 37.38, p<.001 \). "Self" subjects recalled, on average, 4.38 of the 10 statements, while "other" subjects correctly recalled an average of 3.04 statements. The mean percentages of positive statements recalled (number of accurately recalled positive statements/total number of accurately recalled statements) are presented in Table 5.⁴

A 2 X 3 X 2 ANOVA on the percentage of positive statements recalled revealed, as expected, a significant effect for Type of Feedback, \( F(2,174) = 112.34, p<.001 \). On average, the percentages of positive statements recalled in the negative, neutral, and positive conditions were 26.98%, 66.09%, and 75.97%, respectively.

The main effect for Type of Feedback was moderated by a significant interaction with Feedback Target, \( F(2,174) = 4.42, p<.02 \). Simple effects tests indicated that this interaction was primarily a reflection of a "self"-"other" difference in the percentage of positive statements recalled ("Self" M = 33.79%; "Other" M = 20.16%) in the negative feedback condition, \( F(1,174) = 7.54, p<.01 \). As the actual percentage of positive statements in the negative feedback condition was 30%, "self" subjects' recall more accurately reflected the actual percentage of

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⁴For the few subjects who were unable to recall any feedback statements, cell means were substituted for the "0%" score which would have resulted from application of this formula. It was felt that scores of 0% would skew the data in a meaningless manner unless such a score did, in fact, indicate that the subject had recalled some statements, none of which were favorable in content.
Table 5

Means and Standard Deviations for Percentages of Correctly Recalled Positive Feedback Statements

<table>
<thead>
<tr>
<th>Group</th>
<th>Positive Feedback</th>
<th>Neutral Feedback</th>
<th>Negative Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Depressed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>71.61</td>
<td>14.11</td>
<td>65.88</td>
</tr>
<tr>
<td>Other</td>
<td>78.33</td>
<td>25.74</td>
<td>70.48</td>
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<tr>
<td>Nondepressed</td>
<td></td>
<td></td>
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<tr>
<td>Self</td>
<td>76.95</td>
<td>16.05</td>
<td>60.69</td>
</tr>
<tr>
<td>Other</td>
<td>77.00</td>
<td>23.03</td>
<td>67.97</td>
</tr>
</tbody>
</table>


positive statements than did "other" subjects' recall. There were no other significant effects.

Recognition memory. A multivariate 2 X 3 X 2 ANOVA was performed using the number of errors made in each of four categories of errors as dependent variables. A "false alarm," tallied separately for favorable and unfavorable statements, was considered to have occurred each time a subject indicated that he/she "recognized" a statement which had not actually been previously seen. A "miss," also tallied separately for the two types of statements, was considered to have occurred each time a subject failed to recognize a statement that he/she actually had seen. Mean numbers of each type of error are presented in Tables 6, 7, 8, and 9.

According to the hypotheses, depressed "self" subjects were expected to make more "false alarm" errors on unfavorable statements and more "miss" errors on favorable statements compared to "self" nondepressed subjects. No specific predictions concerning the "other" condition were made, although the possibility of a similar, though less pronounced, effect was considered. Contrary to these hypotheses, there were no multivariate effects of Depression Status or Depression Status X Feedback Target.

There was, however, a significant univariate main effect of Depression Status on "missed" positive statements, $F(1,174) = 6.58$, $p<.02$, which was modified by a significant univariate Depression Status X Type of Feedback interaction on the same variable, $F(2,174) = 3.93$, $p<.05$. Overall, depressed subjects in both "self" and "other"
Table 6
Means and Standard Deviations for "False Alarm" Recognition
Memory Errors on Favorable Statements

<table>
<thead>
<tr>
<th>Group</th>
<th>Positive Feedback</th>
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<th>Negative Feedback</th>
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</thead>
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<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Depressed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>1.69</td>
<td>1.35</td>
<td>2.06</td>
</tr>
<tr>
<td>Other</td>
<td>3.00</td>
<td>1.37</td>
<td>2.79</td>
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<td>Nondepressed</td>
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<tr>
<td>Self</td>
<td>1.63</td>
<td>1.63</td>
<td>2.25</td>
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<tr>
<td>Other</td>
<td>2.94</td>
<td>1.73</td>
<td>2.81</td>
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Table 7
Means and Standard Deviations for "False Alarm" Recognition
Memory Errors on Unfavorable Statements

<table>
<thead>
<tr>
<th>Group</th>
<th>Positive Feedback</th>
<th>Neutral Feedback</th>
<th>Negative Feedback</th>
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<td></td>
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<tr>
<td>Depressed</td>
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<td></td>
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<tr>
<td>Self</td>
<td>.63</td>
<td>.81</td>
<td>1.19</td>
</tr>
<tr>
<td>Other</td>
<td>2.00</td>
<td>3.35</td>
<td>1.29</td>
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<tr>
<td>Nondepressed</td>
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<td></td>
<td></td>
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<tr>
<td>Self</td>
<td>.56</td>
<td>.89</td>
<td>1.13</td>
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<tr>
<td>Other</td>
<td>1.38</td>
<td>1.45</td>
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</tbody>
</table>
### Table 8

Means and Standard Deviations for "Miss" Recognition

Memory Errors on Favorable Statements

<table>
<thead>
<tr>
<th>Group</th>
<th>Positive Feedback</th>
<th>Neutral Feedback</th>
<th>Negative Feedback</th>
</tr>
</thead>
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<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Depressed</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>2.19</td>
<td>1.51</td>
<td>.63</td>
</tr>
<tr>
<td>Other</td>
<td>2.19</td>
<td>1.22</td>
<td>2.00</td>
</tr>
<tr>
<td>Nondepressed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>.94</td>
<td>.93</td>
<td>.69</td>
</tr>
<tr>
<td>Other</td>
<td>1.38</td>
<td>1.96</td>
<td>1.38</td>
</tr>
</tbody>
</table>

### Table 9

Means and Standard Deviations for "Miss" Recognition

Memory Errors on Unfavorable Statements

<table>
<thead>
<tr>
<th>Group</th>
<th>Positive Feedback</th>
<th>Neutral Feedback</th>
<th>Negative Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Depressed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>.56</td>
<td>.51</td>
<td>1.13</td>
</tr>
<tr>
<td>Other</td>
<td>.81</td>
<td>.75</td>
<td>1.86</td>
</tr>
<tr>
<td>Nondepressed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>.44</td>
<td>.51</td>
<td>1.31</td>
</tr>
<tr>
<td>Other</td>
<td>.81</td>
<td>.75</td>
<td>1.56</td>
</tr>
</tbody>
</table>
conditions "missed" more positive statements (M = 1.44) than did nondepressed subjects (M = 1.01) despite the fact that depressed subjects did not make significantly more total errors on the recognition memory task, F(1,174) = 1.02, N.S. Examination of the significant Depression Status X Type of Feedback interaction using simple effects tests indicated that depressed and nondepressed subjects missed approximately equivalent numbers of positive statements given negative feedback (Ms = .79 and .84, respectively) or neutral feedback (Ms = 1.27 and 1.03, respectively), but that depressed subjects missed significantly more positive statements given positive feedback (M = 2.19) than did nondepressed subjects (M = 1.15), F(1,174) = 13.82, p<.001. Although consistent with the hypothesis concerning biases in recognition memory in depressives, these findings should be interpreted conservatively given both the failure to obtain a significant multivariate effect and the large number of univariate tests which were performed.

The multivariate ANOVA yielded two significant multivariate main effects. The first was a multivariate effect for Feedback Target, F(4,171) = 10.85, p<.001. An examination of the univariate ANOVAs indicated that, as might be expected, "self" subjects made fewer of each of the four types of errors in comparison to "other" subjects (averaging 4.71 total errors vs. 7.81 errors, respectively). A 2 x 3 x 2 univariate ANOVA on the certainty measure indicated that "other" subjects were also relatively less certain that their responses on the recognition memory task were correct, F(1,170) = 55.60, p<.001. This is
consistent with the finding that they were, in fact, significantly less accurate.

The second significant multivariate main effect was obtained for Type of Feedback, $F(8,342) = 11.09$, $p<.001$ (despite the fact that a univariate ANOVA on the total number of errors did not yield an effect for Type of Feedback). Examination of the univariate ANOVAs revealed that this effect could be attributed to significant effects for "missed" positive ($F(2,174) = 9.34$, $p<.001$) and "missed" negative ($F(2,174) = 19.07$, $p<.001$) statements. An examination of mean number of "missed" positive and negative statements (Tables 8 and 9) indicated a relatively greater tendency to "miss" positive statements in the more favorable feedback conditions, and to "miss" negative statements in the more unfavorable feedback conditions. This effect may have been due to decreased distinctiveness of favorable statements in the more positive feedback conditions and decreased distinctiveness of unfavorable statements in the more negative conditions, making each more vulnerable to error.

In summary, the results of the recognition memory task provided only marginal support for the hypotheses. However, caution should be observed in interpreting the present results because of the apparent ease of this memory task (as indicated by the small number of errors made in each of the four error categories, and therefore, the minimal number of overall errors). If, in fact, differential recognition memory effects do exist, the present task may not have been sufficiently sensitive to evidence them.
Effects of Feedback on Mood and Self-Esteem

Mood. A univariate 2 X 3 X 2 ANOVA was conducted on DACL scores in order to determine whether the mood of depressed subjects, relative to nondepressed subjects, would be more responsive to negative, and less responsive to positive feedback, as might be suggested by previous research (cf. Golin et al., 1977)). This analysis yielded only the expected significant main effect for Depression Status, F(1,174) = 121.60, p < .001 (Depressed M = 15.39; Nondepressed M = 6.56). No other significant effects were obtained, indicating no differential effects of type of feedback on mood state as a function of Depression Status. The failure to obtain any significant effect as a function of feedback favorableness suggests that the impact of the feedback may not have been sufficiently potent to produce changes in experienced mood.

Self-Esteem. A measure of self-esteem was constructed by summing the 13 individual items reflecting personal estimation of intellectual abilities. This combination was justified by a factor analysis of the 13 variables which yielded a one-factor solution (using a discontinuity criterion to determine the number of factors to be retained; Rummel, 1970) accounting for 31.9% of the total variance. Application of the Kuder-Richardson Formula 20 indicated a high level of internal consistency (.81). Mean self-esteem ratings are presented in Table 10.

A 2 X 3 X 2 ANOVA on this measure yielded a significant effect of Depression Status, F(1,174) = 31.66, p < .001. Depressed subjects (M = 77.90) evaluated their intellectual abilities less favorably than nondepressed subjects (M = 87.14). There were no other significant
Table 10
Means and Standard Deviations for Personal Evaluations of Intellectual Abilities

<table>
<thead>
<tr>
<th>Group</th>
<th>Positive Feedback</th>
<th>Neutral Feedback</th>
<th>Negative Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Depressed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>84.31</td>
<td>10.06</td>
<td>83.24</td>
</tr>
<tr>
<td>Other</td>
<td>71.69</td>
<td>8.95</td>
<td>76.73</td>
</tr>
<tr>
<td>Nondepressed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>93.63</td>
<td>7.58</td>
<td>90.37</td>
</tr>
<tr>
<td>Other</td>
<td>81.88</td>
<td>10.48</td>
<td>88.06</td>
</tr>
</tbody>
</table>

Note. These ratings consist of the summed individual ratings on 13 separate items. Higher scores indicate more favorable personal evaluations of intellectual abilities.
effects involving Depression Status.

The same analysis yielded a significant Feedback Target X Type of Feedback interaction, $F(2,174) = 13.07, p<.001$. Simple effects tests indicated that while "self" subjects who received primarily favorable feedback gave themselves higher ability ratings than those who received primarily unfavorable feedback, $F(2,174) = 11.44, p<.001$, "other" subjects who read primarily favorable feedback gave themselves lower evaluations than those who read primarily unfavorable feedback, $F(2,174) = 3.89, p<.05$. Thus, among subjects receiving positive evaluations, "self" subjects produced higher self-ratings than "other" subjects, $F(1,174) = 18.48, p<.001$, while the opposite pattern occurred among subjects receiving negative feedback, $F(1,174) = 8.09, p<.01$. There were no "self"-"other" differences in the neutral feedback condition, $F(1,174) = 1.95, N.S.$

Accuracy of and Satisfaction with Feedback

Means for perceived accuracy of "self" or "other" feedback are presented in Table 11. A $2 \times 3 \times 2$ ANOVA revealed a significant main effect for Type of Feedback, $F(2,174) = 21.39, p<.001$, with more favorable feedback being perceived to be relatively more accurate. This effect was modified by a significant Feedback Target X Type of Feedback interaction, $F(2,174) = 10.17, p<.001$. In the "other" feedback condition, the three levels of feedback were perceived (in terms of the anchor-point descriptors on the 9-point scale) as "somewhat" accurate ("Other" $M = 6.0$). Simple effects tests indicated that the three types of feedback were not perceived as differentially accurate, $F(2,174) =$
Table 11
Means and Standard Deviations for Perceived Accuracy of Ones's Own or Another Person's Feedback

<table>
<thead>
<tr>
<th>Group</th>
<th>Positive Feedback</th>
<th>Neutral Feedback</th>
<th>Negative Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Depressed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>7.81</td>
<td>.83</td>
<td>6.75</td>
</tr>
<tr>
<td>Other</td>
<td>6.13</td>
<td>1.67</td>
<td>6.07</td>
</tr>
<tr>
<td>Nondepressed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>6.56</td>
<td>2.13</td>
<td>6.13</td>
</tr>
<tr>
<td>Other</td>
<td>6.19</td>
<td>1.33</td>
<td>6.38</td>
</tr>
</tbody>
</table>

Note. Descriptors on the 9-point scale were as follows: 1=Very Inaccurate; 3=Somewhat Inaccurate; 5=Neither Accurate Nor Inaccurate; 7=Somewhat Accurate; 9=Very Accurate.
1.20, N.S. In contrast, perceived accuracy of "self" feedback differed significantly as a function of favorableness of feedback, $F(2,174) = 30.91, p<.001$. Negative feedback was viewed as "somewhat inaccurate" ($M = 3.87$), with neutral and positive feedback viewed as "somewhat accurate" ($M_s = 6.44$ and $7.19$, respectively). There was also a trend ($F(1,174) = 2.77, p<.1$) towards a Depression Status X Feedback Target interaction. Mean values suggested that depressed "self" subjects ($M = 6.33$) found all types of feedback to be more accurate for themselves than did nondepressed "self" subjects ($M = 5.44$), while depressed and nondepressed "other" subjects did not differ in their accuracy ratings of someone else's feedback ($M_s = 5.98$ and $6.02$, respectively).

Means for satisfaction ratings made for one's own feedback, or predicted satisfaction for someone else, are presented in Table 12. A $2 \times 3 \times 2$ ANOVA produced, as would be expected, a significant effect for Type of Feedback, $F(2,174) = 132.82, p<.001$ (Negative $M = 3.07$; Neutral $M = 5.32$; Positive $M = 7.44$). A trend towards a Feedback Target X Type of Feedback interaction, $F(2,174) = 2.69, p<.08$, indicated that while subjects receiving their own negative evaluations tended to experience less satisfaction than was predicted for another person receiving the same evaluation, the reverse pattern was obtained for neutral and positive evaluations. These findings suggest that people use more stringent criteria for evaluating their own feedback than for evaluating the feedback of others.

Finally, subjects were asked whether the feedback was more or less favorable than they ("self") or someone else ("other") would have
Table 12

Means and Standard Deviations for Satisfaction with One's Own, or Predicted Satisfaction for Another Person's, Feedback

<table>
<thead>
<tr>
<th>Group</th>
<th>Positive Feedback</th>
<th>Neutral Feedback</th>
<th>Negative Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Depressed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>7.63</td>
<td>1.02</td>
<td>5.38</td>
</tr>
<tr>
<td>Other</td>
<td>7.50</td>
<td>1.10</td>
<td>4.43</td>
</tr>
<tr>
<td>Nondepressed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>7.63</td>
<td>.89</td>
<td>6.06</td>
</tr>
<tr>
<td>Other</td>
<td>7.00</td>
<td>1.15</td>
<td>5.31</td>
</tr>
</tbody>
</table>

Note. Descriptors on the 9-point scale were as follows: 1=Very Displeased; 3=Somewhat Displeased; 5=Neither Pleased Nor Displeased; 7=Somewhat Pleased; 9=Very Pleased.
anticipated. Mean ratings are presented in Table 13. A 2 X 3 X 2 ANOVA yielded a significant effect for Type of Feedback, $F(2,170) = 43.78$, $p<.001$, such that more favorable feedback resulted in higher ratings. The same analysis produced a significant Depression Status X Feedback Target interaction, $F(2,171) = 5.21$, $p<.05$. Simple effects tests indicated that depressed "self" subjects rated the feedback as more favorable than expected ($M = 5.16$) relative to what depressed subjects would have predicted for someone else ($M = 4.30$), $F(1,171) = 8.30$, $p<.005$. This result was obtained in spite of the fact that depressed "self" and "other" subjects did not differ in their judgments regarding the favorableness of the feedback. It appears that (using a retrospective measure) depressed persons had relatively lower expectations for themselves than they predicted others would have for themselves. In contrast, nondepressed "self" and "other" subjects did not differ in their ratings ($Ms = 4.70$ and 4.79, respectively), $F(1,171) <1$, N.S. In addition, depressed and nondepressed "self" subjects did not differ significantly in their ratings, $F(1,171) = 2.45$, N.S., suggesting that they held approximately equivalent initial expectations of the evaluative tone of the feedback they would receive.

Attributions

A multivariate ANOVA was performed on subjects' attributions regarding the influence of four factors (skill and ability, effort, task difficulty, and luck) on either their own, or someone else's, performance on the Wonderlic Test. For this analysis, subjects' perceptions of the quality of test performance (as reflected by their
Table 13

Means and Standard Deviations for Perceived Favorableness of Feedback Relative to One's Own or Another Person's Expectations

<table>
<thead>
<tr>
<th>Group</th>
<th>Positive Feedback</th>
<th>Neutral Feedback</th>
<th>Negative Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Depressed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>6.88</td>
<td>1.20</td>
<td>5.20</td>
</tr>
<tr>
<td>Other</td>
<td>5.87</td>
<td>1.36</td>
<td>4.00</td>
</tr>
<tr>
<td>Nondepressed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>6.56</td>
<td>1.46</td>
<td>4.69</td>
</tr>
<tr>
<td>Other</td>
<td>6.00</td>
<td>1.37</td>
<td>4.94</td>
</tr>
</tbody>
</table>

Note. Descriptors on the 9-point scale were as follows: 1=Much Less Favorable; 3=Somewhat Less Favorable; 5=Neither More Nor Less Favorable; 7=Somewhat More Favorable; 9=Much More Favorable.
feedback) were considered to be more relevant than the alleged quality of performance as manipulated by the investigator. Subjects were therefore divided into two groups (pleased, displeased) on the basis of their responses to the 9-point item which asked "self" subjects how pleased they were with their feedback, and "other" subjects how pleased they thought the recipient of the feedback would have been. Discarding the 17 subjects who had indicated that they were "neither pleased nor displeased" (i.e., who had endorsed the midpoint of the scale), this analysis was performed on data obtained from the remaining 71 displeased and 96 pleased subjects.5

A 2 (Depression Status) X 2 (Feedback Target) X 2 (Pleasure) multivariate ANOVA (on skill, effort, difficulty, and luck ratings) yielded significant main effects for Feedback Target, F(4,158) = 2.60, p<.05, and for Pleasure, F(4,158) = 35.72, p<.001. No significant effects of nor interactions with Depression Status were obtained. The significant multivariate effect for Feedback Target was largely a reflection of a significant univariate effect for skill, F(1,161) = 9.33, p<.005, and a marginal effect for effort, F(1,161) = 2.65, p<.11, both of which are internal attributional factors (Weiner et al., 1978). In both cases, "self" subjects indicated that skill and effort had a greater influence on their own performance than "other" subjects.

---

5To insure that this new variable was in itself not affected by the independent variables under consideration, a 2 (Depression Status) X 2 (Feedback Target) univariate ANOVA was performed on the variable. This analysis yielded no significant main or interaction effects.
indicated regarding the feedback recipient's performance. Overall, skill and effort were seen as helpful, rather than detrimental, influences on performance. The significant multivariate effect for Pleasure was, as would be expected, explained by the fact that "pleased" subjects rated skill, effort, luck and task difficulty as significantly (p<.001 in each univariate ANOVA) more helpful than did "displeased" subjects.

Predictions of Future Performance

Mean ratings for predictions of future performance on a task similar to the Wonderlic Personnel Test are presented in Table 14. A 2 X 3 X 2 ANOVA yielded main effects for Depression Status, \( F(1,172) = 9.30, \ p<.005 \) (with nondepressed subjects giving more optimistic predictions for performance than depressed subjects) and for Type of Feedback, \( F(2,172) = 7.18, \ p<.001 \), with subjects who received more favorable feedback making relatively more optimistic predictions. The Type of Feedback effect was modified by a significant Feedback Target X Type of Feedback interaction, \( F(2,172) = 6.94, \ p<.001 \). Among "self" subjects, more favorable feedback led to higher expectations for future performance. "Other" subjects in all feedback conditions provided similar ratings which were equivalent to those provided by "self" subjects who had received neutral feedback.

Finally, the preceding effect and the Depression Status effect were modified by a significant Depression Status X Feedback Target X Type of Feedback interaction, \( F(2,172) = 3.27, \ p<.05 \). Inspection of means indicates that among subjects who received negative feedback, "other"
Table 14

Means and Standard Deviations for Predictions of One's Own Future Performance on a Similar Task

<table>
<thead>
<tr>
<th>Group</th>
<th>Positive Feedback</th>
<th>Neutral Feedback</th>
<th>Negative Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Depressed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>6.56</td>
<td>.96</td>
<td>6.56</td>
</tr>
<tr>
<td>Other</td>
<td>6.50</td>
<td>1.15</td>
<td>6.00</td>
</tr>
<tr>
<td>Nondepressed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>7.63</td>
<td>.72</td>
<td>6.60</td>
</tr>
<tr>
<td>Other</td>
<td>6.56</td>
<td>.73</td>
<td>7.00</td>
</tr>
</tbody>
</table>

Note. Descriptors on the 9-point scale were as follows: 1=Very Poorly; 3=Somewhat Poorly; 5=Neither Well Nor Poorly; 7=Somewhat Well; 9=Very Well.
subjects were more optimistic about their future performance than subjects who had just received allegedly personal negative feedback. Among subjects who received neutral feedback, depressed and nondepressed subjects allegedly given personal feedback also made highly similar predictions for future performance which were higher than those made by subjects who had received negative feedback. However, depressed subjects were somewhat more pessimistic than nondepressed subjects in the absence of personal neutral feedback ("other" condition). Finally, among subjects who received positive feedback, depressed "self" subjects did not demonstrate enhanced predictions (relative to depressed "other" subjects) as a function of having received such feedback. In contrast, nondepressed subjects who received positive personal feedback were more optimistic in their predictions than either nondepressed "other" subjects and depressed "self" subjects, all of whom had received the identical, positive, feedback. It should be noted, however, that differences in expectations for future performance among "self" subjects may have been, at least in part, a function of the differential interpretations of the favorableness of the feedback reported earlier (p. 51).

Desire for Further Feedback

Subjects were asked how interested (as indicated on a 9-point

Analysis of this interaction using tests of simple interaction effects yielded no Depression Status X Feedback Target interaction at a negative feedback level (F(1,172)<1, N.S.). However, trends towards interactions were observed at neutral (F(1,172) = 2.88, p<.1) and positive (F(1,172) = 3.38, p<.08) feedback levels.
scale) they would be in participating in another study (with no remuneration or course credit) in which they could receive personal feedback, and to leave their names and telephone numbers if they desired. Overall, univariate ANOVAs indicated that depressed subjects in all experimental conditions expressed significantly more interest in further feedback ($F(1,170) = 7.67, p<.01$) and provided their telephone numbers more frequently ($F(1,174) = 7.51, p<.01$) than did nondepressed subjects.

These same analyses yielded nonsignificant trends for Type of Feedback X Feedback Target interactions ($F(2,170) = 2.58, p<.08$ and $F(2,174) = 2.36, p<.1$, respectively). Mean values suggested that "self" subjects expressed increasing interest, while "other" subjects expressed decreasing interest in further feedback under increasingly favorable feedback conditions. It may be that "other" subjects felt that their own evaluations would not measure up in favorableness to those purportedly received by others, thereby decreasing their interest in receiving further personal feedback.

Other Measures

Attitudes towards psychological tests. At the beginning of the experimental session, subjects were asked several questions about their belief in and experience with psychological tests in order to verify that the Wonderlic Test would be a personally involving task. On 9-point scales (Not at All Important — Extremely Important), subjects rated intelligence and personality tests to be "somewhat important" in our society ($M_s = 6.28$ and $6.40$, respectively). Also on 9-point scales
(None — A Great Deal), they indicated having "some" (which was the descriptor corresponding to the midpoint of the scale) faith in intelligence and personality tests as a means of gaining accurate information about themselves ($M_s = 5.54$ and $5.86$, respectively). Overall, subjects reported having between "a little" and "some" experience with intelligence and personality tests ($M_s = 4.17$ and $3.88$, respectively). They also reported having a high degree of interest in receiving personal feedback ($M = 7.83$). Univariate ANOVAs yielded only one significant group difference: "Other" subjects indicated a somewhat higher level of interest ($M = 8.07$) in receiving personal feedback than did "self" subjects ($M = 7.61$), $F(1,174) = 5.41$, $p<.05)$. As this finding was obtained on ratings made prior to any experimental inductions, it cannot be interpreted as attributable to other than "chance" factors.

**Dysfunctional Attitude Scale, Social and Collegiate Readjustment Rating Questionnaire, and Malevolent-Benevolent Questionnaire.** As expected, depressed subjects obtained significantly higher scores than nondepressed subjects ($F(1,174) = 46.51$, $p<.001$) on the DAS, indicating relatively more agreement with attitudes which are considered to be "dysfunctional" or depression-engendering. The mean scores for depressives was 136.22, and for nondepressives, 110.19. Depressed subjects also obtained significantly higher life stress scores (Depressed $M = 345.38$; Nondepressed $M = 224.32$) on the Social and Collegiate Readjustment Rating Questionnaire, $F(1,174) = 37.80$, $p<.001$, which is consistent with other research which has examined the

Finally, an analysis of the MBQ indicated that depressed subjects view the influence of their environment to be detrimental more often than it is helpful, $F(1,172) = 39.52$, $p<.001$. The results also suggested that depressed subjects attribute both favorable and unfavorable outcomes to external factors (e.g., organizations, associates, nature, luck) to a greater extent than do nondepressed subjects, $F(1,172) = 25.29$, $p<.001$. An analysis of the subscores for positive and negative outcomes yielded the following results: Depressed subjects viewed external factors as influencing negative outcomes more frequently than did nondepressed subjects, $F(1,172) = 54.68$, $p<.001$. Nondepressed subjects viewed external factors as more frequently influencing positive outcomes than did depressed subjects, $F(1,172) = 4.02$, $p<.05$. The latter two findings do not support the formulation offered by Kuiper (1978), Rizley (1978) and others, that depressives make relatively more internal attributions for failures than do nondepressives. However, given the admittedly preliminary evidence for use of the MBQ in assessing attributions for favorable and unfavorable outcomes, the present results need to be considered tentatively.
The major purpose of this research was to investigate the interpretation of and memory for feedback of varying levels of favorableness among depressed and nondepressed persons. The discussion will consider (1) findings as they relate to the hypotheses, (2) additional findings, particularly as they related to previous research, and (3) limitations and implications of the present research, with suggestions for future investigation.

Results as Related to the Major Hypotheses

Favorableness of feedback. It was hypothesized that depressed subjects who believed they were receiving their own feedback would regard it as representing a less favorable evaluation than nondepressed subjects who had received the identical feedback. It was anticipated that the two groups would not differ in their interpretations if they believed that the feedback pertained to another person. The findings of the present study supported these hypotheses. Regardless of the overall valence of the feedback received (positive, neutral, or negative), depressed "self" subjects viewed it as representing a more negative evaluation than did nondepressed "self" subjects. This is consistent with Beck's contention (1967, 1976) that depressives construe
environmental feedback so as to render it consistent with a negative self-image. However, the present results differ somewhat from earlier studies examining recall of feedback (cf., Nelson & Craighead, 1977; DeMonbreun & Craighead, 1977) which obtained evidence for a negativity bias only under feedback conditions which were least consistent with the depressed subjects' negative view of self (i.e., under highly favorable feedback conditions). In contrast, the results of the present study yielded a more generalized process in which differences in interpretations made by depressed and nondepressed subjects occurred regardless of the evaluative tone of the feedback.

Several considerations suggest that the depressed subjects' relatively less favorable interpretation of personal feedback can not be attributed to actual performance differences. First, the content of the feedback was manipulated by the investigator, and was therefore not contingent upon subjects' actual performances. Second, depressed and nondepressed subjects did not differ on their actual Wonderlic Test performances. It might be argued that the depressed subjects in the study were likely to have had relatively more failure-laden past history on tasks related to the one employed in the present study. To the extent that this was the case, depressed subjects would have had somewhat realistic grounds for their negative interpretations of feedback. However, the fact that depressed and nondepressed subjects in the study did not differ significantly on a number of indices of intellectual ability (e.g., college grade point average for the previous quarter, cumulative college grade point average) militates against this
argument.

The expectation that depressed and nondepressed persons would fail to differ in their ratings when evaluating another person's feedback was also supported by the data. The fact that the "other" ratings made by depressed and nondepressed subjects were virtually identical argues that depressed individuals do not hold a highly generalized negativistic view of their world. Rather, depressive schemas appeared to be activated in filtering externally-generated feedback only when this feedback pertains to the self.

It was anticipated that in the service of maintaining consistency of self-image, depressed subjects would construe feedback about themselves in a self-deprecating manner, and that nondepressed subjects would construe such feedback in a self-enhancing manner. On the basis of these expectations, it was hypothesized that depressed subjects would evaluate themselves less favorably, and that nondepressed subjects would evaluate themselves more favorably, than would their counterparts who evaluated feedback allegedly pertaining to another person. The data, however, provided only partial support for these hypotheses. Although nondepressed subjects showed the anticipated "self"-"other" differences, depressed subjects made similar judgments of feedback in the two Feedback Target conditions. If ratings of the "other" (which were highly similar for depressed and nondepressed subjects) are taken as reflecting "social reality" regarding favorableness of feedback, the pattern of findings suggests that depressed persons are more "accurate" than nondepressed persons in evaluating personally relevant feedback.
The constructions of nondepressed persons would appear to reflect a self-enhancement process in which feedback is regarded in a more favorable light than would be justified by normative standards.

The possibility raised by the present data that depressives may be more accurate than nondepressives in their interpretation of self-relevant feedback has also received convergent support from other investigations of cognitive biases in depression. In a study discussed earlier in this paper (p. 15), Nelson and Craighead (1977) found that although depressed subjects recalled having received more punishment than normals (in a low rate of punishment condition), they were more accurate than nondepressed subjects in their recall. In a series of studies concerning perceptions of response-outcome contingencies, Alloy and Abramson (1979) found that nondepressed college students evidenced "cognitive illusions" in their perceptions of contingencies. They viewed themselves as having more control over positive outcomes and less control over negative outcomes than was actually the case. In contrast, depressed students were "sadder, but wiser" in their ability to discern response-outcome contingencies with accuracy. Similarly, Golin, Terrell, Weitz, and Drost (1979) found that nondepressed psychiatric patients evidenced "illusions of control" in a game of chance, while depressed patients did not.

Finally, a recently appearing study of self-perceptions of social competence in depressed patients (compared to normal and psychiatric controls) also yielded convergent findings (Lewinsohn, Mischel, Chaplin & Barton, 1980). Subjects in Lewinsohn et al.'s study participated in a
social interaction task and subsequently rated themselves on various dimensions of social competence. Raters who observed the interactions judged subjects on similar dimensions. Although judged by the independent raters to be less socially competent than (both normal and psychiatric) controls, the depressives were also quite accurate (using observer ratings as the criterion) in their self-perceptions. In contrast, control subjects rated themselves more favorably than they were rated by the observers. These findings led Lewinsohn et al. (1980) to conjecture that "a key to avoiding depression is to see oneself less stringently and more favorably than others see one" (p. 212). At least for findings such as those just discussed, this explanation suggests itself as more apt than Beck's formulation which attributes the cause of the depressed condition to a process by which reality is distorted.

In another recent investigation, Lobitz and Post (1979) also attempted to evaluate the generality of depressive negativism by examining the judgments that depressives and nondepressives make about themselves and others. However, the Lobitz and Post study investigated the Self-Other dimension within a self-control framework. The self-control model of depression (Rehm, 1977) posits that depression is caused by deficits in such self-regulatory mechanisms as self-monitoring, self-evaluation, and self-reward. Therefore, the Lobitz and Post (1979) study investigated evaluations of one's own or another person's performance, in contrast to the present study's investigation of evaluations of performance feedback. In one phase of
the Lobitz and Post study, depressed patients and psychiatric controls completed a word association task. Personal expectations for success were assessed prior to the task, and level of self-evaluation and self-reward (in the absence of any performance feedback) were assessed subsequent to task performance. After making these ratings, the same subjects were asked to predict how well two other, anonymous patients would do on the same task. Subjects were then given two lists of responses allegedly produced by these patients, and were asked to evaluate and reward the overall performances of these patients. The three measures yielded significant Self-Other X Depressed-Nondepressed interactions. On the measure concerning expectations for performance, psychiatric controls demonstrated both higher expectations for themselves than for others, and higher expectations than depressed patients reported for themselves or for others. On the evaluation and reward measures, depressives were less generous to themselves than to others, while nondepressives showed no Self-Other differences. The evaluation ratings and rewards made by control patients were similar to those made by the depressed patients who were rating others.

With the exception of the prediction measure, Lobitz and Post's findings appear inconsistent with those of the present study. However, a number of considerations argue against the direct comparability of the findings: (1) The Lobitz and Post (1979) study examined appraisals of performance, while the present study examined appraisal of feedback; (2) the studies employed different types of populations (depressed college students vs. depressed patients, and nondepressed college
student controls vs. psychiatric controls); (3) the task used by Lobitz and Post was likely to have been less ego-involving than was the task in the present study; and (4) Lobitz and Post's subjects rated both their own and other individuals' performance, while subjects in the present study rated only one or the other of these. The process of rating both oneself and others in a relatively public situation (i.e., in front of the experimenter) in the Lobitz and Post study may have sensitized the depressives to their self-presentational style. Despite the fact that the experimenter did not attend directly to the subject's responses, subjects were undoubtedly quite aware of the experimenter's presence in the context of the individually-administered experimental procedure.

In contrast, the present study probably represented a relatively less public situation since (1) anonymity of subjects' responses was heavily stressed in the experimenter's instructions, and (2) the small group administration of the study minimized the probability of any given individual being closely observed by the experimenter. Research based upon instrumental-interpersonal theories of depression (cf., Coyne, 1976; Sacco & Hokanson, 1978) has indicated that depressed persons present themselves in a more characteristically depressive, self-denigrating manner in situations most likely to elicit concern and sympathy from others. This suggests the possibility that the tendency for depressed persons to downgrade themselves may have been influenced by contextual features of this particular experimental setting. The differences between the Lobitz and Post and the present study seem
sufficient to account for the disparity in their findings.

In summary, the present research did not support Beck's contention that depressives misinterpret personal feedback in a manner which accentuates negative and minimizes positive occurrences. Depressed persons appeared to be realistic in their appraisal of feedback. The present data also suggested that differences in cognitive predilections between depressed and nondepressed persons do not represent a highly generalized response to stimuli. Rather, they occur only when such stimuli are pertinent to self-evaluation.

It should be noted that the present results are simply descriptive of the different inferences drawn from feedback by depressed and nondepressed persons. No definitive conclusions can be drawn regarding the possible causal relationship between the interpretive "biases" observed in the present study's depressed subjects, and the depressed state itself. Whether the observed tendency of the depressed subjects to be more "accurate" interpreters of the information they receive about themselves is a phenomenon which predates the depressed state and is a causal factor in the development of the disorder, or whether this tendency is simply a correlate of the depressed state, is an issue for future investigation. Longitudinal research which investigates covariation between level of depression and particular cognitive processes of interest, or which investigates the presence of these processes in currently and formerly-depressed persons would help to provide preliminary answers to this question. Even should it become evident that changes in cognition are simply by-products of more central
changes in depressive disorders (e.g., biochemical changes), it seems likely that cognitive changes can serve to perpetuate and intensify the depressed condition. Further, it needs to be kept in mind that the present study was restricted to an examination of the interpretation of externally-generated evaluations. However, the feedback which people provide for themselves in the form of self-evaluation and self-reward are also very likely to be implicated in the causation and/or perpetuation of the depressed state (Lobitz & Post, 1979).

Memory for feedback. None of the three memory variables (assessing global recall for number of favorably statements, free recall, and recognition of feedback statements) provided unequivocal support for the hypotheses regarding memory distortions in depressed persons receiving personal feedback. Furthermore, with the one exception discussed earlier, the memory measures did not yield findings consistent with studies which have found selective negative memory biases among depressed individuals (cf. DeMonbreun & Craighead, 1977; Nelson & Craighead, 1977; Wener & Rehm, 1975). The only finding consistent with the hypotheses concerning memory biases was the depressed subjects' relative difficulty in correctly recognizing favorable feedback statements in both personal and non-personal feedback conditions. The latter results lend some support to the previously observed finding (Isen et al., 1978) that mood can function as a memory cue for evaluatively-valenced material regardless of its personal relevance. However, this finding should be interpreted conservatively due to the limitations on this result which were discussed earlier (e.g., the large
number of statistical tests performed in the analysis which yielded this finding, subjects' overall high degree of accuracy on this particular task).

The most noticeable effect obtained on the memory variables was that subjects who were led to believe that the feedback pertained to themselves were more accurate in their free recall and recognition memory responses than were subjects led to believe that the feedback pertained to someone else. This would be anticipated on the plausible assumption that "self" subjects read the feedback more attentively than "other" subjects despite the experimenter's request that all subjects read the feedback with care.

A second reason for the differential memory for "self" and "other" feedback is suggested by research examining the manner in which depth of information encoding affects subsequent memory for the information. According to Craik and Lockart's (1972) depth-of-processing model, information which has been processed at a deep level will be remembered more accurately than information encoded at a shallower level. Rogers, Ruiper and Kirker (1977) asked subjects to perform rating tasks which induced varying levels (depths) of encoding. The stimuli rated consisted of adjectives chosen to be appropriate for use in self-description. Subjects made either structural, phonemic, semantic, or self-reference ratings (pertaining, respectively, to the physical characteristics, sounds, meanings, or personal applicability of the words). The first three tasks had been previously demonstrated to engage increasingly deeper levels of processing, as indicated by
improved memory on incidental recall and recognition memory tasks (Craik & Tulving, 1975). Rogers et al. (1977) found that the subjects using the self-reference task recalled the adjectives most effectively. The authors suggested that the self-reference process causes activation of the self-schema in the decision-making process, and that this leads to a level of encoding which is significantly deeper than that induced by semantic ratings. In the present study, it is likely that when subjects read their own feedback, a self-reference process was engaged as they compared their computer-generated feedback with previously-established perceptions of their abilities. In contrast, it is unlikely that subjects reading another person's feedback would have processed the information at a comparably "deep" level.

Caution should be observed in interpreting the failure to obtain strong differential memory findings for depressed and nondepressed subjects in the present research. As was described earlier in this paper, subjects in all experimental conditions were reasonably accurate in their memory for feedback, particularly on the recognition memory and global recall tasks. In addition, subjects remembered a relatively small average number of feedback statements on the free recall task. It is therefore likely that even if depressed and nondepressed persons do have selective biases in their memory for feedback, the tasks used in the present study may have been insufficiently sensitive to provide adequate tests of the proposed hypotheses.

Additional Findings

Among the considerations prompting the present study were previous
findings which indicated that depressed persons were unusually reactive (relative to nondepressed persons) to failures and other aversive events, and that they failed to respond as positively as nondepressed persons to successes and other pleasant events (cf. Hammen & Krantz, 1976; Goline et al., 1977). As mechanisms presumed to underlie such reactivity (or absence thereof) constituted the focus of the present investigation (e.g., inferences drawn from feedback, memory for feedback, attributions made for feedback), it was considered important to assess various facets of subjects' reactions to the feedback, e.g., mood following feedback, self-ratings of intellectual ability, desire for further feedback, and expectations for future performance.

Previous research would suggest that in response to negative feedback, depressed subjects should evidence a relatively greater decrease in mood, self-ratings of intellectual ability, expectations for future performance, and desire for further feedback than normals. Normal subjects would have been expected to evidence a relatively greater increase on these measures relative to depressed subjects following positive feedback. Neither of these effects (which would have been demonstrated by Depression Status X Type of Feedback interactions) were evidenced in the present data. The major variable which differentiated between subject groups on these auxiliary measures was Depression Status. Not surprisingly, depressed subjects reported a more dejected mood and, consistent with the lowered self-esteem which is generally considered to be a component of the depressed state, they provided lower estimates of their intellectual abilities and lower
expectations for future performance. Interestingly, depressed subjects also expressed greater interest in additional personal feedback regardless of whether they had received positive, neutral, negative, or no feedback at all. The latter finding may reflect a bid for help, or a greater need for externally provided information about one's abilities.

The one variable which suggested an interactive effect of Depression Status with Type of Feedback was the item assessing expectation for future performance. As reported earlier, nondepressed, but not depressed, subjects evidenced enhanced expectations as a result of receiving positive (as compared to no) feedback. The possibility exists, however, that this difference is attributable to differential interpretations of feedback favorableness. Unfortunately, this could not be assessed by an analysis of covariance procedure because even though all subjects provided estimates of their own level of future performance, only "self" subjects had provided estimates reflecting their interpretations of the favorableness of the feedback.

Attributions. Subjects' attributions for successful or unsuccessful performance on the Wonderlic Test did not support previous findings that depressives make more internal attributions for failures and external attributions for successes relative to nondepressed persons. More recent research (Seligman, Abramson, Semmel, & vonBaeyer, 1979) has provided additional support for the notion that depressed and nondepressed persons evidence different attribution patterns. Specifically, Seligman et al. found that in using an attributional style instrument which required that subjects assess causal relations
while imagining themselves in a variety of hypothetical situations, depressed college students attributed negative outcomes to internal, stable, global causes, and positive outcomes to external, unstable causes. In the present study, the major significant finding was that all subjects made more heavily internal attributions (i.e., to skill and effort) for their own performance than they made for the performance of others. There were no differential effects as a function of level of depression. The failure to find depressed-nondepressed subject differences does not lend itself to any readily apparent explanations.

Limitations, and Directions for Further Research

One of the factors limiting the generalizability of the present findings pertains to the use of a depressed college student (i.e., nonclinical) sample. It is not likely that this sample is representative of the full range of depressed persons, necessitating caution in extending the results of the present study to, for example, a clinically depressed population. The heterogeneity of persons who have been diagnosed as depressed has been a frequently noted problem in the depression research literature (Depue & Monroe, 1978). In addition, the absence of a nondepressed pathological control group in the present study makes it impossible to make a statement regarding the specificity of these results to depression as opposed to more general abnormal functioning (although research which has employed psychiatric control groups has generally found that psychiatric controls are usually quite similar with respect to normal controls, both of whom differ from the depressed subjects.) It should be noted, however, that the present
study did yield one finding which was consistent with findings obtained with the clinically depressed subjects in Lewinsohn et al.'s (1980) study. Although the depressed condition is undoubtedly a common endpoint for multiple causal factors (Akiskal & McKinney, 1973), it is possible that once a person has become depressed, there are common changes in cognitive functioning.

Confidence in the generalizability of the present findings also needs to be tempered by recognition of the fairly large attrition rate (27.4%) in the depressed sample. This resulted from the failure of subjects who were originally classified as depressed to score in the depressed range on the BDI upon re-assessment during the experimental session. This occurred in spite of the brevity of the interval between screening and experiment participation (M = 3.30 days for depressed subjects). Whether or not this represents an unusually large attrition rate when using a college student sample is unclear since comparative data are not made readily available in reports of other research. (An exception to this statement is a study by Sacco and Hokanson (1978), who reported a 27% attrition rate over a one week period between screening and participation in the experiment.) It is possible that the particular instructions used in administration of the BDI (instructions provided by Beck et al., 1979), which asked subjects how they had generally felt during the past week elicited a tendency to report relatively current rather than characteristic mood state. Golin and his colleagues have, in their research, used an instructional set asking subjects to indicate the way they usually feel. Presumably, the latter
instructions may elicit more emphasis on trait depression, possibly leading to greater stability of depression scores over time. It is conceivable that the instructional set used in completing depression assessment instruments may be important in determining the type of depressed persons participating in a particular study (e.g., chronically vs. transiently depressed).

Consistent with the attrition found in the present study was Bumberry et al.'s (1978) finding that although BDI scores in a college student population correlate significantly with psychiatric ratings, there is substantial attenuation of initially high depression scores over a period of 1 to 14 days. Similarly, Hammen (1980) found that among a group of moderately depressed (BDI scores of 16 or higher) college students, over half of the sample (53%) scored in the nondepressed range (scores of 0 - 9) just 2 - 3 weeks after initial testing. These studies, taken in conjunction with the attrition rate data obtained in the present study, would indicate that caution must be observed in interpreting the results of research in which persons who were depressed when screened for research participation were not re-assessed at the point of experiment participation.

Another caution regarding the specificity of the present study's findings to depression *per se* concerns the possibility that a more general factor, such as low self-esteem, could have accounted for the differences obtained between depressed and nondepressed subjects. This is of particular concern in light of the similarity of findings obtained in the present study and in Shrauger and Terbovic's (1976) study (which
examined performance evaluations in high and low self-esteem subjects). Although both clinical observation (Beck, 1967) and analyses of responses to depression assessment instruments indicate that lowered self-esteem is a component of the depressed state, its relationship to depression (e.g., as a response which is triggered by situational stressors, or as a premorbid characterological trait which increases vulnerability to depression) is not clearly understood at present (Becker, 1979). Future research on cognition and depression needs to be more specific in identifying the ways in which self-esteem and depression are interrelated, and the extent to which the cognitive changes observed in depression can be accounted for by low self-esteem.

Future investigations might also contribute to current understanding of the relationship between cognition and depression by using greater specificity in focusing on the types of cognitive differences that occur in various subgroups of depressed persons. Certainly, depressive disorders are complex phenomena, and not all persons diagnosed as depressed can be expected to evidence identical cognitive alterations. Consistent with this notion are data provided by Hammen (1978) which suggest that among persons who become depressed, there are some who appear to have suffered relatively little recent life stress but who have tendencies toward negative cognitive biases, while there are other depressives evidence "normal" interpretations of events but who have suffered unusually high levels of life stress. These findings suggest that not all depressives can be expected to evidence the same degree or types of cognitive biases. Given Beck's tenet that
it is the depressive self-schema which induces the cognitive changes which occur in depression, Hammen's research suggests that some depressives (e.g., those recently experiencing high levels of life stress) may not have those negative self-schemas which function to induce distortion of feedback and other stimuli.

Along these same lines, research by Davis (1979) has suggested that the duration of the depressive episode that a given person is experiencing may be a critical variable in determining the type of cognitive alterations which can be observed in depressed persons. As noted earlier, Beck's model posits that it is the activation of the depressive self-schema which is implicated as the "filter" which forces cognitive changes to occur in depression. However, Davis (1979) found that on a task requiring incidental recall of personal adjectives which were encoded using a self-reference task (similar to the one used by Rogers et al., 1977), depressives performed more poorly than did nondepressives. However, additional analyses by the author indicated that the ability to use the self-reference task to improve recall was significantly and positively correlated with the duration of the depressive episode. Davis suggested that the negative self-schema observed in depressives may develop stability over time and with repeated use. Thus, it may be that the depressive self-schemas described by Beck (1967) may be inactive or only slightly active in the initial stages of depression (leading to no or only to mild information-processing changes) but may become increasingly rigid and inflexible with time, causing rather dramatic changes in cognition.
More recent research (Kuiper, Derry, & MacDonald, in press) indicates that severity of depression may also be a critical variable in studying information processing changes. Specifically, these authors found that while mild depressives were characterized by disruption and inconsistencies in schematic processing of personally relevant information, severe clinical depressives were characterized by efficient schematic processing, but only for personally relevant information with depressed content. It is therefore recommended that future research on cognition and depression take duration and severity of the depressed state into consideration as potentially important variables.
REFERENCE NOTES


Gregory, W.L., Steiner, I.D., Brennan, G.T., & Detrick, A. A scale to measure benevolent versus malevolent perceptions of the environment. *JSAS Catalog of Selected Documents in Psychology*, 1978, 8, 36. (Ms. No. 1679)

Hammen, C.L. Effects of depression, feedback, and gender on selective exposure to information about the self. *Psychological Reports*, 1977, 40, 403-408.


APPENDIX A

Screening Instrument Cover Sheet
The attached questionnaires are to assist us in some research that we are conducting concerning the characteristics of Ohio State University students. We would appreciate your cooperation in taking a few minutes to complete these questionnaires. (However, you have the option of not completing them if you do not wish to do so.) Filling out the forms should take about 10 minutes. Please read the instructions for each questionnaire very carefully.

In addition, we will be doing further research this quarter on characteristics of O.S.U. students. In order to obtain enough subjects, we will contact people by telephone and invite them to participate in exchange for Psychology 100 experimental credit or other compensation. We would appreciate it if you would leave your name and telephone number in the space below so that we may contact you.

Name (please print clearly): ____________________________
Home Telephone Number: ____________________________

Your responses on this survey are completely confidential. To ensure confidentiality, fold these materials, place them in the attached envelope, and seal it when you are finished.

Thank you for your cooperation.  

Carol Savits
Psychology Researcher
APPENDIX B

Desirability Ratings of Feedback Statements
Personal Desirability of Feedback Statements

<table>
<thead>
<tr>
<th>Statement</th>
<th>Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>You often get original ideas.</td>
<td>4.25</td>
</tr>
<tr>
<td>You rarely get original ideas.</td>
<td>1.68</td>
</tr>
<tr>
<td>Problem solving is a strength of yours.</td>
<td>3.93</td>
</tr>
<tr>
<td>Problem solving is a weakness of yours.</td>
<td>1.97</td>
</tr>
<tr>
<td>Your capacity for abstract thinking is very good.</td>
<td>3.86</td>
</tr>
<tr>
<td>Your capacity for abstract thinking is very poor.</td>
<td>1.96</td>
</tr>
<tr>
<td>You learn new material easily.</td>
<td>4.16</td>
</tr>
<tr>
<td>You have difficulty in learning new material.</td>
<td>1.89</td>
</tr>
<tr>
<td>Even in stressful situations, you are able to reason out the facts.</td>
<td>4.22</td>
</tr>
<tr>
<td>In stressful situations, you have problems reasoning out the facts.</td>
<td>2.11</td>
</tr>
<tr>
<td>You have good judgment.</td>
<td>4.51</td>
</tr>
<tr>
<td>You have problems in the area of judgment.</td>
<td>1.78</td>
</tr>
<tr>
<td>You have a large range of information.</td>
<td>4.05</td>
</tr>
<tr>
<td>You have a small range of information.</td>
<td>1.60</td>
</tr>
<tr>
<td>Your vocabulary is adequate.</td>
<td>3.56</td>
</tr>
<tr>
<td>Your vocabulary needs improvement.</td>
<td>2.59</td>
</tr>
<tr>
<td>You are very effective at organizing and planning complex activities.</td>
<td>3.94</td>
</tr>
<tr>
<td>You are not very effective at organizing and planning complex activities.</td>
<td>1.99</td>
</tr>
<tr>
<td>Understanding and sizing up situations is one of your strengths.</td>
<td>4.15</td>
</tr>
<tr>
<td>Understanding and sizing up situations is definitely not one of your strengths.</td>
<td>1.85</td>
</tr>
</tbody>
</table>

1=Very Negative; 5=Very Positive
APPENDIX C

Sample Feedback Sequences
Sample Feedback Sequences

**Negative Feedback Sequence: Al**
Problem solving is a weakness of yours.
You have difficulty in learning new material.
You have a large range of information.
Your vocabulary needs improvement.
You have problems in the area of judgment.
You are very effective at organizing and planning complex activities.
You rarely get original ideas.
Even in stressful situation, you are able to reason out the facts.
Understanding and sizing up situations is definitely not one of your strengths.
Your capacity for abstract thinking is very poor.

**Neutral Feedback Sequence: Al**
Problem solving is a weakness of yours.
You learn new material easily.
You have a small range of information.
Your vocabulary is adequate.
You have good judgment.
You are not very effective at organizing and planning complex activities.
You often get original ideas.
Even in stressful situation, you are able to reason out the facts.
Understanding and sizing up situations is definitely not one of your strengths.
Your capacity for abstract thinking is very good.

**Positive Feedback Sequence: Al**

Problem solving is a strength of yours.

You learn new material easily.

You have a large range of information.

Your vocabulary needs improvement.

You have good judgment.

You are not very effective at organizing and planning complex activities.

You often get original ideas.

Even in stressful situations, you are able to reason out the facts.

Understanding and sizing situations is one of your strengths.

Your capacity for abstract thinking is very good.
APPENDIX D

Experimenter Instructions
Let me get an idea of who is here. (Experimenter takes attendance, gives out envelopes of materials to each subject.) Before we get started today, we would like to obtain some demographic information about the people in this study and some information about their attitudes. Please remove the questionnaire which is in your envelope and complete both pages. Please do not put your name on these questionnaires. Your responses are completely confidential. When you have finished, put the questionnaires back in your envelopes. (Experimenter waits until all subjects have finished.)

My name is Carol Savitz, and I am a graduate student in the psychology department here at Ohio State University. I'd like to tell you a little about today's study. This is not an experiment in the usual sense. Rather, the research in which you will be participating today concerns the assessment of intellectual and personality characteristics of students in Introductory Psychology. This study is part of a larger-scale project in which characteristics of Introductory Psychology students will be compared to those of O.S.U. students who have never been enrolled, and do not plan to enroll in Introductory Psychology. This comparison is of serious concern and interest to researchers in psychology at Ohio State because most of our studies are conducted with Intro Psych students serving as subjects. As you have learned in your psychology class, it is not valid to generalize the results you obtain with one group of individuals to other groups unless these groups are basically the same on important dimensions. Therefore, we are conducting the present study to determine how Intro Psych and other O.S.U. are different from and similar to each other in order to enhance our ability to generalize the results of our research from Intro Psych students to other groups of individuals at O.S.U.

During your participation in this study, I will ask you to complete a variety of instruments. The first of these will be a brief test of intellectual abilities called the Wonderlic Personnel Test. This is an intelligence test which, as its name indicates, is often used for personnel selection purposes. The test measures many specific cognitive abilities, and can therefore give the tester a good indication of a person's intellectual strengths and weaknesses, as well as an estimate of his or her overall ability level. Research using the Wonderlic Test with college students has indicated a strong relationship between Wonderlic test scores and such variables as how well people perform in college, whether they are able to successfully complete a college degree, and the level of the occupation that they enter following graduation. That is, high scorers on the Wonderlic Test tend to do significantly better in these areas than do low scoring individuals.

After completing the Wonderlic Test, you will be asked to fill out a few questionnaires. These are designed to assess your attitudes about various issues and situations, and to assess how common certain events are in the lives of college students. While you are working on these questionnaires, I am going to have your test responses coded for
computer processing by the secretaries here in the psychology department, and taken to the computer located in Robinson Lab, right across the street from this building. A group of industrial psychologists, who specialize in the development of procedures for efficiently selecting personnel for various occupations, has developed a computer program to provide people with feedback on their intellectual abilities, as indicated by their responses on the Wonderlic Test. I thought that as an extra bonus for participating in this study, people might be interested in receiving such feedback on themselves. So I obtained a copy of the computerized feedback program to use at O.S.U., and was given permission to use it to provide subjects participating in this study with feedback on their performance. We will also be interested in your impressions of this feedback, and will want to ask you some questions about it. The only problem is that it will take some time to process all of your tests. So what we are going to do is to have each of you read and answer some questions about two different Wonderlic Test evaluations. One of these will be an evaluation of your own performance, while the other will be an evaluation of the performance of a person who participated in this study last quarter. Some of you will receive your own feedback first, and some of you will receive another person's evaluation first while your own feedback is being processed at the computer. Then, you will each read a second evaluation, either your own or someone else's, depending on which kind of evaluation you received first. We are doing this because we cannot process all the tests at one time, and we want everyone to have something to do while waiting for his or her own evaluation. In any event, you will all receive your own evaluation during today's experiment.

By the way, I want to assure you that your test and questionnaire responses are completely anonymous. Only you will know how you answer. Please do not put your name on any of the materials you receive. On the Wonderlic Test, there will be a space for your name. Do not write your name in that space. Please use only the 3-digit code number that appears on the outside of your envelopes. Your computerized feedback will come back coded with this number, and this will give me a convenient way of giving them back to you.

Since this is a study in which you will be asked some personal questions about yourselves and your attitudes, the O.S.U. Human Subjects committee requires that you sign a statement giving your consent to participate. Before we do anything else, I will hand out the consent forms and we will go over them together. (Experimenter reads consent form aloud and answers questions.)

The first thing we are going to do is the Wonderlic Test which, as I discussed earlier, is a brief intelligence test which is an excellent instrument for assessing intellectual strengths and weaknesses as well as the person's overall ability level. I will give out the tests now. Please write the code number from your envelope at the top of the first page where it says "name." Read the first page carefully and work out the sample problems. Do not turn the page until you are told to do so. When you are finished, please look up so that I will know you are ready to begin. (Experimenter distributes tests.) Does everyone
understand the procedure? You will have exactly 12 minutes in which to answer as many problems as you can. You probably will not be able to finish them all. Work as carefully as you can, but do not spend too much time on any one problem. I will stop you at the end of 12 minutes. Go ahead. (Experimenter waits 12 minutes.) Please stop. Would you make sure that your code number is recorded on the test? (Experimenter collects tests.)

Now, I’d like you to complete those other questionnaires that I described to you earlier today. Again, I would like to emphasize that your responses are completely anonymous. It is important that you read the instructions for each questionnaire carefully so that you will know exactly what is being asked of you. I will give out the questionnaires one at a time, and give you rough time guidelines to use in filling them out. I don’t want anyone to feel rushed, but I would also like everyone to keep pace so that we finish on time today. Please take whatever time you need to respond carefully and accurately.

By the way, as you may know, I am distributing a variety of questionnaires to Psychology 100 classes as part of a different study, and am giving out different questionnaires in this study as well. I haven’t kept track of which questionnaires I gave out in which classes, so it is possible that a few of you may have completed one or two of these questionnaires before. If that occurs, don’t worry about it. Just fill them out again since the questionnaires are for separate studies anyhow.

Here is the first questionnaire. (Experimenter distributes MBQ.) It should take about 5 minutes. When you are done, put it in your envelope so that I will know you are finished. While you are working on it, I’m going to drop off your tests with the secretaries so that they can get started on coding them. (Experimenter leaves room with the tests, and returns in a few minutes.)

Here is the DAS—Differential Attitude Scale. The instructions are as follows. (Experimenter reads the instructions aloud.) This will take about 5 or 10 minutes.

Here is the Beck Inventory, a personal attitude and behavior rating scale. Please read the instructions carefully and take about 5 minutes to fill it out. The instructions ask you to read each group of statements, and to circle the number next to the statement which best characterizes the way you’ve been over the past week.

This is the Social and Collegiate Readjustment Rating Scale. It says (experimenter reads instructions). Six months ago was approximately (experimenter fills in date), so you can use that as an anchor point for the six month time period in question. This should take about 5 minutes. While you’re working on this, I will check to see if some of the evaluations are ready. (Experimenter leaves room briefly.)

A few of the evaluations were ready. Before I return them to you, I just wanted to tell you a bit more about the Wonderlic Test. It is a test of intellectual abilities which is predictive of success in college and on the job. It is capable of measuring about 15-20 very specific cognitive abilities, and this is what makes it an excellent instrument for assessing individual strengths and weaknesses in these ability
areas. You may remember that there were many different types of questions on the Wonderlic Test. These were items which were tapping into many different ability areas.

Now, for those of you whose feedback has not yet come back, I will give you an evaluation which was prepared for a person who participated in this study last quarter. You will receive your own feedback a little later, as soon as it's ready. I will give you all about a minute to read the evaluations. Please read it very carefully, even if it is not your own evaluation, because we will be interested in your impressions of it, and will ask you some questions about it. I'll give out the evaluations now. Please don't open them up until I tell you to do so. (Experimenter gives approximately half the subjects in the session an evaluation.) Those are the evaluations which have come back. I'll give the rest of you another person's evaluation. (Experimenter gives remaining subjects an evaluation.) O.K., take a minute or so to read the evaluations carefully. The evaluation will be on the flip side of the printout. (After 50 seconds), O.K., I'd like you to fold up the evaluations now and put them in your envelopes now. You can look at them again later, and can take them home with you if it was your own evaluation. Now, I'd like to ask you some questions, and would like you to answer these questions without referring back to the printouts.

This is the first question I'd like you to answer. (Experimenter distributes questionnaire assessing judgments of feedback favorableness.) I'll read it aloud to make sure it's clear. Follow along with me. (Experimenter reads questionnaire and responds to any questions.) When you have finished, please put this in your envelopes.

Oh, no. (Experimenter feigns surprise.) I forgot to give you this questionnaire when you were filling out the other ones before. Well, why don't you just take a few minutes to fill it out right now. This is a mood adjective check list. Read the instructions carefully, and put it away when you're done. (Experimenter distributes the DACL.)

Now, going back to the evaluations, would you fill this out? (Experimenter distributes questionnaire regarding satisfaction and applicability of feedback.) Answer the questions at the top of the two pages if you just received your own feedback, and at the bottom of the two pages if you read someone else's evaluation.

Now, I have a few other tasks for you. (Experimenter distributes form for free recall memory task, and reads instructions aloud.) I will give you a full 5 minutes for this task so that you can try to think of as many statements as possible. (After 5 minutes) O.K., you can put these away now. (Experimenter distributes form for global memory task, and reads instructions aloud.) Please put these away when you've finished. (Experimenter distributes recognition memory booklet.) Please read the instructions along with me. (Reads instructions aloud.) What we did was to obtain part of the pool of feedback items that are available through the computer program and printed them up in booklet form.

I have another questionnaire for you. There are two slightly different forms depending on whether you just received your own or someone else's feedback. Which of you received your own evaluation?
(Experimenter gives them "self" form of the attribution measure.) The rest of you will get this form. (Gives remaining subjects the "other" form.) (Experimenter reads first part of instructions aloud.) Now, please read the remaining paragraph, and answer the questions on the next page. I will go get the rest of the evaluations. They should be ready by now. (Experimenter leaves for a few minutes, and returns.)

I'm really sorry, but the secretary hasn't returned from the computer center yet. It really shouldn't have taken her this long. I guess processing time at the computer is slow today. I was going to have you read another evaluation and answer these questions again, but I'm afraid we won't have time if we wait for the secretary to get back. (Experimenter pauses thoughtfully.) I'll tell you what. Why don't we just skip that part of the study, and go on with the rest of it. I don't want you to be delayed in leaving here today. For those of you who haven't yet received your own evaluation, the secretary should be back in the next 5 to 10 minutes, and you'll get your evaluations before you leave here today. Is that all right?

We were also interested in people's impressions of their own abilities. Would you fill this out? The instructions are self-explanatory. (Experimenter distributes self-attitude questionnaire.)

Now, this questionnaire is not part of the study. I've been asked to give it to all subjects who participate in this study, however. This quarter, there are many research projects being conducted, and there is a greater need for subjects than there are subjects available. So we are asking people to complete this form. Even if you do not wish to leave your names and telephone numbers, please respond to the first question. (Experimenter distributes form assessing desire for further feedback.)

Here is the last form. Please put these in your envelopes when you are done. I'll check to see if the remaining evaluations are back from the computer. They should be. (Experimenter distributes suspicion probe, and leaves room briefly.)

I'm really sorry, but they're still not ready. I'll tell you what. I'll leave them in the office with the psychology secretary in room 242, and you can stop back later today or tomorrow and pick them up. Make sure you remember your code number so that you'll be able to identify your evaluation.

Now, I'd like to spend a few minutes telling you a little more about the study. (Experimenter thoroughly debriefs subjects.)
Personal Data

Sex: __M __F

Age: ___

Permanent residence: ___In state
___Out of state

Marital status: ___Single
___Married
___Divorced, separated, or widowed

University status: ___Freshman
___Sophomore
___Junior
___Senior
___Other (Please indicate: ____________________________)

Living arrangements: ___On campus
___Off campus in fraternity, sorority
___Off campus with family
___Off campus - other

Cumulative grade-point average (through Spring Quarter, 1979):

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<tr>
<th>Grade-Point Average</th>
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<tr>
<td>Below 1.0</td>
<td>1.0-1.4</td>
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<td>1.5-1.9</td>
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Grade-point average, Spring Quarter, 1979: ___
**Attitudes about Psychology**

Please give your own opinion to the following questions. **Circle the number** which corresponds to your response.

1. How important do you believe that psychological intelligence tests are in our society?

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<td>Not at All</td>
<td>Somewhat</td>
<td>Neither</td>
<td>Somewhat</td>
<td>Extremely</td>
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2. How important do you think that psychological personality tests are in our society?

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3. How much faith do you have in psychological intelligence tests as a means of gaining accurate information about yourself?

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4. How much faith do you have in psychological personality tests as a means of gaining accurate information about yourself?

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5. How much experience or contact have you had previously with psychological intelligence tests (e.g., by taking such tests or by reading about them)?

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6. How much experience or contact have you had previously with psychological personality tests (e.g., by taking such tests or by reading about them)?

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7. People vary in the extent to which they are interested in receiving feedback about themselves. For example, people differ in their desire to know "how they are doing" in school performance, social activities, work settings, etc. Generally speaking, to what extent do you like to get feedback about yourself?

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THE OHIO STATE UNIVERSITY

CONSENT TO SPECIAL TREATMENT OR PROCEDURE

1. ____________________________________________, hereby authorize or direct Carol Savitz/Herbert Micaela
or associate or assistants of his or her choosing, to perform the following treatment or procedure and such additional
services as they may deem reasonably necessary in its performance (describe in general terms). You will be asked
to complete a test of intellectual abilities and questionnaires concerning
personality characteristics. You will also receive an assessment of your
(please or name of subject) performance on the
intelligence test.

The experimental portion of the treatment or procedure is: ________________

This is done as part of an investigation entitled: _Inteelllectual and Personality
Characteristics of OSU Students_

1. Purpose of the procedure or treatment: To obtain normative data on the intellectual
and personality characteristics of Psychology 100 students in order to
compare them to other students at OSU.

2. Possible appropriate alternative methods of treatment: not applicable

3. Discomforts and risks reasonably to be expected: Some people may find that completing
the intellectual test, questionnaires, and receiving the intellectual
assessment produces some discomfort.

4. Benefits which may be expected: This research will expand our knowledge of the ways
in which Psychology 100 and other OSU students are different from and
similar to each other.

5. Likely results of the experimental treatment or procedure: This knowledge will enhance our
ability to generalize the results of psychological research conducted
with Psychology 100 students to other groups of individuals.

I hereby acknowledge that I have had a full opportunity to ask any questions regarding the procedure described above
and that all questions have been answered by Carol Savitz
to my full satisfaction. He/She has explained the risks described above and I understand them, and he/she has also
offered to explain all possible risks or complications.

I understand that any further inquiries I may have concerning the procedure described above will be answered, and I
understand that I am free to withdraw my consent and participation in this project at any time after notifying the
project director without prejudicing my future care. No guarantee has been given to me concerning this treatment or
procedure.

I have read and fully understand the consent form: I have signed it freely and voluntarily and understand a copy is
available upon request.

Date: ___________________________ Time: ___________ PM

Signed: ___________________________

Witness: ___________________________

Witness: ___________________________

I certify that I have personally completed all blanks in this form and explained them to the subject or his/her represent-
vative before requesting the subject or his/her representative to sign it.

Signed: ___________________________

Protocol No. 798 032

PA-228 (3/79)
The Wonderlic Intelligence Test will be administered to several hundred O.S.U. students later this quarter. The same computer program that generated the evaluation which you just read will be used to evaluate each student's test performance.

The computer program will then rank all of these intellectual evaluations according to how favorable or unfavorable they are. We are interested in how accurate people can be in predicting how the computer will rank these intellectual evaluations. Try to predict as accurately as you can the percentage (from 0% to 100%) of the evaluations that the computer will rank as more favorable than the one you just read.

For instance, if you think that more than half would be ranked as more favorable, you should write down some specific percentage greater than 50%. Similarly, if you think that fewer than half would be ranked as more favorable, you should write down some specific percentage smaller than 50%.

For example, if you thought that 23% of all the evaluations would be ranked as more favorable, this would mean that you thought that the evaluation you read was rather favorable, and you would write down "23%" in the space below. Or, for example, if you thought that 84% of all the evaluations were more favorable, this would mean that you thought the evaluation was rather unfavorable, and you would write "84%" in the space below.

My best prediction is that ______ of the intellectual evaluations will be ranked by the computer as being more favorable than the one I just read.
IF YOU RECEIVED YOUR OWN FEEDBACK, ANSWER THESE 2 QUESTIONS:

1. To what extent was the feedback you received an accurate description of your intellectual abilities? (Circle the appropriate number)

   1 2 3 4 5 6 7 8 9
   Very Somewhat Neither Somewhat Very
   Inaccurate Inaccurate Accurate Accurate Accurate
   Nor Inaccurate

2. How pleased were you with the feedback you received? (Circle the appropriate number)

   1 2 3 4 5 6 7 8 9
   Very Somewhat Neither Somewhat Very
   Displeased Displeased Pleased Pleased Pleased
   Nor Displeased

---

IF YOU RECEIVED SOMEONE ELSE'S FEEDBACK, ANSWER THESE 2 QUESTIONS:

1. Using your intuition, to what extent do you think the feedback you read provided an accurate description of this person's intellectual abilities? (Circle the appropriate number)

   1 2 3 4 5 6 7 8 9
   Very Somewhat Neither Somewhat Very
   Inaccurate Inaccurate Accurate Accurate Accurate
   Nor Inaccurate

2. How pleased do you think this person was with his or her feedback? (Circle the appropriate number)

   1 2 3 4 5 6 7 8 9
   Very Somewhat Neither Somewhat Very
   Displeased Displeased Pleased Pleased Pleased
   Nor Displeased
IF YOU RECEIVED YOUR OWN FEEDBACK, ANSWER THE FOLLOWING QUESTION:

To what extent was the feedback that you received more or less favorable than you had expected? (Circle the appropriate number)

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<tr>
<td>Much</td>
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<td>Somewhat</td>
<td>More</td>
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<td>Favorable</td>
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IF YOU RECEIVED SOMEONE ELSE'S FEEDBACK, ANSWER THE FOLLOWING QUESTION:

Using your intuition, to what extent do you think the feedback that this person received was more or less favorable than he or she had expected? (Circle the appropriate number)

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<td>Much</td>
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<td>Favorable</td>
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On the lines below, try to write down as many of the feedback statements as you can. Start each one on a new line.

Do not be concerned about the order in which you write them, about spelling, or about the exact wording of the statements. Simply do the best you can.

Please write legibly.
The Wonderlic Test evaluation that you read consisted of a number of statements. Some were favorable or positive statements, while some were unfavorable or negative statements.

Try to estimate how many of each type of statement you read.

Number of favorable statements: ______
Number of unfavorable statements: ______
On each page of this booklet is a statement. Read each statement and decide whether or not this specific statement appeared in the Wonderlic evaluation that you read earlier. Circle "yes" if it appeared in the evaluation, and circle "no" if it did not.

In addition, indicate how certain you are that your response ("yes" or "no") is correct. Indicate how confident or certain you are of your response by circling the number which corresponds to your certainty level under each statement. Use the following scale:

1 = Guess
2 = Slightly Certain
3 = Moderately Certain
4 = Completely Certain

EXAMPLE

YOU ARE ABOVE AVERAGE IN YOUR COLLEGE COURSES.

I read this statement earlier: Yes No

Certainty level (circle one number): 1 Guess
2 Slightly Certain
3 Moderately Certain
4 Completely Certain

Complete the remaining items in the same manner. Work in order. When you complete an item, turn to the next one. Do not turn back to earlier items.

Please work quickly, but carefully. When you are finished, put the booklet in your envelope. You have 5 minutes.
YOU HAVE A LARGE AMOUNT OF COMMON SENSE.
YOU RARELY GET ORIGINAL IDEAS.
YOU ARE NOT VERY EFFECTIVE AT ORGANIZING AND PLANNING COMPLEX ACTIVITIES.
YOU HAVE A LARGE RANGE OF INFORMATION.
YOU ARE GOOD AT LOGICAL THINKING.
YOU HAVE GOOD JUDGMENT.
IN STRESSFUL SITUATIONS, YOU HAVE PROBLEMS REASONING OUT THE FACTS.
PROBLEM SOLVING IS A WEAKNESS OF YOURS.
YOUR CAPACITY FOR ABSTRACT THINKING IS VERY GOOD.
YOU HAVE DIFFICULTY IN LEARNING NEW MATERIAL.
YOUR VOCABULARY IS ADEQUATE.
YOUR MEMORY IS RATHER WEAK.
YOU ARE VERY EFFECTIVE IN THE AREA OF SPATIAL REASONING.
YOU DO NOT CONCENTRATE EFFECTIVELY IN LEARNING SITUATIONS.
UNDERSTANDING AND SIZING UP SITUATIONS IS ONE OF YOUR STRENGTHS.
YOU HAVE THE ABILITY TO THINK IN A FLEXIBLE MANNER.
YOU ARE VERY EFFECTIVE AT ORGANIZING AND PLANNING COMPLEX ACTIVITIES.
YOU ARE NOT VERY EFFECTIVE IN THE AREA OF SPATIAL REASONING.
YOUR VOCABULARY NEEDS IMPROVEMENT.
YOU OFTEN GET ORIGINAL IDEAS.
YOUR CAPACITY FOR ABSTRACT THINKING IS VERY POOR.
YOU HAVE A SMALL RANGE OF INFORMATION.
EVEN IN STRESSFUL SITUATIONS, YOU ARE ABLE TO REASON OUT THE FACTS.
YOU LEARN NEW MATERIAL EASILY.

YOU TEND TO THINK IN A RIGID MANNER.

PROBLEM SOLVING IS A STRENGTH OF YOURS.

UNDERSTANDING AND SIZING UP SITUATIONS IS DEFINITELY NOT ONE OF YOUR STRENGTHS.

YOU HAVE PROBLEMS IN THE AREA OF JUDGMENT.

YOU ARE SOMEWHAT LACKING IN COMMON SENSE.

YOUR MEMORY IS MORE THAN ADEQUATE.

YOU ARE NOT A VERY GOOD LOGICAL THINKER.

YOU CAN CONCENTRATE QUITE EFFECTIVELY IN LEARNING SITUATIONS.
How a person does on a task like the Wonderlic Test depends on several factors. Four of these factors are skill, effort, task difficulty, and luck.

Sometimes, a person's performance depends on his or her level of skill and ability. People with high levels of skill may be successful on tasks even if the task is difficult or if they do not try very hard. Luck may not be an important factor for these people. People with low levels of skill may be unsuccessful on a task even if the task is easy, or even if they try hard.

Sometimes, a person's performance depends on the effort he or she puts in. Some people may be successful because they try hard, and are able to make up for any lack of skill or for bad luck. Other people may be unsuccessful because they do not apply themselves or try very hard, even if they are skillful or have good luck.

Sometimes, a person's performance depends on the level of difficulty of the task. If the task is an easy one, even people who are not very skillful or who do not try very hard are successful. On harder tasks, these people might not do as well.

Sometimes, a person's performance depends on his or her luck. People with good luck may be successful even though they may not be skillful, may not try hard, or may have a difficult task. People with bad luck may be unsuccessful on a task despite a great deal of effort, a high skill level, or an easy task.

Now, consider your performance on the Wonderlic Test. In your opinion, what effect did each of the four factors have on your performance? Did it help your performance, hurt your performance, or have no effect on your performance? Then, if a factor helped or hurt your performance, decide on the extent to which it helped or hurt your performance. Did it help (or hurt) a little, some, or very much?
SKILL
Did your level of skill help, hurt, or have no effect on your performance (check one):

- Helped
- Hurt
- No Effect

If you checked "Helped" or "Hurt," indicate how much your skill level helped or hurt your performance by circling the appropriate number below:

1 2 3 4 5 6 7
Little Some Very Much

EFFORT
Did your level of effort help, hurt, or have no effect on your performance (check one):

- Helped
- Hurt
- No Effect

If you checked "Helped" or "Hurt," indicate how much your effort level helped or hurt your performance by circling the appropriate number below:

1 2 3 4 5 6 7
Little Some Very Much

TASK DIFFICULTY
Did the level of difficulty of the task (i.e., the Wonderlic Test) help, hurt, or have no effect on your performance (check one):

- Helped
- Hurt
- No Effect

If you checked "Helped" or "Hurt," indicate how much the task difficulty helped or hurt your performance by circling the appropriate number below:

1 2 3 4 5 6 7
Little Some Very Much

LUCK
Did your level of luck help, hurt, or have no effect on your performance (check one):

- Helped
- Hurt
- No Effect

If you check "Helped" or "Hurt," indicate how much your luck level helped or hurt your performance by circling the appropriate number below:

1 2 3 4 5 6 7
Little Some Very Much
How a person does on a task like the Wonderlic Test depends on several factors. Four of these factors are skill, effort, task difficulty, and luck.

Sometimes, a person's performance depends on his or her level of skill and ability. People with high levels of skill may be successful on tasks even if the task is difficult or if they do not try very hard. Luck may not be an important factor for these people. People with low levels of skill may be unsuccessful on a task even if the task is easy, or even if they try hard.

Sometimes, a person's performance depends on the effort he or she puts in. Some people may be successful because they try hard, and are able to make up for any lack of skill or for bad luck. Other people may be unsuccessful because they do not apply themselves or try very hard, even if they are skillful or have good luck.

Sometimes, a person's performance depends on the level of difficulty of the task. If the task is an easy one, even people who are not very skillful or who do not try very hard are successful. On harder tasks, these people might not do so well.

Sometimes, a person's performance depends on his or her luck. People with good luck may be successful even though they may not be skillful, may not try hard, or may have a difficult task. People with bad luck may be unsuccessful on a task despite a great deal of effort, a high skill level, or an easy task.

Now, consider the performance of the person who received the Wonderlic Test evaluation that you read earlier. According to your best intuition, what effect do you think each of the four factors had on this person's performance? Did it help his/her performance, hurt his/her performance, or have no effect on his/her performance? Then, if a factor helped or hurt the person's performance, decide on the extent to which it helped or hurt the performance. Did it help (or hurt) a little, some, or very much?
### Skill

Did this person's level of skill help, hurt, or have no effect on his/her performance (check one):  
- Helped  
- Hurt  
- No Effect  

If you checked "Helped" or "Hurt," indicate how much this person's skill level helped or hurt his/her performance by circling the appropriate number below:

<table>
<thead>
<tr>
<th>1</th>
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<th>7</th>
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<tbody>
<tr>
<td>Little</td>
<td>Some</td>
<td>Very</td>
<td></td>
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</tbody>
</table>

### Effort

Did this person's level of effort help, hurt, or have no effect on his/her performance (check one):  
- Helped  
- Hurt  
- No Effect  

If you checked "Helped" or "Hurt," indicate how much this person's effort level helped or hurt his/her performance by circling the appropriate number below:

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<tr>
<th>1</th>
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<tbody>
<tr>
<td>Little</td>
<td>Some</td>
<td>Very</td>
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</tbody>
</table>

### Task Difficulty

Did the level of difficulty of the task (i.e., the Wanderin Test) help, hurt, or have no effect on this person's performance (check one):  
- Helped  
- Hurt  
- No Effect  

If you checked "Helped" or "Hurt," indicate how much the task difficulty helped or hurt this person's performance by circling the appropriate number below:

<table>
<thead>
<tr>
<th>1</th>
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<td>Little</td>
<td>Some</td>
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</table>

### Luck

Did this person's level of luck help, hurt, or have no effect on his/her performance (check one):  
- Helped  
- Hurt  
- No Effect  

If you checked "Helped" or "Hurt," indicate how much this person's luck level helped or hurt his/her performance by circling the appropriate number below:

<table>
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<tr>
<th>1</th>
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</thead>
<tbody>
<tr>
<td>Little</td>
<td>Some</td>
<td>Very</td>
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</tbody>
</table>
If you were to take a test similar to the Wonderlic approximately 1 week from now, how well or poorly do you think you would do on it?

<table>
<thead>
<tr>
<th></th>
<th>Very</th>
<th>Somewhat</th>
<th>Neither</th>
<th>Somewhat</th>
<th>Very</th>
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</table>
SELF-ATTITUDES

We are interested in YOUR OWN opinion of your intellectual abilities. Please circle the number which corresponds to your own opinion about your intellectual strengths and weaknesses.

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<tr>
<td>Quick Thinker</td>
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<td>Poor Judgment</td>
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<td>Intelligent</td>
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<td>Good Organizer</td>
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<td>Slow Learner</td>
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<td>Good Numerical Abilities</td>
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<td>Logical Thinker</td>
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<td>Observant</td>
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<td>Poor Problem Solver</td>
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Overall, how would you rate your intellectual abilities?

1 2 3 4 5 6 7 8 9
Poor Fair Good Very Excellent
The Psychology Department has other research projects in which you can get feedback about yourself based on the results of other psychological tests, although no experimental credit or payment can be offered.

How interested would you be in signing up for another such experiment?

<table>
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</thead>
<tbody>
<tr>
<td>No Interest</td>
<td>A Little</td>
<td>Some</td>
<td>Moderate</td>
<td>A Great</td>
<td>Interest</td>
<td>Interest</td>
<td>Interest</td>
<td>Deal of Interest</td>
</tr>
</tbody>
</table>

If you would like to participate in another experiment (for neither experimental credit or payment) in which you will receive feedback about yourself, write in your name and telephone number in the space below and we will contact you.

Name ____________________________

Telephone ________________________
Subjects in psychology experiments sometimes believe that the purpose of the experiment is different than what they were told, or they are suspicious of the procedure. Did you have any such suspicions about this study?

____ Yes  ____ No

If "yes," please state your suspicions as clearly as possible: