

THE DIFFERENTIAL EVALUATION AND RECALL OF
SOCIAL INTERACTIONS BY DEPRESSED
AND NON-DEPRESSED SUBJECTS

By

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CHAPTER I

REVIEW OF THE LITERATURE

Introduction

Within the last sixty years a large body of literature has arisen pertaining to the phenomenon of depression. The interest in depression is associated with the advancement of psychology in general, and is reflective of the prevalence of depression in modern society. Current estimates of the frequency of depression indicate that from 5 to 15% of the population has experienced a depression of a pathological or clinical nature (Mendels, 1970; Secunda, 1973).

According to the Diagnostic and Statistical Manual (DSM II; 1968), depression can be differentiated into one of four types: depressive neurosis, involuntional melancholia, manic-depressive psychosis (depressed type), or psychotic depressive reaction. This differentiation is based on factors such as the severity and the duration of the depression, the response to pharmacological agents, and the presence or absence of precipitating events prior to the depressive episode. Despite this variability in classification, depression is generally characterized by feelings of sadness, hopelessness, and loneliness. Accompanying these affective states are

cognitive, behavioral and physiological changes (Beck, 1967; Friedman & Katz, 1974; Grinker, Miller, Sabshin, Nann & Nunnally, 1962; Izard, 1972; Mendels, 1972). Much of the earlier literature depicts depression as primarily an affective state or mood disorder which produces changes in behavior and thought. More recently, however, this approach has been questioned and other models have been developed. These recent models emphasize the cognitive or behavioral aspects of depression. Instead of considering depression as primarily an affective disorder these newer models view depression as a cognitive or a behavioral disorder which produces the affective disturbances accompanying depression. At the present time it is difficult to decide which of these approaches is most accurate since the overall relationship between affect, cognition and behavior is unclear (Izard, 1972; Lazarus & Averill, 1970). Despite the fact that the psychological models of depression emphasize different processes, frequently they overlap in their explanation of this phenomena.

The Psychoanalytic Theories

One of the first attempts at a psychological explanation of depression came from Karl Abraham (1911). He viewed depression as originating from trauma experienced in the oral stage of development. These early developmental difficulties were followed later in life by loss. The loss could be real or imagined. It could involve the loss of someone close

through death or separation or it could involve a loss of self-esteem or a value system. The result of the loss is a feeling of aggression and anger towards the lost object. However, rather than directing the aggression at the object the individual turns the aggression inward as a result of identification with the lost object. This identification not only results in turning the anger inwards, but also results in the individual incorporating the deficiencies and weaknesses of the object. This theme of loss associated with depression presented by Abraham is found in many of the later psychological theories.

Freud (1917) did little to alter Abraham's theory of depression. He believed, however, that the loss involved in depression is at an unconscious level. The loss or rejection that the person experiences prior to a depression is actually not the loss that produces the depression. Rather, this loss is symbolic of an earlier loss experienced in the individual's early development. Freud also emphasized the importance of guilt experienced by the individual because of feelings of hostility. Also like Abraham, Freud believed that eventually the hostility is turned inwards and produces the depression.

Fenichel (1945) emphasized the dependent character of the depression-prone individual. This dependency is supposedly a result of fixation at the oral stage. Fenichel further characterized the depressed person as similar to a child who relies on external supplies as a basis for self-esteem. When

the external supplies are removed the person's self-esteem is lowered. The person then attempts to force others to replenish these supplies through his or her depressive behaviors.

Klein (1948) stressed the developmental aspects associated with depression. In particular she emphasized the importance of the first year of life. She proposed that during the first year the child experiences ambivalent feelings towards the mother because the mother is unable to satisfy the child's insatiable demands. The resulting ambivalent feelings take the form of alternating love and hate directed towards the mother. As a result of these feelings the child experiences a sense of fear and guilt. If the ambivalent feelings are strong enough the child continues to experience fear and guilt resulting in what Klein called a "depressive position".

Bibring (1953) stressed the role of self-esteem in influencing depression. He felt that self-esteem originates from a person's ability to achieve aspirations. The depressed person is one who is unable to meet self-expectations. This inability results in feelings of helplessness, powerlessness, and unworthiness. In contrast to the earlier theorists Bibring believed that a predisposition toward depression did not occur exclusively during the oral stage of development. He believed that a susceptibility to become depressed could be the result of experiences of frustration and helplessness at any stage of development.

Most of the psychoanalytic theories concerning depression have been based on clinical observations. The research supporting many of the psychoanalytic concepts and the dynamics of depression is sparse (Grinker, et al., 1961; Mendelson, 1960). However, the bulk of the research investigates the relationship between depression and loss, and the relationship between hostility and depression. The notion that depression is brought about by a loss was given support in a study by Spitz (1946) who observed that children six months to five years of age developed a condition that he termed "anaclitic depression" when they were separated from their mothers for over five months. The infants appeared to be apathetic and weepy, reduced the amount they ate, slept irregularly, and in some instances died. If the children were reunited with their mothers their condition improved; however, they occasionally had periods in which they regressed to their earlier depressed condition.

Brown (1961) found that 41% of 216 hospitalized depressives had lost one parent before the age of fifteen. This finding was significant when compared with the overall rate of orphanhood in England, 12%, and a group of medical patients, 19.6%.

Schmale (1958) noted the high rate of depressive symptoms prior to physical illnesses in medical patients. He also noted that the patients reported some form of loss or separation prior to the depressive symptoms.

Engel (1962) reported the case of a child who had failed

to establish a close relationship with its mother. The child developed the symptoms of a severe depression and was hospitalized. Engel reported during the hospitalization the child formed a close relationship with the staff and the depressive symptoms disappeared. Later, however, the child occasionally had depressive episodes. Engel explained the child's reaction in terms of a "depressive withdrawal". The child was unable to affect the environment through its actions, thus in order to avoid frustration and the accompanying anxiety the child reduced its level of activity and withdrew contact from an unsatisfying environment.

Beck, Sethi, and Tuthill (1963) found that the incidence of parental loss was higher for a high depressed group, 27%, than it was for a non-depressed group, 12%. From this finding Beck, et al., concluded that the loss of a parent is an important factor in the later development of a severe depression.

Kaufman and Rosenblum (1967) observed a condition in infant monkeys that was similar to depression. This condition was brought about by separating the infant monkeys from their mothers. Their initial reaction to separation was that of listlessness followed later by a "conservation-withdrawal, and postural collapse".

Despite the apparent support for the relationship between parental loss and depression it should be noted that many of these studies have been criticized since the higher rate of parental loss is not specific to depression and has

been associated with other conditions (Gregory, 1961).

In an attempt to clarify the relationship between hostility and depression Gershon, Cromer, and Klerman (1968) studied six depressed females. The subjects were given the Hamilton Depressed Symptom Scale (1960) and rated on three minutes of free associations for hostility using a technique by Gottschalk, Gleser, and Springer (1963). A slight negative relationship, $r = -.11$, was found between level of depression and hostility-out. A positive correlation was found for the level of depression and hostility-in, $r = .45$. Gottschalk, Gleser, and Springer (1963) found a positive correlation, $r = .47$, between the level of depression as measured by the Beck Depression Inventory and scores on a hostility-in scale. There was a negative correlation between the level of depression and a hostility-out scale, $r = -.31$.

Several factor analytic studies (Beck, 1967; Cattell & Bjerstedt, 1966; Grinker, et al., 1961; and Izard, 1972) have demonstrated that the factor of hostility or aggression is present in depression. More specifically, Izard (1972) demonstrated the presence of both inner directed and outer directed hostility in depression.

In summary, the psychoanalytic theories have tentatively demonstrated the existence of a relationship between depression and loss, and depression and hostility. However, it should be noted that the characteristics of loss and hostility have not been shown to be specific to depression.

The Behavioral Theories

Central to the behavioral theories is the concept of reinforcement. It has been repeatedly demonstrated that reinforcement influences behavior (Ferster, 1958; Rotter, 1954; Skinner, 1953); accordingly, the concept of depression is explained in terms of behavior regulated by reinforcement.

Bandura (1966) characterized the depressed person as one who denies him or herself positive self-reinforcement by setting excessively high standards for reinforcement. Bandura also stated that the depressed person compares him or herself with models who are noted for their extraordinary achievements. By making these comparisons the individual produces aversive stimuli which maintain the depressed condition.

Ferster (1966) and Lazarus (1968) emphasized the scheduling of reinforcement as the important factor in producing and maintaining the depressive behaviors. They maintained that the depressed person is on an extinction schedule or at least on a schedule which requires large amounts of responding to produce a change in the environment. Burgess (1968) expanded this idea and suggested that depressive behaviors are maintained by their reinforcing consequences. Thus, behaviors such as negative verbalizations, sad facial affect, and somatic complaints are maintained by social reinforcements in the form of sympathy, interest, and concern.

Lewinsohn, Golding, Johansson, and Stewart (1968);

Lewinsohn, Winstein, and Shaw (1968); Libet and Lewinsohn (1973); Rosenberry, Weis, and Lewinsohn (1969); Shaffer and Lewinsohn (1971) have emphasized the depressed person's lack of social skills as an important factor in depression. Rosenberry, et al. (cited in Friedman & Katz, 1974) demonstrated that the depressed person's timing of social comments is less predictable and less homogeneous than those of a non-depressed control group. Libet and Lewinsohn (1973) also reported that the depressed individual has a "restricted interpersonal range". Thus, the depressed individual interacts with only a few selected members of a group. They also reported that depressed individuals emit fewer positive reactions than non-depressed individuals. In addition, they observed that depressed persons had a longer action latency in comparison to non-depressed persons. Action latency was defined as the time it took a subject to respond to another subject's statements. Because of these deficits in social skills the depressed individual receives less reinforcement, thereby maintaining his or her depressive state.

Lewinsohn (1974) expanded his view of depression by emphasizing the importance of the perceived contingent relationship between responding and reinforcement. Thus depression is not only a function of a loss of reinforcement, but also a function of a loss of control of reinforcement.

Seligman and Maier (1967) and Seligman and Ovemair (1967) produced a condition in dogs similar to that of depression found in humans. This was accomplished by subjecting the

dogs to a series of inescapable shocks. Later the dogs were again placed in the experimental situation; however, this time they were given the opportunity to escape the shock by jumping over a barrier. The dogs that had experienced the series of inescapable shocks had greater difficulty in learning to escape the shock than did a group of naive dogs. In addition to the retarded rate of learning there appeared symptoms similar to those found in depression such as weight loss, loss of libido, and norepinephrine depletion. Seligman called this condition "learned helplessness" and explained it as a result of the experience with uncontrollable trauma. Similar results have been obtained in experiments using fish, cats, rats, and humans (Behrend & Bitterman, 1963; Seward & Humphrey, 1967; Thornton & Jacobs, 1971; Weiss, Kriekhaus & Conte, 1968).

Miller and Seligman (1973) tested the learned helplessness model further with human subjects by measuring the expectancies of success for depressed and non-depressed subjects following reinforcement in chance and skill tasks. It was found that in the skilled task, depressed subjects were less affected by success than were the non-depressed subjects. In the chance tasks both groups were affected the same by the success experience. These results were interpreted as indicating that the depressed group experienced the reinforcement in both situations as being non-contingent on their performance. More specifically, for the depressed subjects the probability of reinforcement is perceived as

being independent from the response.

According to the behavioral theorists then, depression results from either a low level of reinforcement or from the loss of control of reinforcement. This lack of control or low level of reinforcement produces the low rate of responding and sense of helplessness characteristic of the depressed person.

The Cognitive Theories

The cognitive approaches to depression are primarily concerned with the functions of perception and information processing as they are related to the depressive syndrome. Beck (1967) characterized the depressive as an individual whose pattern of thought or "schema" consists of viewing him- or herself, the world, and the future in a negative way. Moreover, the depressed person views his or her interactions with the environment as unsuccessful and punishing. The self is viewed as being inadequate and unworthy, and the future is viewed as unchanging and a continuation of the present state. Beck referred to this cognitive orientation as the "primary triad of depression". This orientation is brought about by faulty cognitive processes that affect the individual's perceptions. The faulty processes are selected abstraction, arbitrary inference, overgeneralization, and magnification. These cognitive processes operate in the depressed person and enable him or her to create a subjective experience that confirms his or her negative beliefs about the

self, the world, and the future. For Beck then, depression is primarily a thought disorder which produces a disturbance in affect and behavior. Arieti (1963), like Beck, emphasized the cognitive aspects of depression. He believes that depression is a consequence of the cognitive processes of evaluation and appraisal. For Arieti the treatment of depression is accomplished by a change at the cognitive level.

Loeb, Beck, Fishback, and Wolf (1964) attempted to measure the effects of depression on perception by having a depressed and a non-depressed psychiatric group rate pictures of faces on a happiness-sadness continuum. This rating followed a prearranged success or failure in a sentence completion task. No difference was found in rating the pictures; however, there was a difference between depressed and non-depressed subjects in their expectations of future performance. The high depressed subjects showed a greater change in expectations and mood following a success experience. Also, the depressed subjects demonstrated a low level of expectancy and mood following a failure experience.

Friedman (1964) found that severely depressed subjects scored significantly lower on only 4% of 33 cognitive, perceptual, and psychomotor tests. However, Friedman found that the depressed subjects rated themselves more negatively on 82% of the items of the Clyde Mood Scale. Friedman (1964) also noted that depressives significantly underestimated their performance on a finger tapping test in comparison to a non-depressed control group. These results indicate that

depressives' actual performance is not consistent with their low self image.

Rosenzweig (1960) found that following a success or failure experience depressed subjects changed their self-ratings more than normals on the Osgood Semantic Differential Scale. The author concluded that depressed subjects exaggerate the evaluative aspects of the environment.

Payne and Hirst (1957) found that depressed subjects were more overinclusive than a control group as measured by the Epstein Overinclusion Test (Epstein, 1953). However, Payne and Hewlett (1960) found that depressives did not differ significantly on overinclusion scores from other psychiatric groups.

Mezey and Cohen (1961) reported that depressives overestimated time intervals in comparison to normals. In addition, the depressive group reported that they experienced time as moving slowly.

Henry, Weingartner, and Murphy (1971) noted that depressives exhibited a significant impairment in long-term memory. This deficit was associated with unipolar patients only. They explained this impairment as a problem in transferring material from short-term to long-term memory.

Lishman (1972) and Klerman (1973) reported a tendency for depressed subjects to recall more unpleasant material than did other psychiatric groups. Lishman also noted that this tendency to recall more unpleasant material ceased with the subjects' recovery from depression.

Loeb, Beck, and Diggory (1971) found that depressed subjects had higher levels of expectations and aspirations than non-depressed subjects following a success experience in a card sorting task. In addition, Loeb, et al. (1971) found that the success experience resulted in better actual performance for the depressed group.

Statement of the Problem

The present study was designed to investigate further the relationship between depression and its accompanying cognitive disturbances. More specifically, this study looked at the perception and recall of social interactions by depressed and non-depressed subjects. Beck (1967) stated that the depressed person "selectively or inappropriately interprets his experience as detracting in some substantive way" (p. 256). Also based on clinical observations Beck stated further than "the patient automatically makes a negative interpretation of a situation even though more obvious and plausible explanations exist" (1967, p. 256). This study is in part an empirical examination of these clinical observations.

Lewinsohn, Lobitz, and Wilson (1973) compared depressed and non-depressed individual's autonomic response to an electrical shock. They found that depressed individuals have a greater autonomic reactivity to the aversive stimulus shock. This finding is relevant to the present study in that it indicated a differential responding at a physiological level. It seems plausible that this differential re-

sponding could also occur at a cognitive level in response to more complex stimuli such as those that occur in social interactions.

The differential responding between depressed and non-depressed subjects to stimuli has also been demonstrated at a behavioral level in response to reinforcing stimuli (Loeb, et al., 1964; Loeb, et al., 1971; Rosenzweig, 1960). These findings would add to the plausibility that differential responding might occur at a cognitive level.

Based on the findings of Henry, et al. (1971) there seems to be a memory deficit associated with depression. Whether this memory deficit applies to social interactions has not been examined, thus, this experiment will look at this factor. In addition, based on the observations of Lishman (1972) and Klerman (1972), this experiment will examine whether this memory deficit applies in recalling material evaluated as being positive, negative, or neutral.

List of Hypotheses

The following hypotheses constitute those examined in this experiment:

1. The depressed subjects, in comparison to non-depressed subjects, will rate the positive, negative, and neutral scenes lower.
2. The depressed subjects will recall a significantly lower percentage of scenes overall than the non-depressed subjects.

3. The depressed subjects, in comparison to the non-depressed subjects, will recall a significantly lower percentage of the scenes they rated in the positive and neutral categories.
4. The depressed subjects, in comparison to the non-depressed subjects, will recall a significantly higher percentage of the scenes they rated in the negative category.

CHAPTER II

METHODOLOGY

Subjects

Twenty male and 20 female volunteer undergraduate students enrolled at Oklahoma State University served as subjects. They were selected from 210 male and 200 female students who were given the Beck Depression Inventory. The 210 males had a mean score of 6.9, with a standard deviation of 4.6. The 200 females had a mean score of 7.1 with a standard deviation of 5.6. The students were assigned to one of four groups based on their sex and their scores on the Beck Depression Inventory. Ten males and 10 females with scores of 13 or above were assigned to the depressed group. Ten males and 10 females with scores of 3 or below were assigned to the non-depressed group. The cut-off scores of 3 and 13 fall within the range of scores recommended by Beck (1967) for discriminating depressed from non-depressed people.

Apparatus

Beck Depression Inventory

The Beck Depression Inventory (see Appendix A) is a multiple-choice questionnaire consisting of 21 categories.

These categories are derived from the symptoms and attitudes related to depression. There are four or five possible choices under each category which reflect the range of severity of the symptom. Numerical values of zero to three are assigned to each statement to indicate the degree of severity. The total score is arrived at by adding these values.

Beck (1961) and Metcalfe and Goldman (1965) report correlations ranging from .61 to .73 between scores on the depression inventory and clinical ratings for level of depression. According to Beck (1967) correlations with other measures of depression are as follows: Hamilton rating scales, using a Spearman Rank correlation coefficient, .75; Depression Adjective Check List, $r = .40$ to $.66$; the MMPI D scale, $r = .75$.

Original norms were developed from a sample of 966 patients classified under various nosological categories. A cut-off score of 13 or 14 was used to discriminate depressed from non-depressed subjects in that sample. Beck (1967) reported that scores as high as 13 can result from other forms of psychopathology.

Audiotape

The audiotape consisted of 18 scenes of dyadic interaction (see Appendix B). The 18 scenes were evenly divided into the general categories of positive, negative or neutral. This classification was determined by a panel of five judges

listening to the scenes, and rating the scenes on a nine-point scale. The judges were three male and two female psychology graduate students. The positive scenes were selected from those which had a consistent rating of seven through nine. The negative scenes were determined by a consistent rating of one through three. Finally, the neutral scenes were determined by a consistent rating in the range of four through six. These scenes varied in length from 10 to 30 seconds. Each scene was followed by 5 to 10 seconds of blank leader, to allow time for the scene to be evaluated. The scenes depicted everyday situations occurring at home, at school, or at work. Each scene had at least one individual of college age, male or female, interacting with a peer or someone in a position of authority. The audiotape was made such that nine scenes involved college-aged males and nine scenes involved college-aged females. Also, the sex of persons involved in the scenes was balanced in each of the three categories of positive, negative, and neutral.

The Rating Form

The rating form (see Appendix C) was printed on 18, 4" x 8" sheets of paper. On each sheet was one Likert-type scale ranging from one to nine. This scale measured the positive-negative, pleasant-unpleasant aspects of the interaction. "One" was associated with a negative-unpleasant evaluation and "nine" with a positive-pleasant evaluation.

The Recall Form

The recall form (see Appendix E) was an 8" by 12" sheet of paper. The form was divided into three columns under the headings of "characters," "setting," and "general content."

Procedure

The Beck Depression Inventory was administered to classes of undergraduates following the procedures outlined by Beck (1967). The inventories were then collected and scored. Ten males and 10 females with scores of 3 or less, and 10 males and 10 females with scores of 13 or more were selected and asked to participate in the experiments. The subjects were tested two at a time in a room containing two desks and a tape recorder. The two desks were situated such that the subjects could not observe each other during the testing. The instructions found in Appendix D were read to the subjects and the subjects were then given the rating forms and a pencil. The recorder was then started. After each scene the subjects filled out the corresponding page of the form. When the subjects completed the page they were instructed to go on to the next page and wait for the next interaction. The subjects were allowed 5 to 10 seconds between each interaction to fill out the rating form. After the evaluation of the ninth scene the recorder was stopped and the evaluation forms collected. The subjects were then given the recall sheets and the appropriate instructions found in Appendix D were read. When the subjects had indi-

cated that they had recalled as many scenes as possible, or after 15 minutes had elapsed, the recall sheets were collected. The subjects were then given more evaluation forms for the remaining scenes and the recorder was started. The remaining nine interactions were presented with the procedures for the evaluation and recall the same as that for the first portion of the experiment.

Experimental Design

This experiment consisted of three dependent variables: the ratings of the scenes in positive, negative, and neutral categories; the overall percentage of scenes recalled in each category.

The experimental design used to analyze the rating data consisted of a 2 x 3 x 2 split-plot factorial analysis of variance. In this design two levels of depression constituted factor A; the nature of the scenes, as previously determined by the judges as positive, negative, or neutral, constituted factor B; and sex constituted factor C.

The design used to analyze the overall percentage of scenes recalled and the percentage of scenes recalled in each category was also 2 x 3 x 2 split-plot factorial. In this design factors A and C were the same as in the rating analysis, however, factor B, the nature of the scene was determined by the subjects' ratings rather than the judges' ratings. Those scenes which subjects rated three or below were considered as being in the negative category. Those

scenes which subjects rated four through six were considered as being in the neutral category. Scenes which subjects rated seven and above were considered as being in the positive category. Thus, if a subject rated a scene with a three, that scene was considered as being in the negative category for the recall portion of the experiment.

Since specific predictions had been made, planned t tests were used to compare the depressed and non-depressed groups' mean ratings of the scenes in each of the three categories. Also, since specific predictions had been made regarding the depressed and non-depressed groups performance in recalling scenes, planned t tests were used to make these comparisons.

The scoring of the recall data was accomplished by three judges, two male and one female psychology graduate students. Each recall sheet was scored independently by the three judges. In order for a recall to be scored as correct, complete agreement between the judges was required. The criterion used in scoring for correct recall consisted of the correct sex of both characters, the correct setting (where applicable), and an approximation of what the scene was about. The scoring was done blind with regard to the level of depression and sex to guard against any bias.

CHAPTER III

RESULTS

Rating Data Analysis

The means and standard deviations for the ratings of the positive, negative, and neutral scenes by the depressed and non-depressed, males and females, are presented in Table 1. Planned t tests were used to compare the depressed and non-depressed group's ratings of the scenes in each category. As predicted the depressed group rated the positive scenes significantly lower than the non-depressed group, $t(36) = 2.120$, $p < .025$.

The t test used to compare the two groups' ratings of the neutral scenes was not significant; however, it did approach significance, $t(36) = 1.30$, $p < .10$, with the depressed group rating the scenes lower.

The comparison of the depressed and non-depressed groups' ratings of the negative scenes was not significantly different.

The overall analysis of variance for the rating data is presented in Table 2. This analysis indicated a significant main effect for categories, $F(2,72) = 591.585$, $p < .001$. In addition, this analysis also indicated a significant interaction effect between sex and categories, $F(2,72) = 3.241$,

$p < .05$. Since the sex x category interaction was significant, simple effects tests were conducted.

The simple main effects for the sex x category interaction are presented in Appendix F. These indicated only a trend toward a significant difference between males and females at the positive category, $F(1,36) = 3.39, p < .10$, such that the males rated the positive scenes lower than the females. The simple main effects also indicated a trend toward a significant difference between males and females at the negative category, $F(1,36) = 3.84, p < .10$, with the males rating the negative scenes higher. Simple main effects tests were not conducted for a difference in categories at sex since the difference in categories was built into the experiment.

Recall Data Analysis

The means and standard deviations for the recall data are presented in Table 3. These data are presented as percentages, computed from the ratio of number of scenes recalled in a category to the number of scenes evaluated by the subject as being in that category. For example, if in the rating portion of the experiment a subject rated five scenes three or below, these scenes would have been the scenes constituting the negative category for the recall portion of the experiment. If the subject then recalled four of these five scenes he would have been assigned a score of 80% for recall of negative scenes.

TABLE I

MEANS AND STANDARD DEVIATIONS OF THE SUBJECTS'
RATINGS OF THE SCENES AS A FUNCTION OF
DEPRESSION, SEX AND CATEGORY

<u>Group</u> (<u>N</u> = 10 ea)	<u>Positive</u>		<u>Category</u> <u>Negative</u>		<u>Neutral</u>	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Depressed						
Male	7.279	.886	2.431	.868	4.764	.625
Female	7.829	.869	2.129	.436	4.798	.464
Non-depressed						
Male	7.880	.551	2.380	.817	5.113	.459
Female	8.131	.724	1.830	.566	4.998	.864

TABLE II
 ANALYSIS OF VARIANCE OF THE EFFECTS OF DEPRESSION,
 SEX, AND CATEGORY ON THE RATING OF SCENES
 2 x 3 x 2

Source	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
A (Depression)	1.012	1	1.012	2.803
C (Sex)	0.015	1	0.015	0.040
AC	0.404	1	0.404	1.118
Subjects W. group error	12.996	36	0.361	
B (Category)	624.469	2	312.234	591.585**
AB	2.087	2	1.043	1.977
BC	3.421	2	1.711	3.241*
ABC	0.027	2	0.014	0.026
B x subjects W. group error	38.001	72	0.528	

* $p < .05$

** $p < .001$

TABLE III

MEANS AND STANDARD DEVIATIONS FOR THE PERCENTAGE OF
SCENES RECALLED AS A FUNCTION OF
DEPRESSION, SEX, AND CATEGORY

<u>Group</u> (<u>N</u> = 10 ea)	<u>Positive</u>		<u>Category</u> <u>Negative</u>		<u>Neutral</u>	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Depressed						
Male	77.38	22.69	66.85	14.83	63.04	20.20
Female	81.61	23.66	73.05	19.24	71.59	22.78
Non-depressed						
Male	83.71	15.78	84.17	15.0	82.37	18.43
Female	85.05	11.79	81.23	13.45	87.41	14.34

The planned t test used to compare the depressed and non-depressed groups on the percentage of scenes recalled indicated that as predicted the depressed group overall recalled a significantly lower percentage of scenes, $t(36) = 3.073$, $p < .005$.

A planned t test used to compare the percentage of positive scenes recalled by the depressed and non-depressed groups was not significant, $t(36) = 1.154$, $p < .05$.

The one-tailed t test used to compare the depressed and non-depressed groups' percentage of scenes recalled in the negative category was not significant. A two-tailed t test, however, indicated a significant difference between the two groups in the opposite direction of that predicted, $t/2(36) = 3.013$, $p < .01$, with the depressed group recalling a significantly lower percentage of scenes in the negative category.

A comparison of the two groups on the percentage of scenes recalled in the neutral category indicated that the depressed group recalled a significantly lower percentage of scenes, $t(36) = 4.198$, $p < .001$.

In order to get more information about the recall data an analysis of variance was performed on the percentage of scenes recalled. The results of this analysis are presented in Table 4. As predicted this analysis indicated a significant main effect for depression, $F(1,36) = 9.44$, $p < .005$, with the depressed group recalling a significantly lower percentage of scenes. No other significant effects were

demonstrated by this analysis. Thus, according to this analysis, the factors of sex and category did not influence the percentage of scenes recalled.

TABLE IV
 ANALYSIS OF VARIANCE OF THE EFFECTS OF DEPRESSION,
 SEX, AND CATEGORY ON THE RECALL OF SCENES
 2 x 3 x 2

Source	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
A (Depression)	0.413	1	0.413	9.444*
C (Sex)	0.042	1	0.042	0.986
AC	0.020	1	0.020	0.461
Subject W. group error	1.574	36	0.044	
B (Category)	0.088	2	0.044	1.379
AB	0.082	2	0.041	1.292
BC	0.015	2	0.008	0.231
ABC	0.006	2	0.003	0.093
B x subjects W. group error	2.287	72	0.032	

* $p < .005$

CHAPTER IV

DISCUSSION AND CONCLUSIONS

The hypothesis that depressed subjects in comparison to non-depressed subjects would evaluate the positive scenes significantly lower was substantiated by the results of this experiment.

The hypothesis that depressed and non-depressed subjects would evaluate the neutral scenes significantly lower was not substantiated by the results of this experiment.

The hypothesis that the depressed subjects would evaluate scenes in the negative category significantly lower was also not substantiated by the results of this experiment.

Lewinsohn (1974) has stressed the importance of social interactions as they affect and are affected by depression. Based on the overall response of the depressed and non-depressed groups to the three levels of social interactions, it appears that depression may affect not only the behavior related to social interactions, but the cognition as well. Specifically, depression seems to affect the evaluation and perception of what constitutes a positive social interaction.

Beck (1961) observed that the depressed person distorts his or her environment in a negative way. This distortion takes place at a cognitive level which produces the accom-

panying negative emotional state found in depression. The results from this experiment suggest that this distortion occurs when the depressed person encounters positive social interactions. Situations that are viewed as positive by non-depressed people may be viewed as less positive by depressed people. The devaluation by the depressed person of some positive social stimuli creates an environment which has a lowered level of positive events. This is consistent with the notion of Ferster (1966) that depressed persons experience an actual loss of positive reinforcement. These results suggest that the loss may involve a faulty perception, serving thereby to reduce the level of positive experiences available from one's cognitive world, with a resulting (understandable) loss of positive reinforcement.

One possible explanation for the difference in the evaluation of positive interactions comes from Bandura (1966). Bandura characterized the depressed person as having excessively high standards for positive reinforcement. These high standards may be the result of the individual's interactions with parents who reward only those responses which meet strict, perfectionistic criterion. The individual may internalize these excessively high standards, thereby restricting the number of responses that are worthy of reinforcement. Thus, when one receives a compliment for the performance of some act, the compliment may be discounted since the act does not meet a perfectionistic criterion for reinforcement. For example, the depressed person who is

complimented on his or her performance in school may discount the compliment, believing the work could or should have been done better, or that it was really not that hard. Assuming that the depressed person in the present experiment was able to identify with the individuals in the scenes, it is conceivable that this kind of discounting was occurring.

Ferster (1966) and Lazarus (1968) suggested that the depressed person is on a schedule that requires large amounts of responding to produce a change in the environment. The change in the environment is analogous to reinforcement. It is possible that at the cognitive level the depressed person may have internalized a schedule that requires large amounts of responding to produce a change in his or her psychological environment. Thus, the depressed person requires large amounts of responding from him-or herself before he or she can accept positive reinforcement.

Another possible explanation for the distortion may be that the depressed person attempts to make his or her experience of the world consistent with beliefs about the world, and about the self (Festinger, 1957). The depressed person who believes that the environment will not produce positive outcomes, or who feels undeserving of rewards, will distort positive events. This distortion would make experience consistent with belief; thus, the person would avoid the negative state of dissonance.

It is difficult to explain why this differential evaluation did not occur in the evaluation of negative scenes.

Beck (1976) gives an example of a distortion involving a man who, noticing that his house has a leaky faucet, a door that does not close properly, and a creaky step, concludes that his whole house is falling apart. It may be that as in this example, depressed people magnify the negative aspects of situations that are only potentially negative. However, it may be that this distortion does not occur in situations that are clearly negative.

Also, since this experiment used college-aged individuals who were apparently functioning at an adequate level, it is possible that gross distortions would not be present. Perhaps these distortions are present in a clinical population, but not in less pathological samples. It may also be that the process of distortion occurs over longer periods of time. Possibly as time passes the depressed person's evaluation of the event may change in the negative direction.

The hypothesis that depressed subjects would recall fewer social interactions was supported by the results of this experiment. The earlier findings of Henry, et al. (1971) indicated that depressed people exhibited a deficit in memory. This finding was replicated in the present experiment in regard to the recall of social interactions. It may be, as suggested by Henry, et al. (1971), that depressed people have a deficit in transferring material from short-term to long-term memory; however, it is unclear as to how this would occur. Also, this deficit has been shown to exist in short-term memory (Alexander, Crutchlow, & Hoffman,

1947). It seems unlikely then that there is a problem in transfer as suggested by Henry, et al. (1971). It seems more likely that the problem occurs in the depressed person's ability to attend to the material being presented. It may be that the depressed person's ability to concentrate is impaired by his or her concerns and anxiety related to the depression. Thus, even though in this experiment the subjects had to attend to the interactions to some extent in order to evaluate them, it may have been that the depressed group was not able to concentrate as much as the non-depressed group. It may be that the depressed groups' lack of concentration was due to interference from competing thoughts related to the depression.

Ideally, the deficit in memory would be examined by a repeated measures procedure. Such a procedure would examine the same subjects' ability to recall material not only during a depressive episode, but also during periods of recovery.

The hypothesis that the depressed group would recall a significantly lower percentage of positive scenes was not supported by the results of this experiment. The depressed subjects did recall a slightly lower percentage of scenes, but this was not statistically significant.

The hypothesis that depressed subjects would recall a significantly higher percentage of scenes that they had rated as negative was not supported. In fact, it was found that the non-depressed groups recalled a higher percentage

of negative scenes than the depressed group. This superior recall by the non-depressed subjects was also present in recalling interactions that the subjects had rated as being neutral. The superior performance of the non-depressed subjects in recalling negative and neutral interactions was probably due to their greater ability to attend to the stimulus material, thus, the incidental learning was greater. In the study by Lishman (1972), the subjects consisted of psychiatric inpatients measured over two-week periods of time. The differences in the degree of depression between depressed psychiatric inpatients and depressed college students probably accounts for the lack of distorted recall in this study. Also, Lishman used a time period of two weeks in testing the recall. In this experiment the interval between the presentation of the material and the recall was at the most 10 minutes. It may be that over the longer period of time the depressed person ruminates over negative events. This rumination may produce a rehearsal effect, making it easier for the negative events to be recalled. Also, in the present experiment the depressed subjects experienced the negative interactions vicariously rather than directly. Thus, rumination or rehearsal may not have occurred under this condition.

In drawing conclusions from this experiment it is important to be aware of two methodological flaws, flaws that were present in this experiment, and in most experiments comparing a "normal" group and a diagnostic group. One of

these problems was that there was not a psychiatric control group to compare with the depressed group. Without such a control group it is difficult to state that the cognitive distortions demonstrated in this experiment can be attributed exclusively to depression. Also, the differences between depression as it exists in functioning college students and as it exists in a clinical population are undoubtedly quite marked. Despite these shortcomings this experiment has indicated that depressed people may distort their social environment such that they experience positive social interactions as less positive than do non-depressed people. Whether this distortion is a product of the depression or whether it is a characteristic of the depressive personality is impossible to say, based on this experiment. The indication that this distortion does occur has implications for the treatment of depression. As suggested by Arieti (1963) and Beck (1976), it should be an essential part of therapy to assist the individual in restructuring his or her perceptions of intrapersonal and interpersonal events. Any treatment of depression which ignores the depressed person's evaluation of his or her experience and focuses solely on increasing the number of "apparently" positive experiences would be incomplete and short-lived.

The finding that depressed subjects have a poorer recall for negative and neutral social interactions they have observed also has implications for the treatment of depression. The depressed person's poorer recall might be due to

a lack of attention. This lack of attention would handicap the individual in dealing effectively and realistically with the world.

Further research in the area of cognition and depression should be aimed at discovering the specific nature of distortions as they apply to depression. Also, it would be important from a preventive standpoint to understand whether they are a result of depression.

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APPENDIXES

APPENDIX A

BECK DEPRESSION INVENTORY

Name: _____

This is a questionnaire. On the questionnaire are a number of groups of statements. You are to read all the statements in a group and then circle the number corresponding to the one statement that best describes the way you feel today, that is, right now. Remember, read all the statements in a group before choosing the one that best describes you.

A.

1. I do not feel sad.
2. I feel blue or sad.
3. I am blue or sad all the time and I can't snap out of it.
4. I am so sad or unhappy that it is quite painful.
5. I am so sad or unhappy that I can't stand it.

B.

1. I am not particularly pessimistic or discouraged about the future.
2. I feel discouraged about the future.
3. I feel I have nothing to look forward to.
4. I feel that I won't ever get over my troubles.
5. I feel that the future is hopeless and that things cannot improve.

C.

1. I do not feel like a failure.
2. I feel I have failed more than the average person.
3. I feel I have accomplished very little that is worthwhile or that means anything.
4. As I look back on my life all I can see is a lot of failure.
5. I feel I am a complete failure as a person (parent, husband, etc.).

D.

1. I am not particularly dissatisfied.
2. I feel bored most of the time.
3. I don't enjoy things the way I used to.
4. I don't get satisfaction out of anything anymore.
5. I am dissatisfied with everything.

E.

1. I don't feel particularly guilty.
2. I feel bad or unworthy a good part of the time.
3. I feel quite guilty.
4. I feel bad or unworthy practically all the time now.
5. I feel as though I am very bad or worthless.

F.

1. I don't feel I am being punished.
2. I have a feeling that something bad may happen to me.
3. I feel I am being punished or will be punished.
4. I feel I deserve to be punished.
5. I want to be punished.

G.

1. I don't feel disappointed in myself.
2. I am disappointed in myself.
3. I don't like myself.
4. I am disgusted with myself.
5. I hate myself.

H.

1. I don't feel I am any worse than anybody else.
2. I am critical of myself for my weaknesses or mistakes.
3. I blame myself for my faults.
4. I blame myself for everything bad that happens.

I.

1. I don't have any thoughts of harming myself.
2. I have thoughts of harming myself but I would not carry them out.
3. I feel I would be better off dead.
4. I feel my family would be better off if I were dead.
5. I have definite plans about committing suicide.
6. I would kill myself if I could.

J.

1. I don't cry any more than usual.
2. I cry more now than I used to.
3. I cry all the time now; I can't stop it.
4. I used to be able to cry but now I can't cry even though I want to.

K.

1. I am no more irritated now than I ever am.
2. I get annoyed or irritated more easily than I used to.
3. I feel irritated all the time.
4. I don't get irritated at all at the things that used to irritate me.

L.

1. I have not lost interest in other people.
2. I am less interested in other people now than I used to be.
3. I have lost most of my interest in other people and have little feeling for them.
4. I have lost all my interest in other people and don't care about them at all.

M.

1. I make decisions about as well as ever.
2. I try to put off making decisions.
3. I have great difficulty in making decisions.
4. I can't make any decisions at all any more.

N.

1. I don't feel I look any worse than I used to.
2. I am worried that I am looking old or unattractive.
3. I feel that there are permanent changes in my appearance and they make me look unattractive.
4. I feel that I am ugly or repulsive looking.

O.

1. I can work about as well as before.
2. It takes extra effort to get started at doing something.
3. I don't work as well as I used to.
4. I have to push myself very hard to do anything.
5. I can't do any work at all.

P.

1. I can sleep as well as usual.
2. I wake up more tired in the morning than I used to.
3. I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
4. I wake up early every day and can't get more than 5 hours sleep.

Q.

1. I don't get any more tired than usual.
2. I get tired more easily than I used to.
3. I get tired from doing anything.
4. I get too tired to do anything.

R.

1. My appetite is no worse than usual.
2. My appetite is not as good as it used to be.
3. My appetite is much worse now.
4. I have no appetite at all any more.

S.

1. I haven't lost much weight, if any, lately.
2. I have lost more than 5 pounds.
3. I have lost more than 10 pounds.
4. I have lost more than 15 pounds.

T.

1. I am no more concerned about my health than usual.
2. I am concerned about aches and pains or upset stomach or constipation.
3. I am so concerned with how I feel or what I feel that it's hard to think of much else.
4. I am completely absorbed in what I feel.

U.

1. I have not noticed any recent change in my interest in sex.
2. I am less interested in sex than I used to be.
3. I am much less interested in sex now.
4. I have lost interest in sex completely.

APPENDIX B

SCRIPT FOR AUDIOTAPE

1. This interaction occurs between a young man and a young woman who have just finished doing the dishes after an evening meal. Rate this scene according to how you feel the young man experienced the young woman's response.

He: Well that's the last one. We're finished.

She: It was very nice of you to help me do the dishes.
Thanks.

2. This scene involves a student and a professor. The student has come to the professor's office to find out how he did on an exam. Rate this scene according to how you feel the student experienced the professor's response.

Student: Can I get my grade for the last test?

Professor: Yes, here Jack. You were one of two people who failed, I'd recommend you study more or drop the course.

3. This interaction takes place between a boy and his father. The boy is practicing his guitar and wants his father to listen. Rate this scene according to how you feel the son experienced his father's response.

Son: Hey Dad, come here and listen to me play this tune.

Father: I can't right now, give me about 5 minutes.

4. This interaction occurs between a boy and a girl as they are leaving a class. The boy is asking the girl out for a first date. Rate this scene according to how you feel the boy experienced the girl's response.

Boy: I realize we don't know each other very well, but would you like to go out with me next Saturday?

Girl: No, I'm not interested in going out with you.

5. This scene involves a boy and his mother. The young man has just completed his first year of college and is home for a visit. Rate this scene according to how you feel the young man experienced his mother's comments.

Son: Well that's one year of college out of the way.

Mother: Yes, we're really proud. You're the first one in our family to go to college.

6. This interaction occurs between a young woman, Mary, and one of her classmates. Mary is running for president of her college class. Rate this scene according to how you feel Mary experienced her classmate's response.

Mary: I really think I have a chance in the election for class president.

Girl: You'll have to do a lot of campaigning.

7. This scene involves a girl and her father. The girl, Kathy, has just completed washing her father's car. Rate this scene according to how you feel Kathy experienced her father's response.

Kathy: Hey Dad, I'm done with the car.

Father: Thanks Kathy, I appreciate you washing it.
Here's \$3.

8. This interaction occurs between a young man and his boss. The young man is working and makes a suggestion to the boss. Rate this scene according to how you feel the young man experienced the boss's response.

Boy: I think we ought to change a lot of the stock around so that it is easier to get at.

Boss: Hmmm, that's something to think about.

9. This interaction takes place in a drug store between a young woman and a pharmacist. The young woman has a complexion problem and is looking for some medication. Rate this scene according to how you feel the young woman experienced the pharmacist's response.

Woman: Can you recommend any complexion cream?

Pharmacist: No, but you should start using something.

10. This interaction takes place between a young man and a young woman. They have just finished eating a dinner that the young woman has cooked. Rate this scene according to how you feel the young woman experienced the young man's comments.

Boy: That was really a great meal. You can really cook.

Girl: Thanks, I'm glad you enjoyed it.

11. This interaction takes place between a young man, Bill, and his friend. Bill has recently bought a new record and communicates this to his friend. Rate this scene according to how you feel Bill experienced his friend's comments.

Bill: Yesterday I bought a new record album for \$5.

Friend: Gee Bill, that seems like a lot.

12. This scene involves a girl, Jane, and her roommate. Jane is writing a letter and her pen runs out of ink. Her roommate is studying for an exam in the same room. Rate this scene according to how you feel Jane experienced her roommate's response.

Jane: Can I borrow a pen for a couple of minutes?

Roommate: Jane, can't you see I'm busy!?

13. This interaction occurs between a young woman and her father. The girl is getting ready to leave to go to a dance. Rate this scene according to how you feel the girl experienced the father's response.

Girl: Hey Dad, I'm ready to go to the dance.

Father: Make sure you're not out too late.

14. This interaction takes place between a young man, Joe, and a friend. Joe is an aspiring artist and is showing his friend his paintings. Rate this scene according to how you feel Joe experienced his friend's response.

Joe: This is one of my most recent paintings, how do you like it?

Friend: What is it supposed to be?

15. This scene involves a young woman, Sue and a friend. Sue has recently cut her hair. Rate this scene according to how you feel Sue experienced her friend's comment.

Friend: Hey Sue, you've done something to your hair!

Sue: Yeah, I got it cut. Do you like it?

Friend: Yeah, it looks good.

16. This scene involves a young woman and a young man who are taking the same course. They are seated in the class discussing the course between themselves. Rate this scene according to how the girl experienced her classmate's response.

Girl: I think I've got a chance for an A in this course. I've really worked hard.

Boy: Who are you kidding, you've worked hard at getting in good with the prof.

17. This interaction takes place between a professor and a student. The professor is handing back essays written for class. Rate this scene according to how you feel the student experienced the prof's comment.

Prof: Here is your paper. There are some minor corrections to be made, but overall this is a very good paper.

Student: Thank you, I spent a lot of time working on it.

18. A young woman has just returned home after a semester of school. She has a copy of her grades from the semester and presents the grades to her mother. Rate this scene according to how you feel the daughter experienced the mother's comments.

Daughter: Here's my grades from last semester.

Mother: Looks like you took a lot of credits. Have you decided on a major?

APPENDIX C

EVALUATION FORM

Rate this scene according to how you feel person A experienced person B's comment, by circling the appropriate point on the scale.

Very negative
Very unpleasant

Very positive
Very pleasant

1 2 3 4 5 6 7 8 9

APPENDIX D

INSTRUCTIONS

I am going to play a tape recording which has a series of short interactions involving two people. Before each interaction there is a description of the setting in which the interaction occurs. You will be asked to rate the interaction according to the way you feel one of the individuals experienced the other person's verbal response. It will be explained which individual you are to identify with. After listening closely to the description and the interaction, rate the interaction by circling the appropriate point on the scale. You will be allowed 5-10 seconds to rate the interaction. After rating the interaction turn to the next page and wait for the next scene. Do you have any questions?

Instructions following scene nine: Please try to recall the scenes played thus far and write a brief description of each scene you can remember. You do not have to recall the scenes in any order. Demonstrate your recall by filling in the information under each heading. If you cannot recall the information pertaining to one column, fill out what you can. Do you have any questions?

Instructions following scene eighteen: Please try to recall the scenes played in Part 2 of this tape and write a brief description of each scene you remember. You do not have to recall the scenes in any order. Demonstrate your recall by filling in the information under each heading. If you cannot recall the information pertaining to one column, fill out what you can. Do you have any questions?

APPENDIX E

RECALL FORM

Characters**Setting****General Content**

Characters	Setting	General Content

APPENDIX F

SIMPLE MAIN EFFECTS OF SEX x CATEGORY INTERACTION;
MEAN RATING OF SCENES

SIMPLE MAIN EFFECTS OF SEX x CATEGORY INTERACTION:
MEAN RATING OF SCENES

Source	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
SS _C at b ₁ ¹	1.604	1	1.604	3.399
SS _C at b ₂	1.815	1	1.815	3.844
SS _C at b ₃	0.016	1	0.016	0.035

¹b₁ = Positive

c₁ = Male

b₂ = Negative

c₂ = Female

b₃ = Neutral

VITA - 2

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