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Relationship of Affect to Immediate Recall and Associations in a Clinical Population

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RELATIONSHIP OF AFFECT TO IMMEDIATE RECALL

AND ASSOCIATIONS IN A CLINICAL POPULATION

by

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A Dissertation Submitted to the Faculty of the Graduate School

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VITA

The author, Karen Eggen Gundersen, is the daughter of Margaret (Sjol) Eggen and the late Byron Raymond Eggen. She was born February 22, 1955, in Bemidji, Minnesota. October 4, 1980 she was married to David Michael Gundersen in Grand Rapids, Minnesota.

Her elementary education was obtained in the public schools of Bemidji and Grand Rapids, Minnesota, and secondary education at Grand Rapids High School, Grand Rapids, Minnesota, where she graduated in 1973.

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INTRODUCTION

In the last decade, cognitive-behavioral theories of depression
have increasingly incorporated both cognitive and environmental par-
ameters to account for the complex symptomology present in depressive
disorders. These theories place primary emphasis on the role of cog-
nitions in determining emotions; that is, one's beliefs about events
are seen as central to depressive emotions. Considerable research
supports these contentions.

Recent research by Bower (1981) provides additional data con-
cerning the relationship between emotion and cognition. Bower suggests
that emotion serves as a memory unit that enters into associations
with coincident events. Activation of this emotion aids in retrieval
of events associated with it and prime themes for other cognitive
processes. In the group of studies associated with this theory, Bower
has obtained significant results relating hypnotically-induced emotions
and cognitive processes.

While Bower's research has significant implications for theories
of depression, two questions arise from this research. The first
concerns demand compliances resulting from the hypnotic manipulations.
Although Bower has defended this criticism with related research,
additional studies should be carried out. A second question is related
to the generalizability of Bower's results. The generalizability of

these results may be evidenced if research in naturalistic settings also found a relationship between emotions and cognitive processes. Partial replications in normal or clinical settings using subjects with naturally-occurring emotions might adequately demonstrate the relevance of Bower's findings. With this in mind, Gundersen (Note 1) demonstrated a relationship between affect and cognitions while studying various degrees of unmanipulated (naturally-occurring) depression in a normal college population. The present study was designed to expand further upon Bower's research and clarify the relationship between affect and cognitions in a clinical setting. Specifically, the relationship of depression to: the content of affect-laden word recall, ratings of affect-laden stimuli, the amount of total recall, the amount and affect of interjections, the ordering of recall, and associations to neutral words were observed.

REVIEW OF RELATED LITERATURE

Introduction

Philosophers have related affect and cognitions for 2000 years.
Kant suggested that reason synthesizes experiences according to its
own nature and our understanding of the outside world is possible only
in terms of our modes of perception. Kant's philosophy maintained that
the laws of man determined what laws of nature can be discovered.
Dynamic theorists have also addressed the issue of the relationship
between affect and cognitions for nearly 90 years (James, 1890;
McDougall, 1921). In the last decade cognition and affect have again
become major areas of theory and research in depression following
several years of inactivity due to the popularity of strict behaviorism
and its extreme stimulus-response approach. One reason some researchers
have returned to studying cognition is that many responses are not
predictable from the stimulus situation alone. Cognitive events inter-
vene between the two to sufficiently warrant attention. In this short
time, some theorists have come to view affective states from both
operant and cognitive terms.

The following sections will be devoted to contemporary theories
and relevant issues about depression as viewed by cognitive-behavioral
researchers. First, three ways of classifying depression will be de-
fined. Next, an extended view of the cognitive determinants of depres-
sion will be presented. Regarding this theme, several researchers have

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proposed that depressed people interpret their world and themselves differently than nondepressives (Beck, 1972; Ferster, 1974; Rehm, Note 2; Seligman, 1975). Recent research by Bower (1981) suggests that emotions powerfully influence specific cognitive processes through an associative network process.

In summary, this review intends to show the increasing use of cognitive explanations to depressive behavior. Specific attention will be given to research relating depression to selective attention, memory, and associations.

Classifying Depression

Researchers classify and define depression in a variety of ways from a simple mood state to a complex syndrome consisting of behavioral, cognitive, affective, and physiological parameters (Becker, 1974). In general, these classifications fall into three groups (Roth, 1977): a) qualitative classifications, b) dimensional or trait classifications, and c) cognitive-behavioral classifications.

The first group of classifications consists of theorists who have adopted a symptom cluster model and propose "qualitatively" distinct types of depression. Types of depression are differentiated on the basis of symptomology, etiology, response to treatment and background factors (age, family history, etc.). In the past, one of the most frequently used nosological systems was the American Psychiatric Association Diagnostic Criteria (DSM II, 1968). The seven affective syndromes cited were: psychiatric depressive reaction, manic depression-

depressed type; manic depression-manic type; manic depression-circular type; involutional depression, neurotic depressive reactions, and cyclothymic personality. Each subtype was differentiated from the other on the basis of etiological and/or symptomatic factors. For instance, both psychotic and neurotic depressive reactions were thought to be precipitated by environmental stresses while the remaining subtypes were related to physiological constitutional, and genetic variables. Similarly, manic-depressive patterns were discriminated from involutional-depression on the basis of past symptoms, and from cyclothymia on the basis of symptom severity.

Recently, the diagnostic criteria were revised (DSM III, 1980). The revision lists the following affective disorders: major depression, single episode; major depression, recurrent; bi-polar disorder, mixed; bi-polar disorder, manic; bi-polar disorder, depressed; cyclothymic; and depressive neurosis. Each subtype is differentiated from the other on the basis of three axes: clinical syndromes, personality and developmental disorders, and physical disorders and conditions. In addition to those distinctions, a clinician can also use two additional axes to supplement diagnoses: severity of psychosocial stressors and highest level of adaptive functioning in the past year.

Another proponent of the qualitative classification of depressions is Winokur and his associates (1970) who have differentiated subtypes of depression in terms of depressive symptoms and the presence of other psychiatric disorders. He has made distinctions between grief

reactions, primary affective disturbance and secondary affective disturbance. A grief reaction is considered a loss induced, transient depressive episode. A diagnosis of primary affective reaction is given if the client has no other psychiatric disorder, and secondary affective reaction is indicated when a preexisting psychiatric dysfunction was evident. Winokur further divides primary affective reactions into unipolar subgroups along a similar line of thinking.

Another type of qualitative classification of depression is employed through sophisticated statistical instruments. Cluster analyses (Everitt, 1972) and factor analytic procedures (Fleiss, Lawlor, Platman, & Fieve, 1971) have been used to isolate qualitatively distinct types and subtypes of depression. Grinker, Miller, Sabashin, Nunn, and Nunally (1961) performed one of the earliest factor analytic studies of depression. The resulting types were: empty depression, angry depression, hypochondriacal depression, and anxiety depression. Friedman, Cowitz, Cohen and Granick (1963) isolated subtypes similar to that of Grinker et al. (1961).

The second group of classifications conceptualizing depression is a family of disorders, each of which differs with regard to the severity or intensity of experienced symptomology. This type of classification is called the "dimensional" or "trait" conceptualization of depression. Unlike type theorists, a trait theorist does not view depression as encompassing a variety of qualitatively distinct syndromes. Distinct syndromes may exist but they are viewed as being reduceable to

a finite number of common dimensions in which individual differences are best represented as gradations along a single dimension (unidimensional system), or along a combination of several dimensions (multidimensional system). A second assumption of this approach to classification is that the nature of the depression has a basic underlying feature, that is, a client is seen as "generally depressed." It is also assumed that the depression is a covariation of one or more of discrete symptoms (or traits) which are obtained by conventional factor analytic procedures. In essence, a trait is an artificial entity which is defined by factoring group data rather than by individual case. Since a trait is independent, a high score on one gives a researcher little or no information about an individual's remaining traits. Variation in blends among the basic traits accounts for the variability of clinical depressions (Rosenthal & Gudeman, 1967).

A variety of unidimensional systems has been derived. For example, Klerman (1971) and Zubin and Fleiss (1971) state that psychotic and neurotic depressions are not qualitatively distinct and only differ in regard to symptom intensity. Similarly, Kendell (1968) and Kendell and Gourlay (1970) suggest that the traditional endogenous-reactive dichotomy (Harmilton & White, 1959; Kiloh & Garside, 1963) may instead be symptom clusters occupying opposing ends of a single depressive trait.

Multidimensional trait systems are common in the field. The

variety may in part be attributed to use of different subject populations (inpatient, outpatient, college students) and different measures of depression (MMPI-D, Beck Depression Inventory, Multiple Depression Inventory). The common theme contained in all these multidimensional systems is that underlying all depressive states is a "general" depressive disorder containing several "group" or "specific" factors.

Perhaps the most investigated multidimensional system is that of endogenous-reactive depression. Traditionally, reactive depression was thought to be environmentally precipitated while endogenous depression was linked to internal physiological causes. Trait theorists have reported symptomatic differences. For instance, Kiloh and Garside (1963) evaluated 92 clinically diagnosed "endogenous" or "reactive" subjects on 35 measures (age, previous attacks, etc.). Two factors accounted for a large portion of the variance, a "general" depression factor and a bi-polar factor related to the endogenous-reactive dichotomy. Specific symptoms such as self-pity, existence of a precipitant, inadequacy, initial insomnia, depression worse in the morning, agitation, obsessions, hypochondriacal complaints, etc. were related to the reactive end of the dimension. Other symptoms such as early morning awakening, depression worse in the evening, onset in fourth decade of life, etc. were loaded on the endogenous end of the dimension. Similar patterns have been found by other researchers (Carney, Roth, & Garside, 1965; Hamilton & White, 1959; Kiloh, Andrews, Nielson, & Bianchi, 1972; Mendels & Cochrane, 1968).

The third major way of classifying depression does so in terms of the frequency of occurrence of specific behaviors, thoughts, and physiological symptoms. This is referred to as the cognitive-behavioral classification of depression. These theorists assume that no two depressions are identical; each comprise a unique set of deficits and excesses. No assumptions are made about covariation among depressive symptoms. That is, the appearance of one symptom does not suggest certain others are expected. Ferster (1973, 1974) was one of the first behaviorists to advance this position when he viewed depression as involving a reduced frequency of "adjustive behaviors," an increased frequency of avoidance and escape responses, and a passive behavioral mode of controlling one's environment. Variations of the basic behavioral framework attributing varying degrees of importance to the cognitive component in depression have been advanced by a number of other researchers (Beck, 1972; Rehm, 1977; Seligman, 1974, 1975; Williams, Barlow, & Agros, 1972). It is important to note that all of the theories in this classification of depression in some way implicate cognitions. In some, the cognitive alterations are viewed as symptoms while in others they are central to depression. The following sections will be devoted to contemporary cognitive-behavioral theories providing frameworks from which one can explain both overt-motoric symptomology and verbal-cognitive symptomology. Both environmental and cognitive parameters are considered causal factors.

Cognitive-Behavioral Models of Depression

This section is an elaboration of the previously described

"cognitive-behavioral" classification of depression. As stated before, theories in this classification of depression incorporate both environmental and cognitive factors of causality to different degrees. First, theories heavily weighing the environmental causes of depression will be reviewed. The remaining cognitive-behavioral theories of depression will be reviewed in order of increasing prominence of the cognitive factor.

Behavioral Perspectives. A number of theorists have suggested that depression is related to an insufficient amount of reinforcement (Coyne, 1976; Ferster, 1974; Lazarus, 1968; Lewinsohn, 1974, 1975; Liberman & Raskin, 1971). Lewinsohn and his colleagues (1974) have developed a model of depression which best represents this viewpoint. Classical and operant conditioning processes are both involved in their framework. Specifically, a low rate of response-contingent reinforcements acts as an unconditional stimulus eliciting a variety of depressive symptoms (verbal statements of dysphoria, self-depreciation, rejection, guilt, fatigue, sleeplessness, loss of appetite, headaches, etc.). Once elicited, these symptoms are maintained in an operant fashion through social reinforcement (sympathy). A low rate of reinforcement places the depressed person on an extinction schedule. Other depressive response patterns are subsequently developed and maintained, i.e., the behaviors cause the depressed person to be avoided, the individual receives less reinforcement, and continues to behave in depressed ways.

Lewinsohn (1974) argues that obtained reinforcement is a function of: (a) the number of events which an individual finds potentially reinforcing; (b) the number of potential reinforcers available; and (c) the individual's ability to obtain available reinforcers. Lewinsohn has primarily examined the relationship between depression and low rates of response-contingent positive reinforcement. The differential amounts of reinforcement which depressed clients and their families obtain has been systematically evaluated. Using a verbal interaction coding system, Lewinsohn and Shaw (1969) found that a minimal amount of time was spent discussing topics which were reinforcing to the depressed client relative to the time spent on topics reinforcing to the spouse. Similar results were found in a number of naturalistic settings (Lewinsohn & Atwood, 1969; Lewinsohn & Shaffer, 1971; Martin, Weinstein, & Lewinsohn, Note 3).

In more rigorously controlled investigations, the emphasis remained on the covariation of mood and reinforcing activity. Lewinsohn and Libet (1972) examined depressed patients, nondepressed psychiatric controls, and normal controls and found a significant correlation between their mood (Depression Adjective Checklist, 1965) and the number of pleasant activities in which they engaged (MacPhillany and Lewinsohn Pleasant Events Schedule, 1971). The results of this study were replicated by Lewinsohn and Graf (1973). In a similar procedure, MacPhillany and Lewinsohn (1974) found that depressives reported distinct types of activities over the same period as controls. When all subjects rated the Pleasant Events Schedule items in terms of the reinforcing value,

depressives' ratings were significantly lower than those of nondepressives. This supports Lewinsohn's contention that depressives experience fewer events or activities as potentially reinforcing.

Other researchers have reported findings to support this framework. Wener and Rehm (1975) found that individuals receiving low levels of reinforcement became more depressed than individuals receiving high amounts of reinforcement. Hersen, Eisler, Alford and Agras (1973), Lazarus (1968), Liberman and Raskin (1971), and McLean, Ogston, and Grauer (1973) have reported that they have treated clients with low levels of reinforcement. Improvement in all of these cases was correlated with obtaining more reinforcement. Finally, a number of investigators have found depression to covary with the occurrence of "life stressors" (events which a behaviorist would designate as losses of actual or potential reinforcement). Paykel, Meyers, Dienelt, Klerman, Lindenthal, and Pepper (1969) found that within the six-month period prior to interviews, depressives experienced significantly more losses (marital, occupational, social, familial, etc.) than the controls. The results were essentially replicated by Leff, Roatch, and Bunney (1970) who examined endogenous and non-endogenous inpatients.

Lewinsohn has suggested that inadequate social skills may partially account for the depressive's infrequent receipt of reinforcement. This relationship has been assessed in group (Lewinsohn, Weinstein, & Alper, 1970; Libet & Lewinsohn, 1973), familial (Shaffer & Lewinsohn, Note 4), and laboratory contexts (Rosenberry, Weiss, & Lewinsohn, Note

5; Stewart, Note 6). Several findings emerged. Rosenberry et al. (Note 5) found that depressed subjects were less predictable and homogenous in emitting rapport-inducing and supportive communications. Libet and Lewinsohn (1973) found that depressives engage in fewer activities, emit proportionately less reinforcers, communicate with a more restricted range of individuals, and take a longer time to respond to a verbalization. Stewart (Note 6) also found depressives to react slower to verbal and non-verbal prompts than nondepressives.

All together, rather extensive data has been collected to support Lewinsohn's hypothesis that depression is linked to low rates of response-contingent positive reinforcement. However, this model is unable to account for all the complexities of depressive responses. In particular it can be argued that depression is not directly related to low rates of reinforcement but instead to cognitive processes which mediate between the activity and the cognitive symptomology (Rush, Khatami, & Beck, 1975). It could also be that depressives do not attend to or remember pleasant events and are minimally affected by their occurrence. These possibilities will be studied in a later section.

A second theoretical perspective which strongly weighs the environmental component in depression is exemplified by Ferster (1966, 1973, 1974). Ferster's conceptual position on depression appears to be a link between the environmentally and cognitively oriented theories. Coming from a radical behaviorist persuasion, Ferster studied both descriptive and functional aspects of depression. The description of depressive disorders is seen as consisting of both behavioral deficits

and excesses. Deficits are defined as a reduced frequency of normal activities. "Frequency reduction" refers to rate and quantity alterations as well as occurrence and nonoccurrence of certain behaviors. Behavioral excesses are related to deficit conditions, for instance when a compulsive activity appears when normal problem solving behaviors are no longer emitted.

Functionally, depression is assumed to be related to loss of important discriminative stimuli, certain reinforcement schedules, aversive environmental influences, and cognitive distortions. More specifically, Ferster contends that depression is apt to be precipitated by the loss of a source of reinforcement or stimuli leading one to emit positive behaviors (death of a spouse, loss of a friend, moving to another city, change of job, etc.). Lazarus (1968) suggested that the outcome of such a loss is related to the individual's overall availability of reinforcers.

Ferster also saw certain intermittent schedules of reinforcement as precipitants of depressive reactions. From animal studies, certain fixed schedules of reinforcement providing small gains for a large behavioral expenditure results in a lower rate of responding. The lowest rate of behavior is seen immediately after reinforcement is administered.

Depressed individuals often spend a great deal of effort in avoiding being punished by decreasing engagement in aversive behaviors. Ferster (1973) suggests that this decreased behavior leads to further

depression since "it commits such a large part of a person's repertoire to activities that do not produce positive reinforcement" (p. 867).

Ferster (1973, 1974) goes beyond a strict stimulus-response explanation of depression, however, to suggest that the individual's perception of the world affects his receiving of reinforcement. More specifically, he speculates that the depressive has a limited view of the world and has difficulty discriminating among different environmental stimuli. Because of these discrimination difficulties, the depressive is apt to emit a response inappropriate to the situation and be punished. An example might be that a depressive considers home, work, and a party all appropriate places to engage in depressive behaviors. People at a gala party may consider his behavior strange, avoid the individual, and shut off another source of reinforcement. Only partially recognizing that punishment is contingent on the inappropriate behavior, the depressive acquires a "lousy view of the world" (Ferster, 1973, 1974). The environment is thought of as providing limited support, pleasure, and much distress and unhappiness.

In summary, both Lewinsohn and Ferster espouse behavioral theories of depression. Ferster's approach has to a greater extent than Lewinsohn's attempted to relate depression to both cognitive and environmental parameters. He suggests that a one-to-one relationship between environmental stimuli and depressive response does not exist and one must take into account the non-observable cognitive processes which mediate.

Cognitive-Behavioral Perspective. On the basis of small animal

analogue research, Seligman and his colleagues have developed a cognitive model of reactive depression in humans. The major construct utilized by this group is called "learned helplessness." Learned helplessness views depression as resulting from cognitions of response-outcome independence, that is, beliefs that consequences are independent of behavior.

Recently, Abramson, Seligman, and Teasdale (1978) reformulated the learned helplessness model of depression. The reformulation recognizes the importance of attributions in predicting reactions to uncontrollable outcomes. Attributions, i.e., explanations for events, may be stable or unstable, global or specific, and internal or external attributions of cause. The type of attribution chosen influences whether the future helplessness will be chronic or acute, broad or narrow, and whether helplessness will lower self-esteem or not. Seligman further stated that individual differences in attributional style probably exist and those who typically attribute failure to global, stable and internal factors are most prone to general and chronic helplessness depressions with low self-esteem.

Two pieces of research are particularly relevant in highlighting the role of cognitive factors in the development of learned helplessness patterns of behaviors. Hiroto and Seligman (1975) found that uncontrollable experiences on a motoric task adversely affected performance on a cognitive task and vice-versa. The transfer of learned helplessness experiences is seen as providing support for cognitions concerning

response-reinforcement independence. Additional support for the cognitive interpretation comes from research directly manipulating the instructional set (Hiroto, 1974; Miller & Seligman, 1973, 1975). In particular, performance on a task was found to vary according to whether a subject was informed that the outcome is related to chance or skill. Similar effects are found for a chance instructional set and an actual helplessness experience (Hiroto, 1974). Again, these are taken as support of mediating cognitions. In the instructional set paradigm the subject is "given" the cognitive pattern while in the actual learned helplessness situation the cognition is "learned" or "created" by the subject.

Additional research has shown that the cognitive changes produced in learned helplessness experiences are accompanied by a host of behavioral response patterns. First, helpless subjects behave less aggressively and less competitively than non-helpless subjects (Maier, Anderson, & Liberman, 1972; Powell & Creer, 1969). Passivity and retarded associativity are more prominent after time (Overmier, 1968; Overmier & Seligman, 1967). Also, uncontrollable traumatic experiences are thought to precipitate some physical and physiological dysfunctions. Weight loss, anorexia and norephineprine depletion have all been cited (Miller & Weiss, 1969; Weiss, 1968; Weiss, Stone, & Harrell, 1970).

Seligman draws parallels between learned helplessness and depression in areas of etiology and symptomology. Symptomatically, Seligman (1974) only draws parallels to reactive depressions consisting of: passivity, negative expectations, lack of aggression, dissipation in

time, and also parallels weight loss, anorexia, and norephinephrine depletion. The etiology of a depressive episode is like learned helplessness in that it is highlighted by the uncontrollability of reinforcement (Teasdale, 1978). The cognitions need not be accurate (Seligman, 1974,1975). Aging, death of a loved one, and loss of a job are considered precipitants of depression in that they limit one's control over the environment or lead one to believe that control does not exist.

Seligman has also addressed the issues of prevention and treatment of learned helplessness. In the past, treatment was seen as exposing the helpless subject to situations' in which the outcome is controllable (Klein & Seligman, 1976; Seligman, Maier, & Geer, 1968; Seligman, Rosellini & Kozak, 1975). Prevention, on the other hand, was seen as a history of reinforcement contingent upon one's actions (Seligman, 1975; Seligman & Groves, 1970; Seligman & Maier, 1967). So, the prevention and antidote of helplessness seemed to be the demonstrated helpfulness of one's actions. As a result of the reformulation, researchers presently suggest a variety of prevention and treatment suggestions. Therapists can aid depressed individuals by helping them to change the estimated probability of aversive outcome, to change the expectation from uncontrollability to controllability, or to change their attributions for success or failure. Abramson et al. (1978) have suggested specific ways these suggestions can be implemented.

For Seligman the goal is the development of personal "competency" cognitions. Individuals must believe they are generally able to control

their environment. Klein and Seligman (1976) reported that success on a simple discrimination problem had a therapeutic effect on depressed subjects' performance and beliefs of control. Response-contingent reinforcement is expected to help prevent depression (Seligman, 1974, 1975).

In summary, Seligman has developed a theory of depression supported by extensive research. He has argued that while environmental factors cause the emission of depressive behaviors, they are mediated and probably secondary to the influence of cognitive factors. An interesting question arises here, especially for those subjects with the attributional style that typically attributes failure to global, stable, and internal factors. Why do depressives with this attributional style not concentrate on their positive control experiences? Perhaps their depressive moods tend to cause them to associate to other depressive situations. It is also possible that their recall of positive contingent reinforcement situations is poor.

Cognitive Perspectives. One of the most well-known exponents of the cognitive view is Beck (1967, 1970, 1974). Beck argues that depression should not be conceptualized as an affective disorder; but rather, as a cognitive disorder. The primary symptom of depression is the cognitive triad which refers to an organized system of negative evaluations of oneself, one's future, and the environment. Low self-esteem, thoughts of incompetency and inadequacy, poor body image, thoughts of impending distress, and perceptions of environmental hurdles were all examples of the depressive's cognitive set. Behavioral and

affective symptoms are seen as consequences to the depressed cognitions.

Research conducted by Beck has been twofold. The development of a self-report test of depression (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and a helplessness scale (Beck, Weissman, Lester, & Trexler, 1974) were the first focus of attention. In addition, Beck has attempted to support his contention that depressives have a negative view of themselves, their future and their environment. Research has shown that depressives dream significantly more about themes of deprivation, rejection, depreciation, self-injury, distorted body image, etc., than do nondepressives (Beck & Hurvick, 1959; Beck & Ward, 1961). Similarly, depressives' earliest recollections have more themes of rejection than those of nondepressives (Beck & Ward, 1961). Depressed individuals are more likely to identify with a pictorial character who has had an unpleasant experience than a character who has avoided such an experience or had a pleasant experience (Beck, 1967). Beck (1972) also reports that depressives are apt to down-grade their positive attributes when asked to compare them with their peers. Finally, depressed subjects exhibited weaker self-reference recall than normals suggesting they may describe themselves inconsistently (Davis, 1979). All these studies support Beck's contention that depressives have a negative view of themselves, their future, and their environment. Davis' study (1979) may additionally suggest differential recall between depressives and normals.

In summary, Beck has developed a theory of depression which clearly emphasizes the role played by cognitive factors and deemphasizes the

relative importance of environmental parameters. An important part of Beck's research seems to be the distinction between the nominal and the actual antecedent to depressive behavior. In essence, cognitions about rather than physical stimuli often determine the course of one's behavior.

Rehm and coworkers have developed another cognitive theory of depression which is based on a modified version of Kanfer's self-control model (Kanfer, 1970a, 1970b, 1971; Kanfer & Karoly, 1972). Although this model has been used as a method for achieving behavioral change, in this context it will aid in explaining the occurrence of a variety of depressive symptoms. In particular, depressive behaviors are seen as arising from maladaptive self-control patterns. Kanfer has argued that behavior is maintained and altered by subject mediated regulatory processes as well as the environment. Self-regulation consists of three basic sequentially ordered operations: self-monitoring, self-evaluation, and self-reinforcement. Each of these will be described and its relationship to depression presented.

The first component of Kanfer's model involves self-monitoring. Both internal and external stimulus and response events can be monitored. Motoric responses such as running, studying, hair pulling, etc., all fall into this category. Covert responses such as thoughts, imagery, and sensations like auditory hallucinations (Rutner & Bugle, 1969), obsessional thoughts (Mahoney, 1974), and critical self statements (Hannum, Thoreson, & Hubbard, 1974) can be monitored.

In relating self-monitoring processes to depression, a high fre-
quency of negative verbalizations and a low frequency of potentially
enjoyable behaviors can be suggested. Rehm (1977) argues that depres-
sives have two such deficits. First, they attend to negative rather
than positive events. Second, depressives are thought to give their
attention to immediate effects of their behavior rather than to its
long-term consequences.

With regard to the first notion, Beck (1972) has proposed a simi-
lar mechanism to account for cognitive distortions, namely that de-
pressed individuals are seen as selectively abstracting the unpleasant
aspects of their experiences. A number of studies provide suggestive
support for this concept. Pluchtick, Platman, and Fieve (1970) have
examined the relationship between depression, ideal self-concept, and
actual self-concept. Depression was found to correlate with negative
actual self-concept rather than an altered ideal self-concept. One might
speculate that this is a result of selective attention and memory from
actual positive events toward actual negative events. Roth (1977) re-
searched this hypothesis and although he did not find support for
differential memory of positive and negative adjectives, he did find
evidence of differential selective attention. Relative to nondepres-
sives, depressed subjects monitored significantly more of their own
negative and significantly fewer positive behaviors. Furthermore, it
was postulated that procedural parameters may have precluded the demon-
stration of recall differences.

Cognitive distortions seen in depressives' self-monitoring may

occur because depressives "expect the worst." Friedman (1964) reported that while depressives and nondepressives performed equally well on a number of tasks, the depressive expected to do worse. Similarly, Miller and Seligman (1973), Klein and Seligman (1976), and Guza (1979) found that depressed persons had lower expectancies of success than nondepressed persons on laboratory tasks. Beck (1972) also suggested that depressives are likely to entertain negative future oriented cognitions. With this research supporting such negative self-monitoring it is easy to imagine why depressives may not look at the long-term consequences of their behavior. Some studies suggest that when they do look at longer range consequences, depressives then ruminate about the delayed detrimental effects of their behavior (Beck, 1972; Schless, Schwartz, Goetz, & Mendels, 1974; Seligman, 1975).

The second component of Kanfer's model is the self-evaluatory process. Monitored responses are evaluated against an internal criterion. Performance may fall above or below this standard. Rehm (1977) hypothesizes two maladaptive patterns of self-evaluation. First, depressed individuals often make inaccurate attributions of causality. Second, the depressive is likely to have stringent evaluative criteria.

With regard to attribution, Rehm argues that depressives ascribe negative events to internal factors and positive events to external factors. For instance, a bad performance on a task would be due to personal inability while a good performance on the same task due to luck. Miller and Seligman (1973) arguing for the independence of responding and reinforcement, reported that depressives had lower

expectancies regarding the likelihood of future successes after behaving successfully than did nondepressives. The same finding has been replicated in two other studies (Klein & Seligman, 1976; Miller & Seligman, 1975). One might infer the subjects attributed their success to external factors. In addition to research support for external attributions, Guza (1979) reported the depressives were more likely to make attributions in an internal direction following feedback of failure at a task.

Rehm (1977) also proposed that depressives employ a stringent self-evaluative criteria. Rehm states the evaluative criteria for depressed people may be characterized by a high threshold for "excellence" and a low threshold for "failure." Similar notions have been offered by behavioral theorists (Bandura, 1971; Marston, 1965) and neo-analytic theorists (Melges & Bowlby, 1969). Common to all these perspectives is the theme that the depressed person has unreachable and unrealistic goals and standards. Investigations (Golin & Terrell, Note 7; Murdock-Kitt, Note 8) have substantiated that depressed students tend to set higher goal levels than did nondepressed students. In addition, therapists have reported anecdotally that depressed patients may employ overly high criteria to evaluate their behavior (Bandura, 1971). All in all, studies support the hypothesis of depressed subjects having stringent self-evaluations.

Some of the self-evaluation research suggests a differential recall component contributing to the stringent self-evaluations of depressives. DeMonbreun and Craighead (1977) and Nelson and Craighead (1977) reported depressed subjects recalled less positive and more

negative feedback than controls at high levels of reinforcement. Nelson et al. (1977) also reported that depressed subjects accurately recalled negative reinforcement while normals underestimated the same. These studies suggest that emotional state may be related to the content of an individual's recall, specifically mood may be related to recall of mood-congruous material.

The final stage of the self-control chain involves self-reinforcement. Contingent self-reward and self-punishment enables an individual to increase or decrease certain response patterns. The effect of self-reinforcement on associated behaviors has been extensively reviewed by Thoreson and Mahoney (1974) and Mahoney and Thoreson (1974). Rehm (1977) postulates that depression is characterized by high rates of self-punishment and low rates of self-reward.

Support for the contention that depression is associated with maladaptive self-reinforcement is obtained from three studies. When subjects were told to reward themselves if they thought they were correct, not reinforce themselves when they were unsure of their responses, or punish themselves if they thought they were incorrect, Rozensky, Rehm, Pry, and Roth (Note 9) found that depressed patients administered more self-punishments and fewer rewards than nondepressed patients or normal control patients. The groups did not differ with regard to actual correct responses. Roth, Rehm, and Rozensky (Note 10), who partially replicated this study, found that depressed college students emitted significantly more self-punishments than nondepressed college students. Nelson and Craighead (1977) also report depressed subjects

self-reinforcing less than controls but did not find different rates of self-punishment. In general, studies support that reinforcement is related to more stringent requirements in depressed individuals.

Behavioral passivity is often cited as a core symptom of depression. Many behaviorists argue that retarded movements, infrequent participation in previously reinforcing activities, etc. are related to a lack of external reinforcement (Ferster, 1974; Lazarus, 1968; Lewinsohn, 1974). Self-control literature suggests that self-administered and externally administered reinforcements are equally able to maintain behavior patterns (Roth, 1977).

Summary. Five theories of depression were described. All these theories of depression implicated cognition in some manner. Lewinsohn and Ferster suggest that the role of cognition in depression, if it exists at all, is merely a symptom resulting from environmental influences. Seligman proposes that cognition plays a more important role in depression. A cognition of learned helplessness, as a result of response-outcome inconsistency, becomes a mind-set through which future behaviors are affected.

Beck and Rehm are the strongest advocates of the cognitive determinant in depressive behavior. Both theorists suggest that cognitions are central to depression rather than merely symptoms of depression. Beck's main premise states that cognitions about stimuli rather than the physical stimuli determine the course of an individual's behavior. Rehm has developed a theory in which depressives' self-monitoring,

self-evaluation, and self-reinforcement differ from normals. Research
suggests that self-evaluation and possibly self-monitoring may be
affected by differential recall.

Bower's Research on Cognition and Emotion

Recently, Bower, a cognitive psychologist, presented several
studies concerning the relationship between mood and cognitive pro-
cesses (1981). Bower's work adds supporting data and a somewhat dif-
ferent perspective to the previously discussed cognitive theories of
depression. Whereas cognitive theories view affect as resulting from
cognitions, Bower introduced affect to aid in understanding memory and
cognition.

Theoretically, Bower approaches the relationship between depres-
sion and cognitive processes from a strong cognitive perspective.
Still the importance of emotions playing a causal role in behavior is
illustrated by his associative network theory of emotional behavior.
"In this theory, emotion serves as a memory unit that can enter into
associations with coincident events. Activation of this emotion unit
aids in retrieval of events associated with it. . ." (p. 129). An
emotion can also prime themes for other cognitive processes such as free
associations, interpretation of ambiguous material, perceptual organiza-
tions, etc.

Three major areas of study have been focused on by Bower. In all
cases, research has primarily been done on subjects in which happy or
sad moods have been induced hypnotically. One area of study concerns

mood-state-dependent memory. In a representative study (Bower, 1981), subjects learned two lists of words, one while happy and one while sad. Then they were asked to free recall the original list while either in the same or opposite mood. Controls who learned both lists and free recalled all in the same mood were also included. Compared to the controls, state-dependency appeared in better recall in the same-mood list and worse recall in the opposite-mood list. Emotional mood was a helpful feature in distinguishing target material from interferring material. State-dependent effects were also found in subjects remembering personal and childhood experiences. That is, people remembered a greater percent of experiences that were affectively congruent to the mood they were in during recall.

A second area researched by Bower is that of emotion's powerful influences on cognitive processes such as free associations, fantasies, social perceptions and snap judgments about others. For example, Bower (1981) demonstrated that mood significantly influenced the interpretation of ambiguous scenes from TAT cards. This finding is consistent with the research of Roth and Rehm (1980) demonstrating that mood biased categories are used in interpreting ambiguous interpersonal scenes. Clinically depressed subjects rated their interview behavior as having significantly more negative and unskilled behaviors than nondepressed subjects. This also agrees with Rehm's (1977) hypothesis that depressives self-monitor their own behaviors more negatively than nondepressives. Bower, Forgas, and Krantz (cited in Bower, 1981) partially replicated this experiment on college students hypnotized to feel either

socially competent or incompetent. Students feeling socially incompetent rated their behaviors more negatively than students hypnotized to feel socially competent.

People's moods also had powerful effects on free associations they gave to neutral words (Bower, 1981). Hypnotized subjects generated chained associates to five words when they were happy and to another five words when they were angry. The criterion used to determine whether the associations were influenced by mood was the judges' ability to correctly differentiate the affective state of the individual who made the associations. When blind judges evaluated whether the chain showed "happiness" or "anger" or "can't decide," they judged anger accurately 83% of the time and happiness 73% of the time, significant at the .01 level. Fisher and Marrow (1934) used hypnosis-induced moods and Madigan and Ballenbach (Note 11) used moods induced by the Velton procedure with much the same results.

The associative network theory also implies mood affects snap judgments of people or objects. Isen, Shalker, Clark and Karp (1978) found subjects gave more positive ratings on mock consumer surveys when they were feeling good after receiving a gift. Bower (1981) found subjects' thumbnail sketches of others were affected by their happy or angry moods. It is suggested that current mood activates and primes mood-congruent categories into readiness and these are used to assimilate and classify ambiguous experiences.

The third area of study which Bower reviewed and researched is

that of salience of mood-congruous material. That is, people attend to and remember information which is emotionally salient to their mood. Bower gave two examples of subjects showing lower recognition thresholds for emotionally salient material. Clore (cited in Bower, 1981) found that happy and angry subjects responded quicker and with fewer errors to mood-salient material. Postman and Brown (1952) reported lower recognition thresholds (less bright exposures needed) for successes-versus-failure words for subjects who had just experienced success or failure in an unrelated task.

Research also shows evidence of mood-salient memory. In one experiment (Bower, Gilligan, & Monteiro, 1981), subjects were made happy or sad by post-hypnotic suggestion and read a balanced third person account of two people, one who was happy--everything was going well, and one who was sad--everything was going wrong. Subjects were found to identify with the mood-salient character and reported that this character was the central one in the story. The next day while in a neutral mood subjects recalled more facts about the character who exhibited the same mood they had felt the day before. Because they were in a neutral mood at the time of recall, this was a mood-congruous learning effect. In another experiment (Bower et al., 1981) subjects were induced to feel happy or sad by post-hypnotic suggestions and read about one character who related an unrelated series of happy or sad incidents. Subjects reportedly remember more incidents related with their mood. Happy readers recalled one and one half as many happy incidents as sad incidents and sad readers recalled one and one third

as many sad as happy incidents. So, the mood contiguity effects seem
to affect learning or memory.

In summary, Bower has investigated the effects of mood and cog-
nitive process in terms of a network theory. Using primarily hypno-
tized subjects, Bower reported three major findings. First, he
reported a strong mood-state-dependent effect on memory. Secondly, he
suggested that emotions affect cognitive processes such as free assoc-
iation by assimilating and categorizing mood congruent categories into
readiness. Lastly, Bower reported evidence in which learning or memory
for mood-congruous material is higher than for mood-discordant material.

Bower's findings have strong implications for the cognitive
theories of depression. Bower's approach agrees with their basic
premise that cognitions are central to depression. In addition, this
research extends cognitive models of depression by investigating the
relationship between emotions and cognitive processes to further the
understanding of how cognitions influence behavior. Specifically,
Bower suggests that emotions have powerful influences on memory, assoc-
iations, fantasies, social perceptions, snap judgments, and salience
of mood congruous material. Differences in these cognitive processes,
in turn, show up in differences in the behavior of depressed individuals.
In sum, Bower's research has added supporting data and somewhat differ-
ent perspective to the previously discussed cognitive theories of
depression.

Two questions arise from this research. The first is one that

Bower has raised, that is, do demand characteristics play a role in the findings? Bower (1981) reports a series of experiments (Bower & Vallone, cited in Bower, 1981; Stanislavski, 1936; Teasdale & Fogarty, 1979) which attempt to distinguish between automatic versus demand compliance interpretations of the data. Specifically, are the emotions evoked by hypnotism real and if they are, were the subjects responding naturally to the stimuli or were they responding to please the experimenter? Although research attempting to control for demand characteristics suggests that they do not play a role in the results, further research in which demand characteristics are not involved is suggested. A second question concerns the generalizability of Bower's results. Although the expected results are obtained by using experimentally induced moods, would naturally occurring moods found in the "real" world still have discernible effects on cognitive processes? To determine whether Bower's findings have relevance for understanding and treating depression in clinical settings, research with subjects showing varying degress of naturally-occurring depression is necessary.

Gundersen (Note 1) extended the generalizability of Bower's findings by using subjects with varying degrees of naturally occurring depression. Specifically, Gundersen tested the affective recall of normal college subjects who varied on two tests measuring levels of depression. The recall of subjects who measured high (very depressed) on both the Beck Depression Inventory and the Multiscore Depression Inventory was compared to the recall of subjects who measured low on both inventories. When the ten subjects on each extreme were compared

significant differences in recall were found. Depressed subjects re-
membered more depressed words than happy subjects. No differences in
amount of recall, ordering of recall, interjections into recall, or
content of recall were found when all the subjects in both categories
were used. It was hypothesized that college subjects did not vary
enough in their levels of depression. Further testing of recall with
clinically depressed and euphoric subjects is still necessary to add
further data supporting Bower's premise relating cognition and emotion.

The purpose of the present study was to replicate the Gundersen
research using clinically depressed and euphoric subjects. Also, a
partial replication of Bower et al. (1981) research in which subjects
recalled happy, sad, and neutral incidents from a narrative, was done.
Since the project used patients that were actually clinically depressed
or euphoric instead of subjects hypnotized to be happy or sad, the
generalizability of Bower's findings was studied.

HYPOTHESES

1. Affect of the subjects will be related to the affective content of what is recalled.

   a. Depressed subjects will remember more sad than happy words from the list and more sad than happy events from the story.

   b. Manic subjects will remember more happy than sad words from the list and more happy than sad incidents from the story.

2. Mood will be related to subjects' ratings of the affect of words.

   a. Depressed subjects will rate the affect of words as sadder.

   b. Manic subjects will rate the affect of words as happier.

3. Mood will be related to the total number of words or incidents recalled.

   a. Depressed subjects will recall less total number of words and less total incidents than manic subjects.

4. Mood will be related to motivation in recall.

   a. Depressed subjects will recall more words than manic subjects after the experimenter prompts by asking if they wish to have more time for recall.

5. Mood will be related to whether words are interjected into recall.

   a. Manic subjects will interject more words or incidents than depressed subjects.

6. Mood will be related to the nature of the words or incidents interjected.

   a. Depressed subjects will interject more sad words or incidents.

   b. Manic subjects will interject more happy words or incidents.

7. Mood will be related to the order of recall.

   a. Depressed subjects will remember sad words generally before the happy or neutral words.

   b. Manic subjects will remember the happy words generally before the neutral or sad words.

8. Mood will be related to the nature of the chain associations to neutral words.

   a. Depressed subjects will chain associate more depressively to neutral words.·

   b. Manic subjects will chain associate more positively to neutral words.

METHOD

Subjects

The subjects in this study were 40 patients taken from the acute
psychiatry units of North Chicago Veteran's Administration Medical
Center. They were divided into two groups based on their clinical
diagnosis by the staff psychologist and their score on the Beck Depres-
sion Inventory. In order to be categorized as depressed, patients met
the requirements for Major Depressive Episode or Dysthymic Disorder set
forth in the Diagnostic Criteria from the DSM III. Some of the diagnos-
tic criteria included were: poor appetite or significant weight loss,
insomnia or hypersomnia, psychomotor agitation or retardation, loss
of energy, feelings of worthlessness or self-reproach, recurrent
thoughts of death, etc. Patients placed in the depressed category also
had a BDI score of 12 or above. To be categorized as manic for this
research, the patients met the requirements for Manic Episode set forth
in the Diagnostic criteria from DSM III. Some of the diagnostic cri-
teria included were: increased activity, more talkative than usual,
inflated self-esteem (grandiosity), decreased need for sleep, etc.
Patients in the manic group all must have a score of less than 12 on
the BDI. For both depressed and manic groups, no patient who was also
exhibiting psychotic features was included.

Materials

Beck Depression Inventory. Subjects were given the Beck

Depression Inventory (BDI: Beck, Ward, Mendelson, Mock, & Erbaugh,
1961). The BDI is comprised of 21 items, each of which represents a
discrete depressive symptom. Each item includes graded statements
pertaining to the severity of the symptom. The examinees endorse the
statement best matching their behavioral or experimental state. An
evaluation of the internal consistency of the BDI (Beck, 1967) resulted
in a split-half reliability of .86 using the Pearson r; with a Spear-
man Brown correction, this rose to .93. The traditional test-retest
method of assessing stability and consistency were not considered
appropriate because the memory factor might inflate the score; however,
an indirect method of estimating the stability of the instrument found
that changes in the score of the inventory paralleled changes in clin-
ical ratings (made by psychiatrists) indicating a "consistent relation-
ship of the instruments to the patient's clinical state" (Beck, 1967,
p. 195). A concurrent validity of .75 was found in a correlation
between the BDI and the MMPI-D scale. Also, a validity score of .66
was obtained between the BDI and the Depression Adjective Check List.
Further measures of internal consistency, concurrent validity, and
construct validity are available in Beck (1967).

Stimulus Words. For the recall portion of this project a list of
21 words (7 happy, 7 neutral, 7 sad) was used. The final lists were
derived from a group of 100 adjectives which have been rated for their
affective content. A group of 101 undergraduate psychology students
rated the content of the adjectives as being: Very Sad, Sad, Neutral,
Happy, Very Happy, or Not Applicable. Words were divided into

affective categories according to their ratings. Words which were
described as either Sad or Very Sad at least 85% of the time were put
in the Sad category; words which were rated as Neutral in their affec-
tive content at least 85% of the time were put into the Neutral cate-
gory; and words that were rated as Happy or Very Happy at least 85%
of the time were put in the Happy category. Next, 7 words from each
category were matched for frequency of use (Kucera & Francis, 1967) and
put together to form the list of 21 words. For purposes of this study
each word was printed on a 3" x 8" card in black magic marker and
placed in random order. The list contains the following words: Miser-
able, Lucky, Steady, Destroyed, Tame, Thoughtful, Failure, Optimistic,
Jovial, Tormented, Cheerful, Impartial, Mild, Neutral, Lively, Morbid,
Discouraged, Energetic, Usual, Suffering, and Interested. Table 1
explains which words were placed in each category. The experimenter
recorded the number and order of the words recalled.

For the association part of the experiment, 5 neutral words have
been selected on the basis of their face validity. The words are: Life,
Experience, Idea, Music, and Function. The words were placed on separ-
ate 4" x 9" sheets of paper. Each sheet had one word at the top and
five lines below it where the associations were written. The five
sheets for each subject will be stapled together with a cover sheet
containing directions on the front.

Story. All the patients read a 660-word fictitious narrative
that described four sessions involving a male patient (Paul Smith,

TABLE 1

Recall Words Divided According to Affect

Happy Words	Neutral Words	Sad Words
Lucky	Steady	Miserable
Optimistic	Tame	Destroyed
Jovial	Thoughtful	Failure
Cheerful	Impartial	Tormented
Lively	Mild	Morbid
Energetic	Neutral	Discouraged
Interested	Usual	Suffering

fictitious name) undergoing hypnotherapy with a psychiatrist. Except
for brief statements giving the setting and describing the beginning
and ending of the sessions, the narrative mainly depicts Paul recalling
and relating a carefully balanced variety of happy, neutral, and sad
incidents from his life. The narrative was identical to the one used
by Bower, Gilligan and Monteiro (1981) and is reproduced in Appendix A.
It has been divided into 78 basic idea units which are further divided
into 26 happy incidents, 26 neutral incidents, and 26 sad incidents.
Examples of happy items are memories of riding piggyback on his
father's back, being accepted at college, and attending holiday family
gatherings, etc. Sad memories include the deaths of his grandfather
and his dog, being cut from the baseball squad, and his sister's
injuries in a car accident. Neutral items usually pertain to the
setting information, the beginning of the trance or the ending of a
trance at each session, and remarks between the doctor and Paul about
his progress.

Procedure

Each subject was seen for approximately 45 minutes. Subjects were
told that the experiment was studying "the effect of certain personality
characteristics on cognitive processes." Secondly, subjects were given
a consent form to read and sign (see Appendix B). Any questions were
answered. The subjects were then asked to fill out a Beck Depression
Inventory. Next, they were given the word association packet which
had the following directions: "On each of the following pages, look
at the typed word and write the first five words that word brings to

mind." After the subjects were finished with the word associations,

they were instructed:

> Next, I am going to show you 21 words, one at a time. When I
> finish, I would like to see how many words you can remember.
> Just recall as many as you can and I'll mark them down on
> this paper. No one can remember them all, just recall as many
> as you can. Any questions? Ready?

Each word was shown and verbalized to the subject one at a time at two-

second intervals. After the entire list was read and shown to the sub-

jects, they were asked to verbally recall as many as possible. After

the subjects recalled as many as they could initially, the experimenter

asked if they wished to have more time. Any additional words remembered

were also recorded. When the task was completed, the subjects were

allowed to look at the experimenter's list on which their responses

were recorded. For the last task, subjects were given a copy of the

narrative story and told, "Next I'm going to have you read this short

story. Please read it very carefully because I am going to ask you to

recall as much as you can about it when you are through. Ready?"

After the story was read, subjects were asked to verbally recall as

many details as possible while the experimenter wrote them down.

RESULTS

This study was designed to examine the relationship between affect and two cognitive processes, immediate recall and associations. A portion of the study was a replication of Bower, Gilligan, and Monteiro's work (recalling events from a short story) using a clinical population. Specifically, eight major hypotheses were examined. They involved the relationship between: mood and the affective content of recall; mood and ratings of affective stimuli; affect and the total amount of recall including the role of motivation in recall; affect and the number and affective content of interjected stimuli; affect and the order of recall; and affect and associations to neutral words. The results are organized and presented as they apply to each hypothesis.

Mood and Affective Content of Recall

Words. Table 2 presents the means and standard deviations of happy, neutral, and sad words remembered by all 40 of the manic and depressed subjects. An orderly visual trend is seen in the direction of the hypothesis. That is, manic subjects recalled an average of 2.50 happy words and only 1.15 sad words. On the other hand, depressed subjects remembered only 1.30 happy words and 2.55 sad words. At both levels of mood, neutral words were remembered at lower rates than happy or sad words (manic = .50 words and depressed = .40 words). Not only does there appear to be an orderly progression within each level of

TABLE 2

The Means and Standard Deviations of Happy, Neutral,
and Sad Words Recalled for 20 Manic and 20 Depressed Subjects

| GROUP | Words Recalled | | | |
	Happy	Neutral	Sad	Total
Manic	2.50 (1.43)	.50 (.61)	1.15 (.67)	4.15 (1.46)
Depressed	1.30 (.92)	.40 (.82)	2.55 (.95)	4.25 (1.82)
Average Words Recalled	1.90 (1.34)	.45 (.71)	1.85 (1.08)	4.20 (1.52)

Note. Standard deviations are in parentheses.

mood, there also appears to be expected results between each level of mood. That is, happy words seemed to be remembered on the average more often by manic subjects than depressed subjects (2.50 and 1.30, respectively) and sad words seem to be recalled on the average more often by depressed subjects than manic subjects (2.55 and 1.15, respectively). A visual summary of these results is presented in Figure 1.

Several analyses were done to determine the statistical significance of the visual trend. A multivariate analysis for repeated measures showed there was a statistically significant difference due to the interaction between the affect of a subject (manic versus depressed) and the affect of the words recalled (happy or sad), Approx. Mult. F (2,37) = 17.595, p < .0005. Planned univariate contrasts demonstrated that manics on the average recalled significantly more happy than sad words (2.50 and 1.15 words, respectively), F(1,76) = 19.675, p <.0005, and depressives recalled on the average significantly more sad than happy words (2.55 and 1.30 words, respectively), F(1,76) = 16.868, p < .0005. There was also a multivariate statistically significant difference due to the affect of the words recalled, Approx. Mult. F(2,37) = 40.505, p <.0005. Specifically, multivariate contrasts of the average number of words recalled by affect across groups showed that neutral words were remembered significantly less often than happy or sad words, t = −5.45582, p <.0005.

In sum, mood was significantly related to the affect of words recalled. Depressives remembered more sad than happy words while manics
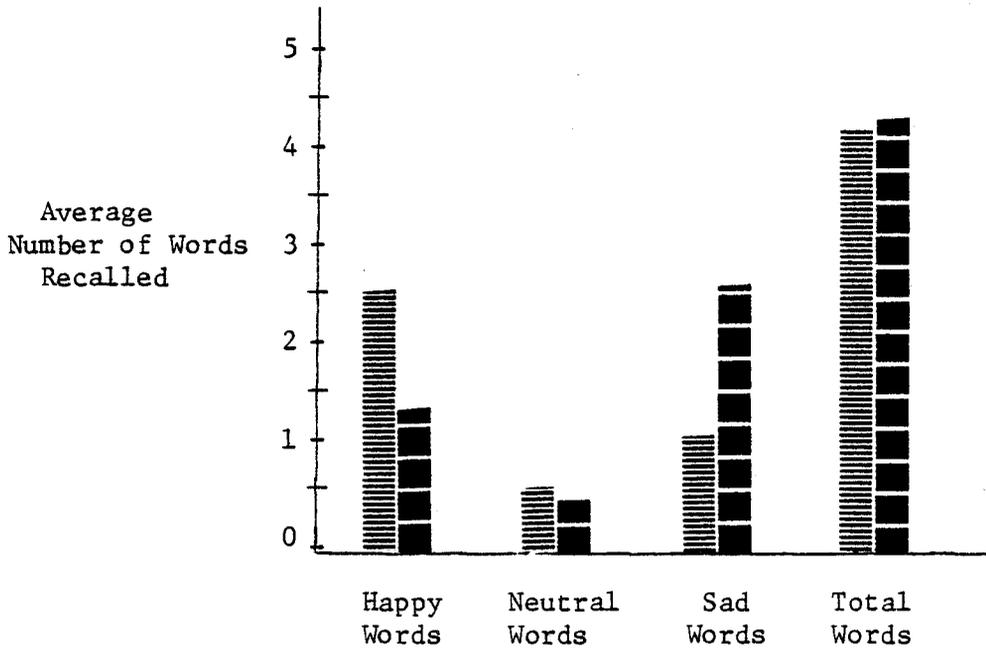
Note. Striped bar is manic group; block bar is depressed group.

Figure 1. Comparing the Affective Content and Total Recall
(for Words) of a Group of 20 Manic Subjects With
the Recall of a Group of 20 Depressed Subjects

recalled more happy than sad words. On the whole, neutral words were remembered less often than either happy or sad words across groups.

Events. Table 3 presents the mean number of happy, neutral, and sad events which subjects recalled from the short story. Again, an orderly visual trend is seen in the direction of the hypothesis. Manic subjects recalled an average of 2.90 happy events and 2.55 sad events while depressed subjects remembered on the average only 1.95 happy events and 3.60 sad events. There also appears to be an orderly progression between mood levels. That is, happy events seemed to be remembered on the average more often by manic subjects than depressed subjects (2.90 events and 1.95 events, respectively) and sad events seemed to be remembered on the average more often by depressed subjects than manic subjects (3.60 and 2.55 events, respectively). See Figure 2 for a visual presentation.

Statistically, multivariate analyses of variance demonstrated there is a significant interaction of group and affect of events recalled, Approx. Mult. $F(2,37) = 4.822$, $p = .014$. Specifically, planned univariate contrasts showed that depressives remembered significantly more sad than happy events, $F(1,76) = 12.910$, $p = .001$; however, contrasts between the number of happy and sad events recalled by manics was not significant, $F(1,76) = .5809$, ns. There was also a significant main effect for the affect of the events recalled, Approx. Mult. $F(2,37) = 6.3655$, $p = .004$. The multivariate contrast showed that across groups, the number of neutral events recalled compared to the number of happy

TABLE 3

The Means and Standard Deviations of Happy, Neutral,
and Sad Events Recalled for 20 Manic and 20 Depressed Subjects

GROUP	Events Recalled			
	Happy	Neutral	Sad	Total
Manic	2.90 (1.86)	2.10 (1.92)	2.55 (2.72)	7.55 (5.69)
Depressed	1.95 (2.06)	1.70 (1.56)	3.60 (2.35)	7.25 (4.76)
Average Events Recalled	2.43 (1.99)	1.90 (1.74)	3.08 (2.57)	7.40 (5.18)

Note. Standard deviations are in parentheses.
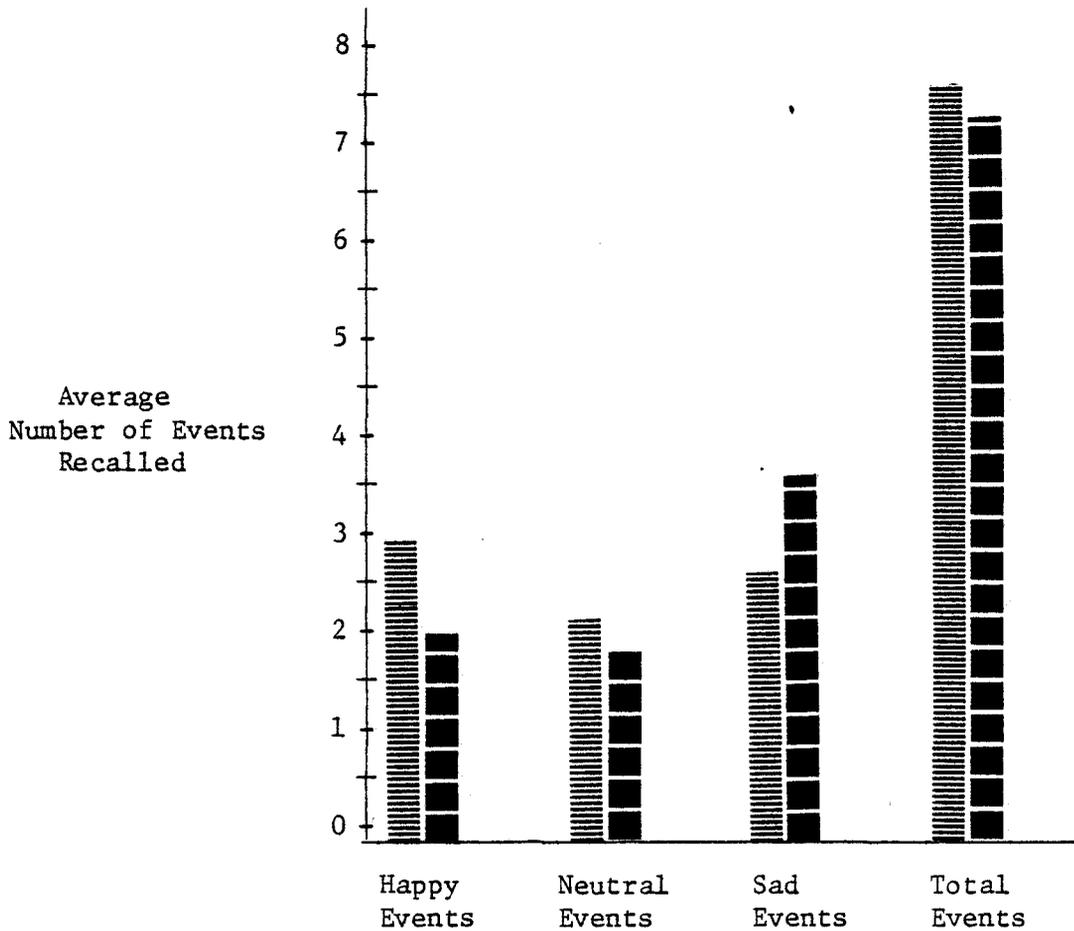
Note. Striped bar is manic group; block bar is depressed group.

Figure 2. Comparing the Affective Content and Total Recall
(for Events) of a Group of 20 Manic Subjects With
the Recall of a Group of 20 Depressed Subjects

or sad events was significant, t = -3.050, p =.004. In sum, a relationship between mood and the affect of events recalled was demonstrated.

All in all, the hypothesis suggesting a relationship between mood and affective content of recall was strongly supported. Manics remembered significantly more happy words and events than depressives, while depressives recalled significantly more depressed words and events than manics. In both subtests, a main effect for affect was also demonstrated. Neutral words and events across groups were on the average recalled significantly less often than words and events with extreme affective values.

Mood and Ratings of Stimuli

To control for variability in individual subjects' personal reactions to the affective content of each stimulus word, the subjects rated each of the 21 words on a five-point graphic rating scale (a Likert scale) for affect level. The subject was assigned a 1 if the word was rated as "very sad," and 2 if the word was "sad," a 3 if the word was "neutral," a 4 if the word was "happy," or a 5 if the word was rated as "very happy." It was observed that in no case did any subject assign an affect value which was extremely opposite to the affect value which was expected. For example, in no case was a word which was prerated and assigned to the happy group of words rated as "sad" or "very sad" by an individual. To observe possible group differences in affective ratings of stimulus words, each of the 21 ratings

was summed up to yield a single score for each subject, an overall rating of the affect of the words. This overall rating of each subject was analyzed in a one-way analysis of variance to see if there was any difference in the overall mean totaled ratings of manics or depressed subjects. The manic subjects rated the 21 words with a mean total score of 64.35 and a standard deviation of 2.72, while the depressed subjects rated the words with a mean total score of 59.80 and a standard deviation of 4.11. This difference is statistically significant, $F(1,38)$ = 17.036, p =.0002. In sum, the manic subjects' totaled ratings of the stimulus words were more positive than those of the depressed subjects.

In sum, the hypothesis relating mood to affective ratings of stimuli was solidly supported. Manics rated the stimuli generally more positively than did depressives. Differences between the groups were demonstrated by summing up ratings across 21 words to yield a single totaled score for each subject.

Affect and Total Recall

Words. Table 2 showed that manic subjects remembered an average of 4.15 words and depressed subjects remembered an average of 4.25 words. A multivariate analysis of variance using repeated measures was conducted to assess the difference in the mean total number of happy, neutral, and sad words recalled by manic and depressed subjects. There was no statistically significant difference between the mean total number of words recalled by manic subjects and the mean total number of

words recalled by depressed subjects, $F(1,38)$ = .042, ns.

In anticipation of demonstrating differences in the total recall between manics and depressives, a control for motivation in the form of a prompt was introduced. After subjects had initially responded by recalling as many words as they could, they were encouraged to take as much time as they needed to recall any more words that may come to mind. The number of words recalled after the prompt was recorded for each subject. For both manic and depressed groups the mean number of words recalled after the prompt was identical, .55 with standard deviations of .999 and .887 words, respectively. No difference in the average number of words recalled after prompting demonstrated that the two groups were not statistically different so no further analysis was done.

Events. The results for the total number of events recalled are similar to those for the total number of words recalled. Table 3 showed that manic subjects remembered an average of 7.55 events while depressed subjects recalled an average of 7.25 events. An analysis of variance demonstrated there was no significant difference in the mean total number of events recalled by manic and depressed subjects, $F(1,38)$ = .03274, ns. No prompting measure was recorded for events.

In sum, the hypothesis relating affect to total recall was not statistically supported in either measure of recall (total words or total events remembered). Furthermore, the hypothesis suggesting that mood would be related to motivation in recall was not supported. Both

manic and depressed groups remembered a small but equal mean number
of words after prompting.

Affect and Interjected Stimuli

Words. A one-way analysis of variance predicting the number of
words interjected from affect showed no difference in the mean number
of interjected words for manic versus depressed subjects. The manic
group added on the average 1.05 words while the depressed subjects
added on the average 0.65 words. The difference was not statistically
significant, $F(1,38) = 1.136$, ns.

Table 4 shows the mean number and affect of interjected words for
manic and depressed subjects. While the numbers are small, there
appears to be a within group effect. Manic subjects interject on the
average .85 happy words and only on the average .10 sad words, while
depressed subjects interjected an average of only .05 happy words and
.60 sad words. A between-groups effect also appears evident. Manics
remember on the average more happy words than depressives (.85 and .05,
respectively), while depressives interject more sad words than manics
(.60 and .10 words, respectively). Figure 3 presents these results
visually. Statistically, there was a significant Multivarial F for
groups, Approx. Mult. $F(3,36) = 4.656$, $p = .008$. The manic subjects
interjected more happy words than depressed subjects, $F(1,76) = 11.676$,
$p = .001$ and depressed subjects interjected more sad words than manic
subjects, $F(1,76) = 9.811$, $p = .002$. The univariate F for neutral words
interjected was not significant, $F(1,38) = 2.111$, ns. In sum, although

TABLE 4

The Means and Standard Deviations of Happy, Neutral,
and Sad Words Interjected by 20 Manic and 20 Depressed Subjects

GROUP	Words Added			
	Happy	Neutral	Sad	Total
Manic	.85 (1.39)	.10 (.31)	.10 (.31)	1.05 (1.50)
Depressed	.05 (.22)	0.00 (0.00)	.60 (.75)	.65 (.75)
Average Words Added	.45 (1.06)	.05 (.22)	.35 (.62)	.85 (1.19)

Note. Standard deviations are in parentheses.
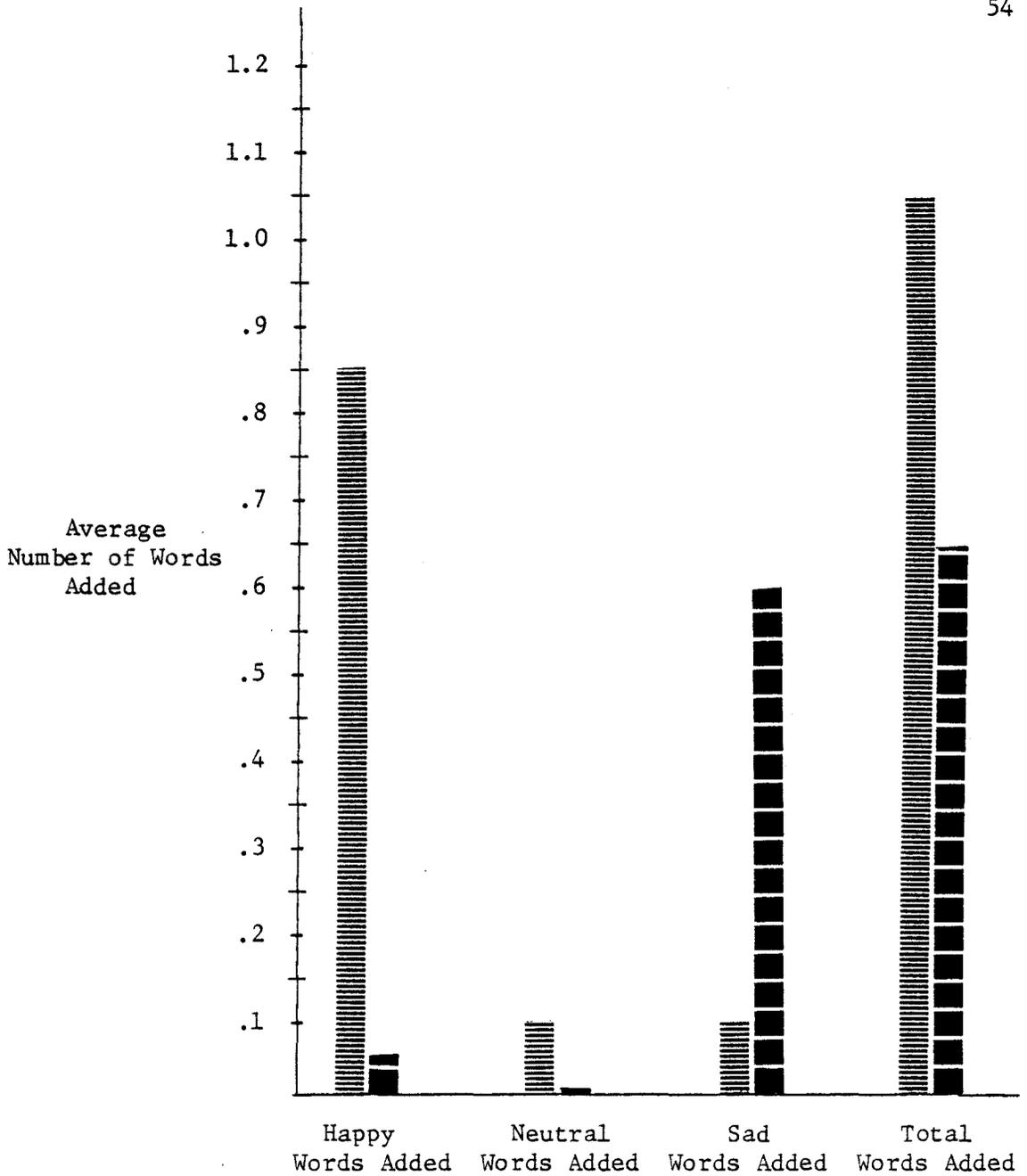
Note. Striped bar is manic group; block bar is depressed group.

Figure 3. The Content and Number of Word Interjected Into
the Recall for Two Psychiatric Groups (Each N=20)

affect was not related to the amount of words interjected into recall, affect was related to the affective value of words interjected when the value was extreme.

Events. Table 5 shows the mean number of events interjected by depressed and manic groups. Very few events were interjected. The manic subjects added an average of .40 total events while the depressed subjects added an average of .05 events. This difference was not significantly different, $F(1,38) = 1.39$, ns. Due to the fact that the means in the data were so small and some of the variables had no variance, a statistical analysis to determine the relationship between mood and affect of events was inappropriate. A visual trend, however, was suggestive of a relationship similar to that found previously between mood and affect of words interjected.

In sum, the hypothesis relating affect to the number of words interjected was not supported. Neither words interjected into the recall list nor events interjected into recall of the short story could be predicted from the mood of the subjects. On the other hand, there was support for the hypothesis relating mood and the affect of stimuli interjected. Manic subjects interjected significantly more happy than sad words and depressed subjects interjected more sad than happy words into the recalled list. Although a statistical analysis was not done, a similar visual trend was apparent between subjects' mood and the affect of events interjected.

TABLE 5

The Means and Standard Deviations of Happy, Neutral,
and Sad Events Interjected by 20 Manic and 20 Depressed Subjects

GROUP	Events Added			
	Happy	Neutral	Sad	Total
Manic	.3 (0.92)	0.0 (0.0)	.10 (.31)	.4 (.99)
Depressed	0.0 (0.00)	0.0 (0.0)	.05 (.22)	.05 (.22)
Average Events Added	.15 (.66)	0.0 (0.0)	.08 (.27)	.23 (.73)

Note. Standard deviations are in parentheses.

Affect and Order of Recall

To analyze the order of the words remembered, the recalled words were divided into three groups, the first third of the words recalled, the second third of the words recalled, and the last third of the words recalled for each subject. Sad words were rated as 1, neutral words were rated as 2, and happy words were rated as 3. The average level of affect in each of the three word groups was computed and the results are shown on Table 6. A repeated measures multivariate analysis of variance testing for the order of recall within subjects was not significant, $F(3,38)$ = .03834, ns. That is, across manic and depressed subjects, there was no difference in the average affect of words recalled in the first, second, and third groups (1.866, 1.835, and 1.879, respectively). Next, a multivariate analysis of variance testing for the interaction of group by order of recall was done. There were no significant interaction effects, Approx. Mult. $F(3,36)$ = 1.56435, ns.

In sum, the hypothesis relating mood and the affective order of recall was not supported. There were no significant differences in tests for order of recall across manic and depressed subjects or in tests for the interaction of group by order of recall.

Affect and Chain Association

To test the hypothesis that mood influences chain associations to neutral stimuli, a procedure similar to Bower's was used. Two judges independently rated the subjects' chain associations as made by either a manic or depressed person. The criterion used to determine whether

TABLE 6

Means and Standard Deviations for Affect Ratings of Three Groups of
Words in the Order Remembered by 20 Manic and 20 Depressed Subjects

GROUP	Affect Ratings			
	First	Second	Third	Average Total
Manic	2.35 (.71)	2.09 (.93)	2.32 (.92)	2.25 (.85)
Depressed	1.38 (.68)	1.58 (.69)	1.44 (.81)	1.47 (.74)
Average Group Rating	1.87 (.84)	1.84 (.85)	1.88 (.96)	1.86 (.86)

Note. Standard deviations are in parentheses.

the associations were influenced by mood was the judges' ability to correctly differentiate the affective state of the individual who made the associations. Interjudge reliability as determined by their independent ratings of sample chain associations was 90%. Table 7 summarizes the judges' ratings of the chain associations. The judges were accurately able to identify the chain associations of manic subjects an average of 87.5% of the time and depressed subjects 85% of the time. A chi square using the obtained and theoretical frequencies was significant, Chi Square (1) = 10.525, $\underline{p}$ <.005. The judges were rating the associations at a significantly different from chance level. Manic subjects chain associated to neutral words in an observably different way than depressed subjects.

In sum, the hypothesis suggesting a relationship between affective state and chain associations to neutral words was supported. Manic and depressed subjects chain associate to neutral words in observably different ways.

TABLE 7

Correct Ratings of Chain Word Associations
Into Either Depressed or Manic Groups

RATERS	Correct Ratings		
	Manic	Depressed	Average
Judge 1	17	17	17
Judge 2	18	17	17.5
Average Rating	17.5	17	17.25

DISCUSSION

The preceding research was based on the premise that mood is related to cognitive processes such as immediate recall and associations. In general, strong support was shown for several of the hypotheses associated with this premise. Specifically, relationships between: mood and the affective content of recall, mood and the affective content of interjected stimuli, mood and ratings of stimuli, and affect and associations to neutral words, were demonstrated to be significant. In cases in which two tests of the hypothesized relationship (word and event recall tasks) were done, they showed similar results and in no case were contradictory. No support was provided for hypotheses regarding the relationship between: mood and total amount of recall, including the role of motivation in recall, mood and the number of words interjected into recall, and mood and affective order of recall.

These results are consistent with the general premises of cognitive theories of depression which propose differences in the cognitive processes between depressed and nondepressed individuals. Beck (1972) showed that depressed subjects selectively abstract the unpleasant aspects of their experience which suggests the possibility of selective memory. Roth (1977) did not find support for selective memory in subjects but did find evidence of selective attention to mood-congruent aspects of their own behavior. Additionally, Rehm (1977) suggested possible selective memory and attention as reasons for differences in

self-monitoring and self-evaluation between depressed and nondepressed subjects. The present study supported the work of these cognitive theorists by demonstrating mood-congruent recall and associations in both depressed and manic subjects.

These results are also consistent with Bower's work which showed differences in cognitive processes relative to subject mood. Specifically, the data supporting the hypothesis relating mood and affective content of recall is consistent with Bower's preliminary work (Bower, 1980; Bower, Gilligan, & Monteiro, 1981) using subjects hypnotized to emulate happy and sad states. Portions of the present research partially replicated Bower, Gilligan, and Monteiro (1981) in which hypnotized subjects read and recalled events from a short story in which the main character described many unrelated happy and sad incidents in his life. In addition to showing a relationship between cognition and affect consistent with previous research, the present research found these differences using the extreme mood levels found in a clinical population of manic and depressed subjects. Some of the earlier reservations of previous researchers concerning the need to strongly manipulate the subjects' mood to obtain results, the "realness" of the mood induced, possible demand characteristics resulting from evident mood inducement, and generalizability of previous lab findings are minimized by this design.

The present research furthered Bower's preliminary work in a second way. This research demonstrated that it was not necessary to

use happy and sad events to show cognitive differences in happy and sad individuals. Words with affectively laden contents are also effective. In most cases in which word tests of recall were used in addition to event tests of recall (specifically affective content of recall, total recall, amount and type of interjections into recall), the results were consistent. In fact, statistical analyses done on the word recall tasks showed greater degrees of significance than statistical analyses completed on the event recall tasks. One discrepancy was noted when comparing a univariate contrast for the word task with a contrast for the event recall task. The explanation for this specific discrepancy will be discussed later. The word task may be more sensitive to mood influence because it is less accurately recalled than the event recall task. Across manics and depressives, an average of 7.40 events were remembered as opposed to only 4.20 words. More accurate recall for events was also shown by the amount of words and events interjected into recall. Subjects were less likely to interject additional events into the story than additional words to the list (.175 events added and .85 words added, respectively). In sum, the present research success-fully used word recall tasks as well as event recall tasks to demon-strate a relationship between mood and content of recall. It was additionally suggested that tasks involving word recall may be more sensitive in demonstrating mood differences than tasks involving event recall.

The results of this study were also consistent with several hypoth-eses proposed in Gundersen's research (Note 1) which used words as the

recall stimuli. First, that study hypothesized that cognitive differences shown by college students with a range of depressed to nondepressed moods were not different enough. The same procedure used in the present study with a clinical population did demonstrate cognitive differences between manics and depressives for content of recall, content of interjections, affective ratings of stimuli, and chain associations to neutral words.

A second hypothesis suggested in Gundersen's preliminary research, the importance of prerating affective content of the stimuli, was firmly established in the present project by a close examination of the one case of discrepant results (between the event and word task) mentioned earlier. A univariate contrast on the word task showed that manics remembered significantly more happy than sad words while a similar contrast on an event recall task, surprisingly, did not. Additionally, a contrast showing the number of happy versus sad events recalled approached significance, $t = 1.9843$, $p = .054$. That is, sad events provided a stronger stimuli for recall than happy events regardless of subject mood. The discrepant results may be due to a stimulus confound; even though the happy events were mood-congruent for manics, the sad events provided stronger stimuli, perhaps by being more affectively extreme. This discrepancy may be due to the fact that the affective content of the events was not prerated and counterbalanced as were the words. Upon scrutiny, the sad events in the story appear to have a more extreme affect value than do the happy events (grandfather dying, attendance at grandmother's funeral, and mother developing cancer

versus holiday family gatherings, being with first girlfriend, and being accepted in college). Since no such main effect is evident in the word recall task, it is plausible to hypothesize that differences in recall of events across groups is related to possible differences in the average affect values for happy and sad events in the story. With this in mind, suggestions for future research would include using stimuli which were prerated into several affective levels (very happy stimuli, happy stimuli, neutral stimuli, sad stimuli, and very sad stimuli). Subjects could also be rated and divided into groups of an equal number of mood levels. This would allow the researcher to observe if subjects selectively learned material most congruent to their affective state or material which was more extreme than (but still congruent to) their affective state. Subjects' mood level could be measured after the task to determine if their affective state had decreased, maintained, or increased intensity.

Some of the hypotheses in this project were not supported by the data. Specifically, the unsupported hypotheses included those regarding a relationship between mood and: the total amount of recall including the role of motivation in recall, the amount of interjections into recall, and the affective order of recall. There are several explanations for these phenomena. One explanation for no differences between manics and depressives on these measures is that there actually are no cognitive differences of these kinds between the two groups. An alternative explanation for the total recall similarities and the similarities in the number of interjections between both groups, as well as the

seemingly useless prompt measure may be the extremely low motivational level of the typical veteran's administration psychiatric population. The low number of responses recorded for all three measures is suggestive of a broad-based low level of motivation which could effectively mask any real recall differences of this type between groups. Although the results did not support these additional hypotheses and alternative explanations have been suggested, the data are not inconsistent with Bower's preliminary research on mood and cognitive processes.

More theoretically, this research provides additional support for Bower's notion of the associative network theory of memory and emotion, i.e., emotion serves as a memory unit that can enter into associations with events. It assumes that by spreading activation, a dominant emotion will enhance the salience of congruent stimulus materials for learning, therefore also increasing the likelihood of mood congruent material at the time of recall. In this project, subjects learned and therefore recalled more materials (events and words) which were congruent with their emotional state than materials which were incongruent to their emotional state. Mood congruent recall is consistent with Bower's network theory of emotion and memory. The positive relationship between the specific intensity of the mood congruent material and the extent of recall suggests that material which is extreme in affect value is more memorable because while it is minimally resistant to or serves to heighten one's affective state, it may also be a less common event therefore having less associations to other (possibly inhibiting) stimuli. More neutral stimuli may be remembered less often

because in addition to not exclusively being paired with the subject's current mood state, they are likely used in several other associative networks and therefore less distinguishable to remember. Hypotheses suggested by previous researchers suggesting mood-congruence recall is effective because it justifies the subject's state or because it reminds the subjects of an event in their own lives are not valid here because the subjects were not hypnotized (so had no need to justify their state) and the stimuli was not always in the form of events (to serve as cues for the subject's own memory).

In addition to supporting Bower's associative network of emotion and memory (reactive cognitive processes), the results of this project support the relationship between mood and active cognitive productions. Bower, Gilligan, and Monteiro (1982) demonstrate that although differences between the cognitions of happy and sad subjects show up in recall, cognitive differences actually occur during the active process of learning, probably in the form of selective attention to mood congruous material. In addition to mood being related to cognitive reactions to material more properly demonstrated by differences in affective ratings of material, that is, reactions to emotionally laden material, mood is also related to active cognitive productions. Active processes such as selective attention as demonstrated by differential content of recall, material production as demonstrated by content of words interjected, and associative thought processes as demonstrated by associations to neutral words were shown. In sum, the results of this study emphasize the aspect of the associative network theory that

relates mood to active cognitive productions forming a theoretical
framework for examining active thought processes as well as forming
a framework for examining memory.

In addition to its support of a theoretical framework, the re-
sults of this research may have some clinical relevance as well. Al-
though the results for the present project are primarily statistically
significant rather than clinically observable it may be relevant for
the clinician to understand that patients' thought processes are closely
linked to their present mood. This may be observably or statistically
demonstrated several possible ways in the therapy setting. First, when
clients are presented with several pieces of information (whether it
be interpretations, alternative ways of viewing or dealing with a sit-
uation, or feedback) material which is mood congruent may be more sal-
ient therefore more easily learned and remembered by the client. In
addition, extremely affect-laden (mood-congruent) material is more
likely to be selectively attended to and recalled than more neutral
material. Secondly, when asked to actively produce material (alterna-
tive ways of viewing and dealing with situations), clients may have a
tendency to produce alternatives within a limited affective range, i.e.,
mood-congruent productions. A third way in which the results of this
study may relate to client behavior in a clinical setting is an emotion-
al bias in associations. Manic and depressed patients chain associated
to neutral moods in observably different ways, the associations being
closely linked with the mood of the patient. It is not currently known
if this bias is observable when associations are made to mood-congruent

and mood-incongruent as well as neutral material. In addition to being aware of these chaining biases in therapy settings, it may be possible to use chain associations to neutral words, since they are clinically identifiable over 85% of the time, as additional projective measures of affective states for diagnostic purposes and serially as a measure of clinical improvement. In sum, the results of the present research although primarily statistically rather than clinically observable, show possibilities for relevant use in clinical settings.

On a broader spectrum, this study contributes to the literature on theories of depression and depressive behavior. Research such as this which observe specific relationships between mood and measures of selective learning, memory, and associations, highlight the complex relationship between affect and cognitions. The results of this study contributed to a theoretical framework which can form the basis for clinical assessment and intervention in the future.

SUMMARY

This study investigated the relationship between mood and two cognitive processes, immediate recall and word associations. Specifically, the study looked at the relationship between the mood of manic and depressed individuals in a Veteran's Administration psychiatric population and the content of affect-laden recall, affective ratings of stimuli, amount of total recall, amount and content of interjections, ordering of recall, and chain associations to neutral words. Manic and depressed subjects were required to verbally recall stimuli from a list of 21 affect-laden words, recall affect-laden events from a short story, and chain associate to five neutral words. A significant relationship was found between mood and affective content of recall, content of interjections, ratings of stimuli, and chain associations. The task requiring the recall of affect-laden words appeared even more sensitive to the mood of the subject than the event recall task. The importance of prerating and counterbalancing the affective content of the stimuli was stressed. The results of this study provided strong support for preliminary resaerch on mood and cognitive processes and for Bower's associative network theory of emotion and memory which conceptualizes emotion as a memory unit affecting cognitions. Specifically, the results supported Bower's theory involving mood-congruous memory and the active cognitive processes of selective attention and

mood-congruous associations. Implications of these results for cognitive theories of depression and for future clinical use were discussed.

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APPENDIX A

Paul Smith

Paul Smith had been seeing a psychiatrist for several sessions
now. They had been making some progress together, but Paul's ambiva-
lence in certain areas of his experience still remained prominent. The
psychiatrist had suggested hypnotic age regression sessions as a pos-
sible therapeutic modality for him, so Paul had agreed.

The first trance experience uncovered some interesting childhood
experiences. At the age of 4, Paul remembered the happiness of playing
with his family at home. He recalled the glee and fascination when
he rode piggyback on his father's back, seeing the broad smile glisten-
ing on his mother's face, and the joyous laugh of his father's voice in
the background. He also recalled some sad experiences at this early
age. He recalled the overwhelming sadness when his dog was run over by
a car; his grief at his grandfather's death; and the despair of
watching a hard-earned quarter slip through the grating of the sewer.
He also recalled the giggles of his sibling as they lay awake at night
telling jokes, the happiness of his grandmother's face at his birthday
party, and the delight and joy present at holidy family gatherings.

In the second age regression he went back to his years in grammar
school. He recalled the sadness in being cut from his baseball team,
and the glumness encountered upon resignedly realizing the inevitability
of a return visit to the dreaded dentist. He also remembered the joy
and excitement in learning to spell his name properly, and the jubila-
tion of receiving the top grade in his class. Additionally recalled
was the dismal and cheerless memory of staying inside on a gloomy, rainy
day, and his crestfallen stature upon receiving news of his sister's
auto accident. The session concluded with a termination of the trance,
and a brief discussion of the significance of the past events to the
present situation.

With the arrival of the third hypnosis session, the psychiatrist
informed Paul that he was relatively happy with the therapeutic pro-
gress. Paul, in return, stated he could feel happy, and that he could
also feel sad. An age regression trance to adolescent years was then
effected. In this trance, Paul recalled the happiness which enveloped
him when he was blissfully with his first girlfriend; he also sadly
remembered her family moving to another town. He re-experienced the
elation in scoring high on his SAT test, and the fantastic joy of being
accepted in college. Other memories included the sadness of departing
from his high school friend, and his sorrowful attendance at his grand-
mother's funeral. These experiences were interspersed with others that
included a jubilant back-packing outing in the mountains, a fun-filled
beer party with his close friends, and a despair-filled evening that
resulted from a sorrowful rejection by a steady date. After several
hours, the trance session was terminated and Paul left with a mixture
of feelings.

He arrived somewhat depressed for the next session, but reported he had been generally happy during the week. After brief casual conversation, an age regression trance was once again utilized. The memories recalled in this session involved Paul's early teenage years. He remembered the elation in hearing his first rock and roll album and the high he felt in going to his first rock concert. He also recalled the despondency experienced in hearing rumors of the breakup of the Beatles, the despair of not obtaining tickets to a Rolling Stones concert, and the sadness in discovering a warp in a newly purchased double album. Other memories quickly flashed through his awareness: the delight of meeting an old friend, the jubilation of a last-second victory in a football game, and the hilarious performance of a stage comedian in a night club. The thoughts continued at a quick but natural rate: The flunking of an important final exam; the grief in his best friend's voice when he informed Paul of his rejection by college admissions committees; the remorsefulness after losing his allowance; and the overwhelming sorrow in hearing his mother had developed cancer. Paul experienced himself as a passive but involved observer to these fleeting incidents. However, as the session ended, he knew a shift inside of him had occurred. He walked out of the office in deep internal processes.

When Paul returned to the office several days later, he was in the same state as when he left the last session. They discussed the various outcomes of the age regression sessions, and decided that the therapeutic investigation would continue, but no longer using hypnosis.

APPENDIX B

CLINICAL RECORD	Report on <u>Informed Consent to be read by</u>
	or subjects
	Continuation of S. F. <u>10-1086</u>
	(Strike out one line) (Specify type of examination or data)

(Sign and date)

Information about: Relationship between affect and two cognitive
processes: Immediate recall and associations.
Principal Investigator: Gerald Rak, Ph.D., Phone: (312) 689-1900

This study wishes to investigate the relationship between feeling
and thought processes, specifically immediate recall and associations.
I understand that if I am chosen to be a participant in this study that
I will be asked to complete a short paper and pencil test called the
Beck Depression Inventory. I know that I will be assigned to one of
two groups. Then I will be asked to complete two short recall tasks
and an association task. This process generally takes about a half an
hour. I may be asked to retake one of the recall tasks and the assoc-
iation task again before I am transferred off triage.

There are no known adverse effects to participating in this study.
The benefits of this study may be the increased knowledge concerning
the relationship between feeling and thought processes. I know that
others may benefit from the knowledge gained from this investigation.

The proposed experimental procedure has been explained to me.
I understand that I am free to withdraw my consent and discontinue
participation in this study at any time without prejudice to my con-
tinued status as a triage patient or treatment received. Although the
results of this study may be published in the psychological literature,
my identity will not be disclosed. If I have any questions concerning
the procedure outlined above or any aspect of the study they will be
answered for me.

I have read the above and understand it and hereby consent to the
procedures set forth above.

Date   Subject

Witness   (Continue on reverse side) Principal Investigator

APPROVAL SHEET

The dissertation submitted by Karen Eggen Gundersen has been read and approved by the following committee:

> Dr. Mark Mayzner, Director
> Professor, Psychology, Loyola
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> Professor, Psychology, Loyola
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> Psychology, Loyola

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Sept. 16, 1982
Date

Director's Signature