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Hans Juergen Breiter

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DEPRESSIVE COGNITIONS IN UNIVERSITY STUDENTS:
AN INVESTIGATION OF TWO THEORIES OF DEPRESSION

by
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Submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy

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ABSTRACT

The purpose of this study was to examine concurrently the Beck and Seligman cognitive theories of depression. The study involved the testing of task perceptions, and self-referent perceptions more germane to the theories. The relevance of Bandura's self-efficacy construct, to the understanding of depression, was also assessed. Further, issues pertaining to the assessment of depression and to the generalizability of experimental tasks were investigated.

The subjects in the study were undergraduate university women, who qualified for one of three subject groups. On the basis of the Beck Depression Inventory (BDI), a nondepressed (Normal) and depressed group (Severity) were formed. An additional depressed group (Clinical) was derived using both a severity criterion (BDI) and the Research Diagnostic Criteria.

The study involved a 3 (subject group) x 2 (task) factorial design. Half of the subjects from each group were assigned the Alloy and Abramson task, involving the problem of determining amount of control over the outcome. The other subjects received the Wener and Rehm task, in which they were to maximize their success. Regardless of the task condition, all subjects received experimenter-controlled feedback to only 20% of their responses.

The Clinically depressed group differed from the other two groups on most of the dependent measures relevant to Beck's theory, but only on the measure of the central tenant of Seligman's theory. Overall, the results of this study generally supported Beck's cognitive theory but not Seligman's learned helplessness theory of depression. Consideration was also given to the relevance of the concept of self-efficacy and of stress to depression, as well as the importance of subject selection criteria in depression research.

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I dedicate this dissertation to my wife and my parents - so that they may share more fully in the happiness it brings me.

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CHAPTER I

INTRODUCTION

In the last decade, considerable attention has been given to the study of clinical depression. Much of the psychological literature has focussed on cognition in depression (cf., Coyne & Gotlib, 1983; Shaw & Dobson, 1981).

When a topic has been subjected to considerable scientific scrutiny, most of the research has consisted of hypothesis-testing (Cozby, 1981). In the case of cognition in depression, the hypotheses have typically involved at least one of two major cognitive theories of depression - one formulated by Beck (1967; 1976) and the other primarily by Seligman (1975; Abramson, Seligman & Teasdale, 1978).

The extent to which a hypothesis is supported across empirical tests dictates inductively the support provided to the theory itself (Giere, 1979). The theoretical support derived from research is, however, also conditional upon the internal validity of the scientific investigations and upon the centrality of the hypothesis to the theory. For the purposes of the present study, it was useful to differentiate experimental internal validity from theoretical internal validity. The former involves being able to attribute with confidence the obtained effect to a particular treatment or manipulation (Campbell & Stanley, 1966). While such internal validity is critical to the utility of experimentation, the issue of theoretical internal validity is also of

considerable importance to this study. Theoretical validity refers to whether the research demonstrates "the points it was designed to make" (Neale & Liebert, 1973, p. 41). A major threat to theoretical internal validity involves the "imperfect" translation of theoretical variables into operational variables. In order to maximize theoretical internal validity, an operational definition should be as closely and clearly related to a theoretical concept as possible. The potential support or threat to a theory, in turn, is contingent on the extent to which the concept is pivotal to the theory.

The cognitive theories advanced by Beck (1967; 1976) and Seligman (1975; Abramson et al., 1978) place crucial emphasis on a tendency of depressed individuals toward self-deprecating perceptions of and inferences about events. In past research, however, the theories have typically been tested via operational variables that primarily involved cognitive perceptions of events, rather than more self-referent cognitions stemming from the events. Specifically, the event assessments have consisted of perceptions of either environmental information about the results of one's behaviour (feedback) or the contingency between one's behaviour and environmental circumstances (control). To the extent that event perceptions are not focal to the theories, the relevance of the results for theory-testing is questionable.

The current study was designed to provide a more theoretically germane investigation of the cognitive theories of Beck and Seligman. To facilitate this undertaking, literature relevant to the two theories, as well as related research, was reviewed. This information contributed to the selection and operationalization of dependent and independent variables. The resultant dependent variables were primarily comprised of measures of self-relevant perceptions central to the cognitive theories.

The following sections provide pertinent information on the topics of clinical depression, cognition, and the theories under investigation. In addition, attention is given to the self-efficacy construct of Bandura (1977), and to experimental issues pertaining to depression criteria for subjects and the generalizability of perceptions across experimental events (tasks). Finally, the research hypotheses are presented.

Historical Perspective of Depression

The concept of clinical depression has long historic roots (Andreasen, 1982; Arieti & Bemporad, 1978). Accounts of such depressive disorders have been found in the writings of such ancient notables as Hippocrates (circa 400 B.C.) and Galen (circa 200 A.D.). Over the ages, the etiologic, symptomatic and therapeutic emphases related to depressive disturbance have varied in accordance with the scientific

Zeitgeists. Much of the susceptibility to change of emphasis is attributable to the relative absence of clear diagnostic differentiation. There was little discrete distinction between depressive disorders and those of a more schizophreniform nature, and among subtypes of depressive disorders themselves. Only within the last century has such diagnostic differentiation occurred, through the strivings of such people as Emil Kraepelin (Diethelm, 1975).

A depressive disorder (however conceptualized) has nonetheless always been considered to have two characteristics. The first is the existence of dysphoria as a prevailing symptomatic feature. The second characteristic involves the perception of this type of disorder as a syndrome, by virtue of the acknowledged presence of other symptoms. The symptom complex has generally included behavioural, cognitive and somatic, as well as affective features (Diethelm, 1975).

The classification of depressive disorders has led to distinctions between unipolar and bipolar depression (manic-depressive disorder), as well as sub-classifications of both (Andreasen, 1982). Sub-divisions of unipolar depression have included a number of dichotomous categories including endogenous-reactive and psychotic-neurotic (Paykel, 1975). The most recent clinical classification system, the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM III; American Psychiatric Association,

1980), subdivides unipolar depression into three categories: Major Depression; Dysthymic Disorder; and, Atypical Depression. Of these categories, the DSM III gives priority, in differential diagnosis, to Major Depression. Similarly, the Research Diagnostic Criteria (RDC) for a Selected Group of Functional Disorders (Spitzer, Endicott & Robins, 1978) identifies Major Depressive Disorder as the primary unipolar depression diagnosis. The DSM III and RDC also consist of similar diagnostic criteria, including dysphoria plus a number of cognitive, behavioural and somatic symptoms, as well as the exclusion of schizophrenic symptoms. The present diagnostic emphasis on and discrete delineation of unipolar major depression made it a particularly suitable diagnostic focus for current depression research.

Cognition in Depression

The term cognition is generally understood to mean the act of perceiving, processing, or knowing information (Wilkening, 1973). Cognitive dysfunction can be viewed as including perceptual error and interpretive bias. The former refers to a lack of correspondence between an individual's perception of a stimulus and the common perception, and the latter pertains to a subjective tendency toward interpretations favoring a particular conclusion (Wolman, 1973). For at least two decades, cognitive dysfunction in depression appears to have been commonly referred to as "cognitive distortion" (e.g., Beck, 1963; Williams, 1984).

The term cognitive distortion was adopted here, but with a different meaning than has been suggested by Coyne & Gotlib (1983). They interpreted the term as involving absolute inaccuracy and consequently took issue with it. In contrast, cognitive distortion, as it is employed here, is intended to reflect relatively different cognitions and cognitive functioning. This latter definitional context appears to be more functionally relevant and more generally accepted (e.g., Guidano & Liotti, 1983; Norman, Miller & Klee, 1983). With regard to depression, cognitive distortion is typically considered to involve relatively negative or pessimistic perceptions, and self-deprecating interpretations of experience (Shaw & Dobson, 1981).

Historical accounts of the depressive syndrome have generally included reference to cognitive symptoms. According to Diethelm (1975), there exist ancient written accounts of cognitive distortion, which reflect such features as negatively impaired information processing and hopelessness. As with other emphases, the relative importance attributed to the cognitive aspects of depression have waxed and waned as a function of the scientific emphases of the time.

During the middle of this century, there prevailed a "relative lack of emphasis on the thought processes in depression" (Beck, 1963, p. 324). About that time, however, scientific interest in cognitive organization seemed to be

increasing. This increase of interest can be evidenced by the relative quantity and quality of publications in the area of cognitive psychology. Among these were major contributions by Rapaport (1951), Allport (1955) and Festinger (1957). According to Bourne, Ekstrand and Dominowski (1971), this revival of enthusiasm about cognition involved a revised and refined scientific perspective. As one might expect, scrutiny was subsequently given to the possible implications of the new views of cognition for the understanding of other areas of psychological functioning (e.g., Eliot, 1971; Saltz, 1971). Thus, it is not surprising that the relevance of cognitive psychology to types of psychopathology would also be examined with renewed interest (Breger & McGaugh, 1965; Millon, 1969; Payne, 1970). The application to clinical depression was no exception as can be evidenced by the formulation of cognitive theoretical approaches to depression, within the last two decades.

In terms of proposed etiology, process, and treatment of depression, the most comprehensive cognitive approach has been formulated by Aaron T. Beck (1967; 1976; Beck, Rush, Shaw & Emery, 1979). In essence, Beck postulates that specific cognitive structures are central to the development and maintenance of a depressive state. He thus proposes a treatment approach which ultimately focuses on altering the dysfunctional assumptions and attitudes that maintain the depressogenic ideation.

Another major cognitive approach to depression was developed by Martin E.P. Seligman (1975). His theory is aptly termed Learned Helplessness, as he contends that clinical depression can stem from the learned expectation that one's behaviour and relevant outcomes are independent. A reformulation of this theory (Abramson et al., 1978) includes the postulate that the attributions made by individuals regarding the perceived non-contingency (lack of control) between their behaviour and outcomes have strong implications for subsequent expectations of future non-contingency, and thus for the onset and maintenance of a depressive state.

The preceding statements about the Beck (1967; 1976) and Seligman (1975; Abramson et al., 1978) theories of depression convey their common emphasis on cognitive distortion as a critical factor in depression. In both theories, the cognitive distortions pertain to the tendency to have negatively-biased perceptions, to make self-deprecating interpretations of experience, and to generate pessimistic expectancies.

The concept of cognitive distortion in depression has received considerable research attention within the last decade. Investigation of cognitive distortion in the form of negative perception of performance (feedback), has been considered particularly relevant to Beck's theory (cf., Shaw & Dobson, 1981). A second type of cognitive distortion has been operationally identified as underestimation of

relationship (contingency) between responses and environment. This type of misperception has been viewed as pertinent to Seligman's theory (cf., Miller & Seligman, 1982).

As will subsequently be shown, the results of research on performance (feedback) perception in depression are collectively equivocal, as are the findings about contingency (control) perception. Such ambiguity challenges the two cognitive theories, but only to the extent that event misperception is central to each theory. Beck's theory does suggest that depressed persons should exhibit negative perceptions of performance and Seligman's theory does propose a depressive tendency to perceive outcomes as uncontrollable. These negative perceptions of events do, however, not seem pivotal to the respective theories. A more essential component of both theories appears to be self-referent cognitions - that is, personally-relevant perceptions and inferences. In order to address this issue more adequately, the Beck and Seligman theories are described in more detail in the following sections. Research results pertaining to each type of cognitive distortion are summarized in the latter part of the respective sections.

Beck's Cognitive Theory of Depression

About 20 years ago, Beck (1963; 1964) published some of his thoughts on the relevance of cognition in depression. His synthesis of theoretical and clinical information

resulted in the proposition that "certain idiosyncratic cognitive structures (schemas) become prepotent during depression, dominate the thought processes, and lead to cognitive distortions" (Beck, 1964, p. 561). Beck (1967; 1976) later gave detailed consideration to the possible etiological contribution of cognitive factors to the onset of a depressive syndrome. He and his associates (Beck et al., 1979) also formulated a comprehensive treatment approach. As the focus of the current study is, however, primarily on cognition(s) during the depressive episode, the following description of Beck's theory will not include either the proposed precipitants or therapy.

Fundamental to Beck's (1967) theory of depression, is the concept of cognitive structure or schema. This concept is succinctly described by Kovacs and Beck (1978):

silent assumptions or premises, bits of information, and conclusions provide the content of a cognitive schema. A schema is a relatively enduring structure that functions like a template; it actively screens, codes, categorizes, and evaluates information. By definition, it also represents some relevant experience. (p. 528-9)

In depression, the predominant schemas, relevant to oneself, are considered to have a negative and self-critical bias (Beck, 1967). In particular, these "depressogenic schemata" are thought to influence the interpretation of one's experiences, oneself, and one's future in a self-deprecating manner. Conversely, the

existence of "depressogenic schemata" is inferred from the presence of such recurrent, negative cognitions about experience, self, and future (Kovacs & Beck, 1978).

The means, by which "depressogenic schemata" are thought to result in self-deprecating cognitions, is via faulty information processing. Beck (1967) proposes a variety of different types of faulty processes. He identifies the "paralogical" processes of "arbitrary inference, selective abstraction and overgeneralization", as well as the stylistic process of "exaggeration" and the semantic one of "inexact labelling" (Beck, 1967, p. 234). Other processing errors are: thinking in "absolutistic terms", tending to "overpersonalize events", continually making self-referent "moralistic value judgements", and self-castigation for "presumed deficiencies" (Beck et al., 1979, p. 100).

Whatever type(s) of faulty information processing may be involved, the result is considered to be self-critical perceptions. Such perceptions are identified by Beck et al. (1979) as occurring among depressed individuals in the form of negative views of their experiences, themselves, and their future (the negative cognitive triad). In severe depression, this perceptual bias is contributed to by the person's "relative obliviousness to environmental inputs" (Beck et al., 1979, p. 22). This relatively autonomous, negatively-biased cognitive processing purportedly results

in distorted conclusions:

The individual consequently shows a biased interpretation of his experiences, negative expectancies as to the probable success of anything he undertakes, and a massive amount of self-criticism. (Beck et al., 1979, p. 99)

Empirical Considerations

Beck's cognitive theory, in its present state, has received considerable empirical scrutiny (cf., Blaney, 1977; Coyne & Gotlib, 1983; Shaw, 1979). One aspect, that has received much experimental attention, pertains to the theorized tendency of depressed individuals to have negative perceptions of their experiences (one of the components of Beck's cognitive triad). For research purposes, that tendency has typically been interpreted as negative view of past or present performance. The presence and extent of the negativism has been measured by estimation of success (level of positive feedback) on a given task. That is, the estimate made by a depressed sample was compared to that of a nondepressed control sample or to actual success.

Most of the depression studies, which have investigated performance perceptions, have employed nonclinical (analogue) subjects, from university populations. The nonclinically depressed students were differentiated from their nondepressed cohorts on the basis of their score on a depression severity questionnaire - most often the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock & Erbaugh, 1961). The studies have also

generally involved impersonal/personal tasks rather than interpersonal ones (e.g., Nelson & Craighead, 1977; Wener & Rehm, 1975).

Only a modest amount of support appears to be lent to Beck's theory, as a result of inconsistent findings in research on depressed versus nondepressed perception of performance, at various pre-arranged levels of success (positive feedback). Wener and Rehm (1975) found depressed, female students to underestimate positive feedback, at both high (80%) and low (20%) success levels, compared to nondepressed students. Depressed male and female students have recalled less positive feedback than their nondepressed peers under high success (65% and 70%) but not low success conditions (35% and 30%) (Dobson & Shaw, 1981; Nelson & Craighead, 1977). Two other studies found depressed female students (Kuiper, 1978) and depressed students of both genders (Breiter, 1979) to underestimate feedback, when it was presented at a medium (50-55%) success rate, compared to their nondepressed counterparts. In the Kuiper study, no such difference was evinced between depressed and nondepressed university women at high (80%) and low (20%) positive feedback levels. In another analogue depression study (Craighead, Hickey & DeMonbreun, 1979), no recall difference resulted among women under a medium (50%) success condition. Similarly, Alloy and Abramson (1979) conducted a study with both male and female university students. They

found that the depressed subjects did not differ in feedback perceptions from the nondepressed cohorts, in low, medium, and high success conditions (25-75%). More recently, however, Sharp and Tennen (1983) found a difference in performance perceptions between depressed and nondepressed students.

A clinical study involving male patients (DeMonbreun & Craighead, 1977) was undertaken to examine perception and recall of success feedback. The experiment included high (70%) and low (30%) positive feedback conditions. In comparison to the nondepressed subjects, the depressed patients underestimated feedback at the high but not low success level. In another clinical study (Lewinsohn, Mischel, Chaplin & Barton, 1980), interpersonal performance perception of depressed men and women was measured. The personal performance ratings of social competence made by the depressed subjects were essentially the same as the ratings made about them by observers.

The inductive conclusion drawn from this research is that the results do not consistently indicate depressed individuals as having negative perceptions of their performance. To the extent that the research was internally valid and such perceptions are a crucial component of Beck's theory, the ambiguity across findings may be viewed as compromising the theory.

Seligman's Learned Helplessness Theory

Another major cognitive approach to depression was developed by Seligman (1975). He essentially derived his cognitive-motivational theory from considering the potential interface between clinical depression and the phenomenon of learned helplessness. Initial observations of this phenomenon primarily involved evidencing development of helplessness in animals after their repeated exposure to an aversive, unavoidable stimulus (Seligman, 1975). Helplessness is intended to describe their lack of avoidance and escape behaviour when the animals were subsequently confronted with the aversive stimulus. With respect to humans, exposure to or perception of significant unavoidable (thus, uncontrollable) circumstances is believed to result in an expectation of future uncontrollability. This expectation, in turn, is thought to lead to the development of depression.

Given that a person is clinically depressed, Seligman's (1975) theory suggests that he or she has a "generalized expectation of uncontrollability". That is, the depressed individual tends to perceive "reinforcement as response-independent in new situations where reinforcement is, in fact, response-dependent" (Miller, Seligman, & Kurlander, 1975, p. 347). The consequence of this expectation and perception is considered to be a disruption of learning regarding response-reinforcement contingencies and a reduction in incentive to initiate instrumental responses

(Klein & Seligman, 1976).

Reformulation

In an attempt to make recent research findings more compatible with the helplessness theory, Abramson et al. (1978) revised the theory. The reformulation places emphasis on attributional states and styles in helplessness and depression. The attributional factors are viewed as "modulators" of controllability expectations and as precipitating contributors to depressive symptomology. The specific roles played by attributional processes are clearly summarized by Miller and Seligman (1982):

they are viewed as more primary mechanisms which precede the helplessness and depressive deficits and predict when and where such deficits will appear. Specifically, people who attribute the causes of their helplessness to stable factors expect to be helpless whenever the original situation recurs and therefore continue to exhibit passivity, retarded learning, and sadness in that situation. People who attribute the causes of their helplessness to global factors expect to be helpless even when the situation changes and so exhibit the motivational, cognitive, and affective deficits across a wide range of situations. People who make internal attributions for their helplessness ("I can't do it but others can") exhibit low self-esteem and feelings of worthlessness. Finally, people who consistently construe the causes of their helplessness in global, stable, internal terms are more at risk for depression. (pp. 151-152).

Empirical Considerations

As already noted, a core feature of the learned helplessness theory of depression is the contention that

depressed individuals "have a generalized expectation of uncontrollability" (Miller & Seligman, 1982, p. 150).

Uncontrollability, in this context, refers to the perception of response-reinforcement independence (noncontingency), which precludes perception of control. Investigations of perceived (non)contingency among depressed person have typically taken the form of analogue depression studies involving university students of both genders.

Empirical support for perception of noncontingency-uncontrollability in depression has been obtained indirectly, in two ways. Miller and Seligman (1975) determined that both nondepressed students given "helplessness training" (inescapable noise) and depressed students displayed impaired "learning" (poor anagram solving performance). The authors inferred, from this result, the presence of depressogenic cognitive distortion in terms of "a belief in independence between responding and reinforcement" (p. 228). The other form of indirect support, for perceived non-contingency in depression, also stems from research conducted by Seligman and his colleagues. In a number of studies (Klein & Seligman, 1976; Miller & Seligman, 1973, 1976; Miller et al., 1975), depressed and "helpless" individuals were found to exhibit less adjustment of predictions of future success in a skill task on the basis of past success. This finding has been interpreted as reflecting perceptions of noncontingency.

There has also been considerable research conducted the results of which are not supportive of the noncontingency tenet. In three experiments, Willis and Blaney (1978) attempted to replicate the results of the studies cited above. They found that neither nondepressed students in whom helplessness had been induced, nor depressed students showed significantly less adjustment in success predictions than control subjects. Depressed individuals did exhibit a "diminution of learning and problem solving, as manifest in poorer ability to solve anagrams" (p. 131). In a post-task questionnaire, however, the depressed group did not differ from the nondepressed group in their rating of "perceived noncontrol". Together, the last two findings argue against the inference made by Miller and Seligman (1975) that impaired problem solving reflects a perception of noncontingency. Further, two other studies (Greer & Calhoun, 1983; Weckowicz, Tam, Bay, Collier & Beelen, 1981) investigated the purported indirect indices of noncontingency. The tests of anagram performance (Greer & Calhoun, 1983) and "expectancy change" (Weckowicz et al., 1981) did not reveal differential results as a function of depression. Direct inquiry about contingency perceptions has also been made by other researchers (Alloy & Abramson, 1979, 1982; Alloy, Abramson & Viscusi, 1981). These researchers consistently found that depressed students made accurate estimates of control over response and outcome "relative to

the objective degree of contingency". It should, however, be noted that in all but two experiments (Alloy & Abramson, 1979), the task outcomes were experimenter-controlled (noncontingent). Thus, in most instances, underestimation of objective control was not possible.

Attributional style in depression, as outlined in the reformulated theory of learned helplessness (Abramson et al., 1978), has also undergone some empirical scrutiny. This research has consisted of investigations of one or more of the three attributional dimensions: internal-external, stable-unstable, and global-specific. The studies in this area of research have involved analogue depressed samples of university students.

Seligman, Abramson, Semmel and von Baeyer (1979) presented and tested an attribution style scale involving the three dimensions noted above. Their results generally supported the reformulated theory of learned helplessness. Compared to the nondepressed students, the depressed students, attributed "bad outcomes" more to internal, stable and global causes, and attributed "good outcomes" more to external and unstable causes. Only on the globality dimension, in the good outcome condition, did the groups not differ. In two other studies, which employed the same attribution scale (Blaney, Behar & Head, 1980; Golin, Sweeney & Shaeffer, 1981), depressed students differed from their nondepressed peers on stability and globality attributions,

but not internality. In contrast, the results of Kuiper's (1978) examination of the internal attributions of depressed female students lent partial support for the internality dimension of the reformulated theory. He found depressed women made more internal attributions for failure than nondepressed women, but the attributions of the two groups did not differ for success. In another study (Anderson, Horowitz & French, 1983), depressed students were found to make relatively stable attributions for interpersonal failure. Three other investigations (Barthe & Hammen, 1981; Harvey, 1981; Zuroff, 1981) have focused on the two attributional dimensions of internality and stability in relation to depression. In the two studies which employed only university women, the findings of one (Harvey, 1981) supported the internality but not stability dimension, while the results of the other (Zuroff, 1981) revealed the reverse. The third study involved male and female students (Barthe & Hammen, 1981). It showed neither attributional dimension to be associated with depression.

In conclusion, the results of the cited research on both perception of contingency and attribution of cause are collectively equivocal. As such, they may be considered to empirically challenge the reformulated theory of learned helplessness.

Main Theoretical Issue: Depressive Perceptions

The general purpose of the current study was to investigate concurrently Beck's (1967; 1976) cognitive theory and Seligman's (1975; Abramson et al., 1978) learned helplessness theory of depression. The investigation of these two theories, within the context of one study, is not novel. Such research was undertaken by Rizley (1978). His study was, however, a very circumscribed examination in that he tested the theories only in terms of how adequately they accounted for evidence of relatively "distorted" causal attributions in depression.

In the two previous sections, descriptions were given of depression research on perceptions of performance and contingency, respectively. Collectively, the results on these dimensions were inconclusive and may thus be viewed as providing little support for the respective theories. Indeed, the inconsistency of findings could be seen as compromising the theories. In defence of these theories, such event perceptions seem to be of minor theoretical significance. Consequently, those perceptions do not appear to be particularly appropriate for testing the credibility of the theories.

The Beck and Seligman theories place crucial emphasis on self-deprecating cognitions about events. That is, a relatively self-critical cognitive bias is considered to be present in depression, which results in negative self-

referent interpretations of the environment. This negative bias may contribute to distorted perceptions of event circumstances, as well as critical self-evaluative cognitions. While event and self-referent perceptions are intuitively and theoretically related, the connection seems somewhat tenuous. That is, the former are viewed as ancillary to the theories. Consequently, perceptions of performance and contingency in depression may have limited bearing on the extent to which negative self-referent inferences are drawn about an experience. Also, as Bandura (1971; 1977; and 1982) has conveyed repeatedly, accurate perceptions of circumstances do not necessarily preclude relatively negative self-relevant interpretations.

With respect to Beck's (1967; 1976) theory, it was proposed that depressed individuals would underestimate retrospectively their success at a task relative to nondepressed people. Whether or not feedback was underestimated, the depressed persons should tend to perceive the event as more of a personal failure experience than the nondepressed individuals. This biased interpretation would take the form of inferences or conclusions, by the depressed persons, that: their relationship with the environment is failure-laden; they are a failure; and, they will fail in the future (the cognitive triad; Beck, 1967).

Regarding the learned helplessness theory (Abramson et al., 1978; Seligman, 1975), it was proposed that depressed

individuals would conclude that they had less control over the outcome of a task than nondepressed persons. Regardless of relative control perceptions, the depressed subjects should tend to perceive themselves as more helpless than the nondepressed people. According to the theory, the fundamental manifestation of learned helplessness is the expectancy of future noncontingency. Alloy (1982) states that "after 10 years of intensive research on human helplessness... the pivotal hypothesis of the theory... expectation of act-outcome noncontingency... has gone largely unexamined" (p. 444). It is this expectation of future lack of control which is considered to produce motivational and other deficits (Alloy, 1982; Klein & Seligman, 1976). In addition, if the outcome is perceived as negative, the causal attributions of the depressed individuals should be global, stable and internal. The attributions should predict the circumstances of future recurrence of the expectation of uncontrollability (Abramson et al., 1978).

In summary, self-referent interpretations of experiences appear to be more relevant and essential to the two cognitive theories of depression, than event perceptions. This view is lent inductive support by the emphasis given by Giles (1982) to self-referent cognitions, in her clinical research on Beck's cognitive triad. The reformulation of the learned helplessness model (Abramson et al., 1978) can also be seen as lending support in that the

introduction of attributional mediators places more emphasis on the importance of self-relevant interpretations of experiences. Further, the proposed prominence of a self-critical cognitive bias in depression has been bolstered by empirical findings pertaining to the presence of a "negative self-schema" in depressed students (cf., Kuiper & MacDonald, 1983; Kuiper, Olinger & MacDonald, in press).

Bandura's Concept of Self-Efficacy

A cognitive concept, potentially relevant to self-referent perception in depression, is Bandura's (1977) social learning construct of self-efficacy. He presented self-efficacy as involving a perception or expectation about one's personal effectiveness. More specifically, it can be described as confidence that a particular behaviour, necessary to produce a given outcome, can be performed successfully. Bandura distinguishes efficacy expectancy from outcome expectancy. In contrast to the former, outcome expectation is viewed as pertaining an estimate of the extent to which a given behaviour will lead to a particular outcome. While both types of expectation are considered to play roles in adaptive coping and consequently psychological well-being, self-efficacy is attributed primary importance. Perceived self-efficacy is viewed as helping account for various occurrences, including

such diverse phenomena as changes in coping behavior produced by different modes of influence, level of physiological stress reactions, self-regulation of refractory behavior, resignation and despondency to failure experiences, self-debilitating effects of proxy control and illusory inefficaciousness, achievement strivings, growth of intrinsic interest, and career pursuits. (Bandura, 1982, p. 122)

A relationship between self-efficacy and learned helplessness was presented by Garber and Hollon (1980). In their study of helplessness in depression, they examined expectancies of future success and found that depressed students exhibited "cognitive distortions" about their own skilled actions, but not response-outcome independence. The authors suggested that this finding reflected differences in efficacy expectancy, but not outcome expectancy, as a function of depression. Miller and Seligman (1982) have advanced a more specific and complex association between Bandura's two types of expectation and learned helplessness. They proposed that low efficacy and high outcome expectancies exist in "personal helplessness", and low expectancies of both types are present in "universal helplessness". Perceived self-efficacy can also be seen as logically related to Beck's (1967) cognitive triad. That is, perceived confidence in one's abilities would seem relevant to one's view of current experiences and, even, oneself. Also, expectancy of personal effectiveness appears associated with self-referent view of future. Thus, the concept of

self-efficacy appears to have some relationship to self-referent perceptions pertaining to the two cognitive theories of depression. It may also be relevant to clinical depression, in general.

A review of published research on self-efficacy revealed that investigations of clinical applicability have typically involved phobic behaviours (e.g., Bandura, Adams, Hardy & Howells, 1980; Bandura, Reese & Adams, 1982). Consideration has, however, also been given to whether self-efficacy is a viable concept with respect to depression (Bandura, 1982; Moe & Zeiss, 1982; Zeiss, Lewinsohn & Munoz, 1979).

In an analogue depression study (Moe & Zeiss, 1982), there was found to be "no pattern of relationships between depression and self-efficacy expectations" (p. 202). The authors, however, caution that their minimal depression criterion (a modest cut-off on the BDI) resulted in the inclusion of "few, if any, clinically depressed subjects" (Moe & Zeiss, 1982, p. 202).

The results of a clinical study (Zeiss et al., 1979), involving comparison of three approaches to treating depression, indicated that,

all treatment modalities significantly alleviated depression. However, no treatment modality had specific impact on the variables most relevant to its treatment format. (p. 427)

The authors interpreted the findings as supportive of the concept of self-efficacy. That is, they suggested that,

instead of improving at treatment-specific skills, the depressed patients experienced increased self-efficacy. The general conclusion was that self-efficacy expectancies may be a vital factor in understanding depression.

In conclusion, the concept of self-efficacy appears to have, not only, specific relevance to the theories of Beck and Seligman, but also some general relevance to clinical depression (cf., Kanfer & Zeiss, 1983). As yet, however, little research has been conducted in which the proposed relevance has been tested, and the findings to date are unclear. Given the focus of the current study on self-referent cognitions in depression, inclusion of measures of self-efficacy seemed appropriate and important. It was felt that the measurement of self-efficacy expectancy would provide a test of the relevance of Bandura's concept to depression, and that such information could also prove useful in the interpretation of results relevant to the two major theories under investigation.

Experimental Issues: Subjects and Tasks

Past research on cognition in depression seems to have been plagued with experimental issues. Most prominent among these issues appears to be subject definition, including the specific facets of sample source, gender, and especially depression criteria. This issue is subsequently addressed in some detail, as are aspects of task definition which pertain

to the issue of generalizability of results across events.

Definition of Subjects

Research on the Beck and Seligman theories of depression has mainly involved analogue studies. That is, the "depressed" sample has been obtained from a nonclinical population - most often, first-year university students taking an introductory psychology course. As the present study was also designed to investigate those theories, comparability of past and present results was considered important. Specifically, it seemed valuable to be able to examine event perceptions in a context comparable to previous studies and, within that same context, investigate self-referent cognitions. Given this intent, it was decided that the study would be conducted with a university sample.

A decision was made to include only females in this study. This decision was based primarily on three factors. One, women represent the majority of the depressed population. Epidemiological investigations of gender differences in depression have consistently shown a higher incidence among women than men (e.g., Comstock & Helsing, 1976; Levitt and Lubin, 1975; Weissman & Klerman, 1977). In a particularly extensive study of depression prevalence, Weissman and Klerman (1977) reported a general 2:1 ratio of women to men in the U.S.A., and approximately 1.7:1 in Canada. Two, past research on negative event perceptions in depression has typically involved either females or subjects

of both genders. In the latter instance, the findings have not tended to show major gender differences. Three, the current study was an initial exploration of self-relevant perceptions of task performance, in university students. Consequently, information about possible gender differences pertaining to self-relevant cognitions was not available. As such differences may exist, combining data from both genders may confound results. Thus, it was concluded that either gender would have to be introduced as an independent variable in the experimental design or only one gender would be investigated. As will subsequently become apparent, two other experimental issues (depression criteria and task generalizability) were judged important for inclusion in this study. Given these factors and the relatively lower incidence of depression in males, feasibility considerations contributed to the conclusion to study only females.

The most controversial issue related to subject definition, and the one which presents the greatest threat to external validity, involves depression criteria. With few exceptions, research employing university students, in the study of depression, has relied on self-report severity measures of depression, as the means by which to classify subjects regarding depression. As a result of such (nonclinical) selection procedures, the generalizability of the results to clinically depressed populations has been seriously questioned (e.g., Depue & Monroe, 1978; Doerfler,

1981; Garfield, 1978). The reports on many of the university student studies on depression include some acknowledgement that the study is only an "analogue" to a study of clinical depression and/or that subclinical subject samples were employed. Nonetheless, in the discussion of results, there are often some strong suggestions about their potential clinical relevance. Attempts to replicate the findings with clinical populations have, however, produced equivocal results (cf., Depue & Monroe, 1978; Rehm & Kornblith, 1979).

The proliferation of analogue studies of depression, in recent years, is understandable. In contrast to clinical subjects, the analogue population is typically: larger; more readily accessible; probably more motivated to participate, especially if it helps complete some requirements of a psychology course; and, less likely to present medication and treatment regimen problems. On the other hand, analogue researchers have to identify candidates for the depressed subject group(s) from a primarily nondepressed population. The procedure for accomplishing this identification has typically involved the screening of large numbers of university students for depressive symptomatology via self-report measures of depression severity, for example, the Beck Depression Inventory (BDI). Consequently, severity cut-offs rather than diagnostic criteria have generally provided the basis for subject classification, as depressed or not depressed (cf., Depue & Monroe, 1978; Doerfler, 1981).

Many, if not most, analogue depression studies appear to have involved the use of the BDI to identify students as depressed. A number of studies (e.g., Dobson & Shaw, 1981; Smolen, 1978) have used a BDI score of 10 (from the range of 0-63) as the minimum criterion for assignment to a depression group. The learned helplessness research (e.g., Klein & Seligman, 1975; Miller et al., 1975; Willis & Blaney, 1978) has consistently employed a cut-off of 9. This latter BDI criterion has also been adopted in other depression studies (e.g., Alloy & Abramson, 1979; Golin & Terrell, 1977).

A major issue exists about using the BDI and other severity measures of depression for the purpose of identifying depressed subjects. Depue and Monroe (1978) addressed this issue in their discussion of the quantitative versus qualitative views of depression. Proponents of the former view would maintain that depression is best represented by a severity continuum and thus severity measures are an appropriate basis for assessing depression. From the qualitative perspective, "mild cases manifest mainly the mood component of depressive reactions and not the full range of features found in clinical depression" (Depue & Monroe, 1978, p. 14). Intrinsic to this latter perspective is the view that depression is a syndrome, the identification of which requires that "a minimum number of different symptoms from a predetermined list be present" (Zimmerman, 1983, p. 1035). Thus, depression classification, for

treatment or research purposes, is considered to require specific criteria, such as those provided in the DSM III (American Psychiatric Association, 1980) or the RDC (Spitzer et al., 1978). From the qualitative view, the lack of adequate diagnostic procedures, for classification of subjects in depression research, can result not only in very limited generalizability but also inconsistency of findings (Doerfler, 1981; Garfield, 1978). As severity scales (including the BDI) tend to contain many items which are not criterion symptoms, and indeed may be more symptomatic of other disorders, they are considered inappropriate for use as the sole means for depression classification of individuals. In support of this position are the results of relatively recent empirical investigations (Hammen, 1980; Hatzenbuehler, Parpal & Matthews, 1983; Lewinsohn & Teri, 1982). The findings (primarily involving the BDI) draw into question the adequacy of employing severity criteria as a basis for selecting depressed subjects from nonclinical populations.

The preceding discussion has suggested that there is less support for a quantitative than qualitative perspective on depression criteria. Given the frequency with which the former perspective has been implicitly adopted in depression research, through use of only a severity classification procedure, it was decided that the issue warranted further empirical investigation, in this study.

As the comparability of past and present results was considered important, it was decided that nondepressed and depressed subject groups should be defined in the manner typically employed in previous research. That is, it was decided that a severity criterion cut-off (on the BDI) would provide the basis for assigning subjects to a nondepressed group (Normal) and a depressed group (Severity). Given the concern raised, about employing solely a severity criterion, a third group (Clinical) was included in this study. The subjects in this group not only met the severity criterion, but also the RDC diagnostic criteria for depression. Inclusion of this group permitted the depression criteria issue to be addressed, in the current study.

Definition of Task

For the sake of comprehensiveness and parsimony, it seemed best to investigate the issue of cognitive distortion within the context of a task procedure which would permit the assessment of cognitive features relevant to both the Beck (1967, 1976) and Seligman (1975; Abramson et al., 1978) theories of depression. In addition, it was deemed preferable if the task were taken from a study in which both feedback and control perceptions had been tested. Further, by preference, the experimental findings should have already been replicated, in that this would lend inductive assurance to the possibility of similar results occurring again.

The task which seemed to best meet these criteria is the one employed by Alloy and Abramson (1979). In their second experiment, Alloy and Abramson (1979) evaluated two groups of students who were differentiated on the basis of BDI scores. The students in both groups were presented a task which, unbeknownst to them, was totally controlled by the experimenter. The task was described as a "problem-solving experiment" in which it was the subjects' chore to learn what degree of control they had over the onset of a light, as a function of pressing or not pressing a button. Alloy and Abramson randomly assigned the subjects within each subject group to one of two levels of feedback.¹ Half the subjects received feedback (onset of the light) on 75% of the 40 trials, while the other subjects received 25% feedback. The dependent measures included judgements of both the degree of control (contingency) and of feedback. The contingency results show that the nondepressed students in the 75% feedback condition overestimated degree of control but those in the 25% feedback condition more correctly judged that they had little control. In comparison, the depressed students in both conditions made "relatively accurate" judgments of control. Regarding perception of feedback, both the depressed and nondepressed students were "highly accurate" in judging percentage of feedback in the two conditions.

Taken collectively, the results of the four experiments reported by Alloy and Abramson (1979) indicated that

depressed students were as accurate as, if not more accurate than, nondepressed students in judging absolute control and feedback.

These researchers have subsequently conducted two studies (Alloy and Abramson, 1982; Alloy et al., 1981) involving essentially the same task procedure employed by Alloy and Abramson (1979). One study (Alloy and Abramson, 1982) included treatment of students with controllable, uncontrollable or no noise - a typical paradigm used in learned helplessness research. In the other study (Alloy et al., 1981), a mood induction procedure was introduced as an independent variable. The results of these studies mirrored those of previous findings of Alloy and Abramson (1979). The depressed subjects were generally accurate in their judgments of control whereas nondepressed subjects tended to display "illusions of control".

In conclusion, the task employed by Alloy and Abramson (1979) appeared well suited to provide the experimental context within which to obtain information regarding task and self-referent perceptions. There was, however, some concern about whether the perceptions would be peculiar to that task. To address the issue of cross-situation (task) generalizability of perceptions, a second task was included in the study (cf., Miller & Norman, 1979).

The second task chosen was originally presented by Wener and Rehm (1975). It was selected for use in this

study for several reasons. The task involves a noncontingent (experimenter-controlled) feedback situation, as does the Alloy & Abramson (1979) task. Also, the Wener & Rehm experiment involved measurement of feedback perception. Estimates of feedback, within the context of this task, have also been investigated in another study (Kuiper, 1978). Finally, the task procedure also seemed suitable for investigating judgment of contingency and self-referent inferences about performance.

Wener and Rehm (1975) described their task, to the subjects, as involving the measurement of "interpersonal empathy" - an important aspect of social intelligence and therefore relevant to success in interpersonal relationships. The procedure involved having the subjects, guess the word most frequently associated with a stimulus word, across 100 trials. Compared to nondepressed subjects, the depressed subjects underestimated success at both the high (80%) and low (20%) levels of positive feedback. In contrast, Kuiper (1978) found that the depressed and nondepressed subjects did not differ significantly in their perceptions of feedback at either the 80% or the 20% level. That is, the Wener and Rehm results were not replicated in his study. The depressed subjects did, however, underestimate success compared to the nondepressed subjects at a 55% level of feedback.

Prior to adopting a level of feedback for the current study, consideration was given to previous findings. In

general, past depression research on perceptions of feedback appears inconsistent at high, medium and low feedback levels. In the absence of selection assistance from empirical sources, attention was turned to the possible contribution of theory. In particular, consideration was given to proposed relationships between stress and depression, as a lack of feedback might serve as a stressor.

Lazarus and Launier (1978) suggest that an event which is perceived as stressful can be a precipitant not only to "stress emotions", such as sadness, but also to negative cognitions associated with an ineffective coping mode. The cognitive reaction to a stressor may include a self-view involving "helplessness," and a future-view of "hopelessness" (Lazarus and Launier, 1978, p. 320). Bandura and Adams (1977) proposed that stressful situations can have both emotional and cognitive consequences which, Bandura (1977, 1982) indicates, tend to be negatively valenced.

It was concluded that the more stressful the circumstance of the experimental tasks, the more likely they are to elicit negative cognitions. That is, by increasing the stressor, coping is likely to be taxed to a greater extent and this may serve to accentuate any subject differences in coping and cognitions (cf., Anderson et al., 1983). In the interest of promoting the stressfulness of the task, a low level of feedback (20%) was adopted for the study. This level had been employed with the Wener and Rehm

task (Kuiper, 1978; Wener & Rehm, 1975) and is close to the lowest level (25%) that was used with the Alloy and Abramson task (1979).

MAJOR HYPOTHESES

Four major hypotheses were advanced for this study - two for each of the cognitive theories. Within the context of each theory, one hypothesis pertained to task perception and the other hypothesis involved perception(s) of a more self-referent nature. For each hypothesis, three experimentally-testable predictions were made (Cozby, 1981; Gierę, 1979). Pertaining to each hypothesis, there were two principal predictions and one secondary prediction. Each of the former predictions consisted of a statement about an expected difference, on the relevant variable(s), between the nondepressed group of subjects (Normal) and one of the depressed groups (Severity and Clinical, respectively). The decision to test the nondepressed group against each depressed group separately (rather than combining them) stems from the intent to address the depression criteria issue raised earlier. That is, it was expected that the Severity and Clinical groups may differ in their relationship to the Normal group, on one or more variables. The secondary prediction can be viewed as a further opportunity to examine a potential difference between the depressed groups. It was proposed that the results would show a difference between the Severity group and the Clinical group.

Beck's Theory

The task perception variable of perceived feedback has often been examined as a test of Beck's (1967; 1976) theory. While the adequacy of that theory-testing is questionable, retrospective judgment of feedback does have peripheral relevance to the theory. It was, thus, hypothesized that relatively negative perception of feedback occurs in depression. The first principal prediction was that the judgment of feedback made by the subjects, defined as depressed on the basis of the severity criterion (Severity), would be lower than that made by the subjects, identified as not depressed (Normal). The second main prediction was that the subjects, designated as depressed on the basis of both severity and diagnostic criteria (Clinical), would make lower estimates of feedback than the Normal subjects. The subordinate prediction was that the Clinical group's feedback estimate would be lower than the estimate of the Severity group.

Self-referent perceptions about events appear to be more crucial to Beck's theory than perception of feedback in a past event. In particular, the cognitive triad seems to be a central component of the theory (cf., Beck, 1967; Giles, 1982; Rizley, 1978). Therefore, the hypothesis was that depressed persons have relatively negative views of their current experience, themselves, and their future. From this hypothesis stemmed the principal

predictions that each depressed group (Severity and Clinical, respectively) would give a more negative indication, on measures pertaining to the cognitive triad, than would the nondepressed group of subjects (Normal). The secondary prediction involved the forecast that the Clinical subjects would be more negative on the cognitive triad measures than the Severity subjects.

Seligman's Theory

Perceived control over a past event is a variable that has frequently been investigated to test the learned helplessness theory of depression. Retrospective perception of contingency is, in fact, presented as a preliminary component of the theory (Abramson et al., 1978; Seligman, 1975). Therefore, it was hypothesized that depressed individuals perceive past outcomes as relatively uncontrollable. From this hypothesis, it was predicted that the estimate of task control made by the depressed groups (Severity & Clinical, respectively) would be lower than the nondepressed group (Normal). The subordinate prediction was that the Clinical subjects would judge that they had less control over the task outcome than would the Severity subjects.

Perceptions of a more self-relevant nature seem to play a greater role in Seligman's theory of depression than perception of control over a past event. More specifically, expectation of future noncontingency is acknowledged as the

"pivotal" component of learned helplessness theory (cf., Abramson et al., 1978; Silver, Wortman & Klos, 1982; Tennen, 1982). This self-referent expectancy is considered to produce a variety of "symptoms of helplessness" (Alloy, 1982). Among the symptoms, motivational deficit has been the most prominent focus (e.g., Klein & Seligman, 1976). The major contribution of the reformulation of the theory was the interpolation of the causal attribution component. These self-referent attributions are thought to predict the circumstances of recurrences of the noncontingency expectation and, therefore, consequent helplessness symptoms (Abramson et al., 1978; Alloy, 1982). In a depressive episode, the causal attributions are contended to reflect helplessness. Helplessness attributions consist of internal, stable and global attributions for negative ("Bad") event outcomes, and (to a lesser extent) external, unstable and specific attributions for positive ("Good") outcomes (Abramson et al., 1978; Seligman et al., 1979). Thus, the hypothesis is that self-referent helplessness is associated with depression, as evinced by expectancy of future noncontingency, motivational deficit, and helplessness attributions. The principal predictions were that the depressed subjects (Severity and Clinical, respectively) would exhibit greater helplessness than the nondepressed subjects (Normal), on the relevant measures. It was secondarily predicted that the Clinical group would manifest

helplessness more than the Severity group.

MINOR HYPOTHESIS

As discussed earlier, Bandura's (1977) concept of self-efficacy appears to have relevance to depression. To test this proposition, it was hypothesized that depressed persons perceive their personal effectiveness to be relatively poor. In keeping with the prediction approach adopted for the major hypotheses, two main predictions were advanced. It was predicted that the Severity and Clinical depressed groups would each view their self-efficacy to be lower than would the nondepressed group (Normal). The subordinate prediction was that the Clinical subjects would indicate lower self-efficacy than the Severity subjects.

CHAPTER II

METHOD

Overview

A total of 481 university women were screened via depression measures in order to obtain the 90 subjects for this study. The members of the nondepressed group (Normal) and severity criterion depressed group (Severity) were selected on the basis of their score on a depression severity measure, the Beck Depression Inventory (BDI). The subjects in the third group (Clinical) met not only the Severity criterion, but also the Research Diagnostic Criteria (RDC) for depression on a new inventory, the Clinical Depression Measure (CDM).

In each of the three groups, half of the subjects were presented one task and the remainder another task. Within this parameter, the subjects were randomly assigned to a task.

The subjects were tested individually in this study. The one hour of testing consisted of a fixed sequence of activities beginning with a brief description of the experiment. Subsequently, the subjects completed the BDI and CDM, listened to a description of the task, and did the pre-task measures. The task was then presented and, following it, the post-task measures were administered. Finally, a brief interview and debriefing were undertaken.

Subjects

The 90 subjects were undergraduate university women

(age: $M = 19.75$, $SD = 3.01$), who participated in the study as part of a requirement for an introductory psychology course at the University of Western Ontario.

Subject Selection Procedure

A total of 481 female students were screened in groups, by questionnaire, to identify candidates for the study.² During these group screenings, the students were asked to complete: the Beck Depression Inventory (BDI; Beck et al., 1961; Appendix A); the Clinical Depression Measure (CDM; Appendix B); Jackson's (1974) social desirability items from the Personality Research Form (SDS; Appendix D); and, the Dysfunctional Attitude Scale (DAS; Weissman & Beck, 1978; Appendix E). The screening sessions were presented to subjects as "Feelings, Attitudes and Behaviour Study" - an experiment in itself (Appendix F for Consent Form and Debriefing Form). The students were made aware, however, of a related experiment in which they might be asked to participate, if they gave permission to be contacted. They were also informed that, unlike the group questionnaire study, in which they were presently taking part, the related experiment (the current study) would be conducted on an individual basis. They were told that the latter would involve being tested via a mental task.

The candidates were subsequently contacted and arrangements were made for their participation in this study. It was arranged for them to be tested within two weeks of

when they had been in the screening session. The current study was presented as "Task Performance, Attitudes and Reactions Study" (Appendix G for Consent Form and Debriefing Form).

Eligibility for the study and assignment to a group was based on the results of the BDI, and when applicable CDM. Depression measurement occurred just prior to the experimental task. Actual assignment did not occur until the scoring of the relevant measure(s), after the candidate had completed the experimental task. Thirty subjects met the criterion for the Normal group, 30 were in the Severity group and 30 in the Clinical group.

With respect to group assignment, the subject protocol was the same as that employed by Alloy and Abramson (1979; Experiment 2), with one exception. The assignment protocol was extended to include diagnostic criteria for the additional subject group. Thus, the criterion for membership in the nondepressed group (Normal) was a BDI score of less than 9. The severity criterion depressed group (Severity) consisted of subjects who have met the BDI criterion of scoring greater than 8. The additional depressed group (Clinical) consisted of subjects who had a BDI score above 8 and a CDM diagnosis of Definite Major Depressive Disorder.³

The subject quota for the Normal and Severity groups was met prior to acceptance of subjects for the Clinical group.

This sequential procedure was adopted to promote unbiased formation of the Normal and Severity groups in a manner similar to the group assignment procedures of previous analogue depression studies. Thus, the findings from these two groups were considered to be more appropriate for comparison with previous research results than if those who qualified for the Clinical group were extracted. If this sequential procedure had not been adopted, 7(23%) of the members of the Severity group would have been assigned to the Clinical group because they met the criteria for the latter group. The logical result would have been a Severity group with less of a diagnostically-depressed component than past studies that employed a similar depression severity selection criterion. The result would also have created statistical bias in the hypothesis-testing, against differences between the Normal and Severity groups, and in favour of differences between the Severity and Clinical groups.

The selection of subjects for the Normal group simply involved acceptance of the first 30 volunteers who met the nondepressed criterion ($BDI < 9$). Similarly, the first 30 volunteers who met the severity criterion ($BDI > 8$) were assigned to the Severity group.

Depression Severity.

It was recognized that a significant difference in BDI scores between the Severity and Clinical groups would create an experimental confound. If such a severity

difference occurred, any group differences among the dependent measures could be attributed as readily to the severity difference as to the diagnostic criteria difference.

Once the Severity and Clinical groups in this study each had their quota of (30) subjects, a t-test was conducted on the BDI scores. The Severity group (BDI \bar{M} = 12.10) did not differ significantly (t (58) = -1.67, n.s.) from the Clinical group (BDI \bar{M} = 14.00). Thus, a severity confound was considered not to be present.

Experimental Design

This study involved what is referred to as a "factorial design" (Chassan, 1979) or a "two-factor design" (Myers, 1979). The design is similar to Kirk's (1968) "randomized block design" and Myers' (1979) "treatments x blocks". Subject categorization (on depression criteria) does not, however, appear to meet the statistical assumptions related to 'blocking'. The factor pertaining to subject categories (groups) does qualify as a "classification variable" (Ferguson, 1976). This type of independent variable involves the identification of subpopulations according to specific criteria and a subsequent sampling of the subpopulations. In clinical research, classification variables (factors) are often employed (Chassan, 1979). Such classification appears particularly appropriate when the proportions of the subpopulations in the population are

unequal.

The treatment factor in this study was the task variable. This independent variable is considered a qualitative variable because the tasks are not differentiated on a quantitative dimension (cf., Myers, 1979).

Specifically, the experimental design had two between subjects factors: 3 (Subject Group) x 2 (Task). The three levels of the first factor were the Normal, Severity and Clinical groups. The two levels of the second factor were the Alloy & Abramson (1979) and the Wener & Rehm (1975) tasks. The tasks are also referred to as the Contingency Estimation and Word Association tasks, respectively. Of the 30 subjects in each group, half (15) were randomly assigned to the Contingency Estimation task and the other half to the Word Association task.

Descriptive Variables

Beck Depression Inventory

This self-report measure of depression severity was first described by Beck et al. (1961). The Beck Depression Inventory (BDI) has 21 items, involving specific categories of symptoms (Appendix A). The categories include cognitive, affective, behavioural and somatic features of depression. In the most recent publication of the BDI (Beck et al., 1979), each item consists of four statements which are ranked in order of symptom severity. Each statement in an

item has an assigned value ranging from 0 to 3, to reflect severity. The total score can range from 0 to 63.

In the original tests of the BDI (Beck et al., 1961), with a psychiatric population, the inventory was found to have "significant" item-total consistency and very high split-half reliability ($r = .93$). Two studies of validity were also reported and showed that the BDI corresponded significantly ($r = .65$ and $.67$) with a psychiatrist's ratings of depression depth. A similar validity study (Bumberry, Oliver & McClure, 1978) was conducted with a university population, revealing a coefficient of $.77$. From this finding, they concluded that the BDI is a valid measure of depression severity for use with university students. In the same study, a second subject sample was tested in which 1 to 14 days intervened between BDI administration and psychiatric rating. This time lapse resulted in a much lower correlation coefficient ($r = .30$). Sacco (1981) cautioned that this finding suggests that the BDI is valid as a severity measure of depression "only for the day on which it was administered" (p. 144).

Clinical Depression Measure

The Clinical Depression Measure (CDM) was developed in response to the relative absence of feasible diagnostic approaches to the selection of depressed subjects from nonclinical populations. Subsequent to surveying literature on subject selection in analogue depression

research and) on diagnosis of clinical depression, it was decided that the optimal solution would be a diagnostically-based depression questionnaire. By preference, such a self-report instrument should reflect contemporary and commonly employed diagnostic criteria for depression. The CDM was thus designed to elicit information relevant to the Major Depressive Disorder category of the RDC (Spitzer, Endicott & Robins, 1975a, 1978). The RDC appear to be the most widely used research criteria for depression (e.g., Andreasen & Winokur, 1979; Boyd & Weissman, 1981; Katz, Secunda, Hirschfeld & Koslow, 1979). Spitzer, Endicott and Robins (1975b) explain that the "advantages" of the RDC approach over other diagnostic approaches led to adoption of similar depression criteria for the most recent version (third edition) of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III; American Psychiatric Association, 1980).

The CDM was rationally constructed in a self-rating format, with some assistance from the recommendations of Woodward & Chambers (1980). Much of the content of the measure has been guided by information in the Schedule for Affective Disorders and Schizophrenia (SADS: Endicott & Spitzer, 1978), the structured interview based upon the RDC. To promote consistency in scoring the CDM, a diagnostic criteria checklist, and description of the scoring procedure were also created (Appendix B for CDM, checklist and scoring procedure).

Three studies have been conducted to investigate the CDM (Appendix C). The first study involved the CDM being administered to a large sample of university students ($n = 592$) in order to obtain epidemiological information and examine its relationship with one of the most popular measures of depression severity (BDI). The results from this study showed a low incidence of students who met the RDC for definite depression and a moderate correlation between the CDM and BDI ($r = .60$). The second and third studies were designed to test the validity of the CDM with patients and university students, respectively. The results of both studies revealed that the CDM had high "construct validity" (Campbell and Stanley, 1966). The construct against which the CDM was compared is the concept of Major Depressive Disorder as defined in the RDC. The criterion data for testing validity of the CDM was collected via the SADS. The SADS seemed most appropriate as it was constructed by the authors of the RDC, as a means of obtaining information relevant to making research diagnoses. As the students in the third study were also in the first study, it was possible to test the temporal reliability of the CDM. The test-retest stability of the CDM (range = .31 to .71) corresponds to the knowledge about the time-limited nature of depression.

The CDM appears to warrant further investigation and use. There are questions that must still be answered

before the CDM can be fully accepted as a self-report diagnostic instrument for depression. Further evidence of construct validity on clinically depressed samples is required, as is evidence of discriminant validity, in terms of not diagnosing other psychiatric groups as depressed. This research will need to entail a carefully described set of psychiatric groups of mixed diagnoses completing the CDM, to determine if the CDM can appropriately differentiate those patients who have a major depression from those who do not.

With respect to the current study, the CDM made it feasible to design a depression study which would include not only severity-defined subject groups (Normal and Severity), commonly employed in psychological research, but also a more diagnostically-defined sample of university students (Clinical). Thus, it was possible to address empirically the quantitative/qualitative issue raised by Depue & Monroe (1978).

Social Desirability Scale

The Social Desirability scale from the Personality Research Form (Jackson, 1974) was among the questionnaires presented at the subject screening sessions. This scale is intended to indicate the extent to which people describe themselves as desirable (in positive terms). This scale consists of 16 items with a True-False forced-choice response format (Appendix D). Administration only at the

screening session seemed appropriate as the scale has adequate temporal stability. Jackson (1974) reports a one week test-retest reliability of .81.

The inclusion of a social desirability scale was primarily prompted by an issue raised by Langevin and Stancer (1979). Their findings suggest that self-report depression measures are "confounded with social desirability" (p. 78). Thus, the relationship of a "social undesirability response set" to depression appeared to warrant some investigation.

Dysfunctional Attitude Scale

The fourth measure administered at the initial screening was the Dysfunctional Attitude Scale (DAS; Weissman & Beck, 1978). The scale was designed to assess typical depressive assumptions (beliefs). Employed in this study was one of the two parallel forms (Form A) of the DAS. Each of the forms consists of 40 items, seven response categories, and a range of possible scores from 40 to 280 (Appendix E). The DAS was also presented only at the screening session because it was reported to have high temporal stability ($r = .84$) over an eight week interval (Weissman & Beck, 1978).

The DAS was included as a result of very recent empirical evidence (Olinger, 1984) that only some depressed students tend to generate dysfunctional cognitions subsequent to having perceived a task experience as a

failure. This group of students was distinguishable from the other depressed group by a higher mean score on the DAS. Consequently, it seemed meaningful to have subjects complete the DAS, to permit a posteriori examination of the extent to which the findings of Olinger (1984) were replicated in this study.

Dependent Variables

The dependent measures were identical for all subjects and essentially all the variables were presented in a self-report format.⁴ Self-report was employed for a number of reasons. It can readily be used as a means of gathering limited, quantifiable data about a person's cognitions, and can be done so in a systematic, structured manner (Mayer, 1978). This format was considered appropriate, as the information elicited from subjects pertained to their subjective experiences and inferences. Also, self-report was the means by which information was collected in the studies from which the tasks were borrowed (Alloy & Abramson, 1979; Weener & Rehm, 1975).

The dependent variables were presented mainly in the form of rating scales. Where possible, cognitive information was measured on a percentage rating scale. The alternative to the percentage scale was a multiple-point rating scale. Based on the research findings of Dobson & Mothersill (1979), it was decided that these scales would be

made unidimensional, ranging from absence to strong presence on the dimension, and would be anchored at the extreme points with descriptive labels. The choice of a 7-point range was made primarily to promote consistency with borrowed rating scales. The latter scales pertain to the reformulated theory of learned helplessness and were obtained from the attribution questionnaire presented by Seligman et al. (1979).

Major Variables

The major measures can logically be divided into two groups. One group of dependent variables is those related to task perception and the other group is the measures of more self-referent cognitions. A summary of the major variables is presented in Table 1.

The task perception group included principle post-task rating scales employed by Alloy & Abramson (1979). These scales were entitled Judgment of Total Reinforcement and Judgment of Control by the authors, but have been renamed in the current study. The former scale pertains to an estimation of the relative frequency of feedback (Task Feedback) and the latter involves a rating of the degree of perceived control over the task (Task Control, see Appendix I).

The other group of major dependent variables primarily consisted of post-task measures (Appendix I) considered to be more directly relevant to the cognitive theories under investigation. These self-referent variables were

Table 1

Outline of Major Dependent Variables

Task Perceptions

- Task Feedback
- Task Control

Self-referent Cognitions (Self Perceptions)**Beck:World View**

- Personal Standard
- Other Standard

Beck:Self View

- Self Success
- Self Failure

Beck:Future View

- Future Success Similar
- Future Success Other

Seligman:Control and Motivation

- Future Control
- Future Motivation

Seligman:Causal Attribution

- Internality
- Stability
- Globality

Bandura:Self-Efficacy

- Task Confidence
 - Future Confidence
-

developed on the basis of descriptions of cognitive distortion in Beck's (1967) theory and the learned helplessness theory (Seligman, 1975; Abramson et al., 1978). For the sake of clarity, in comparisons to task perceptions, self-referent cognitions will sometimes be referred to as self perceptions.

The self-referent measures, pertaining to Beck's (1967) model of depression, are divisible according to the three components of the "cognitive triad", that is, one's view of world (experiences), self, and future. The view of world measures are specific to personal interpretations of the task experience. With some guidance from Giles (1982), two scales were constructed to elicit this information. The subjects were asked to make ratings as to how well they thought they did relative to their personal expectation of how well they think they should have done (Personal Standard), and relative to how well they think others typically did (Other Standard). The measures considered relevant to view of self consisted of two rating scales, to determine the extent to which the subjects label themselves successes (Self Success) and failures (Self Failure), as a result of task performance. Measurement of view of future, involved two scales for assessing relevant information. The first measure consisted of judgment of future success at a similar task (Future Success Similar) and the second measure involved judgment of future success on some other task

(Future Success Other).

Variables pertaining to perception of the future typically involved a specific focus - a similar task in the future (e.g., Future Success Similar). This restricted focus was adopted in recognition that the effects of a contrived laboratory circumstance may have limited generalizability. In order to examine situational generalizability, however, measures with another or a more general focus were also included in the study (e.g., Future Success Other, General Motivation, respectively).

There were a number of major self perception variables related to Seligman's (1975; Abramson et al., 1978) learned helplessness theory of depression and its attribution reformulation. In both the original and reformulated versions of the theory, expectation of outcome noncontingency for the future is presented as the "pivotal" feature of learned helplessness in humans. The expectancy is considered to be present in depression, especially subsequent to exposure to and/or perception of an uncontrollable event. This central perceptual component of the learned helplessness theory was investigated via a rating scale that required the subjects to judge the degree of control they expected to exert, in the future, over a similar task (Future Control). A helplessness feature, viewed as a consequence of the noncontingency expectation, is low motivation. Motivation was assessed by a scale

asking how hard the subjects plan to perform their best, in the future, on a similar task (Future Motivation). The reformulated approach to Seligman's theory also emphasizes attributional ascriptions to events (Abramson et al., 1978). Thus, measures of attribution on the three dimensions (internality, stability and globality) of this reformulation were included in this study. Such attribution measures already exist in the Attribution Style Questionnaire (ASQ; Seligman et al., 1979). With minor relevant modification of the questions, a 7-point rating scale for each of the attribution dimensions was adopted from the ASQ (Internality, Stability, Globality).

To examine Bandura's self-efficacy model, two post-task measures were added. These measures were unabridged adoptions of the two self-efficacy questions employed by Haines, McGarth and Pirot (1980). The questions are:

1. How confident do you feel about your ability to do well on similar tasks?
2. How confident did you feel while you were performing the task? (p. 195)

These questions (Future Confidence, Task Confidence, respectively) were presented in the standard self-efficacy rating format (Bandura et al., 1980). This format involves a "100-point scale, ranging in 10-unit intervals, from high uncertainty through intermediate value of certainty to complete certitude" (Bandura et al., 1980, p. 43).

Minor Variables

In addition to the major variables described above, other dependent measures were also presented in the experiment (Table 2). These adjunct measures were intended to provide information which would help in the interpretation and explanation of responses to the major variables. The supplementary variables included pre- and post-task measures (Appendix H and I, respectively). The pre-task measures consisted of inquiries about: 1) level of feedback expected (Expected Feedback); 2) level of feedback hoped for (Hoped Feedback); 3) minimum satisfactory level of feedback (Satisfactory Feedback); 4) amount of control expected (Expected Control); 5) motivation to try hard (Motivation); and, 6) confidence in personal ability (Confidence).

The first minor variable presented in the post-task rating booklet (Appendix I) was a revised version of the Subjective Stress Scale (SSS; Neufeld and Davidson, 1972). According to Neufeld (1976), this scale has been found to be "relatively sensitive to variation in perceived stressor properties" for a university population (p. 36). The measure consists of seven adjectives presented in a scrambled order with respect to their scale values. The subjects were asked to indicate which of the adjectives best described how they felt regarding the task they had just completed.

Table 2

Outline of Minor Dependent Variables

Pre-Task

- Expected Feedback
- Hoped Feedback
- Satisfactory Feedback
- Expected Control
- Motivation
- Confidence
- 1st Depression Adjective Check List (DACL)

Post-Task

- 2nd DACL
 - Subjective Stress Scale (SSS)
 - Representative Specific
 - Representative General
 - Failed/Succeeded
 - Task Importance
 - Future Hope
 - Future Satisfaction
 - Failure/Success
 - General Motivation
 - Bad/Good
 - Certainty
 - Interest
 - Enjoyment
 - Difficulty
 - Relaxation
 - Stress
 - Value
-

The remainder of the post-task booklet consisted of a variety of supplementary post-task measures that were interspersed among the major rating scales in accordance with the theme of the latter variables. Further exploration of Beck's (1967) world view (interpretation of task experience) was attempted via three measures. Two of these scales concerned how representative the subject's performance was for the type of task (Representative Specific) and in general (Representative General). The third self-rating item involved a dichotomous, forced-choice situation in which the subjects were asked to indicate whether they considered themselves to have failed or succeeded at the task (Failed/Succeeded). On the topic of view of self, there was a rating scale inquiring as to the importance of the task for that view (Task Importance). Regarding view of the future, three additional measures were presented. One involved rating hope of success on a similar task in the future (Future Hope). The second scale consisted of identifying the minimum satisfactory success level on a similar task in the future (Future Satisfaction). The third measure involved a dichotomous rating item intended to examine whether the subject would tend to label performance, on a similar task in the future, as failure or success (Failure/Success).

With respect to Seligman's theory (1975; Abramson et al., 1978), a further assessment of motivation was also

undertaken via an item which asked how hard the subjects would try their best in the future, in general (General Motivation). Three additional attribution-related questions were presented as well. One measure was a two-choice rating question regarding valence of task outcome (Bad/Good). This question was critical to the interpretation of the major attribution scales in that it provided the "Bad" or "Good" context. Identifying this context was important because of research findings that depressed persons make more internal, stable and global attributions about only negative (Bad) events than do nondepressed individuals (cf., Miller and Seligman, 1982). The other two variables were derived from the ASQ (Seligman et al., 1979). The first of these measures asked for a brief description of one major cause for the subject's performance. The final attribution-related measure was a rating scale on certainty about cause of performance (Certainty).

The last five measures in the post-task booklet were intended to gather further information about the subjects' views of the task. They were asked to rate task interest (Interest) and task enjoyment (Enjoyment). The other three rating measures were meant to examine subjective stress reactions. The dimensions and some item features were obtained from stress research (Dobson and Neufeld, 1981; Neufeld and Davidson, 1974; Neufeld and Thomas, 1977). The measures were: task difficulty (Difficulty); extent of

relaxation during task (Relaxation); and, task stress (Stress), respectively.

Immediately prior to and after the task, subjects were asked to complete one of two versions (A or B) of the Depression Adjective Check List (DACL; Lubin, 1967; Appendix J). The two versions are highly correlated ($r = .88$, for women) and designed to measure "transient depressive mood" (Lubin, 1965). Each list contains 22 positive and 10 negative adjectives. They were administered such that approximately half of the students in each subject/task group (e.g., Normal/Contingency Estimation) received version A first and the others got version B first. The counterbalancing of administration order was meant to minimize version-specific effects.

The only quantified adjunct measure not presented in a self-rating format was administered by the experimenter in a brief post-task interview (Appendix K). This rating measure was the second question in the interview and was included to provide data on the perceived scientific value of the experiment (Value). The description is essentially a direct quote of a rating question employed by Festinger and Carlsmith (1959, p. 206). It was read to the subject as part of the brief structured interview, presented subsequent to completion of the post-task rating scales. The other interview questions were intended to explore in a descriptive fashion: the subjects' understanding of the

purpose of the task; the clarity of the experimental procedure; the extent that the study provided personal insight; any negative reactions to the study; and, any study-related questions.

Apparatus and Materials

The study was conducted in a single room (3.02 m. x 2.48 m.) lit by four fluorescent bulbs. The experimenter sat across a table (1.17 m. x 0.91 m.) from the subject. On the table, directly between the experimenter and subject, was a grey metal stand-up platform (58 cm. high x 52 cm. wide). For both tasks, the opaque vertical platform surface served the function of preventing visual contact between the two individuals. The upper portion of the vertical surface was translucent (20 cm. high x 30 cm. wide) to permit projection of Wener & Rehm stimuli from the rear.

Alloy and Abramson Task (Contingency Estimation)

The stimulus, response and feedback apparatus, presented to the subject, consisted of a small grey metal box (6 cm. high x 6 cm. wide x 13 cm. long). Situated lengthwise on the top of the box were a yellow light, a spring-loaded button and a green light, from the subject's left to right respectively. The box was situated on the table directly in front of the subject, just ahead of the platform.

Consistent with the Alloy and Abramson (1975) task format, the yellow light indicated the presence of a 3

second trial. This light was activated by the experimenter via a Hunter Digital Timer (Model 1275) and the (3 second) duration of a trial was reflected by a corresponding light on the timer. The subject's response of pressing or not pressing the button, during a trial, was evidenced by whether a red light (in front of the experimenter) came on or not, respectively. Green light onset, when it occurred at the end of a trial, was controlled and administered by way of a button in front of the experimenter.

The experimenter activated the green light on 20% of the trials. The feedback schedule was predetermined for both "Press" and "Not Press" trials, and arranged such that the subjects would experience 8 green light onsets (over the 40 trials) regardless of their response behavior. The experimenter recorded the subject's response (press/not press) for each trial on a record sheet (Appendix L). This sheet also served to identify on which trials the subject was to get feedback. These green light onset trials were marked with asteriks on the sheet.

Wener and Rehm Task (Word Association)

The presentation of task stimuli involved the slide projection procedure employed by Kuiper (1978) rather than Wener and Rehm's (1975) memory drum approach.

The translucent upper portion of the stand-up platform served as a rear projection screen for the stimulus words presented in the task. The words were projected onto the

screen by a Kodak Ektagraphic Slide Projector (Model AF), which was situated to the right-rear of the experimenter, on a small table. The projector's advance mechanism was operated by remote control.

The stimulus words presented to the subjects were the first 80 of the original 100 words employed by Wener and Rehm (1975). The reduction to 80 words was undertaken after pilot testing the total experiment time with several students. Employing all 100 words extended the time beyond the allotted hour and, thus, presented a practical problem. Also, N.A. Kuiper (personal communication, November, 1982) indicated that the reduction in words should make no substantial difference in terms of effect on subjects. Further, a reduced list of 80 words has been employed by Olinger (1984). Finally, the reduction of words made the duration of the two tasks more similar.

To provide consistency in feedback for all the subjects, four stimulus words (20%) in each set of twenty were randomly selected as involving correct responses. That is, all subjects received feedback on the same trials. The predetermined positive feedback trials are identified by asteriks on the word sheet (Appendix M). The experimenter recorded, on the sheet, the actual responses given by the subject but gave feedback on only those trials with asteriks.

Feedback was given via the onset of a green light for 3 seconds. The light was situated on the top of a grey metal box (8 cm. high x 10 cm. wide x 13 cm. long). On the box, below the light, was the word "CORRECT". The light was activated manually by the experimenter.

Experimental Procedure

The sequence of events in the study (as outlined in Table 3) began when the subject entered the experiment room to participate in the one hour session. Once the subject was seated, the experimenter sat in a chair near the subject. He then briefly explained that the study involved the investigation of a mental task and personal views regarding it. He also stated that the investigation would require the subject to complete some questionnaires and make some ratings before and after the task. The subject was then given the Task Performance, Attitudes and Reactions Study: Consent Form (Appendix G). No subject refused to sign the form or decided to withdraw from the study.

The subjects then completed a BDI and CDM. Next, they were read the description of the task to which they had been assigned.

Description of Contingency Estimation Task

This task was described as follows:

Now, in this problem-solving [task], it is your [job] to learn what degree of control you have over whether or not the green light comes on. Each time the yellow light comes on

Table 3

Outline of Experimental Procedure (Chronological Order)

Subject arrival

Brief description of experiment

Consent

Completion of BDI and CDM

Explanation of task (Contingency Estimation or Word
Association task)

Completion of pre-task ratings

Completion of DACL (A or B)

Task

Completion of (other) DACL

Completion of post-task ratings

Post-task interview

Debriefing

Debriefing Questionnaire

Debriefing Form

Subject departure

it indicates the start of a new trial, the occasion to do something. For each trial, after the yellow light comes on, you have the option of either making a button press response or not making a button press response. A button press response consists of pressing this button once and only once immediately after the yellow light comes on. Not making a button press response consists, of course, of doing nothing when the yellow light is on. If you do intend to press the button on a given trial, you must press within three seconds after the yellow light comes on; otherwise the trial will be counted as a not press trial. So, in this experiment there are only two possibilities as to what you can do on each of the trials: either press the button within three seconds after the yellow light comes on, or else, just sit back and do nothing. Any questions so far?

You may find that the green light will go on, on some percentage of the trials on which you do make a button press response. You may also find that the green light will go on, on some percentage of the trials when you do not make a button press response. Alternatively, you may find that the green light will not go on, on some percentage of the trials on which you do make a button press response. And, you may find that the green light will not go on, on some percentage of the trials when you do not make a button press response. So, there are four possibilities as to what may happen on any given trial: 1) you press and the green light does come on; 2) you press and the green light does not come on; 3) you don't press and the green light does come on; 4) you don't press and the green light does not come on. Since it is your job to learn how much control you have over whether the green light comes on, as well as whether the green light does not come on, it is to your advantage to press on some trials and not on others, so you know what happens when you don't press as well as when you do press....

When it was clear the subject understood the outline of the task, he or she was then shown the Judgement of Control scale and the concept of control was discussed briefly:

Forty trials will constitute the problem. After the problem, you will be asked to

indicate your judgement of control by putting [a slash "/"] someplace on this scale: at 100 if you have complete control over the onset of the green light, at 0 if you have no control over the green light, and somewhere between these extremes if you have some but not complete control over the onset of the green light. Complete control means the onset of the green light on any given trial is determined by your choice of responses, either pressing or not pressing. In other words, whether or not the green light goes on is totally determined by whether you choose to press or to just sit back and not press. No control means you have found no way to make response choices so as to influence in any way the onset of the green light. In other words, the onset of the green light has nothing to do with what you do or don't do. Another way to look at having no control is that whether or not the green comes on, on any given trial, is totally determined by factors such as chance or luck, rather than by your choice of pressing or not pressing. Intermediate degrees of control means that your choice of response, either pressing or not pressing, influences the onset of the green light even though it does not completely determine whether the green light goes on or not. In other words, what you do or don't do matters to some extent but not totally. Another way to look at having intermediate control is that one response, either pressing or not pressing, produces the green light onset more often than does the other response. So, it may turn out that you will have no control, that is, your responses will not affect the onset of the green light, or it may turn out that you will have some degree of control, either complete or intermediate, that is, one response produces green light onset more often than does the other. Any questions before you begin? (Alloy and Abramson, 1979, p. 451-452)

Description of Word Association Task

The following description was read to the subjects:

The purpose of this [task] is to investigate the general ability known as social intelligence. It has been shown that persons rating high on this ability are potentially more successful in

their interpersonal relationships than are those who do not have a high rating. This study is concerned with that specific part of social intelligence called "interpersonal empathy," the ability to know what others are thinking and feeling. You will notice that there is a word appearing on the screen directly in front of you. Your task will be to say aloud the word which most people would associate to the word on the screen. It is important to remember that this word will not necessarily be the one which you would associate to it, but the one which most people would associate to it. For example, if the word on the screen is 'needle', your correct response would be 'thread', since most of the people associate 'thread' with 'needle.' The correctness of the response is based on the associations of over 1,500 people. If your response is correct, the [green] light on the [box] in front of you will go on. If your answer is not correct, we will merely go on to the next word. Remember, the correct association is not necessarily the one which you would make, but the one which most people would give. You may find it helpful to use the feedback of the light to improve your responses as we go through the words. Are there any questions before you begin? (Kuiper, 1978, p. 240).

Pre-Task Measures

Once the description of the task had been read and any questions about it were answered, the subjects were presented the six pre-task rating scales (Appendix H). They were then asked to complete a brief mood questionnaire (DACL; Appendix J). Subsequently, the task was presented.

Tasks

The Contingency Estimation task involved 40 three second trials. During each trial,

the subject had the option of either pressing or not pressing a button. Onset of a yellow light signaled the start of each trial. At the end of the 3-sec trial, a green light was either presented or

not presented dependent on the [noncontingent feedback schedule]. (Alloy & Abramson, 1979, p. 451).

The Word Association task consisted of presentation of the 80 stimulus words, one at a time. The subjects verbally responded to each stimulus with an associate word. Only at the end of predetermined trials was the "CORRECT" (feedback) light activated for three seconds.

Post-Task Measures

After completing the task, the subjects were given the other version of the DACL. Then, they were asked to do the post-task ratings (Appendix I). Subsequently, they were verbally presented interview questions (Appendix K).

Debriefing

After the interview, the subjects were presented a detailed debriefing (Appendix N). The debriefing was made relatively extensive because of research findings (Ross, Lepper & Hubbard, 1975) regarding the inadequate effect of typical debriefings. Included in the debriefing were: an explanation of the necessity for fixed reinforcement level; feedback on accuracy of subject's task perceptions (reinforcement and control); and, a Debriefing Questionnaire, as a check on the clarity and effect of the debriefing explanation. In addition, "impression perseverance phenomena" (Ross et al., 1975) were discussed, and then a Debriefing Form was read and retained by the subject.

CHAPTER III

RESULTS

Analyses and Statistical Procedures

The experimental design of this study was a 3 x 2 between-subjects factorial design. The first factor was subject group, which consisted of three levels: the nondepressed (Normal); depression severity (Severity); and, depression severity plus diagnostic criteria (Clinical) groups. The second independent variable pertained to the tasks by Alloy and Abramson (Contingency Estimation; 1979) and Wener & Rehm (Word Association; 1975).

The major hypotheses were tested via the operational predictions which were generated from them. Testing was conducted in accordance with the research design and the predictions. Where the prediction pertained to only one major dependent variable, an analysis of variance (ANOVA) was executed. A prediction, involving a conceptual cluster of variables, was typically examined within the context of a multivariate analysis of variance (MANOVA). Hypothesis-testing included data from all of the subjects, with the exception of the analysis of the attribution variables. Causal attribution ratings for 61 of the 90 subjects were analyzed to examine the predictions for those measures. The reduced number of subjects stems from the fact that only the attribution data for those who perceived the task

outcome as "bad" was included. As discussed earlier, there is more theoretical relevance and empirical support for this outcome perception, as a contextual basis for helplessness attributions, than attributions related to a "good outcome".

Prior to analysis of the data, consideration was given to the choice of employing multivariate analysis of variance or a number of separate univariate analyses, to test predictions involving more than one variable. After considering issues pertaining to the choice, particularly regarding error rate (cf., Myers, 1979), the statistical approach recommended by Hummel and Sligo (1971) was adopted. This approach to analysis and interpretation involves a sequential procedure that has also been used by others (e.g., Lewinsohn, Steinmetz, Larson & Franklin, 1981). The procedure consists of first determining which factors and interactions have significant multivariate F values. Subsequent to identifying a significant multivariate effect, the individual dependent variables are examined for significant univariate effects. In instances where a univariate factor is significant and has more than two levels, multiple comparisons of means are undertaken. In this study, Student-Newman-Keuls comparisons of means served specifically to test the predicted differences between the subject groups.

The Pillai-Bartlett trace V was selected as the MANOVA

test statistic for the current study. The selection of this test statistic was made after reviewing descriptions of the advantages and disadvantages of various MANOVA statistics (Olson, 1976; 1979; Stevens, 1979). In particular, the V test appears to be "consistently more robust" than the others, with regard to violations of assumptions (Olson, 1979).

In addition to the analyses of variance, the major dependent variables were subjected to correlation and factor analyses. Bivariate correlation analyses were undertaken to examine the strength of association between the variables. The factor analysis was intended to serve the exploratory function of detecting the interrelationships among the variables with a view to determining which were most strongly related to the same "areas of generalization" or factors, (Gorsuch, 1974).

The descriptive and minor dependent variables, included in the study, were also statistically examined. As these variables are of secondary importance, only summary descriptions of the findings are presented later in this chapter. Detailed descriptions of the analyses and results are provided in Appendices P and Q, respectively.

Major Dependent Variables: Prediction Tests

The results of each multivariate and univariate analysis of variance on the major measures are discussed in

a fixed sequence. In order to give priority and attention to tests of predictions, in each instance the F value for the subject group factor is presented before the task factor and interaction values.

The means (M) and standard deviations (SD) of the major variables, for each 'subject group by task' cell, are presented (in tables) when the variables are discussed. The analysis of variance summary tables are, however, not displayed in this section (See Appendix O).

Task Perception Variables

The means and standard deviations for the two task perception variables are presented in Table 4.

Task Feedback. This task perception variable was examined via an analysis of variance (ANOVA, Appendix O, Table O-1). Analysis of the data showed a significant main effect for Group, $F(2, 84) = 24.88, p < .001$. A Student-Newman-Keuls (SNK) test of means revealed that all three groups (Normal $M = 30.00$; Severity $M = 22.43$; Clinical $M = 13.37$) were significantly different from each other. Thus, the main predictions that the Severity and Clinical groups would perceive feedback to be lower than the Normal group were supported. Also, the subordinate prediction that the Clinical group would have a lower estimate than the Severity group was upheld. Neither the Task factor nor interaction were significant ($F(1,84) = 0.14$; $F(2,84) = 1.52$, respectively).

Table 4

Descriptive Statistics for Task Perception Variables

Variable Task	Group		
	Normal	Severity	Clinical
Task Feedback			
Contingency Estimation			
M	27.40	23.87	13.47
SD	13.15	7.31	5.79
Word Association			
M	32.60	21.00	13.27
SD	11.30	7.82	7.28
Task Control			
Contingency Estimation			
M	22.80	29.87	15.13
SD	27.19	27.44	19.93
Word Association			
M	51.67	36.93	37.60
SD	33.32	19.84	29.83

Note. Group x Task cell $n=15$.

Task Control. An ANOVA was also conducted on this variable. It showed that the groups were not significantly different, $F(2,84) = 1.28$, n.s. (Table 0-1). Thus, the principal predictions that the Severity and Clinical groups would estimate degree of control to be lower than the Normal group were not upheld, nor was the secondary prediction about a difference between the Severity and Clinical groups confirmed. There was, however, a significant main effect for Task, $F(1,84) = 11.95$, $p < .001$. The mean for the Alloy & Abramson (1979) task (Contingency Estimation $M = 22.60$) was lower than the mean for the Wener & Rehm (1975) task (Word Association $M = 42.07$). The interaction effect was not significant, $F(2,84) = 1.32$.

Self Perception Variables

Cognitive Triad Measures. A multivariate analysis of variance (MANOVA) was conducted on the six major measures pertaining to Beck's (1967; 1976) theory (Appendix O, Table 0-2). The MANOVA revealed that the multivariate F value (3.01) for the Group factor was statistically significant ($p < .001$). The multivariate F for Task was also significant ($F = 2.76$, $p < .02$), but the interaction was not ($F = 1.76$, n.s.). Thus, the Group and Task univariate F value for each measure was examined for significance. Where significant F 's occurred, in relation to the Group factor, SNK tests of means were undertaken. The means and standard deviations for the Group X Task cells of each cognitive triad

variable are presented in Table 5.

The first of the two measures of view of world (experience) was a rating of performance versus the subject's own standard (Personal Standard). The data showed a significant main effect for Group, $F(2,84) = 10.80$, $p < .001$. A test of the group means showed that the Clinical subjects ($M = 1.60$) gave lower ratings than the Normal and Severity subjects ($M = 3.10$ and $M = 2.90$, respectively). Therefore, the principal prediction about a Normal versus Severity group difference was not confirmed. The other main prediction was supported, in that the Clinical group gave more pessimistic ratings of performance than the Normal group. The secondary prediction about a difference between the Severity and Clinical groups was supported. The Personal Standard data also showed a main effect for Task, $F(1,84) = 6.97$, $p < .01$. The subjects assigned to the Contingency Estimation task ($M = 2.91$) gave higher ratings than those who did the Word Association task ($M = 2.16$).

The second world view measure was Other Standard, a rating of one's own performance versus the perceived performance of others. The ANOVA revealed a main effect for Group, $F(2,84) = 10.29$, $p < .001$. On the SNK test, the Clinical group ($M = 2.43$) was significantly lower than the other two groups (Normal $M = 3.90$; Severity $M = 3.50$). This finding did not support the Normal-Severity difference prediction, but it did confirm the other principal

Table 5
Descriptive Statistics for Cognitive Triad (Beck) Variables

Variable Task	Group		
	Normal	Severity	Clinical
Personal Standard			
Contingency Estimation			
M	3.73	3.33	1.67
SD	1.39	1.99	1.11
Word Association			
M	2.47	2.47	1.53
SD	0.92	1.60	0.74
Other Standard			
Contingency Estimation			
M	4.13	4.33	2.33
SD	1.19	1.54	1.29
Word Association			
M	3.67	2.67	2.53
SD	1.05	1.11	1.51
Self Success			
Contingency Estimation			
M	3.87	3.87	2.27
SD	1.36	2.07	1.49
Word Association			
M	3.40	3.27	2.40
SD	1.18	1.71	1.06
Self Failure			
Contingency Estimation			
M	3.73	3.07	4.13
SD	1.75	1.98	2.03
Word Association			
M	3.20	3.60	4.67
SD	1.70	2.03	1.11
Future Success Similar			
Contingency Estimation			
M	50.60	59.20	33.93
SD	23.39	22.33	18.25
Word Association			
M	46.53	38.47	26.53
SD	21.49	13.46	12.82
Future Success Other			
Contingency Estimation			
M	64.67	71.73	65.80
SD	13.21	18.82	12.66
Word Association			
M	66.00	64.53	61.73
SD	9.06	11.95	13.49

Note. Group x Task cell n = 15.

prediction, since the Clinical and Normal groups showed a difference. The subordinate prediction about the Severity and Clinical group difference was upheld. There was also a significant Task effect, $F(1,84) = 5.57, p < .05$. The Contingency Estimation task subjects ($M = 3.60$) gave higher ratings than those who were presented the Word Association task ($M = 2.96$).

Two of the major measures involved view of self ratings. The first consisted of the subjects rating the extent to which they considered themselves successes, as a function of task performance (Self Success). A significant main effect for the Group factor was found, $F(2,84) = 7.01, p < .01$. The SNK test showed that the Clinical subjects ($M = 2.33$) made lower ratings than the Normal and Severity subjects ($M = 3.63$ and $M = 3.57$, respectively). Thus, with this measure, the principal prediction about a Normal versus Clinical group difference was upheld and the secondary prediction was supported. The Task effect was not significant, $F(1,84) = 0.95, n.s.$

In contrast to the first self view measure, the second measure (Self Failure) involved rating self as a failure. The ANOVA resulted in a main effect for Group, $F(2,84) = 3.14, p < .05$. The test of means, however, revealed no significant differences among the subject groups (Normal $M = 3.47$, Severity $M = 3.33$, Clinical $M = 4.40$). Consequently, neither the main nor subordinate predictions were supported.

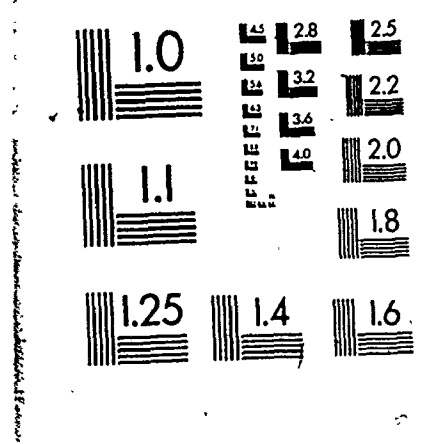
No significant effect for Task was found, $F(1,84) = 0.22$, n.s.

The third set of cognitive triad variables focused on view of the future. One of the two measures was Future Success Similar, and it involved rating future success on a similar task. A Group effect was found ($F(2,84) = 9.36$, $p < .001$) and an SNK test of the means was undertaken. The Clinical subjects ($M = 30.23$) were found to differ significantly from the other two groups (Normal $M = 48.57$ and Severity $M = 48.83$). This confirmed one of the two principal predictions, in that the Clinical group (but not the Severity group) differed from the Normal group. The secondary prediction of a Severity-Clinical difference was supported. The Future Success Similar measure also showed a significant main effect for Task, $F(1,84) = 7.11$, $p < .01$. The Contingency Estimation task subjects ($M = 47.91$) gave higher ratings than the Word Association task subjects ($M = 37.18$).

The other view of the future variable (Future Success Other) concerned future success rating on some other task. The ANOVA did not show a significant main effect for Group, $F(2,84) = 0.80$, n.s. Thus, neither the principal nor subordinate predictions regarding this measure were supported. The Task effect was also not significant, $F(1,84) = 1.35$, n.s.

Learned Helplessness Measures. Five of the major self perception variables were related to Seligman's (1975;

2



Abramson et al., 1978) theory of learned helplessness. Their cell means and standard deviations are given in Table 6. The analysis of variance results are displayed in Appendix O, Tables O-3 and O-4.

The central tenet of the learned helplessness theory, expectation of future noncontingency, was measured by a rating of the control the subjects thought they would exhibit over a similar task in the future (Future Control). This variable was analyzed separately from the other learned helplessness variables, due to the former's theorized relationship to the latter. That is, the other variables are considered to be secondary cognitive components in a sequential chain of factors which culminate in helplessness deficits (Abramson et al., 1978; Alloy, 1982). Given the prime theoretical importance of Future Control (relative to the other helplessness measures) statistically equalizing their value, by combining them in a MANOVA, seemed inappropriate. Further, as mentioned earlier, not all of the causal attribution data was considered relevant for hypothesis-testing. This circumstance necessitated separate analysis of attribution information, anyway.

The ANOVA on Future Control revealed a significant Group effect, $F(2,84) = 4.11, p < .02$. On the SNK test of means, the Clinical subjects ($M = 35.20$) were found to have made lower control ratings than the Normal subjects ($M =$

Table 6

Descriptive Statistics for Learned Helplessness(Seligman) Variables

Variable Task	Group		
	Normal	Severity	Clinical
Future Control			
Contingency Estimation			
M	45.93	52.67	31.60
SD	27.41	26.22	23.93
Word Association			
M	59.20	39.73	28.80
SD	30.23	14.51	15.66
Future Motivation			
Contingency Estimation			
M	6.20	6.07	5.73
SD	0.77	1.03	1.58
Word Association			
M	6.40	6.33	6.33
SD	0.83	1.05	0.98
Internality			
Contingency Estimation			
M	5.80	5.50	5.77
SD	0.45	1.38	1.88
n ^a	5	6	13
Word Association			
M	4.91	5.33	4.71
SD	1.51	0.98	1.38
n	11	12	14
Stability			
Contingency Estimation			
M	4.60	5.17	5.69
SD	1.14	1.60	1.31
Word Association			
M	5.09	5.67	5.57
SD	1.87	1.07	1.09
Globality			
Contingency Estimation			
M	3.60	5.00	5.15
SD	1.52	2.10	1.99
Word Association			
M	4.55	5.08	5.36
SD	1.44	1.38	1.65

Note. Group X Task cell $n = 15$, except for the attribution measures.

^a The cell n 's for the attribution measures (Internality, Stability, Globality) were those indicated in the table.

52.57), while the Severity subjects ($M = 46.20$) did not differ significantly from the other two subject groups. Thus, the first principal prediction about a difference between the Normal and Severity groups was not supported, neither was the subordinate prediction about a Severity-Clinical difference. The second principal prediction regarding a difference between the Normal and Clinical groups did, however, receive empirical support. The Task and interaction effects were not significant ($F(1,84) = 0.25$, n.s.; $F(2,84) = 2.50$, n.s., respectively).

As Future Control and the causal attribution measures were analyzed separately, the remaining learned helplessness measure (Future Motivation) was examined in an ANOVA. The ratings, regarding motivation on a similar task in the future, showed no significant Group ($F(2,84) = 0.47$, n.s.), Task ($F(1,84) = 2.48$, n.s.), or interaction effect ($F(2,84) = 0.30$, n.s.). Consequently, the findings on this measure did not confirm any of the learned helplessness predictions.

The attributional aspect of the reformulated theory of learned helplessness (Abramson et al., 1978) was represented in this study by measures adopted from the Attribution Style Questionnaire (ASQ; Seligman et al., 1979). The measures address the attribution dimensions of Internality, Stability, and Globality. These variables were examined in a MANOVA independent of the other learned helplessness variables

because not all the 90 subjects were included in the analysis, for hypothesis-testing. As already described, only the 61 subjects that viewed the task experience as having had a "bad outcome" were included in the MANOVA. The separation of subjects on the basis of bad and good outcome (Bad/Good) endorsements stems from the theoretical distinction (Abramson et al., 1978) between the two outcome valences, in terms of what is considered to represent helplessness attributions. From the perspective of learned helplessness; depressed individuals tend to attribute negative outcomes to internal, stable and global causes, and positive outcomes to external, unstable and specific causes, more than do nondepressed persons. The decision to focus primarily on the "bad outcome" rests on research findings cited earlier. The findings have tended to be more supportive of this outcome valence, as providing a context in which depressed and nondepressed people differ regarding causal attributions.

The "bad outcome" MANOVA on the three causal attributions (Internality, Stability, Globality) revealed a nonsignificant multivariate F value (0.90) for Group effect. Thus, neither the principal nor secondary predictions about helplessness attributions were upheld. The multivariate F 's for the Task factor (2.04) and Group x Task interaction (0.38) were also not significant.

A MANOVA was also conducted on the causal attribution ratings made by the (29) subjects who perceived the task as

having a "good outcome" (Appendix O, Table 0-5). None of the multivariate F 's were significant (Group $F = 1.12$, Task $F = 1.51$, interaction $F = 0.59$). Thus, the attribution data showed no differences as a function of subject group, task, or interaction, for either bad or good outcome perceptions.

Self-Efficacy Variables

The means and standard deviations of the two self-efficacy measures (Task Confidence, Future Confidence) are presented in Table 7. When the data was subjected to a MANOVA, the multivariate F value for Group effect was found to be significant, $F = 4.32$, $p < .01$ (Appendix O, Table 0-6). The Task factor did not show a significant multivariate effect ($F = 1.28$, n.s.), but the interaction of the two factors did ($F = 4.30$, $p < .01$).

Subsequently, an ANOVA was conducted on Task Confidence, a retrospective rating of self-confidence during the task. The results revealed a significant Group effect, $F(2,84) = 6.67$, $p < .01$. In an SNK test of means, the Clinical group ($M = 36.23$) was found to have given a lower average rating than the Normal ($M = 50.73$) and Severity ($M = 53.60$) groups. Thus, the main prediction pertaining to a difference between the Normal and Clinical groups was supported. The secondary prediction about a difference between the Severity and Clinical subjects was upheld.

Table 7

Descriptive Statistics for Self-Efficacy (Bandura)Variables

Variable Task	Group		
	Normal	Severity	Clinical
Task Confidence			
Contingency Estimation			
M	44.67	67.40	38.20
SD	23.01	21.37	18.64
Word Association			
M	56.80	39.80	34.27
SD	21.46	16.39	16.64
Future Confidence			
Contingency Estimation			
M	48.80	64.27	44.13
SD	23.50	19.10	18.83
Word Association			
M	58.27	50.00	34.27
SD	10.12	13.67	16.10

Note. Group x Task cell $n = 15$.

The ANOVA on Task Confidence also showed an interaction effect ($F_{2,84} = 7.68, p < .001$), which is displayed in Figure 1. As reflected in the display, the Clinical subjects assigned to each task made similarly low ratings. In contrast, the Task Confidence mean rating for the Normal subjects was relatively low on the Contingency Estimation task but high on the Word Association task, while the Severity group means provided a distinct, inverse relationship to the Normal group means.

The univariate analysis on the second self-efficacy measure (Future Confidence) also revealed a significant main effect for Group, $F_{(2,84)} = 8.90, p < .001$. A test of means showed that the Clinical subjects ($M = 39.20$) rated themselves as less confident about being able to do well on similar tasks than did the Normal ($M = 53.53$) and Severity subjects ($M = 57.13$). As with the other self-efficacy variable, the principal prediction about a difference between the Normal and Clinical groups was upheld and the subordinate prediction about a Severity-Clinical difference was supported.

Again, the ANOVA indicated an interaction effect ($F_{(2,84)} = 3.94, p < .05$). The display of the interaction (Figure 2) shows it to be very similar to the interaction effect for the other self-efficacy measure (Task Confidence). The inverse relationship between the Normal and Severity group means pertaining to task is, however, less pronounced.

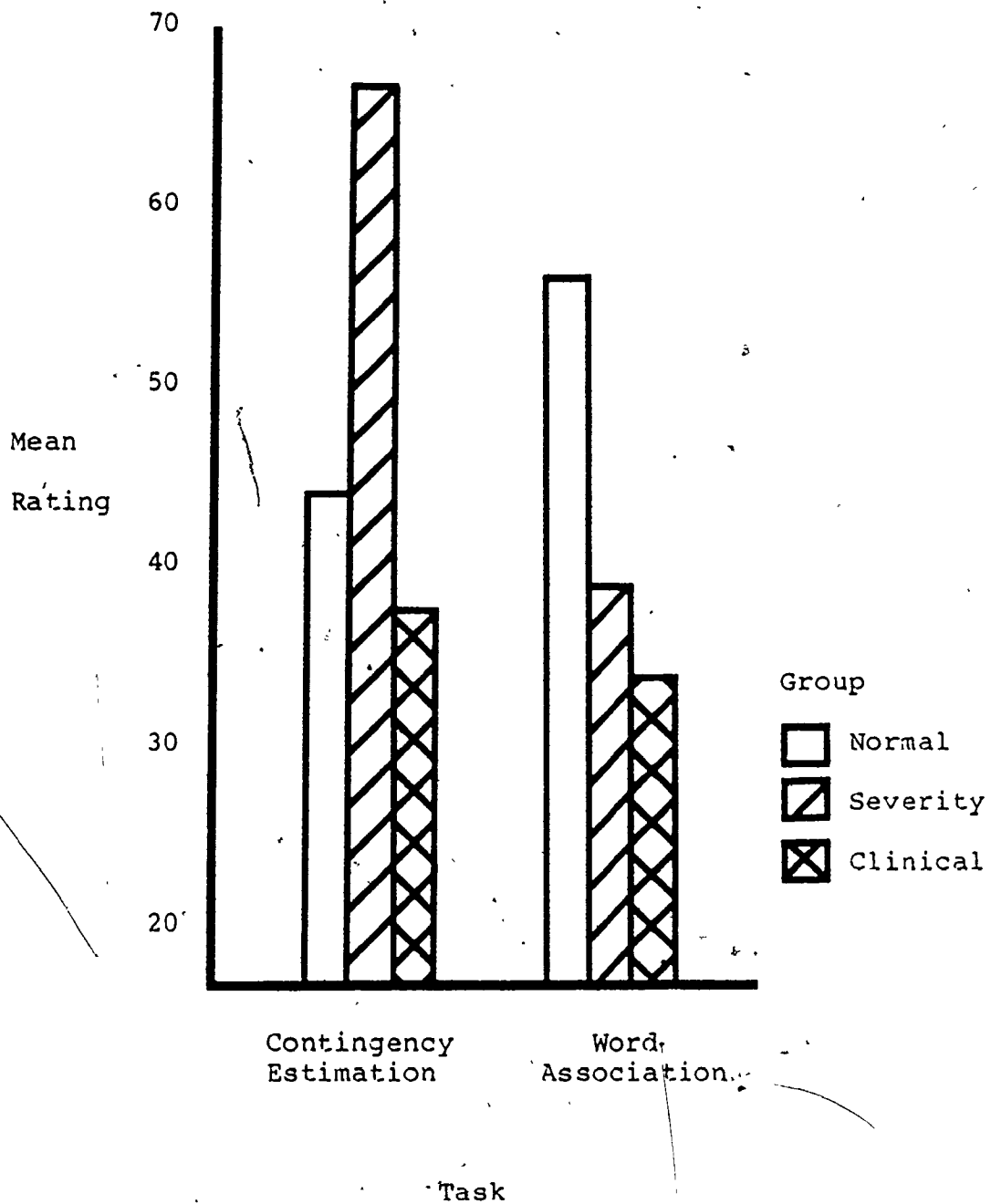


Figure 1. The Group X Task interaction for Task Confidence

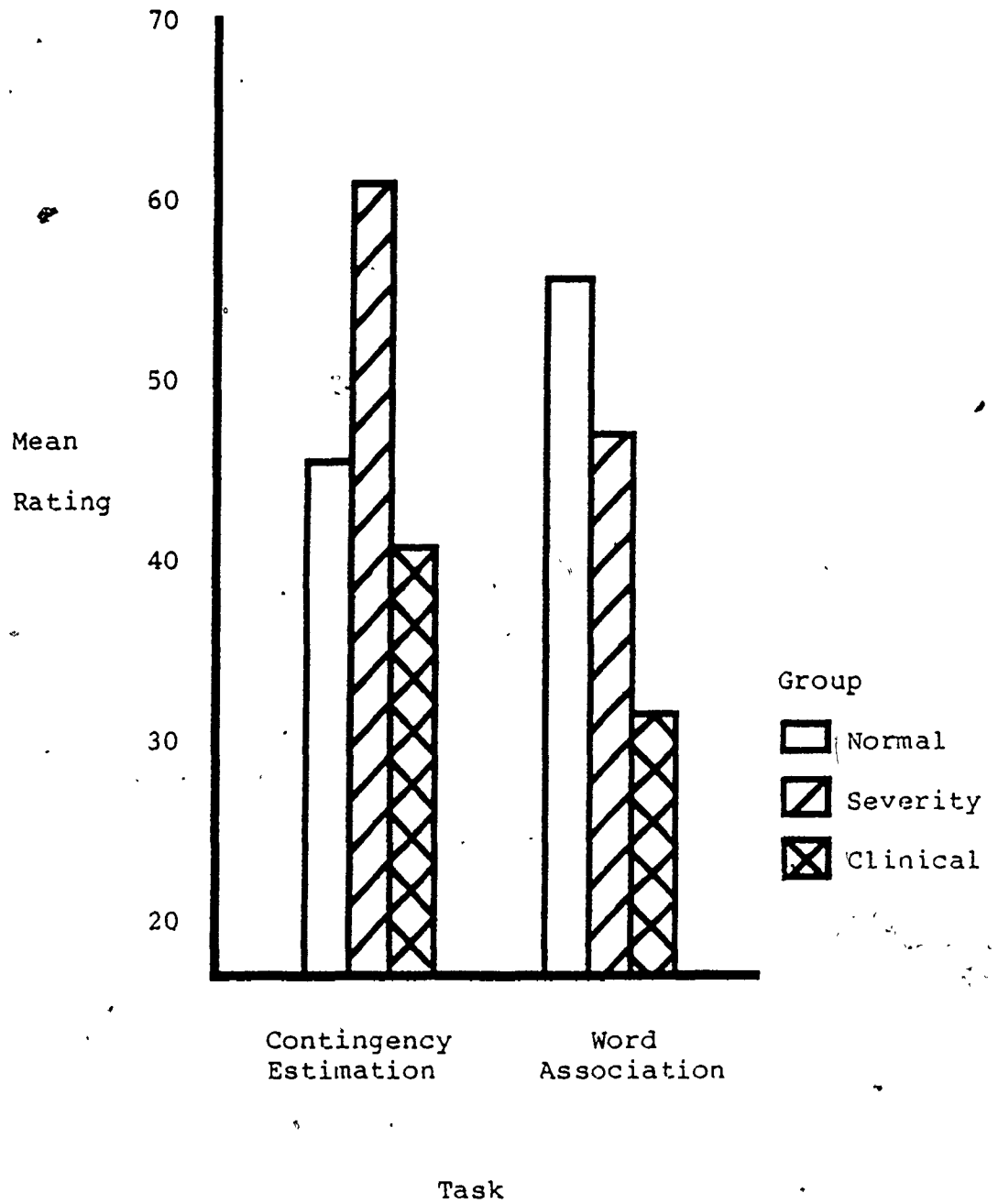


Figure 2. The Group X Task interaction for Future Confidence

Major Dependent Variables: Relationship Analyses

Bivariate Correlation Analyses

Pearson product-moment correlations were conducted on the major dependent variables, to examine the strength of association among them. This statistical approach was considered appropriate for all the variables on the basis of findings by Havlicek & Peterson (1977). They employed Monte Carlo procedures to investigate the effects of violations of assumptions associated with the Pearson r and found it to be "robust to rather extreme violations of basic assumptions of normality and type of scale used" (Havlicek & Peterson, 1977, p. 376).

The correlation coefficients for the bivariate analyses are listed in Table 8. The Pearson r coefficients reflect relatively strong associations among most of the cognitive triad variables (#3-#7), with the exception of Future Success Other (#8). All the Beck triad variables, except for Other Standard (#4), were notably related to both of the self-efficacy variables (#14, #15). Other significant correlations are between: Task Feedback (#1) and three cognitive triad variables (#4, #5, #7), as well as one of the efficacy variables (#15); Task Control (#2) and Future Control (#9); Future Success Similar (#7) and Future Control (#9); and, the two self-efficacy variables (#14, #15).

Table 8

Correlations Among Major Dependent Variables

Variable	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Task Feedback	.11	.33	.39*	.37*	-.20	.45**	.11	.31	.03	-.01	-.22	-.06	.35	.36*
2. Task Control	-	.23	.09	.19	-.16	.16	-.04	.51**	.16	-.02	.02	.14	.26	.29
3. Personal Standard	-	-	.52**	.69**	-.41**	.46**	.17	.18	.17	.04	-.07	.24	.51**	.41**
4. Other Standard	-	-	-	.57**	-.36*	.34	.35	.16	-.01	-.22	-.03	-.29	.47**	.28
5. Self Success	-	-	-	-	-.64**	.49**	.24	.20	.16	-.29	-.04	-.01	.58**	.52**
6. Self Failure	-	-	-	-	-	-.17	-.19	-.01	.07	.12	.00	.10	-.41**	-.36*
7. Future Success Similar	-	-	-	-	-	-	.25	.42**	.22	.16	-.26	.15	.55**	.64**
8. Future Success Other	-	-	-	-	-	-	-	.11	.12	-.09	.09	-.23	.47**	.41**
9. Future Control	-	-	-	-	-	-	-	-	.13	-.11	-.25	-.15	.35	.34
10. Future Motivation	-	-	-	-	-	-	-	-	-	.06	.28	.15	.02	.21
11. Internality	-	-	-	-	-	-	-	-	-	-	.17	.20	.02	.14
12. Stability	-	-	-	-	-	-	-	-	-	-	-	.27	-.06	-.04
13. Globality	-	-	-	-	-	-	-	-	-	-	-	-	-.06	.15
14. Task Confidence	-	-	-	-	-	-	-	-	-	-	-	-	-	-.73**
15. Future Confidence	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note. $n = 90$, except for correlations involving the attribution measures (Internality, Stability, Globality, n = 61).

* $p < .05$, two-tailed. ** $p < .01$, two-tailed. Critical values for significance (+.36 and +.40, respectively) were determined via the Bonferroni procedure for many correlations (Harris, 1976; Larzelere & Mulaik, 1977).

Factor Analysis

The major dependent variables were also subjected to a factor analysis, to investigate the communality among the variables further. Specifically, the factor analysis was employed to serve two exploratory functions (cf., Gorsuch, 1974). One, it was to provide information about which variables were most strongly related to the same factors (areas of generalization or hypothetical variates) and the strength of the relationships. Two, the factor analysis would identify the relative "importance" of each factor, within the context of the variables and data.

Prior to conducting the factor analysis, consideration was given to the issue of whether to include the attribution variables. It was decided that they would be left out of the analysis. Their inclusion would have meant limiting the number of subjects in the analysis to 61 (of 90). Also, if the attribution measures had been in the analysis, the variable to subject ratio (1:4) would have been about half of the ratio resulting from their exclusion (1:7.5). The former falls below the ratio minimum (1:5) which Gorsuch (1974) recommends, in the interest of meaningful factor analytic results. Further, the relatively low bivariate correlations of the attribution measures with each other and the other dependent variables suggests limited contribution to major factors, (Gorsuch, 1974; Harman, 1976).

The number of "non-trivial" factors was determined by the scree test (Gorsuch, 1974). The plotted characteristic roots (eigenvalues) revealed 3 principal factors (Table 9). The first factor (root = 4.66) accounted for 38.9% of the variance. This hypothetical variate can be titled, Current Self-Evaluation, to reflect the variables which loaded highest on this factor. The variables were: all the cognitive triad measures pertaining to view of world and self (Personal Standard, Other Standard, Self Success, Self Failure); self-efficacy regarding the task (Task Confidence); and, perceived feedback (Task Feedback). The second factor (root = 1.51, variance = 12.6%) primarily reflected Future Self-Evaluation, as indicated by the two (cognitive triad) view of future variables (Future Success Similar, Future Success Other), self-efficacy regarding the future (Future Confidence) and the helplessness measure of motivation at a future task (Future Motivation). The third factor (root = 1.13, variance = 9.4%) involved only high loadings on the two variables pertaining to judgment of control (Task Control, Future Control) and was designated, Contingency Evaluation. In summary, the factor loadings of the variables present concise and seemingly meaningful groupings of the major dependent variables.

Table 9

Factor Matrix with Variable Loadings

VARIABLE	FACTOR 1	FACTOR 2	FACTOR 3
Task Feedback	.44* ^a	.23	.28
Task Control	.15	-.05	.82*
Personal Standard	.74*	.16	.20
Other Standard	.71*	.20	-.05
Self Success	.85*	.19	.13
Self Failure	-.79*	.11	.03
Future Success Similar	.38	.62*	.34
Future Success Other	.22	.73*	-.30
Future Control	.07	.30	.77*
Future Motivation	-.16	.47*	.25
Task Confidence	.62*	.54	.18
Future Confidence	.45	.65*	.27

Note. N = 90. The factor matrix was obtained via the method of principal factoring without iteration and the varimax orthogonal-factor rotation solution (Kim, 1975).

^aThe asteriks indicate the factor on which a variable has the highest loading.

Summary of Results

The study involved a 3 x 2 factorial design, with the between-subject factors of subject Group and Task, respectively. The dependent variables were examined via relevant descriptive and inductive statistics.

The principal prediction about a difference between the Normal and Severity depression groups was supported by only one variable, the task perception measure of Task Feedback. The other principal prediction, concerning a Normal-Clinical group difference, was also upheld by Task Feedback, as well as most of the cognitive triad variables, the major helplessness variable, and both of the self-efficacy variables. The secondary prediction about a Severity-Clinical difference was supported by the same variables that upheld the latter principal prediction, with the exception of the learned helplessness variable, Future Control.

The analyses of variance conducted on the major dependent variables also revealed some significant Task and interaction effects. Task differences were found for one of the task perception variables (Task Control) and three of the six cognitive triad variables. Interaction effects only occurred for the two self-efficacy variables.

Relationship analyses on the major variables showed that many of the measures were significantly correlated with each other. A factor analysis revealed three non-trivial factors reflecting: 1) Current Self-Evaluation; 2) Future

Self-Evaluation; and, 3) Contingency Evaluation.

Statistical examination of the BDI and pre-task descriptive measures consistently showed a difference between the Normal group and the Clinical depression group (see Appendix P). Two of the four variables disclosed a difference between the Normal and Severity groups. These measures were also found to be significantly interrelated.

Analyses of the minor dependent variables primarily disclosed task differences (see Appendix Q). The differences revealed that the subjects generally made lower ratings for the Alloy & Abramson (Contingency Estimation) task than for the Wener & Rehm (Word Association) task, on the pre-task variables. Subsequent to task completion, half of the variables showing Task effects also had the same type of task difference, while the other variables disclosed higher ratings for the former than the latter task. The stress measures tended to show Group differences between the nondepressed (Normal) and depressed subjects (Severity & Clinical).

CHAPTER IV

DISCUSSION

Hypothesis Summary

Tests of the hypotheses generally showed support for Beck's (1967; 1976) cognitive theory of depression, and, to a much more limited extent, revealed some support for Seligman's (1975; Abramson et al., 1978) learned helplessness theory. These conclusions stem from the fact that the results for most of the variables considered relevant to Beck's theory, but only those for the main variable pertaining to Seligman's theory, substantiated principal experimental predictions.

Bandura's (1977) self-efficacy concept also received support. Since a principal prediction advanced concerning the self-efficacy variables was confirmed by the data, the self-efficacy hypothesis was supported (Cozby, 1981).

The principal predictions, about a difference between the Normal and Severity subject groups, was confirmed by only one of the major variables. This fact suggests that individuals defined as depressed solely on the basis of a modest severity criterion do not tend to differ from nondepressed persons in their self-referent perceptions. In contrast to the first principal prediction, the second one, concerning a Normal-Clinical difference, was upheld by most of the variables pertaining to Beck's theory, the main helplessness measure, and both of the self-efficacy variables.

Consequently, people considered to be depressed on the basis of severity plus diagnostic criteria appear to have more negative perceptions of feedback and especially of themselves than do nondepressed individuals. The subordinate prediction, regarding a Severity-Clinical difference, was confirmed in nearly every instance where there was a Normal-Clinical difference. This finding suggests that people, defined as depressed according to severity plus diagnostic criteria, tend to have more negative self perceptions than persons viewed as depressed only according to a severity criterion.

Beck's Cognitive Theory

Task Perception

Part of the examination of Beck's (1967; 1976) cognitive theory of depression was conducted in terms of a frequently employed task perception variable, Task Feedback. As indicated in the Introduction, the findings on this variable have been equivocal, especially under circumstances of low rate of feedback (cf., Shaw and Dobson, 1981). The results of the current study showed that all three subject groups (Normal, Severity, Clinical) were different in their perception of feedback - in the predicted direction.

The feedback perception results of this study are consistent with those cited in recent research reports (Dykman & Volpicelli, 1983; Johnson, Petzel, Hartney &

Morgan, 1983; Sharp & Tennen, 1983). Dykman and Volpicelli (1983) found that (BDI) depressed students gave "negatively biased" perceptions of feedback, but only on the latter half of 40 trials. Johnson et al. (1983) also employed students in their study and operationally designated them as depressed if they scored above 11 on the BDI. Their results show a depressive tendency to recall more uncompleted than completed tasks, which the authors viewed as an extension of depression research findings on underestimation of positive feedback. In another study (Sharp & Tennen, 1983), it was reported that the depressed students (BDI>10) underestimated their performance compared to nondepressed counterparts.

It would seem that a severity depression criterion can adequately identify individuals who tend to have relatively negative perceptions of feedback (especially, if the feedback is positively valenced). The results of the current study also suggest that such a negative perception is even more quantitatively pronounced when the depressed persons are defined on the basis of both severity and diagnostic criteria.

Self Perception

The other part of the investigation of Beck's theory involved his well-known perceptual framework (e.g., Guidano & Liotti, 1983) - the cognitive triad. Within the context of this study, exploration of the cognitive triad essentially consisted of each component of the triad being

assessed by two rating scales.

World View. To determine whether the subject groups showed different post-task views of the world (self-referent experience), they were asked to complete two rating scales. The measures involved comparison of perceived personal performance with one's own standard (Personal Standard) and with the surmised performance of others (Other Performance), respectively. The results from the items showed some support for the self perception hypothesis. That is, while the Normal and Severity groups did not differ, the Clinical group gave significantly lower ratings than the other two groups. Thus, a relatively negative world view (as defined by the measures) was found to exist among the women who met severity plus diagnostic depression criteria. This interpretation is lent additional support from the finding (Failed/Succeeded) that more Clinical subjects tended to view their performance as failure (rather than success) than did the other (Normal and Severity) subjects. Further support comes from similar experimental results in a university study (Smits and Oliver, 1982). The results were interpreted by Smits and Oliver (1982) as indicating that depression in students ($BDI > 15$) is "associated with a more negative view of the world" (p. 452). More recently, Bryson, Doan and Pasquali (1984) found depressed students gave relatively "self-critical" evaluations about their performance on a contingency,

evaluation task.

Two adjunct measures were included in this study to help determine the extent to which the subjects perceived their performance to be representative of them for the type of task (Representative Specific) and in general (Representative General). The absence of group differences indicates that task and self-referent perceptions of the depressed subjects occurred within a subjective performance context not unlike the nondepressed subjects. Also, the subjects generally perceived their performance as moderately representative. Thus, it would seem reasonable to assume that the negative world perceptions, presented by the more diagnostically-defined depressed (Clinical) women, were not peculiar to the particular experimental circumstance or occasion. If the assumption is valid, the general inference is that their negative view of experience tended to reflect more than temporary cognitions.

Self View. Another component of the triad is negative view of oneself. This component was primarily measured by two rating scales that logically and statistically ($r = -.64$, $p < .001$) have an inverse relationship. The subjects were asked to rate themselves as successes (Self Success) and failures (Self Failure), as a function of perceived task performance. The success rating of the Clinical group was significantly lower than the other groups. On the failure rating, the groups were not found to differ from

each other. Therefore, it would appear that a negative self view in depression is more relevant to a conceptualization of oneself in terms of not being a success than being a failure. Lewinsohn, Larson and Munoz (1982) also found research evidence suggesting depressive expectancies "pertaining to the self" (p. 443). Further, a study by Kuiper and Cole (1983) produced results which they concluded as supporting Beck's "theoretical notion that depressives have a negative view of self..." (p. 147). In addition, a related finding was presented by Oliver and McGee (1982), who concluded that "highly depressed subjects described the self as less good than" others (p. 283). Of particular interest is the fact that, in their study, the negative self view was present only for a group of depressed subjects who had "high" (>15) BDI scores but was not evidenced for a group of mildly depressed subjects (BDI>9<16).

A supplementary measure considered relevant to view of self was presented in this study. It consisted of a rating scale which inquired about the importance of the task, in terms of self view (Task Importance). As no rating differences were found among the subject groups, the self perception of the diagnostically depressed subjects (Clinical), as less of a success than the other two groups, did not appear to be confounded by perceived task importance.

Future View. The third component of the triad focuses on a negative view of the future. Rating scales about expected future success on a similar task (Future Success Similar) and some other type of task (Future Success Other) were operationally defined as providing indices of this view. The Clinical group had lower ratings than the Normal and Severity groups on the former measure (Future Success Similar), but no differences were found on the latter (Future Success Other). The lack of similar findings on the two measures is explicable in terms of limited task generalizability. That is, perception of success on a just-completed task seemed to have implications for performance expectations regarding only similar tasks. This explanation is lent empirical support by the correlations between feedback perception (Task Feedback) and success on a similar task (Future Success Similar; $r = .45$, $p < .001$) versus success on some other task (Future Success Other; $r = .11$, n.s.).

Other studies (e.g., Lewinsohn et al., 1982; Weckowicz et al., 1981) have also found depressed persons to give some indications of a negative view of the future, especially subsequent to a failure experience. The results of this study raises the question of how extensive the negative future view is. The current results suggest depressed women tend not to generalize their failure perceptions to other types of tasks.

Summary

This study showed that a severity depression criterion by itself, and in combination with diagnostic criteria, can serve to identify persons who tend to make negative judgements of feedback. The results of the cognitive triad variables suggest that diagnostically-defined depressed women tend to view a low feedback task experience as a relatively negative, self-referent event. In addition, this general perception pertains not only to the present but also to similar circumstances in the future. This conclusion is consistent with one drawn by Carver & Ganellen (1983). They found a tendency in depression to "overgeneralize" from a single failure to negative judgments concerning oneself. The support found for Beck's cognitive theory is also consistent with the findings of a clinical study by Giles (1982). In spite of having primarily developed her cognitive triad measures via a secondary source (Diggory, 1966) and with less of a self-referent emphasis, her results were similar to those of the current study. That is, depressed female psychiatric inpatients gave more negative evaluations of world, self and future than did nondepressed female psychiatric inpatients and "normal female medical patients".

Seligman's Learned Helplessness Theory

Task Perception

The research prediction, that the depressed subjects would estimate their control over the task outcome to have been less than the nondepressed subjects, is one that has often been advanced as a test of Seligman's (1975; Abramson et al., 1978) theory of depression (cf., Miller & Norman, 1979). In the low feedback circumstance of the current study, the prediction for this retrospective task judgment (Task Control) was not supported. Recent tests of contingency in depression (e.g., Bryson et al., 1984) have also failed to furnish evidence for the prediction. It should be noted that, in this study and many others, the task outcome was experimenter-controlled. In such a noncontingent circumstance, an experimental bias would appear to exist against relative underestimation of control and would certainly be present in tests of objective control estimation. In any case, retrospective perception of contingency does not seem to be central to Seligman's (1975; Abramson et al., 1978) theory, and may not be a necessary prerequisite for perceived helplessness (Williams, 1984). Thus, past and present findings, which have not shown a depressive tendency to underestimate past control, might not address the adequacy of the learned helplessness theory as much as the appropriateness of the measure and experimental circumstances for testing the theory.

Self Perception

Control expectancy. A variable, which plays a more central and crucial role in Seligman's (1975; Abramson et al., 1978) theory, than retrospection on control, is expectation of future noncontingency. This variable was measured by way of a rating of perceived control over a similar task in the future (Future Control) and was intended to elicit information on the implication of a (noncontingent, low feedback) situation for expectation of control over similar task situations in the future. The severity-defined depression (Severity) group did not differ significantly in their control expectation from the other two groups. The subjects defined as depressed on the basis of severity plus diagnostic criteria (Clinical) were, however, found to give lower expectancy of control estimates than the nondepressed (Normal) subjects.

Although expectation of noncontingency is generally recognized as the critical component of the learned helplessness theory (e.g., Alloy, 1982; Coyne & Gotlib, 1983), it has received little empirical scrutiny. This circumstance is all the more puzzling in the light of the amount of research on less crucial components of the theory, such as retrospective control perception, and even on indirect indicies of learned helplessness. The more recent investigations of less central aspects of the theory (e.g., Bryson et al.; 1984, Greer & Calhoun, 1983; Weckowicz et

al., 1981) have tended to provide no support. The threat that such findings present to the theory of learned helplessness seems, however, quite limited - especially when compared to the support found for the pivotal component, in the current study.

Motivation. Motivational deficit is a variable which, according to the learned helplessness theory, is a consequence of expectancy of noncontingency. The relative presence of such a deficit was measured in a rating scale on motivation to do well on a similar task in the future (Future Motivation). The motivation measure did not prove to distinguish the groups. Nor did the subjects differ in motivation to do well, in general, in the future (General Motivation).

In contrast to the motivation results of this study, the notion of motivational deficit in depression has recently received some empirical support (Layne, Lefton, Walters and Merry, 1983; Layne, Merry, Christian and Ginn, 1982). The discrepancy in findings may be attributable to a number of factors which differentiated these other studies from the current one. Layne et al. (1982, 1983) employed the Minnesota Multiphasic Personality Inventory Depression Scale to identify depressed students, and the experimental contexts differed considerably. Probably the greatest contributor to the discrepancy was, however, their definition of motivation. Layne et al. (1982, 1983)

measured motivation via reward "expectancy x value" ratings.

The operationally-defined measures of motivation, in this study, differed somewhat from the traditional learned helplessness definition of motivation - incentive for initiating voluntary responses (Abramson et al., 1978; Seligman, 1975). The deviation from the traditional definition was promoted by two factors. One, in learned helplessness research, motivation deficit has typically been inferred from reduced initiation of relevant behaviours. Motivation assessment of this nature was considered not to address the perceptual aspect seemingly inherent in decreased motivation and pertinent to this study. Two, on the basis of the potential relevance of achievement motivation to helplessness theory (cf., Alloy, 1982), the current measures (Future Motivation and General Motivation) were constructed to include some sense of motivation to achieve. While the measures appear to have assessed perceptions relevant to some form of motivation, the form is not necessarily closely related to that pertinent to the theory of learned helplessness. Since the theoretical internal validity of the measures is debatable, the threat of the nonsupportive findings, to the theory, must also be questioned.

Causal Attribution. The reformulation of the theory of learned helplessness (Abramson et al., 1978) primarily involved the introduction of attributional mediators between

perception of noncontingency and occurrence of an expectation of future noncontingency. The three dimensions of causal attribution, considered relevant to the theory, are Internality, Stability, and Globality. Perceived helplessness related to depression is viewed, by Abramson et al., (1978), as consisting of internal, stable and global attributions of cause for perceived failures. As described earlier, this proposition has primarily been investigated via the Attribution Style Questionnaire (ASQ; Seligman et al., 1979). In the ASQ, causal attributions are made for hypothetical situations, involving six "bad" and six "good" outcomes. When scoring the questionnaire, the attributions for each type of outcome, are averaged on each attribution dimension. Within the ASQ context, depressed individuals are expected to make relatively helpless attributions (internal, stable, global) for the "bad outcomes". While the current study involved reinforcement and control circumstances which would appear to readily qualify as providing a "bad outcome", it was left to the subject to label the outcome as bad or good (Bad/Good). Consequently, hypothesis testing of causal attributions involved data from only those (61) subjects who considered the task outcome to be bad. The three subject groups were not found to differ in the internality, stability or globality of their attributions of cause for the bad outcome.

The absence of relatively helpless attributions for bad outcomes by the depressed subjects is contrary to some of the findings of ASQ studies with students (e.g., Seligman et al., 1979) and patients (Raps, Peterson, Reinhard, Abramson & Seligman, 1982). The discrepancy may have been contributed to by the fact that the ASQ, per se, was not employed in the present study. The single experimental outcome of this study would appear to be a different context than the six hypothetical bad situations in the ASQ. In particular, a laboratory task (in contrast to the averaged effect of the hypothetical situations) may not have been sufficiently important or personally relevant to promote helpless attributions. The credibility of this explanation is supported by the low rating of self-referent Task Importance given by the subjects in general ($M = 2.48$, $SD = 1.59$, range = 1-7) and the emphasis placed by Miller and Seligman (1982) on "important outcomes" as pertinent to helplessness. Further support for the explanation stems from research findings (cf., Williams, 1984) that collectively suggest that a depressive attributional style is generally only evident in association with "the more stressful life events" (p. 179). While some of the psychometric properties of the ASQ have been studied (e.g., Peterson, Semmel, von Baeyer, Abramson, Metalsky & Seligman, 1982), no mention was found in the literature of exploration of the extent to which the individual hypothetical

situations appear to contribute to helpless attributions. Some of those situations, taken individually, may also not result in attributions of helplessness. In addition, at least two studies (Blaney et al., 1980; Golin et al., 1981), which have employed the ASQ in its entirety, have found only relatively weak and partial support for the presence of helpless attributions in depression. Still other research (cf., Coyne & Gotlib, 1983) has shown no evidence of depressive causal attributions in ASQ findings. Of particular interest is a cognition in depression study by Miller, Klee and Norman (1982), which included the ASQ. From the results, the authors concluded that "depressed patients manifested a greater depressive attributional style in response to stressful life events but did not differ from nondepressed patients in their attributions of hypothetical events or experimental tasks" (p. 78).

Some empirical support (e.g., Seligman et al., 1979) has also been found for the notion of helpless attributions (external, unstable, specific) for Good outcomes, therefore this issue was also tested. As was the case with the subjects who endorsed bad outcome, the subjects in each group who perceived the outcome to be good did not reveal significant group differences in their causal attributions.

Two adjunct variables, pertaining to causal attribution, were also examined. The ASQ measure of

certainty of cause (Certainty) showed no differences between the subject groups. The other variable involved a two-choice rating question about valence of task outcome (Bad/Good). As already indicated, this variable (while of secondary importance in itself) served a critical role in providing the interpretation context for the attribution ratings. Analyses of frequencies of valence endorsements (see pages Q8-Q9; Appendix Q) revealed that the nondepressed subjects made significantly fewer Bad outcome endorsements than the diagnostically depressed (Clinical) subjects. This finding is consistent with the world view component of Beck's (1967) cognitive triad.

The limited support in past studies, and the lack of it in the present one, collectively imply that the role of negatively-biased causal attribution in depression requires further scrutiny, and delineation on the basis of relevant research findings. Such modification should include consideration of the subjective valence of events (Peterson, 1983); the appropriateness of predetermined attributional dimensions and measures (Anderson et al., 1983); and, the personal importance placed on a situation.

Summary

The empirical support found for the learned helplessness approach to depression was limited to the variable regarding expectancy of future control - the core feature of the theory (Miller & Seligman, 1982). There were

however, no significant findings for variables pertaining to three other components of the revised theory: retrospective perception of (non)contingency, helplessness attributions, and motivational deficit. Consequently, as only the central tenet was supported, the validity of the sequential relationship among the components, as proposed in the reformulated learned helplessness theory, seems questionable.

Self-Efficacy Concept

A hypothetical construct that was given some consideration in this study is Bandura's (1977) concept of self-efficacy. The two measures employed to test the concept were adopted from a previous self-efficacy study (Haines et al., 1980). The measures addressed perception of confidence while having performed the task (Task Confidence) and perceived confidence about doing well on a similar task in the future (Future Confidence). For both variables, the Clinical group gave lower ratings than the other two groups. The absence of a significant difference between the severity depressed (Severity) and nondepressed (Normal) groups is similar to the findings of Moe and Zeiss (1982). They attributed the lack of self-efficacy differences; in their study, to the use of a modest severity criterion ($BDI > 9$) to define their depressed group.

In general, the self-efficacy results suggest that, subsequent to a low feedback situation, 'diagnostically depressed' women tend to have relatively low efficacy perceptions of themselves. A depressive tendency toward negative efficacy evaluation has also recently been noted by others (Barbaree & Davis, 1984; Kanfer & Zeiss, 1983). In addition, the significant correlations between the self-efficacy variables and the cognitive triad variables, in this study, provide some empirical support for the proposition that has been advanced (e.g., Bandura, 1984; Barbaree & Davis, 1984) about a relationship between self-efficacy and other self-referent perceptions.

Major Dependent Variables

In general, the major variables related to the Beck and Bandura theoretical positions showed that the diagnostically-defined depressed subjects (Clinical) had relatively negative perceptions of themselves, subsequent to the task experience. In comparison, the major variables pertaining to Seligman's theory revealed only the crucial component to be relevant to depression.

Post-Task Group Differences

Of note is the presence of the post-task group differences, in the absence of pre-task differences on related variables. That is, prior to undertaking the experimental task, the subjects made ratings which showed no

group differences on expectancy of feedback (Expected Feedback) and control (Expected Control), as well as ability to do well (self-efficacy; Confidence). These findings suggest the task experience served as a precipitant to relatively negative perceptions, about the event and oneself, for the Clinical subjects. The conclusions of Clark and Teasdale (1982) give a seemingly plausible explanation for the pre-post discrepancy. They interpreted their results as indicating that increased depressive affect promotes "an increase in the accessibility of negative cognitions" (p. 93). Such cognitions were thought to include "a more negative interpretation of ongoing experience", "more negative prediction about the future", and reduction in expectation "that their actions will produce positive outcomes" (p. 93-94). The explanation appears to apply to the current study in that the scores on both the pre- and post-task affect measures (DACL1, DACL2) were significantly higher for the Clinical subjects than the other subjects and the post-task scores were generally higher than pre-task. A similar explanation is also inherent in a proposal by Ingram and Smith (1984) that "exacerbation of negative affect" in depression may be a contributant to increased "self-criticism, and pessimism" (p. 147). Others (Riskind & Rholes, 1984; Williams, 1984) have recently advanced a related explanation which also seems relevant to the current results. On the basis of past

research findings, these authors concluded that the negativity of the cognitions of depressed individuals tends to be more pronounced after a failure experience or stressful event. As more of the Clinical depressed subjects rated the task as having had a bad outcome and they found it relatively stressful, it seems safe to conclude that this explanation also applies to the present study. In general, the post-task group differences can be summarized as reflecting a depressive tendency to "generalize a single failure more broadly to the self-concept" (Carver & Ganellen, 1983, p. 330).

Relationships Among Variables

The relationships among the major variables were also examined via bivariate correlational analyses and factor analysis. The former analyses showed correspondence among most of the cognitive triad (Beck) and the self-efficacy (Bandura) variables. The significant correlations among these variables indicate a notable association between some of the self-referent measures. These relationships were further examined by way of a factor analytic procedure.

The results of the factor analysis provide important information about self-referent cognition in depression. This statistical procedure examined concurrently the communality among variables derived from three theoretical positions. The outcome was hypothetical variates (factors)

which tend to transcend each theory. Of particular significance are the first two factors: Current Self-Evaluation and Future Self-Evaluation. As the title assigned to the former factor implies, a subject generally gave similar responses to personally-relevant perception questions pertaining to the present (or recent past). That is, cognitive triad variables for view of world and self appeared to have been conceptually-clustered by the subjects. This finding is consistent with Beck's (1967); Beck et al., 1979) description of "negative cognitive patterns". The fact that perception of task feedback was most closely associated with these variables (albeit with only moderate coefficient strength) lends some support to its purported relevance to Beck's cognitive theory.

- Consistent with Bandura's (1984) position, retrospective perception of self-efficacy would also seem to be related to these cognitions. A recent depression study involving university women (Barbaree & Davis, 1984) also involved a factor analysis on a number of cognitive perception measures. Similar to the present results, it was found that the first of three factors also pertained to self-evaluation.

It is interesting that all of the perceptions of the future, except those concerning control, loaded most highly on the same factor (Future Self-Evaluation). In addition, it is worth noting that this future-directed hypothetical

variate includes variables from all three theoretical sources. This finding suggests that a subject's responses on these measures tended to be influenced primarily by the self-referent orientation toward the future, rather than the focus unique to each theory.

The third and least statistically significant factor (Contingency Evaluation) primarily involved only two variables. Both of these variables stem from Seligman's learned helplessness theory and pertain to control perception. The contingency feature of the retrospective and prospective measures appears to have been the critical link between the variables and sufficiently salient to override the divergent temporal foci.

In general, the relationship analyses, especially the factor analysis, revealed communalities among the variables which suggest conceptual overlap between the cognitive theories of depression. As each factor contained one or more variables which differentiated depressed from nondepressed individuals, each factor appears to reflect a relevant, but conceptually separate feature of cognition in depression. Also, it required variables pertaining to both major cognitive theories to provide significant representation (high variable loadings) on the three factors. This implies that (within operationally-defined limits) neither theory in itself is sufficiently comprehensive to account for all three factors, but both

theories together encompass the hypothetical variates.

Depression Criteria

It is readily apparent from the results of the hypothesis-testing that the diagnostically depressed group (Clinical), but not the severity depressed group (Severity), differed from the nondepressed group (Normal). That is, on those major dependent variables, which revealed group differences, the Clinical subjects were generally found to give more negative ratings than the Normal (and Severity) subjects. This finding leads to two conclusions. First, the depression criterion distinguishing the Normal and Severity groups was not sufficient to provide differences on measures relevant to cognitive theories of depression. The argument that the absence of differences may be due to shortcomings in the theories appears to apply only where such differences did not occur when comparisons are made to the Clinical group - that is, to all the components of the learned helplessness theory except the central construct. Second, the depression criteria for the Clinical group appear more appropriate than the criterion for the Severity group, when defining depression, for the investigation of cognitive distortion.

As the Clinical and Severity depression groups did not differ significantly in terms of severity on the Beck Depression Inventory (BDI), the question arose as to how the

two groups were different. More specifically, what symptom features differentiated the two groups? To explore this issue, discriminant analyses were conducted on the BDI and the Clinical Depression Measure (CDM).

Two discriminant analyses were conducted on the BDI data for the Severity and Clinical subject groups. One analysis approach ("direct method"; Klecka, 1975) was employed to permit the simultaneous evaluation of the discriminant power of all the BDI items. The other analysis ("stepwise selection method"; Klecka, 1975; Neufeld, 1977) was undertaken to determine which items were statistically significant in their discriminating power. On the basis of the direct analysis, it was determined that none of the 21 BDI items helped to discriminate the two groups ($\chi^2(42, N=60) = 23.68, n.s.$). The stepwise analysis did, however, produce a significant function ($\chi^2(12, N=60) = 15.94, p < .02$). In the order of highest to lowest discriminating value, the six significant variables were: Self Punitive Wishes (item 9); Irritability (item 11); Loss of Appetite (item 18); Social Withdrawal (item 12); Weight Loss (item 19); and, Loss of Libido (item 21). Of these items, only item 21 had a higher mean for the Severity than Clinical group. As the latter analysis revealed a significant function, it was decided that the ability of the items, to correctly discriminate depression group membership, would be investigated. Such classification processing resulted in

68.33% accuracy in assigning the subjects to their group.*

The two types of discriminant analyses were also applied to the CDM data of the Severity and Clinical subject groups. The direct analysis showed a significant function (χ^2 (50, $N=60$) = 39.59, $p<.05$), as did the stepwise approach (χ^2 (26, $N=60$) = 40.99, $p<.001$). The latter analysis resulted in the identification of 13 (out of 25) items as significantly discriminating between the two groups.⁵ Given the large number of discriminating variables, only the most powerful were focused on for the subsequent discussion. The first four variables were selected for consideration as only they showed significant chi-square distributions, in terms of contribution to the separation of the groups ("change in \underline{V} "; Klecka, 1975). The four items involve difficulty in interpersonal functioning (5c), depressive affect (2), irritability (3), and appetite decrease (7a). Correct classification of subjects to groups was 88.33% for both discriminant analyses.

Comparison of the most powerful discriminating items of the BDI and CDM revealed a common emphasis on irritability, decrease in appetite and perceived social dysfunction. Of note is the fact that these features primarily reflect dysphoria, and somatic and interpersonal functioning complaints (respectively), rather than endorsements of cognitive difficulty. This finding should not be interpreted as suggesting that cognitive symptoms

were not prominent for the two groups, but that the cognitive dimension did not differentiate between them. Indeed, given the emphasis on cognitive symptoms in the BDI (cf., Depue & Monroe, 1978), similarly frequent and/or severe endorsements of these symptoms probably accounted for the absence of a significant difference in the BDI scores for the two groups.

On the basis of the discriminant analyses, the primary features that appear to distinguish the Clinical and Severity groups pertain to the major depressive syndrome specifications of the Research Diagnostic Criteria (RDC), as presented in the CDM. That is, such diagnostic classification requires that dysphoria be endorsed (as having been present for more than two weeks), a number of somatic and behavioral symptoms be acknowledged, and some admission of difficulty functioning adequately be given. These criteria coincide closely with the symptom features, of the BDI and CDM, that most powerfully discriminated between the two depression groups.

The present findings appear to provide an answer to the issue raised by Depue and Monroe (1978), regarding the adequacy of viewing depression from a quantitative versus qualitative perspective. On the basis of the current results and within the parameters of this study, it would seem that the qualitative view is more adequate. Within the context of a clinically depressed population, however,

quantitative differences may be particularly relevant (cf., Giles, 1982).

Tasks

The decision to employ two tasks in the current study was based on an attempt to address the issue of task generalizability. The object was to obtain an indication of the extent to which subject responses were peculiar to a given task. The two experimental tasks employed in this study were adopted from Alloy and Abramson (1979; Contingency Estimation task) and Wener and Rehm (1975; Word Association task).

As expected, the analyses of variance on the pre-task descriptive measures, showed no Task factor differences (see Appendix P). Five of the six adjunct measures, which were presented after the description of the task but prior to undertaking it, disclosed significant task effects. For each of the five variables, the subjects assigned to the Contingency Estimation task gave lower ratings than those about to do the Word Association task. In the absence of subject group differences on these pre-task measures, the differences on the Task factor suggest that the cognitions stemmed from the description of the task. The relative caution and pessimism reflected by the ratings associated with the Contingency Estimation task is understandable given the novelty of a task which primarily focuses on the issue

of contingency rather than positive feedback.

Regarding post-task dependent measures, a few of the major variables showed task differences. Contingency assessment, as the problem in the Contingency Estimation task, appears to have facilitated accuracy in control judgment (Task Control). For the experimenter-controlled task circumstance employed in this study, the Contingency Estimation subjects were relatively accurate ($M = 22.60$) in judging control to have been low, compared to the Word Association subjects ($M = 42.07$). The Task Control finding for the Contingency Estimation task is consistent with the results of Alloy and Abramson (1979). They also found both depressed and nondepressed subjects to be generally accurate in judging contingency on the task. The higher control rating of the Word Association subjects is also understandable in terms of the task description, which suggests that the outcome is response contingent.

The three other major variables, which showed Task differences, were all cognitive triad (Beck) measures. The two view of world (Personal Standard, Other Standard) and one of the view of future (Future Success Similar) variables revealed higher ratings for the Contingency Estimation subjects than their Word Association counterparts. Thus, the Contingency Estimation task appears to have promoted more positive self-referent perceptions about the experience and about future success on a similar task than did the Word

Association task. As the degree of control and frequency of feedback were the same for both tasks, the differential self-relevant cognitions would seem to have resulted solely from features peculiar to each type of task. Since these variables also showed significant subject group differences (Normal = Severity > Clinical) but no group x task interactions, effect of task type appears to have been independent of depression effect.

While most of the post-task adjunct measures did not show subject group differences, they did exhibit significant effects for the Task factor.

In general, the Contingency Estimation task appeared to contribute more to positive self-evaluation than the Word Association task. The finding that the Contingency Estimation task experience had more positive implications for the subjects than the Word Association task needs, however, to be put into a more absolute context. On the basis of the rating scale ranges, the ratings of the Contingency Estimation subjects, nonetheless, indicated that they (as well as the Word Association subjects) perceived their task performance as a somewhat negative experience. This indication is particularly evident from the results of the dichotomous variables pertaining to Failed/Succeeded and Bad/Good outcome. The majority of subjects (from all three groups) rated their task as involving Failed performance and a Bad outcome, respectively. Further, the general increase

in depressive mood (DACL), from before to after the task, suggests a primarily negative task experience.

Stress

A common consequence of an unpleasant event is stress, which, in turn, can have strong implications for depression (Monroe, Bellack, Hersen & Himmelhoch, 1983). As noted above, the subjects in the current study reported that the experimental task circumstances resulted in a predominantly negative experience - although more so for those who did one task than the other. The unpleasantness and stressfulness of the event was intentionally promoted by the selection of a low feedback level. On the basis of literature pertaining to a stress-depression relationship (e.g., Lazarus & Launier, 1978), it was reasoned that increasing the stress of the task event would tend to maximize any subject differences in related cognitions.

To examine the extent to which the task experience was stressful, four measures of stress were included in the study. In general, the results of these measures seem to indicate that the stressfulness of an event is magnified in depression. This phenomenon has recently been alluded to by Mitchell, Cronkite, and Moos (1983). It also addresses an issue raised by others (Hammen & Cochran, 1981; Hammen & deMay, 1982), concerning the extent of the relationship between a stressful event and "perceived consequences" in

depression. The presence of a significant Group effect for three of the stress variables and for many of the major variables suggests a close relationship between stress and depression. Some direct evidence of a relationship between stress and depressive perception was found via bivariate correlational analyses of relevant variables (see Appendix S). The correlations suggest that the amount of stress experienced by the subjects was related to the extent of negativity associated with self-referent perceptions.

Social Desirability and Dysfunctional Attitudes

Two supplementary descriptive measures were administered to the subjects prior to their participation in the experimental task. These measures were the Personality Research Form - Social Desirability scale (SDS; Jackson, 1974) and the Dysfunctional Attitude Scale (DAS; Weissman & Beck, 1978).

Bivariate correlational analyses of the descriptive measures showed the Social Desirability scale to be inversely related to depression severity (BDI); depressive mood (Depression Adjective Check List, DACL1); and, dysfunctional beliefs (Dysfunctional Attitude Scale, DAS). In addition, an analysis of variance revealed that the SDS means for the three subject groups differed, with the Normal and Clinical groups having the highest and lowest means, respectively. These results consistently suggest that

social desirability is inversely related to depression indices. From the position taken by Langevin and Stancer (1979), this finding would be viewed as supporting the notion that depression measurement is "confounded with social desirability" (p. 78). While this notion has also been advanced by Raps et al. (1982), it has been questioned by others (McCrae & Costa, 1983; Nevid, 1983). The latter queried the appropriateness of viewing social desirability assessment as strictly a response style measure and a confounding factor.

An alternate notion is implicit in the results and interpretations presented by Langevin and Stancer (1979). They suggested that the correspondence they found between social desirability and depression severity measures implies that the two constructs have in common "negative self-perception (social undesirability) or low self-esteem" (p. 78). Within this conclusion lies the notion that social desirability measurement assesses not only a response style but also a substantive cognitive feature of depression, namely negative self-referent perceptions. This notion is lent further support from two sources. One, there was significant (inverse) correlation, in this study, between SDS and dysfunctional attitudes characteristic of depression (DAS). Two, the significantly different SDS means for the two subject groups (Normal and Clinical), which revealed numerous post-task perception differences, implies a

relationship between social (un)desirability and depressive cognitions.

The correlational analyses showed that the Dysfunctional Attitude Scale (DAS) was positively correlated with depression severity (BDI) and mood (DACLI). A correlational correspondence between the DAS and BDI was also found in earlier research (Dobson & Breiter, 1983). In an analysis of variance on the DAS data, only the nondepressed (Normal) and Clinical depressed subject groups were found to differ. Similarly, a significant DAS difference was noted between diagnostically-defined (RDC) nondepressed and depressed subjects in another study (Breiter & Dobson, 1981). With regard to the present study, it is noteworthy that the Severity depressed group did not differ in extent of dysfunctional beliefs from the nondepressed (Normal) group. This finding suggests that subjects, defined as depressed solely on the basis of a severity measure (with a modest criterion level), do not endorse notably more or stronger dysfunctional attitudes than nondepressed subjects. A combined quantitative and qualitative depression criteria approach appears to identify individuals with dysfunctional beliefs better. This conclusion is also supported, in this study, by the general finding that many task-subsequent perceptions of the Clinical, but not the Severity, group were more negative than those of the Normal group. The inference that

dysfunctional attitudes are related to negative cognitions, subsequent to a failure experience, seems consistent with the DAS findings of Olinger (1984).

The DAS research emphasis and findings of Olinger (1984) encourage consideration of a reverse perspective to the relationship just discussed. That is, she examined the role of dysfunctional attitudes in identifying individuals who are "vulnerable" to depressive cognitions and depression. While her studies primarily focused on etiological issues, she also investigated vulnerability in depression. Olinger's findings showed that relatively high DAS scorers, whether or not they were depressed on the BDI, considered situations to have more self-relevant importance and more emotional impact on them, than those with lower scores. This result appears consistent with the finding of the current study that the Clinical subjects conveyed greater pre-post perception and mood changes, in a negative direction, than the Normal subjects. Olinger also found that depressed students with high DAS scores tended to have more negative cognitions than nondepressed persons with either high or low DAS scores. Negative cognitions were also associated with a combination of relatively high scores for dysfunctional attitudes and depression severity, in the current study. These findings collectively suggest that the presence of dysfunctional attitudes is an important feature in depression and its assessment. A comprehensive discussion of the roles that dysfunctional attitudes may

play as contributants to, and in the maintenance of, depression has been presented by Kuiper et al. (in press).

In summary, the descriptive measures of social desirability (SDS) and dysfunctional attitudes (DAS) were found to be significantly relevant to depression, in terms of both diagnostic classification and severity. Also, the SDS would appear to have measured a cognitive component of depression. Dysfunctional attitude assessment seemed to provide a strong indication of post-task depressive cognitions. These conclusions are tentative and bear considerable empirical corroboration before they can be advanced with some assurance. They do, however, provide some interesting notions that appear worthy of some detailed investigation.

Methodological Limitations

In every scientific inquiry, discrete limitations must be set in order that issues of interest can be empirically and systematically investigated. Even in the absence of serious confounding factors, the extent to which results from a study can be generalized beyond the adopted parameters depends on credible speculation in the present and systematic replication in the future.

One of the main limitations in the current study involved the operationally-defined indices of the theories under investigation. The major dependent variables,

pertaining to the Beck (1967; 1976) and Seligman (1975; Abramson et al., 1978) theories of depression, were generally created directly from the writings of the theorists. This approach, to operationalizing theories, does not preclude inadequate or faulty interpretation - that is, theoretical internal invalidity. Obvious consistencies in the present results, such as the generally consistent support or lack of it for certain theories, and especially the variable groupings in the factor analysis, suggest at least conceptual unity, if not theoretical relevance.

Another possible shortcoming of the major dependent variables involved a concern raised by Chapman and Chapman (1978; 1983). They maintain that inequality in the measurement properties of dependent variables (in particular, reliability) can have a significant bearing on the results, when investigating differences among diagnostic groups. Their position has, however, been convincingly rebutted by Neufeld (1984; Neufeld & Broga, 1981). In addition, Nicewander and Price (1978; 1983) have obtained experimental results supportive of Neufeld's position. Of relevance to this study, Nicewander and Price (1983) found that for an "ANOVA design ... the more reliable dependent variable measure did not necessarily produce the greater power in a statistical test for treatment effects" (p. 532). In addition, the debate around this issues involved measures

of performance abilities, rather than cognitive perceptions.

A further limitation, related to the dependent variables, pertained to the use of essentially only self-report for data collection. Doerfler (1981) has noted that "reliance on self-report measures is particularly problematic with depression because cognitive distortion is assumed to be a central feature of this dysfunction" (p. 125). While his criticism is relevant for circumstances where objective accuracy is crucial, subjective cognitions (including, deviations from the norm) would seem to be best assessed via self-report (cf., Mayer, 1978). The description of a measure and the response format are, however, self-report features that may limit the reliability and validity of responses.

With regard to identification of depressed subjects for this study, the 'severity plus diagnostic criteria' depressed group (Clinical) did not constitute a traditional clinically depressed sample. Several differences are apparent. In spite of the preliminary validating evidence for the diagnostically-oriented inventory developed by this author (Clinical Depression Measure: CDM), its self-report approach falls victim to a criticism by Doerfler (1981). That is, diagnostically-relevant information about verbal and non-verbal behavior is not accessed by the CDM. This concern would appear to be tempered somewhat by the very

high correspondence between depression classifications based on the CDM and those based on a RDC interview (see Appendix C). The Carroll Rating Scale (CRS; Carroll, Feinberg, Smouse, Rawson & Greden, 1981), which was designed to be a self-report version of the Hamilton Rating Scale for depression (HRS; Hamilton, 1960), is also highly correlated with the original "observer rating" version (HRS). Another criticism, however, is that the sample generally reflected only mild-moderate depression severity on the BDI, in contrast to moderate-severe depression typically present in clinical samples. Further, the depressed subjects constituted a "non-help-seeking" sample (cf., Gong-Guy & Hammen, 1980). These features of the diagnostically-defined depression group collectively suggest that caution be exercised in extrapolating the current findings to clinically depressed patients.

The use of female university students only also restricts the external validity of the results. While some recent findings (e.g., Kashani & Priesmeyer, 1983) indicate similar depressive symptomatology for college women and men, these findings do not preclude gender-specific perceptions in depression. Generally, recent research (Huba & Aneshensel, 1983; Warren, 1983) on depressive cognitions has shown inconsistent evidence regarding this gender issue.

The experimental tasks employed in this study qualify essentially as intrapersonal tasks (cf., Giles, 1982; Gotlib

& Asarnow, 1979). That is, the tasks did not have an interpersonal context. The absence of such a task context may (Gotlib, 1983) or may not (Giles, 1982) limit the present findings in terms of social relevance.

A final limitation warrants mention. The current research does not permit conclusions to be drawn about causes of depression (cf., Gong-Guy & Hammen, 1980; Kanfer & Zeiss, 1983). At best, some notions can be advanced about cognitions as concomitants or consequences of depression. The implication of this limitation, for theory-testing, has been succinctly stated by Coyne and Gotlib (1983).

Findings that depressed persons complain about themselves are only the first step in establishing the strong claims of the models.
(p. 496)

Conclusions and Implications

Within the bounds of the limitations, the current study addressed a number of issues pertaining to depression. The main issue concerned the adequacy of testing cognitive theories of depression through the assessment of event perceptions versus cognitions with a more self-relevant focus. Consequently, this study was designed to investigate concurrently the two major cognitive theories by way of both previously-employed task perceptions and self-referent perceptions central to each theory.

The findings revealed general support for the cognitive triad concept of Beck's (1967; Beck et al., 1979) theory. That is, a negative self-referent view of world, self and future was evident in diagnostically-defined depression. Also, the event perception of percentage of feedback was found to be relevant to depression and, to the extent that it is pertinent to Beck's theory, supportive of it.

The empirical support for Seligman's (1975; Abramson et al., 1978) learned helplessness theory was limited to its central component - expectancy of future noncontingency. No significant results were found for the other learned helplessness components, which theoretically have a sequential relationship with contingency expectancy. The implication of this finding is that some doubt is raised about the relevance of these components to depression and thus about the validity of the sequential chain in the learned helplessness theory. Specifically, relatively low contingency perception and helpless attributions of cause do not appear to be necessary prerequisites for expectancy of relatively low contingency. Further, the lack of support for causal attribution makes the Abramson et al. (1978) reformulation of the theory less tenable. This latter conclusion rests on the assumption that the attribution variables employed in this study have theoretical internal validity. The assumption appears to be reasonable as those variables were obtained from a scale (ASQ; Seligman et al.,

1979) which was specifically designed to assess helpless attributions. In defense of the potential usefulness of causal attributions, the variables may not have been particularly "appropriate" for the experimental circumstance (Anderson et al., 1983) or aspects of that circumstance may have precluded significant attributions of helplessness (cf., Gong-Guy & Hammen, 1980; Miller et al., 1983; Williams, 1984). In general, however, the limited support for the learned helplessness theory leads one to question the adequacy of the theory in its current state.

In the current study, the relationships among variables, derived from separate theoretical positions, were also examined. In particular, a factor analysis showed some interesting and important information about cognitive perception in depression. The three hypothetical variates (factors) revealed communalities among variables which are readily interpretable. The factors reflect distinct conceptual clustering of the variables (by the subjects) around the themes of current self-evaluation, future self-evaluation, and contingency evaluation. The fact that each variate contained one or more variables, that revealed differential responding for depressed and nondepressed individuals, suggests that each factor is relevant to cognition in depression and involves a conceptually separate feature of depression. In addition, the variables pertaining to the Beck and Seligman positions showed that

each theoretical focus provided one of those features, exclusive of the other focus (current self-evaluation and contingency evaluation, respectively). Variables stemming from both theories, however, also contributed to one of the variates (future self-evaluation), thus suggesting some conceptual overlap between the theories. Further conceptual overlap was found pertaining to Bandura's construct of self-efficacy. That is, the self-efficacy variable which focused essentially on the present was clustered with Beck variables which had a similar temporal orientation, and the future-directed variable loaded on the future self-evaluation factor with variables from the two major cognitive theories. The findings for the self-efficacy variables lead to three conclusions: 1) the concept of self-efficacy seems relevant to depression; 2) self-efficacy appears to be significantly related to the components of Beck's cognitive triad; and, 3) temporal orientation seems to contribute to differential self-efficacy perceptions. The question of whether the self-efficacy construct makes a significant contribution to understanding of depression, beyond what is offered by Beck's theory, remains to be answered by subsequent research. In general, the factor analysis produced an empirically-derived framework, for identifying conceptually-distinct depressive cognitions, that transcends the boundaries of each theoretical position under investigation.

A secondary experimental issue, addressed in the current study, pertains to the adequacy of identifying depression solely on the basis of severity criteria. This issue is an extension of a general issue raised by Depue and Monroe (1978), concerning the adequacy of a quantitative versus qualitative perspective of depression. In this study, nearly all of the subject group differences involved the nondepressed (Normal) subjects and those subjects (Clinical) who met both quantitative and qualitative depression criteria. The Normal subjects differed from those, defined as depressed solely on the basis of a quantitative criterion (Severity), on only one major variable (Task Feedback). The Severity and Clinical depression groups were not different in the severity of symptoms reported. Collectively, these results lead to the conclusion that a qualitative position appears to be more adequate, than a quantitative one, for identifying depression in a nonclinical sample. Given this conclusion, some attempt was made, primarily through discriminant analyses, to identify symptom differences between the depression groups. The analyses on the BDI and Clinical Depression Measure (CDM) revealed that similar symptoms on both questionnaires served to discriminate between the two groups. The fact that the discriminating symptoms tended to be similar for the two inventories inherently lends the symptoms some inductive validity. The discriminators

reflected dysphoria, somatic complaints, and interpersonal difficulties. The temporal aspect of the dysphoria component on the CDM may have also contributed to a significant qualitative difference between the groups. That is, dysphoria was only considered to be present if the subject indicated that some dysphoric feature was present for more than two weeks. This temporal stability criterion could be critical in differentiating between individuals with primarily a transient mood disturbance and those who are experiencing a depressive syndrome (cf., Coyne & Gotlib, 1983). Two other potential discriminators stemmed from the current research. Namely, socially (un)desirable responding and dysfunctional attitudes were found to be quantitatively different for the nondepressed and the diagnostically-depressed groups. The former feature also showed a significant magnitude difference between the two depressed groups. To summarize, in comparison to a quantitative approach to the selection of depressed subjects, a qualitative approach resulted in more and greater indications of relatively negative cognitive perceptions. A number of depressive symptoms (as well as, symptom stability and socially undesirable responding) differentiated the two depression groups.

The utility of including, in a future study, a depressed group, identified solely on the basis of severity, appears limited. In addition to the equivocal findings with

such 'analogue depression' samples in the past, the present study showed that the group was generally more similar to the nondepressed sample than the other depressed group. An exception to the present criticism would involve the use of a severity measure, in continuous rather than discrete (criterion) terms, within a sample of depressed persons. It would thus be possible to test for cognitive differences in depression, as a function of severity. Such an investigation could help provide further insight into findings by Giles (1982) that suggest a relationship between depression severity and cognitive distortion, within the context of the disorder.

Another experimental issue involved task generalizability. This issue was examined by having half the subjects undertake one task and the remainder another task. The results showed that type of task had a limited bearing on the primary cognitive perceptions under investigation - thus, suggesting that the subject differences are not generally peculiar to a specific task. Where task differences were noted, the Word Association task was associated with more negative self-evaluation than the Contingency Estimation task. Both tasks, however, appeared to promote a primarily negative task experience and the indications of the less pronounced effect of the latter task seems most readily attributable to it appearing less ecologically meaningful.

The current findings suggest a relationship between stress and depressive cognitions. Specifically, depression seems to magnify the stressfulness of an unpleasant event and this magnified effect appears to contribute to relatively pessimistic self-referent perceptions. This interpretation of the results is extremely tentative, but it does allow for some intriguing speculation on the possible mediating effects of stress in depression (cf., Shaw, 1982).

An attempt to replicate the findings of the present study, with clinically depressed patients, seems warranted. This conclusion is founded on the apparent importance of self-referent perceptions to the cognitive theories and depression in general. A variety of other possible systematic extrapolations are also implicit in the findings and limitations of this study. One such extrapolation would be additional logically-derived measures based on theory or the empirically-derived hypothetical variates. Another would be verbal and nonverbal data collected by an interviewer, pertaining to diagnostic criteria and/or dependent variables. Other extrapolation possibilities are subjects of both genders, and interpersonal and/or 'contrived' real-life tasks. Finally, efforts to systematically extend the current research should include attention to recent literature, especially review articles which progressively offer more refined understanding of

cognition in depression (e.g., Hollon & Kriss, 1984; Kuiper, et al., in press).

In conclusion, the results of this study suggest that further empirically-based theorizing about depression is warranted. While Beck's theory (particularly, the cognitive triad) accounted for most of the major findings, this fact should not preclude attempts at further theory development regarding cognition in depression. On the basis of the current findings, strivings toward a more comprehensive cognitive theory should include consideration of the contribution of cognitions pertaining to expectancy of future contingency, self-efficacy, and stress, in the understanding of depression. Further, the theoretical relevance of subsequent research, on cognition in depression, would be increased by the placement of greater emphasis on theoretical internal validity and on definitive depression criteria, than has typically occurred in the past.

FOOTNOTES

1. The term feedback is employed to describe the occurrence of light onset. In contrast, Alloy and Abramson (1979) used the term reinforcement when referring to the light onset feedback given to their subjects. The latter term is deemed unjustifiable within the context of their task. One argument, against describing onset of the light as reinforcement, is that the feedback was essentially not contingent upon the subjects behavior (cf., Rimm & Masters, 1974). Seligman (1975), however, points out that perception of contingency and not actual contingency is critical. That is, to the extent that the subjects perceived light onset to be contingent upon their behavior, they could have considered it reinforcing. Assuming, of course, that the light was viewed as a reward. This assumption provides the basis for a second argument against using the term reinforcement. There appears to be no theoretical or logical basis for assuming that the light would be given a positive (or negative) valence by the subjects. Consequently, light onset is described in terms of the only purpose it was known to serve - feedback.

It should be noted that the experimental feedback, given to subjects, was not contingent upon their performance. That is, in order to provide all the subjects with the identical amount of feedback, it was totally controlled by the experimenter and was in that sense bogus.

2. Of the 481 students screened for the current study, 76 (16%) declined to participate in the experimental part of the study. The other 405 women included the 98 who had to be screened before the severity criterion depression group (Severity) had its full complement of (30) members. The rest of the subjects (307) were screened in order to complete the severity + diagnostic criteria depression group (Clinical).

3. The use of the term Clinical, to describe one of the subject groups, was intended to reflect that the selection criteria for that group involved not only a severity criterion but also one pertaining to psychiatric diagnosis. The inclusion of the latter resulted in criteria closer to those employed in clinical assessment than solely the use of a severity index (Doerfler, 1981; Garfield, 1978). It should be noted, however, that the term Clinical was operationally defined, on the basis of specific subject selection criteria, and does not mean that the subjects in the Clinical group should be considered to be clinically depressed individuals.

The discriminant validity of the Clinical Depression Measure (CDM) is not established. That is, the validity of the exclusion (e.g., schizophrenia) items has not been determined. Thus, the use of the CDM, in determining whether subjects had a Major Depressive Disorder and consequently qualified for the Clinical group, was limited.

to the RDC inclusion criteria, namely the depression features.

4. The pre- and post-task rating scales are presented in Appendices H and I, respectively. These appendices show the order in which the scales were presented to subjects.

To facilitate identification of the rating scales for the reader, the scale names (e.g., Expected Feedback) have been added. These names were not on the copies administered to the subjects.

5. The 13 CDM items which, in a stepwise discriminant analysis, discriminated between the Severity and Clinical groups were: 5c; 2; 4a; 7a; 4b; 13a; 8a; 3; 1; 10b; 9; 7b; 5f. The Clinical group mean was greater than the Severity mean for all items except one (item 9). The exception indicated that the former group endorsed fatigue less often than the latter. The item descriptions are presented in Appendix B.

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APPENDICES

Appendix A

Beck Depression Inventory (BDI)

BECK INVENTORY

Name XXXXXXXXXXXXXXXXXXXX

Date _____

On this questionnaire are groups of statements. Please read each group of statements carefully. Then pick out the one statement in each group which best describes the way you have been feeling the PAST WEEK, INCLUDING TODAY! Circle the number beside the statement you picked. If several statements in the group seem to apply equally well, circle each one. Be sure to read all the statements in each group before making your choice.

- () 0 I do not feel sad.
 1 I feel sad.
 2 I am sad all the time and I can't snap out of it.
 3 I am so sad or unhappy that I can't stand it.
- () 0 I am not particularly discouraged about the future.
 1 I feel discouraged about the future.
 2 I feel I have nothing to look forward to.
 3 I feel that the future is hopeless and that things cannot improve.
- () 0 I do not feel like a failure.
 1 I feel I have failed more than the average person.
 2 As I look back on my life, all I can see is a lot of failures.
 3 I feel I am a complete failure as a person.
- () 0 I get as much satisfaction out of things as I used to.
 1 I don't enjoy things the way I used to.
 2 I don't get real satisfaction out of anything anymore.
 3 I am dissatisfied or bored with everything.
- () 0 I don't feel particularly guilty.
 1 I feel guilty a good part of the time.
 2 I feel quite guilty most of the time.
 3 I feel guilty all of the time.
- () 0 I don't feel I am being punished.
 1 I feel I may be punished.
 2 I expect to be punished.
 3 I feel I am being punished.
- () 0 I don't feel disappointed in myself.
 1 I am disappointed in myself.
 2 I am disgusted with myself.
 3 I hate myself.
- () 0 I don't feel I am any worse than anybody else.
 1 I am critical of myself for my weaknesses or mistakes.
 2 I blame myself all the time for my faults.
 3 I blame myself for everything bad that happens.
- () 0 I don't have any thoughts of killing myself.
 1 I have thoughts of killing myself, but I would not carry them out.
 2 I would like to kill myself.
 3 I would kill myself if I had the chance.
- () 0 I don't cry anymore than usual.
 1 I cry more now than I used to.
 2 I cry all the time now.
 3 I used to be able to cry, but now I can't cry even though I want to.

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

- () 0 I have not lost interest in other people.
- 1 I am less interested in other people than I used to be.
- 2 I have lost most of my interest in other people.
- 3 I have lost all of my interest in other people.

- () 0 I make decisions about as well as I ever could.
- 1 I put off making decisions more than I used to.
- 2 I have greater difficulty in making decisions than before.
- 3 I can't make decisions at all anymore.

- () 0 I don't feel I look any worse than I used to.
- 1 I am worried that I am looking old or unattractive.
- 2 I feel that there are permanent changes in my appearance that make me look unattractive.
- 3 I believe that I look ugly.

- () 0 I can work about as well as before.
- 1 It takes an extra effort to get started at doing something.
- 2 I have to push myself very hard to do anything.
- 3 I can't do any work at all.

- () 0 I can sleep as well as usual.
- 1 I don't sleep as well as I used to.
- 2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
- 3 I wake up several hours earlier than I used to and cannot get back to sleep.

- () 0 I don't get more tired than usual.
- 1 I get tired more easily than I used to.
- 2 I get tired from doing almost anything.
- 3 I am too tired to do anything.

- () 0 My appetite is no worse than usual.
- 1 My appetite is not as good as it used to be.
- 2 My appetite is much worse now.
- 3 I have no appetite at all anymore.

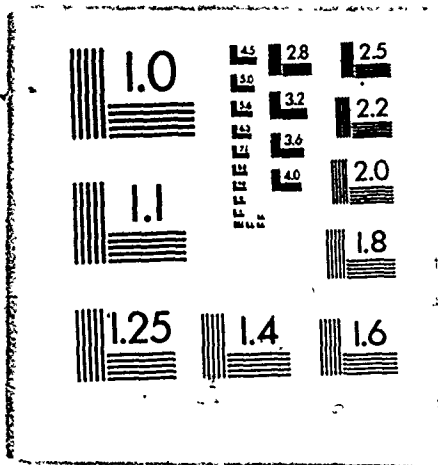
- () 0 I haven't lost much weight, if any, lately.
- 1 I have lost more than 5 pounds.
- 2 I have lost more than 10 pounds.
- 3 I have lost more than 15 pounds.

I am purposely trying to lose weight by eating less. Yes No

- () 0 I am no more worried about my health than usual.
- 1 I am worried about physical problems such as aches and pains, or upset stomach, or constipation.
- 2 I am very worried about physical problems and it's hard to think of much else.
- 3 I am so worried about my physical problems, that I cannot think about anything else.

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

3



Appendix B

Clinical Depression Measure (CDM),
Checklist, and Scoring Procedure

C D M

NAME: XXXXXXXXXXXXXXXXXX

DATE: _____

Please answer every statement with a check mark (✓). Check YES if the statement describes you recently and check NO if it does not. If you check YES, please underline the word(s) that describe(s) you (for example, blue). For some statements that you check YES, you are also asked to put a check mark to show how long you have felt this way.

	YES	NO
1. I feel blue, sad or depressed.	.....	....
If you checked YES, how long have you felt this way?		
less than 1 week	.....
1 to 2 weeks	.....
more than 2 weeks	.....
2. I feel low or down in the dumps.	.....	....
If YES, how long?		
less than 1 week	.....
1 to 2 weeks	.....
more than 2 weeks	.....
3. I feel discouraged, hopeless, or that I don't care anymore.	.....	....
If YES, how long?		
less than 1 week	.....
1 to 2 weeks	.....
more than 2 weeks	.....
4.a) I feel irritable or am easily annoyed.	.....	....
If YES, how long has it been this way?		
less than 1 week	.....
1 to 2 weeks	.....
more than 2 weeks	.....
4.b) I do not enjoy anything.	.....	....
If YES, how long has it been this way?		
less than 1 week	.....
1 to 2 weeks	.....
more than 2 weeks	.....
5. If you checked YES for any of the above statements, please answer the following questions, otherwise go to statement #6.		
	YES	NO
a) Have you sought, or have you been referred for, help?	.....	....
b) Have you taken medication to help you feel better?	.....	....
c) Have you had difficulty getting along with your family or friends?	.....	....
d) Have you had difficulty studying or working?	.....	....
e) Have you felt this way due to the loss of a loved one?	.....	....
If YES, do your family or friends think that these feelings have been a normal reaction?	.....	....

	YES	NO
f) Have you felt this way as a result of some other life event or specific situation? If YES, please explain _____ _____
<hr/>		
6. I have lost interest in, or get less pleasure from, things that I used to enjoy - such as, my friends, work, my family, sex, hobbies, watching T.V., or sports.
<hr/>		
7.a) I have noticed a <u>decrease</u> in my appetite.
b) Without dieting, my weight has <u>decreased</u> (either by 1 lb. over several weeks or 10 lbs. in the past year).
c) I have noticed an <u>increase</u> in my appetite.
d) My weight has <u>increased</u> (either by 1 lb. over several weeks or 10 lbs. in the past year)
<hr/>		
8.a) I have trouble sleeping.
b) I sleep too much.
<hr/>		
9. I have lost energy, or I am easily fatigued, or I feel tired.
<hr/>		
10.a) I am unable to sit still and have to keep moving.
b) I feel slowed down and have trouble moving.
<hr/>		
11. I feel guilty or down on myself.
<hr/>		
12. I have trouble concentrating, thinking, or making decisions..
<hr/>		
13.a) I have recurring thoughts of death <u>or</u> suicide.
b) I have attempted suicide.
<hr/>		
14.a) I am under the control of some outside force. If YES, please explain _____ _____
<hr/>		
b) I have no will of my own. If YES, please explain _____ _____
<hr/>		
c) I have thoughts or impulses that are not my own. If YES, please explain _____ _____
<hr/>		

YES NO

d) My thoughts are being sent to other people so that they know what I am thinking.

If YES, please explain _____

e) My thoughts are being taken from me by some outside force.

If YES, please explain _____

15. Please check YES to the following three statements if they have been true for several days, or off-and-on for at least a week.

YES NO

a) I have been having visions or seeing things that other people cannot see.

If YES, please explain _____

b) I smell strange odours.

If YES, please explain _____

c) I have strange feelings in my body.

If YES, please explain _____

16. I hear voices or other sounds that other people cannot hear.

If YES, please explain _____

17. I have beliefs that are out of touch with reality.

If YES, please explain _____

18. People have trouble understanding what I talk about.

If YES, please explain _____

THANK YOU.

CHECKLIST FOR DIAGNOSIS OF PROBABLE AND DEFINITE
MAJOR DEPRESSIVE DISORDER

NAME: _____ DATE: _____

DIAGNOSIS:

NOT

PROBABLE

DEFINITE

- | | <u>CDM Item</u> | |
|--|-----------------|-----------------------|
| A. 1. Dysphoric mood, characterized by symptoms such as depressed, sad, blue, hopeless, low down. | <u>1-3(5e)</u> | <input type="radio"/> |
| 2. Irritability | <u>4a(5e)</u> | <input type="radio"/> |
| 3. Pervasive loss of interest or pleasure | <u>4b(5e)</u> | <input type="radio"/> |
| <hr/> | | |
| B. Dysphoric features of illness lasting: 1 or 2 weeks | <u>1-4</u> | <input type="radio"/> |
| more than 2 weeks | <u>1-4</u> | <input type="radio"/> |
| <hr/> | | |
| C. Other features (4 for probable, 5 for definite) | | |
| 1. Poor appetite or weight loss or increased appetite or weight gain (change of 1 lb./week over several weeks - not dieting). | <u>7</u> | <input type="radio"/> |
| 2. Sleep difficulty (insomnia or hypersomnia). | <u>8</u> | <input type="radio"/> |
| 3. Loss of energy, fatiguability or tiredness. | <u>9</u> | <input type="radio"/> |
| 4. Psychomotor agitation or retardation (not simply subjective feeling). | <u>10</u> | <input type="radio"/> |
| 5. Loss of interest or pleasure in usual activities, including social contact or sex (do not include if limited to a period when delusional or hallucinating). | <u>6</u> | <input type="radio"/> |
| 6. Feelings of self-reproach or excessive or inappropriate guilt. | <u>11</u> | <input type="radio"/> |
| 7. Complaints or evidence of diminished ability to think or concentrate, such as slow thinking or indecisiveness (do not include if associated with obvious formal thought disorder). | <u>12</u> | <input type="radio"/> |
| 8. Recurrent thoughts of death or suicide, or any suicidal behavior. | <u>13</u> | <input type="radio"/> |
| <hr/> | | |
| D. Sought help or was referred for help from someone during the dysphoric period, or took medication, or had impaired functioning with family, at home, at school, at work, or socially. | <u>5a-d</u> | <input type="radio"/> |
| <hr/> | | |
| E. No thought disorder suggesting the presence of schizophrenia, including delusions, hallucinations, instances of formal thought disorder. | <u>14-18</u> | <input type="radio"/> |



CDM Scoring Procedure

The following details should help to explain how the responses on the CDM are recorded on the checklist and how the checklist subsequently provides a diagnosis of NOT depressed, PROBABLE depressed or DEFINITE depressed, according to the Research Diagnostic Criteria (RDC).

Checklist Recordings

In Section A, a check mark is placed in the circle following a category (1., 2., 3.) if the relevant CDM item has been endorsed YES and if the endorsement for 5e was NO (or YES, but not indicated to be a normal bereavement reaction). In the case of A.1, this category would be checked if any of the CDM items 1, 2, or 3 were endorsed YES, plus an appropriate response to 5e.

In Section B, the time period for dysphoric features is determined by the longest length of time endorsed on any of the CDM items, 1, 2, 3 or 4.

Section C simply involves check marking the categories (circles) corresponding to the CDM items that were endorsed YES.

A check mark is placed in Section D if the subject indicated YES for any of the items 5a, b, c or d.

Section E involves CDM items 14, 15, 16, 17 and 18. If one of these items were endorsed YES and the explanation for that endorsement suggests the presence of a schizophrenic symptom, then the circle of this section is check marked.

Depression Diagnosis

Once the information from the CDM has been recorded on the checklist, the subject can easily be assigned to one of the three diagnostic categories. Based on the RDC, a DEFINITE depressed classification requires: at least one check mark in Section A; a check mark in the "more than 2 weeks" category of Section B; five check marks in Section C; a check mark in Section D; and a check mark in Section E. Diagnosis of PROBABLE depressed involves: the same criteria as the DEFINITE diagnosis with the exception that the check mark for Section B is in the "1 or 2 weeks" category, and/or only four categories (features) are checked on Section C. Classification as NOT depressed occurs when the criteria for the other two categories have not been met.

Appendix C

Studies on the Clinical Depression Measure (CDM)

STUDY 1

Purpose

This study was conducted to obtain an estimate of the percentage of students who meet the Research Diagnostic Criteria (RDC) for Major Depressive Disorder (Spitzer, Endicott & Robins, 1978), according to responses on the CDM. It was also intended to provide information about the relationship between a frequently employed severity measure of depression and the more diagnostically-oriented CDM. Finally, this study served to identify candidates for Study 3.

Method

Subjects. The subjects were 592 first year undergraduate students at the University of Western Ontario. The study consisted of 447 female and 145 male subjects.

Materials and Procedure. This study was strictly a questionnaire investigation of depression and was conducted in a group testing format. The self-report measures administered were the CDM (Appendix B) and the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock & Erbaugh, 1961; Appendix A). In addition, sex and age information was collected.

Results

Of the 592 subjects, 8% gave responses on the CDM which met the RDC for definite depression (9% of females and 7% of males). Overall, the BDI had a moderately high correlation ($\underline{r} = .60, p < .001$) with the trichotomous RDC classification system (not depressed, probable depressed, definite depressed). The Pearson Product-Moment correlations for the females and males were $\underline{r} = .61$ ($p < .001$) and $\underline{r} = .57$ ($p < .001$), respectively. Thus, a statistically significant correspondence was found between depression and diagnostic classification. The RDC classification of each subject was also compared to the common BDI cut-off of: less than a score of 9 equals not depressed, and greater than 8 equals depressed (e.g. Alloy & Abramson, 1979). The results of this comparison can be seen in Table 1. They show that the two sets of criteria have at best moderate functional similarity.

Table C-1

Breakdown of Depression Categorization of Female and Male
Subjects According to RDC and BDI Criteria, in Study 1

Sex	RDC	BDI < 9	BDI > 8
	Not	288 (.64) ^a	75 (.17)
Female	Probable	6 (.01)	39 (.09)
	Definite	3 (.01)	36 (.08)
	Not	107 (.74) ^b	20 (.14)
Male	Probable	3 (.02)	5 (.03)
	Definite	2 (.01)	8 (.06)

Note. N=592.

^aPercent of females. ^bPercent of males

STUDY 2

Purpose

This study was primarily intended to provide some indication of the validity of the CDM with a clinical population. However, its relationship with two severity measures of depression was also examined.

Method

Subjects. The subjects consisted of 44 psychiatric and medical inpatients at a general hospital. Twenty-six of the subjects were female and eighteen were male.

Materials and Procedure. During an interview, the subjects were administered a portion of the Schedule for Affective Disorders and Schizophrenia (SADS; Endicott & Spitzer, 1978). The schedule is a semi-structured interview procedure which was designed to collect diagnostic information applicable to the RDC. The portion of the SADS relevant to the criteria for Major Depressive Disorder was presented to the subjects. Also completed, were the rater-administered Hamilton Rating Scale for Depression (HRSD: Hamilton, 1960) and two self-report measures, CDM and BDI. The first 20 SADS interviews were audiotaped and independently rated by a second person (also trained in the SADS), as a reliability test of the original SADS results.

Results

The results include Pearson Product-Moment correlations among all of the dependent variables. As can be seen in Table 2, the inter-rater reliability for the clinical sample was .97, indicating that the two raters almost always agreed about the SADS scoring. Also, it can be seen that the correlations between the SADS ratings and the CDM were very high, $r = .91$ for rater 1 and $r = .95$ for rater 2. This degree of correspondence provides strong evidence for construct validity of the CDM. Evidence for concurrent validity is also strong, as the correlations between the CDM and the two severity measures (HRSD and BDI) in this study were high ($r = .84$ and $r = .79$, respectively). A breakdown of the males and females in the clinical group is given in Table 3. As expected, the relationship between CDM and SADS was again found to be strong. Chi-square analyses revealed a low degree of independence between the CDM and the SADS diagnoses, with the values being 1.06 for the females and 0.25 for the males.

Table C-2

Correlation Coefficients Among Diagnostic and Severity Measures of Depression for Study

2 (Clinical Sample) and Study 3 (Analogue Sample)

Measure	STUDY 2				STUDY 3			
	SADS Rater 1	SADS Rater 2	BDI	HRSD	SADS Rater 1	SADS Rater 2	BDI	HRSD
CDM	.91(44) ^a	.95(20)	.79(44)	.84(43)	.89	.84	.64	.54
SADS 1	-	.97(20)	.82(44)	.84(43)	-	.87	.70	.58
SADS 2	-	-	.83(20)	.85(20)	-	-	.67	.55
BDI	-	-	-	.87(43)	-	-	-	.78
HRSD	-	-	-	-	-	-	-	-

Note. CDM = Clinical Depression Measure. SADS = Schedule for Affective Disorders and Schizophrenia. BDI = Beck Depression Inventory. HRSD = Hamilton Rating Scale for Depression.

^aNumber of pairs of values in the analysis.

Table C-3

Breakdown of Depression Categorization of Male and Female
Subjects for Study 2 (Clinical Sample) and Study 3 (Analogue
Sample)

Sex	RDC Diagnosis	STUDY 2		STUDY 3	
		CDM	SADS	CDM	SADS
Female	Not	7	8	8	7
	Probable	1	0	3	5
	Definite	18	18	4	3
Male	Not	10	11	8	8
	Probable	3	2	3	2
	Definite	5	5	4	5

Note. RDC = Research Diagnostic Criteria. CDM = Clinical Depression Measure. SADS = Schedule for Affective Disorders and Schizophrenia.

STUDY 3

Purpose

This CDM study was designed to serve two major purposes. First, it was meant to provide an indication of the validity of the CDM with an analogue population. Second, the temporal reliability of the CDM was given consideration. An examination of the CDM's relationship with two depression severity measures was, however, also conducted.

Method

Subjects. The subjects for this study were 30 first year undergraduate students at the University of Western Ontario. There were fifteen subjects of each sex in this group. These subjects had been screened via the CDM and the BDI (in Study 1), and had subsequently been contacted for further testing on the basis of their likelihood of providing a depression range on the CDM and SADS.

Materials and Procedure. In essence, this study mirrored Study 2 and consisted of the completion of two interviews, the SADS and the HRSD, and two self-report measures, the CDM and BDI. As this group had been tested previously with the self-rating measures, from four to seven weeks earlier, this study also provides evidence of the stability of scores on the CDM. An additional group of 22 subjects were also retested on the questionnaire (over

the same time range) to provide a better temporal reliability estimate.

Results

With regard to the evidence for construct validity for the CDM, Table 2 shows the correlation among the CDM and the two SADS (first and second ratings). The inter-rater reliability of the SADS ratings was .87. The correlations of the CDM and SADS were .89 for the first rating and .84 for the second. As in Study 2, these results lend strong support to the contention that the CDM is measuring a construct similar to that of the SADS. Concurrent validity, as assessed by the CDM and severity measure correlations were moderate with correlations ranging from .54 to .64. One reasonable hypothesis as to why these correlations do not achieve the power of those in Study 2 is that this analogue sample has a restricted range of scores, making high correlation more difficult to attain. Still, as can be seen in Table 3, the CDM and SADS showed a strong degree of dependency, with the chi-square analyses revealing non-significant results for both the females, $\chi^2 = 0.71$, and the males, $\chi^2 = 0.31$.

Finally, the subjects involved in this study completed the CDM at two different times, there was an opportunity to examine the stability of category eligibility. Given the trichotomous nature of the CDM data, the test-retest data

was examined in terms of proportion of subjects remaining in each category subsequent to the 4-7 week interval. As Table 4 shows, the most stable category is that of "Not Depressed", where .71 of the sample retained the categorization at second testing. The tendency for the categorizations of "Probable" or "Definite" depression at initial testing was for a reduction of that score. For the "Probable Depressed" group, 50% of the subjects had dropped to "Not Depressed" at second testing. Similarly, 45% of the "Definite Depressed" group qualified as "Not Depressed" and 24% became "Probable Depressed" upon readministration of the CDM. These results support the time limited nature of depression that has often been noted, and supports the view that over time depression will tend to remit.

Table C-4

Stability of CDM Categorization in Study 3 (Analogue Sample),
Expressed in Percentage

	n ^a	Subsequent Category		
		Not	Probable	Definite
Initial Category	7	.71 (5) ^b	.14 (1)	.14 (1)
Probable	16	.50 (8)	.31 (5)	.19 (3)
Definite	29	.45 (13)	.24 (7)	.31 (9)

^aTotal number of subjects was 52 (i.e., 30 + 22). ^bNumber of subjects subsequently in a category.

Appendix D

Personality Research Form - Social
Desirability Scale (SDS)

PRF-E SCALE

Age: _____

DIRECTIONS:

On this page you will find a series of statements which people might use to describe themselves. Read each statement and decide whether or not it describes you. If you agree with a statement or decide that it does describe you, circle T (TRUE). If you disagree with a statement or feel that it is not descriptive of you, circle F (FALSE). Please circle every statement either true or false, even if you are not completely sure of your answer.

	TRUE	FALSE
1. I am quite able to make correct decisions on difficult questions.	T*	F
2. I am never able to do things as well as I should.	T	F*
3. My life is full of interesting activities.	T*	F
4. I believe people tell lies any time it is to their advantage.	T	F*
5. If someone gave me too much change I would tell him.	T*	F
6. I would be willing to do something a little unfair to get something that was important to me.	T	F*
7. I get along with people at parties quite well.	T*	F
8. I did many very bad things as a child	T	F*
9. I am glad I grew up the way I did.	T*	F
10. I often question whether life is worthwhile.	T	F*
11. I am always prepared to do what is expected of me.	T*	F
12. My daily life includes many activities I dislike.	T	F*
13. I am one of the lucky people who could talk with my parents about my problems.	T*	F
14. Many things make me feel uneasy.	T	F*
15. I am careful to plan for my distant goals.	T*	F
16. I find it very difficult to concentrate.	T	F*

* Socially desirable response.

Appendix E

Dysfunctional Attitude Scale (DAS)
and Scoring Details

DAS

This Inventory lists different attitudes or beliefs which people sometimes hold. Read EACH statement carefully and decide how much you agree or disagree with the statement.

For each of the attitudes, show your answer by placing a checkmark (✓) under the column that **BEST DESCRIBES HOW YOU THINK**. Be sure to choose only one answer for each attitude. Because people are different, there is no right answer or wrong answer to these statements.

To decide whether a given attitude is typical of your way of looking at things, simply keep in mind what you are like **MOST OF THE TIME**.

EXAMPLE:

ATTITUDES	TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
1. Most people are O.K. once you get to know them.			✓				

Look at the example above. To show how much a sentence describes your attitude, you can check any point from totally agree to totally disagree. In the above example, the checkmark at "agree slightly" indicates that this statement is somewhat typical of the attitudes held by the person completing the inventory.

Remember that your answer should describe the way you think MOST OF THE TIME.

IMPORTANT NOTE: Please do not mark in this booklet. Put your answers on the answer sheet.

REMEMBER, ANSWER EACH STATEMENT ACCORDING TO THE WAY YOU THINK MOST OF THE TIME.

1. It is difficult to be happy unless one is good looking, intelligent, rich and creative.
2. Happiness is more a matter of my attitude towards myself than the way other people feel about me.
3. People will probably think less of me if I make a mistake.
4. If I do not do well all the time, people will not respect me.
5. Taking even a small risk is foolish because the loss is likely to be a disaster.
6. It is possible to gain another person's respect without being especially talented at anything.
7. I cannot be happy unless most people I know admire me.
8. If a person asks for help, it is a sign of weakness.

9. If I do not do as well as other people, it means I am an inferior human being.

10. If I fail at my work, then I am a failure as a person.

11. If you cannot do something well, there is little point in doing it at all.

12. Making mistakes is fine because I can learn from them.

13. If someone disagrees with me, it probably indicates he does not like me.

14. If I fail partly, it is as bad as being a complete failure.

15. If other people know what you are really like, they will think less of you.

16. I am nothing if a person I love doesn't love me.

17. One can get pleasure from an activity regardless of the end result.

18. People should have a reasonable likelihood of success before undertaking anything.

29. I can reach important goals without slave driving myself.
30. It is possible for a person to be scolded and not get upset.
31. I cannot trust other people because they might be cruel to me.
32. If others dislike you, you cannot be happy.
33. It is best to give up your own interests in order to please other people.
34. My happiness depends more on other people than it does on me.
35. I do not need the approval of other people in order to be happy.
36. If a person avoids problems, the problems tend to go away.
37. I can be happy even if I miss out on many of the good things in life.
38. What other people think about me is very important.
39. Being isolated from others is bound to lead to unhappiness.
40. I can find happiness without being loved by another person.

19. My value as a person depends greatly on what others think of me.
20. If I don't set the highest standards for myself, I am likely to end up a second-rate person.
21. If I am to be a worthwhile person, I must be truly outstanding in at least one major respect.
22. People who have good ideas are more worthy than those who do not.
23. I should be upset if I make a mistake.
24. My own opinions of myself are more important than other's opinions of me.
25. To be a good, moral, worthwhile person, I must help everyone who needs it.
26. If I ask a question, it makes me look inferior.
27. It is awful to be disapproved of by people important to you.
28. If you don't have other people to lean on, you are bound to be sad.

Age: _____

DAS Answer Sheet

The DAS questions are in a separate booklet underneath.

	TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							
14.							
15.							
16.							
17.							
18.							
19.							
20.							

	TOTALLY AGREE	AGREE VERY MUCH	AGREE SLIGHTLY	NEUTRAL	DISAGREE SLIGHTLY	DISAGREE VERY MUCH	TOTALLY DISAGREE
21.							
22.							
23.							
24.							
25.							
26.							
27.							
28.							
29.							
30.							
31.							
32.							
33.							
34.							
35.							
36.							
37.							
38.							
39.							
40.							

DAS SCORING

1. Every item on the DAS (Form A or Form B) is scored from one to seven. Depending on the content, either totally agree or totally disagree will be the anchor point of one and each category from that point will be one more, i.e., if totally agree = +1 then the next category, agree very much, will be = +2, etc. to totally disagree which will be = +7.
2. The following items are scored in the adaptive way if a "Totally Agree Response" is given:

FORM A

#2	#29
#6	#30
#12	#35
#17	#37
#24	#40

FORM B

#1	#20
#5	#26
#12	#30
#14	#33
#19	#36

That is, Totally Agree = +1; Agree very much = +2; Agree Slightly = +3; Neutral = +4; Disagree Slightly = +5; Disagree Very Much = +6; Totally Disagree = +7.

3. All the other items on Form A and Form B of the DAS are scored in the reverse direction of what was stated in number 2 above; i.e., Totally Disagree = +1;.... Totally Agree = +7.
4. The Total Score on DAS-A or DAS-B is obtained by summing the item scores for each individual.
5. Omits have been coded as zero (missing data). However, if by some chance, the individual omits a large proportion of the items, the test should be ignored.

(Weissman & Beck, 1978)

Appendix F

Feelings, Attitudes & Behaviour Study

Consent and Debriefing Forms

Feelings, Attitudes & Behaviour Study

CONSENT FORM

The purpose of this experiment is to gather information about mood, attitude, and behaviour tendencies. I understand that I will be providing this information by completing four questionnaires. My responses will permit the experimenter to do two things. One, he will be able to examine the relationship between the questionnaires and thereby learn more about them. Two, as a result of scoring the questionnaires, he will be able to group students according to certain score ranges. I understand that these score ranges are relevant to another thesis study being conducted by the experimenter. The second study involves testing students, from various questionnaire score ranges, in an experiment lasting one hour. Consequently, it is necessary (and very important) for the experimenter to obtain subjects for his second study from those who have participated in the current study. Later, in this form, I will indicate whether I do or do not want to be considered for this second study.

All the questionnaire information for this study will be kept in strict confidence. To promote confidentiality, the questionnaires in the present study will be identified only by a code number. I also understand that subsequent to completion of the study, the documentation relating my name to my code number will be destroyed. Further, the data I provide will be grouped with that of other subjects for the purpose of analysis and for presentation in Mr. Breiter's doctoral thesis.

I understand that I can request to discuss my responses to the questionnaires at the end of my part in the study. In addition, the researcher may contact me to make some recommendations, as a result of what I indicate about my attitudes, feelings and behaviour.

I can withdraw from this study at any time and still receive the research credit. I understand that participating in the study or declining to participate will not affect my academic standing in any way. If any of the above details are not clear to me, I understand, that I should request clarification now (by raising my hand).

Please sign your name in either paragraph A or B according to whether you want or do not want to be considered for the second study. Read both before selecting .

A. I, _____, consent to participate in the current
(your signature)

study and permit Mr. Breiter to contact me about the second study. I understand that if I am to be contacted, the experimenter will do so within the next week. If I am contacted, I need only participate if I still wish to do so, otherwise, I can decline. If I decide to participate in this second study, I will be able to do so at a time convenient to me. I understand, that this second study primarily involves completing one experimental task and providing information relevant to the task.

B. I, _____, consent to participate in the current
(your signature)

study but do not wish to be considered for the second study.

Student Number

Name (Please Print)

Date

Address

Code Number
(given by experimenter)

Telephone Number

PLEASE READ AND TAKE WITH YOU

Feelings, Attitudes & Behaviour Study

Debriefing Form

As indicated on the consent form (you read earlier), the purpose of this study is to obtain information about mood, attitude and behaviour tendencies. By completing the questionnaires, you have provided me with the opportunity to examine the relationships between these questionnaires. In addition, the scores on the questionnaires permit me to group students according to certain score ranges. With this information, I can test a number of students, from various questionnaire score ranges, in a second study. These students will be selected from among those who have consented to be contacted about the second study.

If you have given me consent to contact you about the second study, you may be contacted within the next week. If you are not contacted by me within a week, you can assume that I no longer require subjects from your questionnaire score range.

In any event, I sincerely appreciate your help in my effort to collect research information for my doctoral (Ph.D.) thesis.

Should you have any questions or concerns, about your participation in this study, please speak to me before you leave. If something relevant to the study comes to mind subsequent to your leaving here, you can contact me via the below information.

If you are interested in receiving some details about the outcome of the study please tell me before you leave or contact me in the near future. I will arrange for you to receive those results, early next term. Also, if you would like to discuss my research, I will be happy to make an appointment for us to do so. Further, the other side of this page has some references to related literature.

Hans J. Breiter
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Psychology Department
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438-7869 (evenings)

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Appendix G

Task Performance, Attitudes and Reactions Study
Consent and Debriefing Forms

Task Performance, Attitudes and Reactions Study

CONSENT FORM

I understand that I am participating in a study in which I will be completing one experimental task and providing personal information relevant to the task. This will require me to participate in the experiment for about one hour. Subsequent to completing the task, I will give details about my attitudes and reactions. I also understand that I will be asked to answer three questionnaires prior to the task, two of which are similar to questionnaires that I completed in the Feelings, Attitudes & Behaviour study. The third questionnaire is a check list of mood adjectives. Such a checklist will also be presented after the task. Subsequent to answering the questions following the task, I will have the opportunity to ask questions and make comments concerning what I have experienced in this study. In addition, I will then be given a more detailed explanation of the study and any questions I have, related to this explanation, will be answered. Further, the experimenter may make some recommendations to me as a result of what I indicate about my feelings and behaviour:

All information provided by me and related to my participation in this study will be kept in strict confidence. To promote confidentiality, the information collected in this study will be identified only by a code number. I also understand that subsequent to the completion of the study, documentation relating my name to my code number will be destroyed. Further, the data I provide will be grouped with that of other subjects for the purpose of analysis and for presentation in Mr. Breiter's doctoral thesis.

The above details have been explained to me. I understand that I can withdraw from this study at any time, and still receive the research credit. I also understand that participating in the study or declining to participate will not affect my academic standing in any way.

Student Number

Signature

Name (Please Print)

Date

Address

Code Number
(given by experimenter)

Telephone Number

Task Performance, Attitudes and Reactions Study

Debriefing Form

The study, in which you have just participated, will provide new information about the relationship between attitude/mood tendencies and self-relevant conclusions about behaviour.

The data obtained from your participation in this study will be pooled with that of others for statistical comparisons. Any experimental material, which identifies who you are, will be kept strictly confidential and then later destroyed.

I would sincerely appreciate your keeping all information, about this study confidential for the next six weeks. Until all the volunteers have participated in the study, it is absolutely essential that specific details, such as the prearranged feedback on the task remain confidential.

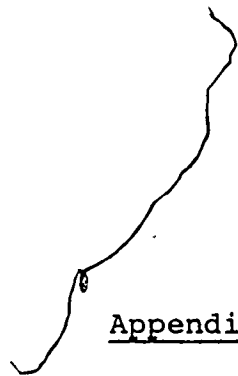
The general results of this study should be available early in 1983. If you are interested in learning about the results please tell me now or contact me before the end of 1982. Below are a couple of references to related literature.

Thank you very much for helping me with my doctoral research.

Hans J. Breiter
Room 7315
Social Sciences Building
University of Western Ontario
438-7869 (evenings)

Foersterling, F. & Engelken, R. Expectancies in relation to success and failure, causal attributions, and perceived task similarity. Personality and Social Psychology Bulletin, 1981, 7, 578-582.

Natale, M. & Hantas, M. Effect of temporary mood states on selective memory about the self. Journal of Personality and Social Psychology, 1982, 42, 927-934.



Appendix H

Pre-Task Rating Scales

(Expected Feedback)

What percent of the trials do you expect the green light will come on? (Please put a slash " / " through the line below, at the place that best represents your answer)

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

TRIALS

(Hoped Feedback)

What percent of the trials do you hope the green light will come on? (Please put a slash through the line below, at the place that best represents your answer).

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

TRIALS

(Satisfactory Feedback)

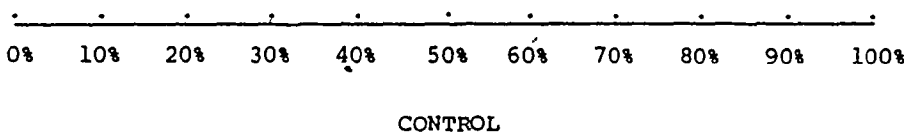
What percent of the trials does the green light have to come on for you to be satisfied with your performance?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

TRIALS

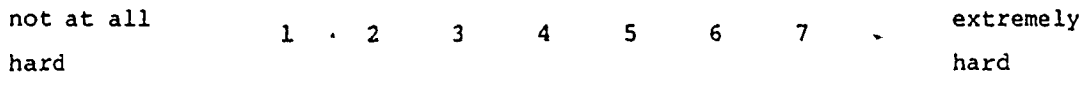
(Expected Control)

What degree of control do you think your responses will have over the green light coming on? (Please put a slash through the line below, at the place that best represents your answer)



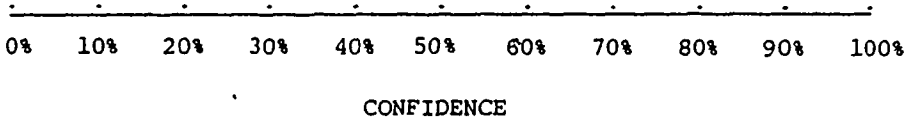
(Motivation)

How hard are you going to try to do your best on this task? (Please circle the number that best represents your answer)



(Confidence)

How confident do you feel about your ability to do well on the task you are about to undertake?



Appendix I

Post-Task Rating Scales

Please read the 7 adjectives below and then circle the word that best describes how you felt while you were doing the task.

Comfortable

Unsafe

Indifferent

Timid

Panicky

Wonderful

Worried

(Subjective Stress Scale)

(Task Control)

What degree of control did your responses have over the green light coming on? (Please put a slash " / " through the line below, at the place that best represents your answer).

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

CONTROL

(Task Feedback)

What percent of the trials did the green light come on?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

TRIALS

(Self Success)

Based on your performance on the task, to what extent do you consider yourself a success?

not a		1	2	3	4	5	6	7	entirely a
success									success

(Self Failure)

Based on your performance on the task, to what extent do you consider yourself a failure?

not a		1	2	3	4	5	6	7	entirely a
failure									failure

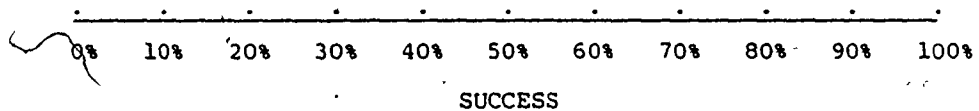
(Task Importance)

How important was this task for you, in terms of your view of yourself?

not at all		1	2	3	4	5	6	7	extremely
important									important

(Future Success Similar)

In the future, if you were to engage in a similar task, what percent success would you expect to achieve? (Please put a slash through the line at the place that best represents your answer)



(Future Hope)

In the future, if you were to do a similar task, what percent success would you hope to achieve?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

SUCCESS

(Future Satisfaction)

If you were to do a similar task in the future, with what percent success would you be satisfied?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

SUCCESS

(Failure/Success)

If you were to do a similar task in the future, which of the two choices below better describes how you think you will do? (Circle one number)

1	2
Fail	Succeed

(Future Success Other)

In the future, if you were to engage in some other type of task, what percent success would you expect to achieve?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

SUCCESS

(Future Motivation)

In the future, how hard would you try to do your best on a similar task?

not at all		1	2	3	4	5	6	7	extremely
hard									hard

(General Motivation)

In general, how hard are you going to try to do your best in the future?

not at all		1	2	3	4	5	6	7	extremely
hard									hard

(Future Control)

If you were to do a similar task in the future, how much control would you expect you would have over the outcome?

.....

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
CONTROL										

(Bad/Good)

When you consider your performance on the task, which of the two descriptions below better describes how you view the outcome? (Circle one number)

1	2
Bad	Good

What would you say is one major cause of how you performed on the task?

(Internality)^e

Is the cause of your performance due to something about you or something about other people or circumstances?

totally due									totally
to other	1	2	3	4	5	6	7		due
people or									to
circumstances									me

(Stability)

In the future when doing a similar task, will this cause again be present?

will never									will
again be	1	2	3	4	5	6	7		always be
present									present

(Globality)

Is the cause something that just affects similar tasks or does it also influence other areas of your life?

influences									influences
just this	1	2	3	4	5	6	7		all
particular									situations
situation									in my life

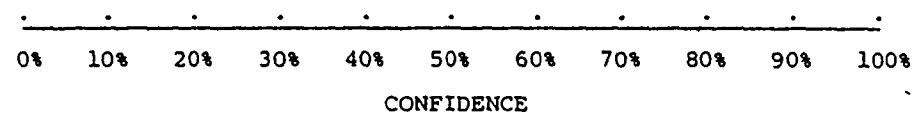
(Certainty)

How certain are you that this is the cause of your performance?

not at all									extremely
certain	1	2	3	4	5	6	7		certain

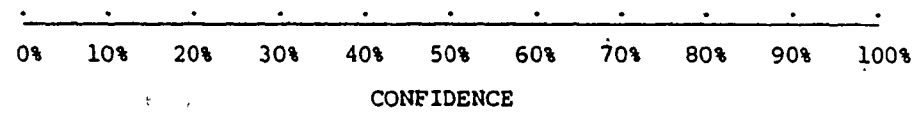
(Task Confidence)

How confident did you feel while you were performing the task?



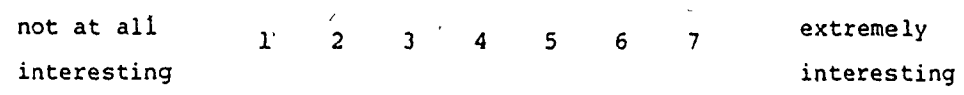
(Future Confidence)

How confident do you feel about your ability to do well on similar tasks?



(Interest)

How interesting was the task?



(Enjoyment)

How enjoyable was the task?



How difficult did you find the task? (Difficulty)

not at all 1 2 3 4 5 6 7 extremely
difficult difficult

(Relaxation)

In general, how relaxed did you feel while you were doing
the task?

not at all 1 2 3 4 5 6 7 extremely
relaxed relaxed

How stressful did you find the task? (Stress)

not at all 1 2 3 4 5 6 7 extremely
stressful stressful

Appendix J

Depression Adjective Check List (DACL)

Versions A and B

DACL-A

Name XXXXXXXXXX Age _____ Sex _____

Date _____ Highest grade completed in school XXXX

DIRECTIONS: Below you will find words which describe different kinds of moods and feelings. Check the words which describe How You Feel Now - - Today. Some of the words may sound alike, but we want you to check all the words that describe your feelings. Work rapidly and check all of the words which describe how you feel today.

- | | |
|---|--|
| 1. <input type="checkbox"/> Wilted | 17. <input type="checkbox"/> Strong |
| 2. <input type="checkbox"/> Safe | 18. <input type="checkbox"/> Tortured |
| 3. <input type="checkbox"/> Miserable | 19. <input type="checkbox"/> Listless |
| 4. <input type="checkbox"/> Gloomy | 20. <input type="checkbox"/> Sunny |
| 5. <input type="checkbox"/> Dull | 21. <input type="checkbox"/> Destroyed |
| 6. <input type="checkbox"/> Gay | 22. <input type="checkbox"/> Wretched |
| 7. <input type="checkbox"/> Low - spirited | 23. <input type="checkbox"/> Broken |
| 8. <input type="checkbox"/> Sad | 24. <input type="checkbox"/> Light - hearted |
| 9. <input type="checkbox"/> Unwanted | 25. <input type="checkbox"/> Criticized |
| 10. <input type="checkbox"/> Fine | 26. <input type="checkbox"/> Grieved |
| 11. <input type="checkbox"/> Broken - hearted | 27. <input type="checkbox"/> Dreamy |
| 12. <input type="checkbox"/> Down - cast | 28. <input type="checkbox"/> Hopeless |
| 13. <input type="checkbox"/> Enthusiastic | 29. <input type="checkbox"/> Oppressed |
| 14. <input type="checkbox"/> Failure | 30. <input type="checkbox"/> Joyous |
| 15. <input type="checkbox"/> Afflicted | 31. <input type="checkbox"/> Weary |
| 16. <input type="checkbox"/> Active | 32. <input type="checkbox"/> Droopy |

DACL-B

Name XXXXXXXXXX Age _____ Sex _____Date _____ Highest grade completed in school XXXX

DIRECTIONS: Below you will find words which describe different kinds of moods and feelings. Check the words which describe How You Feel Now - - Today. Some of the words may sound alike, but we want you to check all the words that describe your feelings. Work rapidly and check all of the words which describe how you feel today.

- | | |
|---|--|
| 1. <input type="checkbox"/> Downhearted | 17. <input type="checkbox"/> Clean |
| 2. <input type="checkbox"/> Lively | 18. <input type="checkbox"/> Dispirited |
| 3. <input type="checkbox"/> Unfeeling | 19. <input type="checkbox"/> Moody |
| 4. <input type="checkbox"/> Alone | 20. <input type="checkbox"/> Pleased |
| 5. <input type="checkbox"/> Unhappy | 21. <input type="checkbox"/> Dead |
| 6. <input type="checkbox"/> Alive | 22. <input type="checkbox"/> Sorrowful |
| 7. <input type="checkbox"/> Terrible | 23. <input type="checkbox"/> Bleak |
| 8. <input type="checkbox"/> Poor | 24. <input type="checkbox"/> Light |
| 9. <input type="checkbox"/> Forlorn | 25. <input type="checkbox"/> Morbid |
| 10. <input type="checkbox"/> Alert | 26. <input type="checkbox"/> Heavy - hearted |
| 11. <input type="checkbox"/> Exhausted | 27. <input type="checkbox"/> Easy - going |
| 12. <input type="checkbox"/> Heartsick | 28. <input type="checkbox"/> Gray |
| 13. <input type="checkbox"/> Bright | 29. <input type="checkbox"/> Melancholy |
| 14. <input type="checkbox"/> Glum | 30. <input type="checkbox"/> Hopeful |
| 15. <input type="checkbox"/> Desolate | 31. <input type="checkbox"/> Mashed |
| 16. <input type="checkbox"/> Composed | 32. <input type="checkbox"/> Unlucky |

Appendix K

Post-Task Interview

Appendix L

Alloy & Abramson Task (Contingency Estimation)

Record Sheet

Task Trials for Alloy & Abramson (1979)

<u>Responses</u>			<u>Press</u>	<u>Not Press</u>
1.	P	N	1	1
2.	P	N	2	2
3.	P	N	*3*	3
4.	P	N	4	4
5.	P	N	5	*5*
6.	P	N	6	6
7.	P	N	*7*	7
8.	P	N	8	*8*
9.	P	N	9	9
10.	P	N	10	10
11.	P	N	11	11
12.	P	N	12	12
13.	P	N	*13*	13
14.	P	N	14	*14*
15.	P	N	15	15
16.	P	N	16	16
17.	P	N	17	*17*
18.	P	N	18	18
19.	P	N	*19*	19
20.	P	N	20	20
21.	P	N	21	21
22.	P	N	22	*22*
23.	P	N	23	23
24.	P	N	*24*	24
25.	P	N	25	25
26.	P	N	26	26
27.	P	N	*27*	27
28.	P	N	28	*28*
29.	P	N	29	29
30.	P	N	30	30
31.	P	N	31	*31*
32.	P	N	*32*	32
33.	P	N	33	33
34.	P	N	34	34
35.	P	N	*35*	35
36.	P	N	36	*36*
37.	P	N	37	37
38.	P	N	38	38
39.	P	N	39	39
40.	P	N	40	40

* Feedback trials

Appendix M

Wener & Rehm Task (Word Association)

Stimulus Word Sheet

First 80 Stimulus Words from Wener & Rehm (1975)

1. Dumb	21. Noise	41. Is	61. Ocean
2. Dance	22. Silk	42. Deep	62. Water
3. **Wish	23. Blue	43. Because	63. Bright
4. Priest	24. **Why	44. Far	64. Quietly
5. Appear	25. Running	45. Street	65. Son
6. Stop	26. **Laugh	46. Music	66. Smooth
7. **Foot	27. Sheep	47. **Mutton	67. **Cabbage
8. Bath	28. Citizen	48. Milk	68. Ruler
9. **Playing	29. Ice	49. **Hair	69. **Suicide
10. Fear	30. Farm	50. Carpet	70. Moth
11. Box	31. **Child	51. Chair	71. Soap
12. Religion	32. Scared	52. Beautiful	72. Beef
13. Quick	33. **Ground	53. **Breast	73. **Train
14. Baby	34. Thought	54. Dirt	74. Vegetable
15. Bite	35. U.S.	55. **Closer	75. Find
16. **Meat	36. Short	56. Yellow	76. River
17. Lettuce	37. Dark	57. Cube	77. Rock
18. Hope	38. Sound	58. Head	78. Bible
19. Friend	39. Hand	59. Brave	79. **Stomach
20. Sit	40. Carry	60. Have	80. Cracker

** Feedback trials

Appendix N

Debriefing Presentation and Questionnaire

7

Task Performance, Attitudes and Reactions Study

Debriefing Presentation (read to subjects)

"For my research, the most important aspect of this study is determining what the subjects' task performance meant to them - that is, their self-relevant task conclusions. Via this study, I am testing some theories which suggest that certain attitudes and moods are associated with certain self-relevant conclusions about one's behavior. For example, one theory holds that people who view themselves as generally very capable tend to be less hard on themselves for poor performance than people who have more doubts about their capabilities. To investigate these theories (in a systematic, controlled manner), it was necessary to design an experiment in which everyone got the same level of feedback. That is, all subjects receive the same prearranged sequence of 'light on', during the task. Thus, no matter how you behaved on the task, only on every fifth trial (on the average) did the green light come on. This fixed sequence is necessary because if feedback were not the same for all subjects, then differences in task-related conclusions could be attributed to different frequencies or sequences of feedback, as readily as to attitude and mood differences. There are two main reasons as to why 20% was chosen as the frequency for green light onset. One reason was because the possible differences between subjects are more likely to appear (if they do

exist) in a low feedback situation. The other reason for a 20% level of feedback is because the task has been previously used at about that level (with university students). This allows me to compare my results with those of some other studies. Do you understand why it was necessary to give incorrect feedback? Do you have any questions about this?"

Subsequent to answering any questions, the subjects receive specific, factual information about how their judgments of feedback and control compared to the actual levels they received - 20% and 0%, respectively. Those subjects who were assigned to the Wener & Behm task are also told that the task has not been validated as a measure of social intelligence.

"So that I can better appreciate how you now view some of what you experienced in the experiment, please complete this short questionnaire."

The subjects are then given the Debriefing Questionnaire. Once it has been completed, the answers are reviewed with the subject in order to help dispel any misconceptions and concerns. Whether or not any erroneous perceptions still seem to exist, the subjects are told about "impression perseverance phenomena" and how these may involve certain important biases. More precisely, the subjects are told that initial impressions, once formed, may promote distorted interpretations of subsequent information,

especially if the latter is inconsistent with the initial impressions. Any evidence that the subjects have experienced this process is then discussed.

Subsequently, the subjects are given the Debriefing Form to read and urged not to speak to other students about the fixed feedback feature of the experiment.

"Do you have any questions or concerns about the content of this form?"

If the subject has given indications of serious depression or suicidality, the topic is tactfully broached. When deemed advisable or when requested, the discussion includes clinical referral recommendations and (if necessary) assistance.

Finally, the subject is given a research credit and thanked again for participating in the study.

Appendix O

Analysis of Variance Summary Tables
for Major Variables

Table 0-1

Analysis of Variance Summary Table: Task PerceptionVariables

Variable	Effect	Degrees of Freedom	Mean Square	F Value	Significance Level (p <)
Task Feedback					
	Group	2,84	2080.63	24.88	.001
	Task	1,84	11.38	0.14	.71
	Interaction	2,84	126.68	1.52	.23
Task Control					
	Group	2,84	911.23	1.28	.28
	Task	1,84	8526.40	11.95	.001
	Interaction	2,84	941.70	1.32	.27

Table 0-2

Analysis of Variance Summary Table: Self Perception/
Cognitive Triad Variables

<u>Variable</u>	<u>Effect</u>	<u>Degrees of Freedom</u>	<u>Mean Square</u>	<u>F Value</u>	<u>Significance Level (p <)</u>
Overall (Multivariate)					
	Group	12,160		3.01	.001
	Task	6,79		2.76	.02
	Interaction	12,160		1.76	.06
Personal Standard					
	Group	2,84	19.90	10.80	.001
	Task	1,84	12.84	6.97	.01
	Interaction	2,84	2.48	1.34	.27
Other Performance					
	Group	2,84	17.24	10.29	.001
	Task	1,84	9.34	5.57	.03
	Interaction	2,84	6.71	4.00	.02
Self Success					
	Group	2,84	16.08	7.01	.002
	Task	1,84	2.18	0.95	.33
	Interaction	2,84	1.14	0.50	.61
Self Failure					
	Group	2,84	10.13	3.14	.05
	Task	1,84	0.71	0.22	.64
	Interaction	2,84	2.84	0.88	.42
Future Success Similar					
	Group	2,84	3410.71	9.36	.001
	Task	1,84	2592.10	7.11	.01
	Interaction	2,84	583.33	1.60	.21
Future Success Other					
	Group	2,84	146.81	0.80	.45
	Task	1,84	246.68	1.35	.25
	Interaction	2,84	139.74	0.77	.47

Table 0-3

Analysis of Variance Summary Table: Self Perception/Learned
Helplessness Variables

Variable	Effect	Degree of Freedom	Mean Square	F Value	Significance Level ($p < $)
Future Control					
	Group	2,84	2315.68	4.11	.02
	Task	1,84	141.88	0.25	.62
	Interaction	2,84	1410.74	2.50	.09
Future Motivation					
	Group	2,84	0.54	0.47	.62
	Task	1,84	2.84	2.48	.12
	Interaction	2,84	0.34	0.30	.74

Table 0-4

Analysis of Variance Summary Table: Self Perception/
Casual Attribution Variables (BAD Outcome)

Variable	Effect	Degrees of Freedom	Mean Square	F Value	Significance Level (p <)
Overall					
	Group	6,108		0.90	.50
	Task	3,53		2.04	.12
	Interaction	6,108		0.38	.89
Internality					
	Group	2,55	0.21	0.10	.90
	Task	1,55	8.29	4.11	.05
	Interaction	2,55	1.03	0.51	.60
Stability					
	Group	2,55	2.51	1.36	.27
	Task	1,55	0.58	0.31	.58
	Interaction	2,55	0.67	0.36	.70
Globality					
	Group	2,55	5.30	1.87	.16
	Task	1,55	1.73	0.61	.44
	Interaction	2,55	0.82	0.29	.75

Table 0-5

Analysis of Variance Summary Table: Self Perception/
Casual Attribution Variables (GOOD Outcome)

Variable	Effect	Degrees of Freedom	Mean Square	F Value	Significance Level ($p <$)
Overall					
	Group	6,44		1.12	.37
	Task	3,21		1.51	.23
	Interaction	6,44		0.59	.74
Internality					
	Group	2,23	0.33	0.17	.85
	Task	1,23	0.81	0.41	.53
	Interaction	2,23	0.53	0.27	.77
Stability					
	Group	2,23	2.75	1.97	.16
	Task	1,23	6.95	4.97	.04
	Interaction	2,23	0.08	0.06	.94
Globality					
	Group	2,23	3.88	1.29	.29
	Task	1,23	0.33	0.11	.74
	Interaction	2,23	5.49	1.83	.18

Table 0-6

Analysis of Variance Summary Table: Self Perception/Self-Efficacy Variables

Variable	Effect	Degrees of Freedom	Mean Square	F Value	Significance Level (p <)
Overall					
	Group	4,168		4.32	.01
	Task	2,83		1.28	.28
	Interaction	4,168		4.30	.01
Task Confidence					
	Group	2,84	2600.34	6.67	.01
	Task	1,84	940.90	2.41	.12
	Interaction	2,84	2996.23	7.68	.001
Future Confidence					
	Group	2,84	2700.04	8.90	.001
	Task	1,84	537.78	1.77	.19
	Interaction	2,84	1195.51	3.94	.05

Appendix P

Results for BDI and Descriptive Measures.



In the current study, the Beck Depression Inventory (BDI; Beck et al. 1961, 1979) primarily served a subject classification function. As a quantitative depression variable, however, its relationship to certain depression-related variables was of interest. The latter variables consisted of the Dysfunctional Attitude Scale (DAS; Weissman & Beck, 1978), the Personality Research Form - Social Desirability Scale (SDS; Jackson, 1974), and the pre-task Depression Adjective Check List (DACLI; Lubin, 1967). These measures were administered to the subjects prior to the experimental manipulation (task) and were included in the study to provide descriptive information about the subject groups: Normal, Severity, and Clinical.

The group means and standard deviations for the BDI and descriptive measures are presented in Table P-1. As expected, on the basis of theory and past empirical findings, the means for all the measures show a consistent magnitude progression across the groups. The reverse magnitude sequence of the SDS means is consistent with the proposition that social desirability is inversely related to depression (Langevin & Stancer, 1979).

Analysis of variance (ANOVA) was conducted on each of the variables (Table P-2: ANOVA summary table). The results show that for each variable the Group factor, but not the Task factor or interaction, was significant. Multiple comparisons of group means revealed that for the

Table P-1

Group Means and Standard Deviations for BDI and Descriptive Measures

Measure	Group		
	Normal	Severity	Clinical
BDI			
<u>M</u>	3.50	12.10	14.00
<u>SD</u>	2.24	3.59	4.94
DAS			
<u>M</u>	102.73	116.35	128.08
<u>SD</u>	21.19	26.63	31.72
SDS			
<u>M</u>	13.13	11.60	9.83
<u>SD</u>	1.87	2.65	2.70
DACLI			
<u>M</u>	4.63	7.63	10.57
<u>SD</u>	3.56	4.07	5.89

Note. Group $n=30$. BDI = Beck Depression Inventory. DAS = Dysfunctional Attitude Scale. SDS = Personality Research Form - Social Desirability Scale. DACLI = Pre-task Depression Adjective Check List.

Table P-2

Analysis of Variance Summary Table for BDI and Descriptive Variables

Variable	Effect	Degrees of Freedom	Mean Square	F Value	Significance Level (p <)
BDI					
	Group	2,84	939.10	64.67	.001
	Task	1,84	0.04	0.01	.96
	Interaction	2,84	4.14	0.29	.75
DAS					
	Group	2,84	4166.41	5.83	.005
	Task	1,84	1616.65	2.26	.14
	Interaction	2,84	388.97	0.54	.58
SD					
	Group	2,84	81.81	13.36	.001
	Task	1,84	13.61	2.27	.14
	Interaction	2,84	0.08	0.01	.99
DACLI					
	Group	2,84	264.04	12.17	.001
	Task	1,84	8.10	0.37	.54
	Interaction	2,84	12.13	0.56	.57

Note. BDI = Beck Depression Inventory. DAS = Dysfunctional Attitude Scale. SD = Personality Research Form - Social Desirability Scale. DACLI = Pre-task Depression Adjective Check List.

BDI, the Normal group was significantly different from the Severity and Clinical groups, while the latter did not differ from each other. The DAS group means were found to be statistically different for only the Normal and Clinical groups. The means for SDS and DACL1 differed significantly for all three subject groups.

Pearson product-moment correlational analyses were also applied to the data of the variables. The correlation coefficients are presented in Table P-3. The coefficients show that the measures are significantly (directly or inversely) correlated. Notably, the inverse correlations involve the comparisons of social desirability with the other variables.

Table P-3

Correlations Among BDI and Descriptive Measures

Variable	2	3	4
1. BDI	.57**	-.57**	.55**
2. DAS	-	-.55**	.33*
3. SDS		-	-.45**
4. DACLI			-

Note. N=90. BDI = Beck Depression Inventory. DAS = Dysfunctional Attitude Scale. SDS = Personality Research Form - Social Desirability scale. DACLI = Pre-task Depression Adjective Check List.

* $p < .01$, two-tailed. ** $p < .001$, two-tailed. Critical values for significance ($\pm .33$ and $\pm .39$, respectively) were determined via the Bonferroni procedure (Harris, 1976; Larzelere & Mulaik, 1977).

Appendix Q

Results for Minor Dependent Variables

The minor measures were examined in separate analyses of variance and, where applicable, chi square analyses. Independent analyses were undertaken, for nearly all these adjunct variables, to maximize their contribution to the contextual understanding and interpretation of the major variables. The rationale for not testing the variables in conceptual clusters stems from their apparently limited (secondary) association with the concepts being examined and their function in this study. Grouping of the variables for multivariate significance testing would have promoted an overly conservative statistical bias. That is, the effect of variables which proved significant at a univariate level might not be sufficient to produce a significant multivariate F if variables with which they were grouped tended to be nonsignificant. Also, as no hypotheses were advanced concerning the minor measures, the need to minimize Type I error was not seen as crucial as when hypothesis-testing is involved. This appears to be particularly true when the implication for Type II error would have been rejection of potentially relevant descriptive information pertaining to the understanding of the major variables.

DACL ;

A version of the Depression Adjective Check List (DACL; Lubin, 1967) was administered before and after the experimental task. The data from the two administrations was examined in a repeated measures analysis of variance

(ANOVA), in order to test for a 'within subjects' effect as well as the 'between subjects' effects of the Group and Task factors. The ANOVA revealed a significant Group effect, $F(2,168) = 27.40, p < .001$. A Student-Newman-Keuls test of means showed that all three groups were different from one another (Normal $M = 5.22$, Severity $M = 8.32$, Clinical $M = 11.25$). The repeated measures (within-subject) factor was also significant, $F(1,168) = 3.82, p < .05$. The pre-task DACL mean ($M = 7.61$) was lower than the post-task DACL ($M = 8.91$). No statistically significant effects were found for: the Task factor ($F(1,168) = 0.02, n.s.$); the Group by Task interaction ($F(2,168) = 0.26, n.s.$); the Group by repeated measure interaction ($F(2,168) = 0.01, n.s.$); the Task by repeated measure interaction ($F(1,168) = 1.11, n.s.$); and, the three-way interaction ($F(2,168) = 0.36, n.s.$).

In summary, the information from the DACL's indicated that the nondepressed subjects (Normal) generally had a more positive mood than the two 'depressed' groups, both before and after the experimental task. Also, the Severity depressed subjects were more positive in their mood than the Clinical depressed subjects. Further, irrespective of group differences, the mood of the subjects was better before the task than after it.

Pre-Task Variables

Six measures were presented to the subjects in order to obtain relevant information on possible subject differences,

which existed prior to administration of the experimental intervention. It should be noted that the task had been described to the subjects before they made ratings on these measures.

Regarding judgment of expected feedback during the task (Expected Feedback), the only significant effect involved the Task factor, $F(1,84) = 6.36, p < .02$. The nondepressed and depressed subjects, who were assigned to the Alloy & Abramson (Contingency Estimation; 1979) task, gave lower ratings of feedback expectancy than those subjects assigned to the Wener & Rehm (Word Association; 1975) task ($M = 56.02, M = 63.20$, respectively). The Group factor ($F(2,84) = 2.16, n.s.$) and interaction ($F(2,84) = 1.00, n.s.$) were not statistically significant.

The variable, involving the rating of amount of feedback the subjects hoped to receive (Hoped Feedback), also showed only a significant Task effect, $F(1,84) = 18.43, p < .001$. Again, the Contingency Estimation subjects ($M = 70.47$) gave lower percentage ratings than the Word Association subjects ($M = 84.69$). Neither the Group ($F(2,84) = 0.46, n.s.$) nor the interaction effect ($F(2,84) = 0.40, n.s.$) were significant.

The third pre-task variable consisted of a rating of the minimum satisfactory level of feedback (Satisfactory Feedback). The ANOVA on this variable showed no significant effects (Group $F(2,84) = 0.26, n.s.$; Task F

(1,84) = 0.19, n.s.; interaction $F(2,84) = 1.04$, n.s.).

The ANOVA, on amount of control expected (Expected Control), revealed a notable Task effect, $F(1,84) = 19.33$, $p < .001$. The task mean for the Contingency Estimation subjects ($M = 52.24$) reflected lower expected control than the Word Association mean ($M = 69.96$). The Group factor ($F(2,84) = 2.41$, n.s.) and two-way interaction ($F(2,84) = 0.41$, n.s.) were not statistically significant.

The measure pertaining to motivation to try to succeed (Motivation) showed a main effect for the Task factor, $F(1,84) = 8.27$, $p < .005$. The mean for the Contingency Estimation task ($M = 6.09$) was lower than for the Word Association task ($M = 6.60$). While the Group effect was not significant ($F(2,84) = 0.67$, n.s.), a significant interaction effect was found, $F(2,84) = 4.05$, $p < .05$. The interaction is illustrated in Figure Q-1. The figure shows that the task means for the Severity group ($M = 6.40$) were the same but the task means for the other two groups were higher for the Word Association task than the Contingency Estimation task, especially for the Clinical subjects (Normal/Contingency Estimation $M = 6.27$, Normal/Word Association $M = 6.60$, Clinical/Contingency Estimation $M = 5.60$, Clinical/Word Association $M = 6.80$).

The final pre-task variable was confidence in personal ability (Confidence). The ANOVA revealed an effect for the Task factor, $F(1,84) = 12.17$, $p < .001$. The subjects who

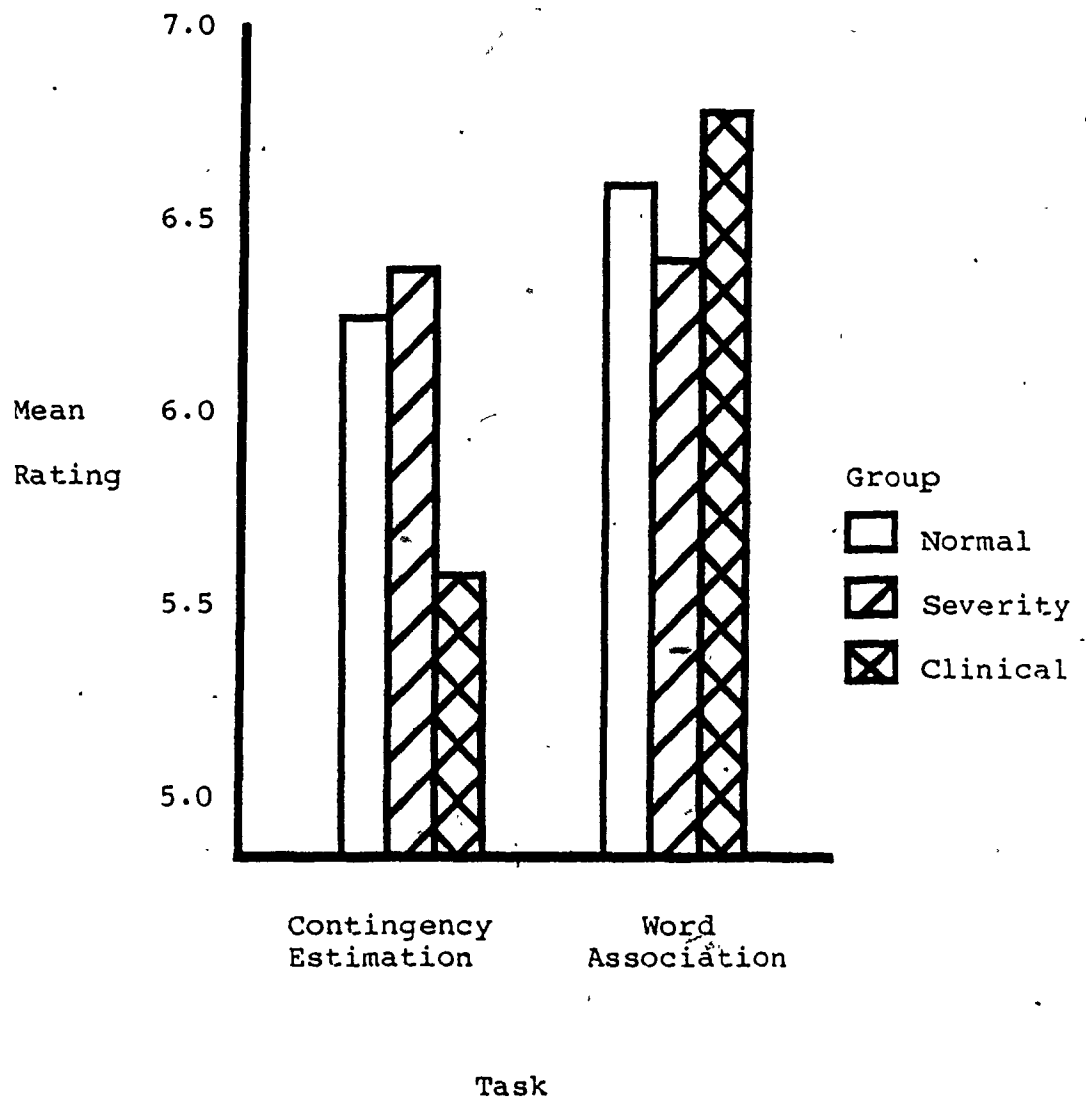


Figure Q-1. The Group X Task interaction for Motivation

were to be presented the Contingency Estimation task ($M = 58.60$) gave lower confidence ratings than those to be given the Word Association task ($M = 71.29$). The Group factor ($F(2,84) = 1.42, n.s.$) and two-way interaction ($F(2,84) = 1.38, n.s.$) were not significant.

In summary, five of the six pre-task measures had significant Task factor effects. In each instance, the subjects, to whom the Alloy and Abramson (Contingency Estimation) task had been described tended to make lower ratings than those assigned to the Wener & Rehm (Word Association) task. The consistent Task effect together with the absence of a notable Group and only one interaction effect, suggests that pre-task perceptions differed primarily as a function of task description.

Post-Task Variables

Cognitive Triad Measures. Several adjunct variables were presented to the subjects in order to obtain further information on perceptions relevant to Beck's (1967; 1976) theory of depression. Three of the variables were considered to pertain to world view (self-referent interpretation of task experience). An ANOVA on the ratings of how representative performance was for the type of task (Representative Specific) disclosed one significant effect. The Task effect ($F(1,84) = 4.63, p < .05$) showed that the Contingency Estimation subjects ($M = 4.20$) gave higher

ratings than the Word Association subjects ($\bar{M} = 3.49$). No significant effects were found for the Group factor ($F(2,84) = 0.06$, n.s.) and interaction ($F(2,84) = 0.33$, n.s.). The second measure involved representativeness of performance in general (Representative General). Again, only the Task factor showed a significant effect (Task $F(1,84) = 4.40$, $p < .05$; Group $F(2,84) = .13$, n.s.; interaction $F(2,84) = 0.33$, n.s.). The Contingency Estimation task mean ($\bar{M} = 3.71$) was higher than the Word Association mean ($\bar{M} = 2.89$). The final world view measure consisted of a dichotomous rating of the task performance as either failure or success (Failed/Succeeded). Chi-square analyses for Group and Task factors disclosed significant differences for both ($\chi^2(2, N = 90) = 10.82$, $p < .01$; $\chi^2(1, N = 90) = 9.14$, $p < .01$, respectively). The endorsement frequencies are present in the contingency tables (Table Q-1). To examine which subject groups were different from one another, they were examined in pairs, via additional chi-square analyses. It was found that none of the 2 x 2 analyses resulted in significant pairwise group differences (Normal/Severity $\chi^2(1, N = 60) = 0.17$, n.s.; Normal/Clinical $\chi^2(1, N = 60) = 3.42$, n.s.; Severity/Clinical $\chi^2(1, N = 60) = 3.42$, n.s.). The task results indicated that fewer Contingency Estimation subjects considered themselves to have failed at the task than did Word Association subjects.

Table Q-1

Contingency Tables for Failed/Succeeded

	GROUP			Row Total
	Normal	Severity	Clinical	
Failed	18	18	28	64
Succeeded	12	12	2	26
Column Total	30	30	30	

	TASK		Row Total
	Contingency Estimation	Word Association	
Failed	25	39	64
Succeeded	20	6	26
Column Total	45	45	

One supplementary variable was included in the study to provide additional information on 'view of self'. This rating scale concerned importance of task to self-view. (Task Importance). The ANOVA showed no significant effects (Group $F(2,84) = 1.06$, n.s.; Task $F(1,84) = 0.21$, n.s.; interaction $F(2,84) = 0.13$, n.s.),

Three adjunct measures were considered relevant to the view of future perception. The analysis, on the rating of percent of success hoped for on a similar task in the future (Future Hope), revealed only a significant effect for Task ($F(1,84) = 12.09$, $p < .001$; Group $F(2,84) = 1.38$, n.s.; interaction $F(2,84) = 1.38$, n.s.). The task means reflect that the Contingency Estimation subjects ($M = 74.36$) had higher success hopes than the Word Association subjects ($M = 60.78$). The ANOVA, on minimum satisfactory level of success on a similar task in the future (Future Satisfaction), also disclosed only a significant Task effect ($F(1,84) = 12.62$, $p < .001$; Group $F(2,84) = 1.16$, n.s.; interaction $F(2,84) = 1.72$, n.s.). Again, the means showed that the subjects who did the Contingency Estimation task ($M = 63.18$) rated future satisfactory level higher than did those who were presented the Word Association task ($M = 50.00$). The third view of future measure involved a two-choice rating of anticipated performance on a similar task in the future (Failure/Success). The chi-square analysis indicated a significant Task difference

($\chi^2 (1, N = 90) = 9.16, p < .01$), but not a Group difference ($\chi^2 (2, N = 90) = 5.98, n.s.$). The Task frequencies showed a larger number of success ratings among the Contingency Estimation subjects (Fail = 10, Succeed = 35) than among the Word Association subjects (Fail = 25, Succeed = 20).

Learned Helplessness Measures. The study included three adjunct measures of learned helplessness. One pertained to motivation deficit (General Motivation) and involved a rating of general motivation to succeed in the future. The ANOVA on this variable revealed no significant effects (Group $F (2,84) = 0.56, n.s.$; Task $F (1,84) = 0.38, n.s.$; interaction $F (2,84) = 0.92, n.s.$). The two other supplementary variables, were related to causal attribution. The first of these measures involved a dichotomous rating regarding perception of task outcome as "Bad" or "Good" (Bad/Good). (This measure, while considered secondary in importance by itself, was essential to the major variables in that it provided the contextual basis for understanding the causal attribution ratings. The chi-square analyses indicated significant Group and Task frequency differences ($\chi^2 (2, N = 90) = 10.48, p < .01$; $\chi^2 (1, N = 90) = 7.33, p < .01$, respectively; Table Q-2). To test for pairwise group differences, 2×2 chi-square analyses were conducted. It was determined that only the Normal and Clinical groups had significant

Table Q-2

Contingency Tables for Bad/Good

	GROUP			Row Total
	Normal	Severity	Clinical	
Bad	16	18	27	61
Good	14	12	3	29
Column Total	30	30	30	

	TASK		Row Total
	Contingency Estimation	Word Association	
Bad	24	37	61
Good	21	8	29
Column Total	45	45	

frequency differences (Normal/Clinical $\chi^2 (1, N = 60) = 3.88, p < .05$; Normal/Severity $\chi^2 (1, N = 60) = 0.01, n.s.$; Severity/Clinical $\chi^2 (1, N = 60) = 2.73, n.s.$).

As displayed in Table Q-2, the Normal subjects made fewer "BAD" task outcome endorsements than the Clinical subjects. Regarding Task difference, the Contingency Estimation subjects made fewer "BAD" outcome endorsements than did the subjects who completed the Word Association task. The second, supplementary attribution measure concerned certainty about cause of performance on the task (Certainty). As with the major attribution variables, this measure was also borrowed from the Attribution Style Questionnaire (ASQ; Seligman et al., 1979). The results of the ANOVA on this variable did not show any significant effects (Group $F (2,84) = 0.26, n.s.$; Task $F (1,84) = 0.36, n.s.$; interaction $F (2,84) = 0.50, n.s.$).

Stress. Four measures of stress were presented to the subjects, subsequent to completion of the task. The Subjective Stress Scale (SSS; Neufeld & Davidson, 1972) was administered immediately after the post-task DACL. An analysis of variance on SSS revealed a significant effect for Group only ($F (2,84) = 13.65, p < .001$; Task $F (1,84) = 0.46, n.s.$; interaction $F (2,84) = 0.10, n.s.$). An SNK test of means indicated that the Clinical subjects ($M = 2.91$) perceived themselves as having experienced more stress, while doing the task, than did the Normal ($M = 1.22$) or

Severity subjects ($\underline{M} = 1.47$).

The other three measures (Difficulty, Relaxation, Stress) were also borrowed from stress research (cf., Dobson & Neufeld, 1981). One variable involved rating perceived task difficulty (Difficulty) and the ANOVA on its data showed only a significant effect for Task ($\underline{F} (1,84) = 6.35$, $p < .02$; Group $\underline{F} (2,84) = 1.15$, n.s.; interaction $\underline{F} (2,84) = 0.57$, n.s.). The subjects who completed the Contingency Estimation task ($\underline{M} = 3.58$) found it less difficult than those who did the Word Association task ($\underline{M} = 4.58$). The ANOVA, on the stress-related variable of extent of relaxation during the task (Relaxation), disclosed a significant Group effect ($\underline{F} (2,84) = 10.27$, $p < .001$; Task ($1,84) = 3.25$, n.s.; interaction $\underline{F} (2,84) = 1.40$, n.s.). A test of Group means revealed that the Normal subjects ($\underline{M} = 5.27$) thought themselves more relaxed than did the Severity ($\underline{M} = 4.10$) and Clinical subjects ($\underline{M} = 3.37$). The final stress measure addressed the topic most directly by involving a rating of how stressful the subjects found the task (Stress). The results of the ANOVA showed significant main effects for Group ($\underline{F} (2,84) = 4.44$, $p < .02$) and Task ($\underline{F} (1,84) = 6.75$, $p < .02$), but not for their interaction ($\underline{F} (2,84) = 0.51$, n.s.). When the Group means were subjected to an SNK test, it was determined that the Normal group ($\underline{M} = 2.63$) experienced less stress than the Severity ($\underline{M} = 3.57$) and Clinical groups ($\underline{M} = 3.73$). The Task means indicated

less stress for the Contingency Estimation subjects ($M = 2.89$) than the Word Association subjects ($M = 3.73$).

In brief, the results on the stress variables indicate that, where group differences were evidenced (3 out of 4 variables), the Normal subjects consistently experienced less task-related stress than did the Clinical subjects. A Normal-Severity stress difference was also found on two of the variables. Further, the subjects given the Contingency Estimation task found it less difficult and stressful than those who did the Word Association task.

Task features. Two rating scales were included in the study to examine how interesting (Interest) and enjoyable (Enjoyment) the subjects found the task. The ANOVA on Interest revealed a significant Task effect ($F(1, 84) = 5.29, p < .05$; Group $F(2, 84) = 0.17, n.s.$; interaction $F(2, 84) = 0.17, n.s.$). The task means indicated that the Contingency Estimation subjects ($M = 4.33$) found the task less interesting than the Word Association subjects ($M = 5.09$). The results of the ANOVA on task enjoyment (Enjoyment) showed no significant effects (Group $F(2, 84) = 1.43, n.s.$; Task $F(1, 84) = 0.67, n.s.$; interaction $F(2, 84) = 1.12, n.s.$).

Experiment value. The final adjunct variable was presented in the post-task interview. The subjects were asked, by the experimenter, to rate the perceived scientific value of the experiment (Value; cf., Festinger & Carlsmith,

1959). The analysis of variance on Value revealed no significant effects (Group $F(2,84) = 0.80$, n.s.; Task $F(1,84) = 0.38$, n.s.; interaction $F(2,84) = 0.43$, n.s.). Thus, no statistical differences, in the perceived scientific value of the experiment, occurred as a function of depression criteria or task assignment.

Appendix R

Analysis of Variance Summary Tables
for Minor Variables

Table R-1

Analysis of Variance Summary Table: Depression Adjective Checklist (DACL), with Pre- and Post-Task Administrations as a Repeated Measures Factor

Effect	Degrees of Freedom	Mean Square	F value	Significance Level (p <)
Group	2,168	546.16	27.40	.001
Task	1,168	0.45	0.02	.88
Repeated ^a	1,168	76.05	3.82	.05
Group X Task	2,168	5.27	0.26	.77
Group X Repeated	2,168	0.20	0.01	.99
Task X Repeated	1,168	22.05	1.11	.29
Group X Task X Repeated	2,168	7.27	0.36	.70

^a Repeated refers to the repeated measures factor.

Table R-2

Analysis of Variance Summary Table: Pre-Task Variables

Variable	Effect	Degrees of Freedom	Mean Square	F Value	Significance Level (p <)
Expected Feedback					
	Group	2,84	394.14	2.16	.12
	Task	1,84	1159.21	6.36	.02
	Interaction	2,84	181.34	1.00	.37
Hoped Feedback					
	Group	2,84	112.74	0.46	.64
	Task	1,84	4551.11	18.43	.001
	Interaction	2,84	99.68	0.40	.67
Satisfactory Feedback					
	Group	2,84	81.43	0.26	.77
	Task	1,84	59.21	0.19	.66
	Interaction	2,84	321.94	1.04	.36
Expected Control					
	Group	2,84	880.93	2.41	.10
	Task	1,84	7057.88	19.33	.001
	Interaction	2,84	147.78	0.41	.67
Motivation					
	Group	2,84	0.48	0.67	.51
	Task	1,84	5.88	8.27	.005
	Interaction	2,84	2.88	4.05	.05
Confidence					
	Group	2,84	423.54	1.42	.25
	Task	1,84	3622.68	12.17	.001
	Interaction	2,84	411.08	1.38	.26

Table R-3

Analysis of Variance Summary Table: Post-Task/AdjunctCognitive Triad Variables

Variable	Effect	Degrees of Freedom	Mean Square	F Value	Significance Level (p<)
Representative Specific					
	Group	2,84	0.14	0.06	.94
	Task	1,84	11.38	4.63	.05
	Interaction	2,84	0.81	0.33	.72
Representative General					
	Group	2,84	0.43	0.13	.88
	Task	1,84	15.21	4.40	.05
	Interaction	2,84	1.14	0.33	.72
Task Importance					
	Group	2,84	2.74	1.06	.35
	Task	1,84	0.54	0.21	.65
	Interaction	2,84	0.34	0.13	.88
Future Hope					
	Group	2,84	473.23	1.38	.26
	Task	1,84	4148.01	12.09	.001
	Interaction	2,84	473.74	1.38	.26
Future Satisfaction					
	Group	2,84	368.04	1.16	.32
	Task	1,84	3907.21	12.26	.001
	Interaction	2,84	547.51	1.72	.19

Table R-4

Analysis of Variance Summary Table: Post-Task/Adjunct
Learned Helplessness

Variable	Effect	Degrees of Freedom	Mean Square	F Value	Significance Level (p < .)
General Motivation					
	Group	2,84	0.41	0.56	.57
	Task	1,84	0.28	0.38	.54
	Interaction	2,84	0.68	0.92	.40
Certainty					
	Group	2,84	0.63	0.26	.77
	Task	1,84	0.90	0.36	.55
	Interaction	2,84	1.23	0.50	.61

Table R-5

Analysis of Variance Summary Table: Post-Task/Stress

Variables

Variable	Effect	Degrees of Freedom	Mean Square	F Value	Significance Level (p <)
SSS^a					
	Group	2,84	24.82	13.65	.001
	Task	1,84	0.83	0.46	.50
	Interaction	2,84	0.18	0.10	.91
Difficulty					
	Group	2,84	4.08	1.15	.32
	Task	1,84	22.50	6.35	.02
	Interaction	2,84	2.03	0.57	.57
Relaxation					
	Group	2,84	27.54	10.27	.001
	Task	1,84	8.71	3.25	.08
	Interaction	2,84	3.74	1.40	.25
Stress					
	Group	2,84	10.54	4.44	.02
	Task	1,84	16.04	6.75	.02
	Interaction	2,84	1.21	0.51	.60

^aSSS= Subjective Stress Scale

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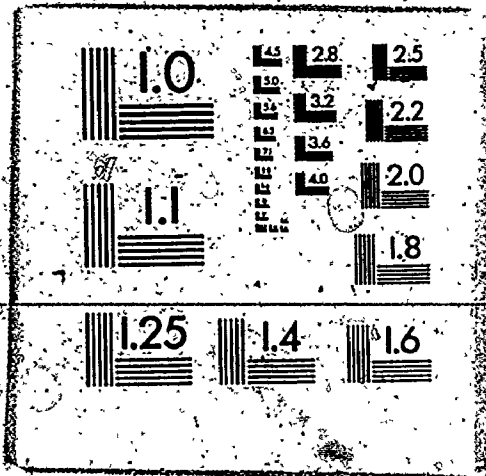


Table R-6

Analysis of Variance Summary Table: Post-Task/InterestEnjoyment, Value Variables

Variable	Effect	Degrees of Freedom	Mean Square	F Value	Significance Level (p <:)
Interest					
	Group	2,84	0.41	0.17	.85
	Task	1,84	12.84	5.29	.05
	Interaction	2,84	0.41	0.17	.85
Enjoyment					
	Group	2,84	4.01	1.43	.25
	Task	1,84	1.88	0.67	.42
	Interaction	2,84	3.14	1.12	.33
Value					
	Group	2,84	2.31	0.80	.45
	Task	1,84	1.11	0.38	.54
	Interaction	2,84	1.24	0.43	.65

Appendix S

Correlations Among Select Stress
and Major Variables

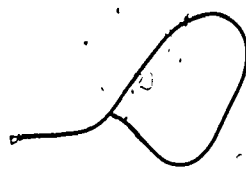
Correlations Among the Stress and Major Dependent
Variables Which Showed Significant Group Effects

	SSS ^a	Stress	Relaxation
Task Feedback	-.25	-.15	.38
Personal Standard	-.38**	-.33*	.36**
Other Performance	-.35*	-.21	.36**
Self Success	-.38**	-.35*	.38**
Future Success Similar	-.21	-.13	.29
Future Control	-.23	.03	.10
Task Confidence	-.50**	-.33*	.52**
Future Confidence	-.30	-.17	.31

Note. N = 90

^aSSS = Subjective Stress Scale.

*p .05, two-tailed. **p .01, two tailed. Critical values for significance ($\pm .32$ and $\pm .36$, respectively) were determined via the Bonferroni procedure (Harris, 1976; Larzelere & Mulaik, 1977).



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