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Attribution and affect in learned helplessness and depression

Elaine Irene Johnson

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ATTRIBUTION AND AFFECT IN LEARNED HELPLESSNESS AND DEPRESSION

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Attribution and affect
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Elaine Irene Johnson

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INTRODUCTION

Martin E. P. Seligman's "learned helplessness" theory of depression states that laboratory-induced learned helplessness (e.g., Maier & Seligman, 1976) provides a model for normally-occurring psychological depression in humans (Seligman, 1975; Abramson, Seligman, & Teasdale, 1978). According to the theory, helplessness and some cases of depression are alike both behaviorally and functionally. Indeed, they are regarded as two cases of the same phenomenon, "helplessness depression":

There is continuity of miniature helplessness depression created in the laboratory and . . . real-life depression . . . the laboratory-induced depressions are less chronic and less global and are capable of being reversed by debriefing, but, we hypothesize, they are not different in kind from naturally occurring helplessness depressions. They differ only quantitatively . . . (Abramson et al., 1978, 67-68).

The present study is one test of this model. It focuses on affect, one aspect of both helplessness and depression. Helplessness has been thoroughly described and researched in laboratory studies with animals and with humans (see Maier & Seligman, 1976, and Seligman, 1975, for reviews). Seligman's theory of depression was built on his observation that the effects of helplessness parallel some of the frequently reported symptoms of depression. A difficulty with the model, however, is that the affective component of learned helplessness has received relatively slight attention in both theory
and research. Yet depression is viewed as primarily an affective, or mood disorder, both historically and currently (e.g., Freud, 1917; Kraepelin, 1921; Task Force on Nomenclature and Statistics, 1980). The helplessness model of depression is incomplete at best, relevant to only a portion of the clinical picture of depression, until its affective dimension is clearly and reliably demonstrated. The first purpose of this research was to describe the quality of the emotion which accompanies laboratory-induced helplessness, and to compare this with the emotion which characterizes depression.

The second research question was whether attributions mediate emotion in learned helplessness. According to Abramson et al. (1978), attributions about the cause of helplessness may influence the intensity of emotion which the helpless individual experiences, but qualitative variations in emotion are not mentioned. Other recent work (Weiner, Russell, & Lerman, 1978), however, shows that attributions do alter the quality of emotional experience following success or failure. Since laboratory helplessness is usually induced by a series of failure experiences, these results may extend to the case of helplessness. If so, only certain attributions would produce emotion in helplessness which is analogous to the emotion of depression, and Seligman's theory may be in need of revision or expansion. A given attributional style may be necessary for producing the emotion specific to depression.

The present study, then, focused on two questions: (1) the quality of the emotion which accompanies helplessness and its
similarity to the emotion of depression; and (2) whether attributions mediate the emotion of helplessness. A comprehensive assessment of the quality of the emotional changes which accompany helplessness has not been previously undertaken. Likewise, the role of attributions on emotions in helplessness has not been successfully studied. Both questions directly address the adequacy of Seligman's model in describing and accounting for the emotional component of depression.

The Iowa State University Committee on the Use of Human Subjects in Research reviewed this project and concluded that the rights and welfare of the human subjects were adequately protected, that risks were outweighed by the potential benefits and expected value of the knowledge sought, that confidentiality of data was assured and that informed consent was obtained by appropriate procedures.
LITERATURE REVIEW

Learned Helplessness and Depression: The Theory

The major contention of this thesis is that the helplessness model of depression is weak in that a similarity of affect in laboratory helplessness and real-world depression remains to be demonstrated. This weakness stems in part from the fact that early work with helplessness focused on its motivational and cognitive properties, and only recently has an emotional component been proposed (Seligman, 1975). Hence, scant research is accumulated on emotion in helplessness. In the following sections, helplessness theory and research are reviewed, with particular attention given to that which described and measured affect. The theory is presented first, in both its original and recently expanded versions. The earliest theoretical statement pertained only to laboratory helplessness. Later ones related helplessness to human depression.

Uncontrollability

The phrase "learned helplessness" was coined by Seligman and colleagues to describe the unusual learning behavior of dogs after they had been exposed to uncontrollable electric shock. These animals were later grossly deficient in shuttlebox escape/avoidance learning, and helplessness theory arose to account for this effect. Uncontrollability is operationally defined as a situation where the probability (p) of reinforcement (RF) given any specific response (R) equals the probability of reinforcement in the absence of that
response (R). Thus, uncontrollability refers to a condition of noncontingency between responding and reward, and is defined by the equation, \( p(RF/R) = p(RF/R) \) (Seligman, Maier, & Solomon, 1971). When this noncontingency applies to all emitted responses, the situation is an uncontrollable one. Organisms are free to emit various responses under helplessness conditions, and indeed reinforcement may occur. However, the delivery of the reinforcement is predetermined and random; its parameters (including frequency, density, intensity, and duration) are under experimenter control and unrelated in any lawful way to responding by the organism.

It is important to note that uncontrollability is defined by the experimenter's arrangement, not by the perceptions of the subject (Seligman, Maier, & Solomon, 1971). Yet, the crux of helplessness theory is that organisms perceive and actively learn that responses are independent of outcomes (Seligman, 1975; Maier & Seligman, 1976). In short, they learn that they are helpless, or develop an expectancy of no control. Later, in situations which involve controllable outcomes [i.e., \( p(RF/F \neq p(RF/R)) \)], if the expectancy of noncontrol persists, organisms continue to respond as if their behavior is irrelevant to their outcomes. They do not emit appropriate, reinforcement-controlling responses (i.e., they show a "motivational deficit"). Furthermore, if an appropriate response is emitted and rewarded, they do not learn from it. That is, they apparently fail to recognize new contingencies, a phenomenon referred to as the "cognitive deficit."
Attributions in learned helplessness and depression

Recently Abramson, Seligman, and Teasdale (1978) reformulated helplessness theory in a manner which gives major importance to attributions. In the revision, the perception and expectancy of response-outcome independence was retained as the critical factor leading to the motivational and cognitive effects in helplessness. However, it was hypothesized that in humans attributions intervene between the perception of noncontingency and the formation of one's expectancy for control, and determine the parameters of the helplessness deficits.

The sequence of events in the development of helplessness is depicted in Figure 1, taken from Abramson et al. (1978, p. 52).

Objective noncontingency → Perception of present and past noncontingency → Attributions for present or past noncontingency → Expectation of future noncontingency → Symptoms of helplessness.

Figure 1. Flow of events leading to symptoms of helplessness

According to this model, when humans perceive helplessness, they automatically question why they are helpless, and form an explanation, or causal attribution. Attributions may vary along the dimensions of generality, stability, and locus of control. [The latter two reflect the work of Weiner and colleagues in achievement motivation (Weiner, Frieze, Kukla, Reed, Rest, and Rosenbaum, 1971).] In helplessness, the kind of attribution one makes presumably determines the generality (across situations) and chronicity (over
time) of the helplessness effects, and whether self-esteem is lowered. The three dimensions are considered orthogonal, and involved in all attributions about helplessness. Except for the locus of control dimension, the authors did not offer guidelines on when various types of attributions would be made.

The attributional dimensions act in the following ways: If a very specific attribution is made, helplessness beliefs will not generalize across situations, and symptoms will not occur except in the specific situation where helplessness was originally experienced. More global attributions occasion more widely-reaching effects. At the extreme, persons may experience helplessness in all situations.

The stability of the attribute determines the chronicity of helplessness deficits. Following from Weiner et al. (1971), Abramson et al. (1978) hypothesized that attributions of helplessness to a stable element, such as low ability or one's sex, lead to persistent deficits over time. Conversely, invoking an unstable element (e.g., being dizzy, not trying) causes helplessness to dissipate more rapidly.

The internal-external (locus of control) dimension mediates self-esteem changes. Whether one forms an internal or an external attribution is thought to depend on how his or her performance compares with that of relevant others. If one experiences helplessness in a situation where relevant peers are also helpless, the attribution will be an external one—for example, to task
difficulty, universal bad luck, or the intervention of a third
party. The ensuing state is dubbed "universal helplessness,"
and does not entail a lowering of self-esteem. If, however,
helplessness is experienced relative to an outcome which is
controllable by relevant others (e.g., failing a bar exam which
one's classmates pass) the resultant attribution is an internal one.
The individual experiences "personal helplessness," which involves
lowered self-esteem. The self-esteem deficit is considered a
fourth helplessness deficit, in addition to motivational, cognitive,
and emotional deficits (the latter will be discussed momentarily),
but is specific to personal helplessness.

To this point the revised theory has been discussed in terms
of helplessness. All of the above remarks apply to the theory
of depression as well, in that according to the model, helplessness
essentially is depression. It is hypothesized that depression
follows from the recognition of a lack of control over important
life events. Generality and chronicity of depression are presumed
to follow from the globality and specificity of attributions about
the cause of one's lack of control, and self-esteem diminishes
when an internal attribution is made.

Emotion in learned helplessness and depression

As has been mentioned, the original helplessness experiments
revealed shuttlebox learning deficits in dogs after exposure to
uncontrollable shock. For several years, from 1967 to 1975, help­
lessness literature focused on describing the motivational and
cognitive learning deficits in animals and humans, and researching the conditions which produced them. In 1975, Seligman theorized that helplessness also produces depressed affect. At the same time, he theorized that helplessness is a laboratory analog of human depression. Seligman proposed that an organism's initial emotional reaction to aversive stimulation is a "heightened state of emotionality that can loosely be called fear" (p. 53). For a time, the fear is adaptive in that it motivates the organism to search for a way to escape. If an escape is found, fear is reduced and the organism rather calmly goes about escaping or avoiding. However, if the traumatic stimulation is uncontrollable, fear is maladaptive. It leads to the expenditure of great amounts of energy to no avail. Seligman proposed that when an organism realizes the uncontrollability of the situation, it ceases its search for escape. Concomitantly, fear is replaced by depression.

In the 1978 revision, Abramson et al. modified Seligman's 1975 statement about affect in helplessness in several ways. First, they proposed that helplessness does not always involve depressed affect. Uncontrollability alone, they maintained, is insufficient to produce sad affect. For example, the delivery of uncontrollable reward does not result in dysphoria. Therefore, the authors proposed that an uncontrollable situation must involve either the loss of a highly desired outcome or the occurrence of a highly aversive one in order for emotional effects to occur in the resultant helplessness. In short, the outcome must be bad. The quality
of the emotion was not described by Abramson et al. except as it was referred to as "depressed affect," "sadness," "dysphoria," and "negative affect" (p. 65). In contrast with Seligman (1975), they made no mention of a preceding fear state.

Expanding on Seligman's (1975) original statement, the revised theory states that the chief determinant of the intensity of affect in helplessness is the subjective importance of the uncontrollable outcome (its desirability or aversiveness). Intensity of affect may also be affected by the certainty of the expectation that the outcome is controllable, and, following from Weiner (1974), "may also depend on whether the person views his helplessness as universal or personal" (Abramson et al., 1978, p. 65). Thus, internality of the attributed cause may heighten the negative affect. However, it is not expected that the quality of the emotional experience varies depending on the attributed cause. To account for the intense sad affect of depression, as well as the low self-esteem and chronicity of effects, Abramson et al. proposed that depressives make internal, global, and stable attributions about their helplessness.

To summarize, according the revised helplessness theory, depressed affect occurs in helplessness when the uncontrollable outcome is a negative one. Uncontrollability per se does lead to motivational and cognitive deficits, but not the affect of depression. Intensity of the affective response depends upon a number of factors, but it appears from Abramson's et al. discussion that when affect accompanies helplessness, its quality does not vary from one instance
to the next. It should be noted that depressed affect may accompany either personal or universal helplessness since each can involve aversive outcomes. Thus, affect and self-esteem are thought to vary independently according to this model.

**Learned Helplessness: The Evidence**

In the following sections the research on helplessness is reviewed. As has been mentioned, early research focused almost exclusively on motivational and cognitive effects. This literature will be mentioned first, but handled quite briefly. More attention is given to the much lesser quantity of research which addressed emotional effects. Many of the most important helplessness studies have been done with animals. This literature is of minimal usefulness to the present discussion of affect, so will be described only as it is necessary to illustrate the methodology which became paradigmatic in helplessness research, and to describe the classic "motivational" and "cognitive" effects.

**Motivational and cognitive effects**

*Animal studies.* The original studies of learned helplessness, which were to provide the model for both animal and the early human research, were conducted on dogs in Seligman's animal learning laboratory (Overmier & Seligman, 1967; Seligman & Maier, 1967). In the first study naive adult dogs were suspended in a rubberized cloth hammock containing four holes through which their legs hung down and were secured. Their heads were held in place by two panels
with a yoke between them placed across the dogs' necks. Brass electrodes were attached to the hind footpads of animals in the experimental groups, through which a series of at least 64 uncontrollable shocks of varying duration and density were administered. One day later escape-avoidance learning was tested in a two-way shuttlebox, the two compartments separated by a partition adjusted to shoulder height of the dog. A CS of decreased illumination in the shuttlebox was followed ten seconds later by the onset of electric shock through the grid floor. Jumping the barrier after the onset of shock allowed subjects to escape, whereas jumping during the ten-second CS-UCS onset interval allowed them to avoid shock altogether.

Results showed that animals exposed to shock, regardless of density and duration, were significantly slower to avoid and escape than dogs receiving no shock treatment. Furthermore, many failed to escape shock even once (Overmier & Seligman, 1967).

Seligman and Maier's (1967) study introduced the yoked, triadic design, which became the standard for most animal and some human helplessness research. This design consists of a control group which receives no treatment with either controllable or uncontrollable stimuli, a group treated with controllable outcomes, and a "yoked control" group, which receives identical exposure to the outcomes as the "controllable" group, but does not have any means of controlling them. Therefore, only the dimension of controllability distinguishes the latter two groups. Seligman and Maier found that dogs treated
in the apparatus described earlier, but which could terminate shock by pressing on the head panels did not show later learning deficits. Animals which received yoked, inescapable shock did show subsequent helpless behavior. Therefore, the notion that controllability is the critical factor in producing interference in the shuttlebox gained credence in this study.

In addition to longer shuttlebox response latencies (elapsed time between CS onset and avoidance/escape response), the helpless animals showed grossly impaired ability to learn the escape response at all. Successful escape or avoidance by a helpless dog characteristically would not be followed by increased barrier jumping following CS onset. Rather, on subsequent trials these dogs would revert to passive acceptance of shock. This phenomenon led the authors to propose the associative or cognitive deficit in helplessness. They reasoned that an expectation of no control leaves animals without motivation to respond, and, further, inhibits the formation of a new expectancy, or association between barrier-jumping and shock termination.

A good deal of research has been done to test the idea that the observable learning deficits in helplessness are mediated cognitively, as proposed by the theory, and to rule out other explanations (e.g., Maier, 1970; Maier & Testa, 1975; Seligman, Maier & Geer, 1968). This literature is comprehensively reviewed by Maier and Seligman (1976). An analysis of the question of cognitive mediation is outside the scope of this paper. However, cognitive
mediation is termed the cornerstone of helplessness theory (Maier & Seligman, 1976), so the point bears emphasizing. Of course, the proposed expectancy of noncontingency cannot be directly measured. Its existence is inferred from the observation that in helpless animals, successful escape or avoidance does not reliably predict future successful responding. It is this author's conclusion that although the utility of theorizing about animal cognitions is questionable, research to date is consistent with the cognitive mediation theory. Also, helplessness researchers have done an admirable job of disconfirming competing hypotheses (see Maier & Seligman, 1976).

Human studies. In the earliest reported studies with humans, Fosco and Geer (1971) and Thornton and Jacobs (1971) attempted to demonstrate helplessness following inescapable electric shock. Close inspection reveals flaws which render these studies unimpressive, however. Fosco and Geer completely confounded uncontrollability with amount of exposure to shock. In Thornton and Jacob's study, subjects who could control shock on a training task performed better than subjects who could not, but those who had no control performed no worse than controls. Therefore, there was no helplessness effect. Hiroto (1974) provided stronger evidence that helplessness effects could be produced in humans, using a design modeled on Seligman's animal studies. The treatment in Hiroto's study was inescapable loud noise delivered through headphones. Subjects were given a button-pushing task, and told that there was something they could do
to turn off the loud noise. For one group of subjects this was true, but for another group the noise was independent of their responding. The posttest was a human analog of the shuttlebox. Subjects slid a knob along a channel in the top of a box, and could avoid or escape noise by moving the knob to alternating ends of the channel on each trial. Results were as predicted on four of the five dependent measures. Similar to results with animals, the inescapable noise subjects (E) had both longer response latencies and more failures to escape noise on the posttest than either escapable noise subjects (E) or controls (C). Additionally, they required more trials to reach both escape and avoidance criteria (defined as three consecutive escapes, or avoidances, respectively) than E or C groups. However, Wortman and Brehm (1975) pointed out that Hiroto's E and E groups were not yoked, and that controllability therefore was confounded with exposure to noise. Furthermore, the E group received considerably more noise than the E group.

This problem was rectified by Hiroto and Seligman (1975) who, using yoked groups (therefore a true triadic design) demonstrated performance deficits following uncontrollable noise. These researchers also induced helplessness by exposing subjects to a series of insolvable cognitive discrimination problems, which they argued are "formally analogous" to inescapable aversive stimulation, since in both, the probability of reinforcement is independent of responding. Hiroto and Seligman also showed that helplessness effects are not necessarily specific to situations similar to the
helplessness training situation. They used two types of posttests, the motor, manipulandum task used by Hiroto (1974), and a series of 20 solvable anagrams. All of the anagrams had the same letter sequence so that once subjects "caught on" to the solution of one, they held the solution to all of them, and it remained only for them to recognize this fact. Solution of the anagram task, thus, was analogous to solution of the shuttlebox task. Helplessness effects were noted on both motor and cognitive posttests following both instrumental and cognitive treatments.

Many other investigators have produced helplessness effects in humans. Subjects treated with inescapable noise have shown deficits on shuttlebox tasks (Krantz, Glass, & Snyder, 1974) and anagram tasks (Gatchel, Paulus, & Maples, 1975; Gatchel & Proctor, 1976). Glass and Singer (1972, pp. 109-120) reported impaired performance on cognitive tasks following uncontrollable electric shock, but no deficits following an equal number of controllable shocks. Rodin (1976), Benson and Kennelly (1976), and Cohen, Rothbart, and Phillips (1976) used a cognitive induction (insolvable problems) and reported interference on performance of cognitive tasks, as did Miller and Seligman (1975), Klein, Fencil-Morse, and Seligman (1976), Teasdale (1978), and Price, Tryon and Raps (1978). Klein and Seligman (1976) reported shuttlebox learning deficits following exposure to inescapable noise which were reversed by a "therapy" consisting of solvable problems. The "cure" was explained in terms of a reversal of the expectancy of noncontrol via the therapy.
Taken together, these studies convincingly demonstrate that performance deficits can be produced in humans by exposure to instrumental or cognitive insolvable problems. Most studies do not specify whether the dependent measures tap motivational deficits or cognitive deficits. It appears to this author that it is impossible to distinguish the two types. The cognitive deficit, occasionally operationally defined as failure to find the solution to a motor or cognitive task (e.g., Miller & Seligman, 1975), could reflect either low motivation or a cognitive inhibition of performance. Furthermore, any of a number of cognitive processes could depress performance.

Several authors have argued that although performance deficits are regularly produced in human helplessness studies, the studies are not convincing that these deficits result from the expectancy of noncontingency. In a critical review, Costello (1978) argued that very little evidence exists which supports the learned helplessness interpretation of Seligman's data. Competing explanations abound, some with experimental support. For example, Lavelle, Metalsky, and Coyne (1979) argued that an attentional factor, specifically the self-preoccupation manifested by high test-anxious persons can explain helplessness effects. In their study, only high test-anxious persons developed helplessness deficits. Other competing hypotheses include "learned skepticism," which could occur when similar treatment and posttest settings, tasks, or experimenters are used, in which case the generalization of the expectancy
of noncontrol to the posttest is appropriate (Wortman & Brehm, 1975); loss or protecting of self-esteem (Blaney, 1977; Frankel & Snyder, 1978; Sacco & Hokanson, 1978); failure generalization (Hanusa & Schultz, 1977); and either simple extinction or disturbing emotion (Costello, 1978). At the present time there is insubstantial evidence to conclude that performance deficits in humans flow straightforwardly from an expectancy of noncontingency.

Attributions and performance deficits in human helplessness

Only a few studies of the role of attributions on helplessness have been reported. Of these, locus of control is the primary attributional dimension which has been manipulated. According to helplessness theory, this manipulation should affect subjects' self esteem, and possibly, intensity of affect, but not their performance on the posttest. The first study of this type was conducted by Klein, Fencil-Morse, and Seligman (1976). In addition to the traditional solvable-problem, insolvable-problem, and no-problem control groups, they included two insolvable-problem groups for whom attributions about the problems were manipulated. Both groups were exposed to the uncontrollable outcomes, but one group was shown false norms indicating that nearly everyone succeeded in solving such problems in an earlier experiment. The other group saw norms indicating that almost none of their peers could solve such problems. The intent was to provide the first group with an internal attribution for failure and to provide the second group with an external attribution. In addition, a group of depressed subjects
was included in each experimental treatment.

Consistent with the revised theory (although this study preceded that theory), the attribution manipulation had no effect on non-depressed subjects made helpless in the lab. The helplessness induction resulted in impaired anagram performance, but it impaired all groups (internal, external, and no-attribution) equally. Attributions did, on the other hand, remarkably affect the performance of depressed subjects. Supplying depressed persons with an external attribution significantly reduced their anagram deficits relative to no-attribution and internal-attribution depressed groups. It is unclear why attributions affected the anagram performance of depressed persons, but not of helpless subjects.

Attributions of helpless subjects were manipulated in three additional studies. Results were inconsistent with each other and with helplessness theory. Tennen and Eller (1977) manipulated both attributions for failure and amount of exposure to failure. They found no performance deficits following 48 unsuccessful trials. Under "double helplessness" conditions (96 trials) the ability-attribution group showed posttest deficits, but the task difficulty-attribution group showed facilitated posttest performance as compared with controls. That is, subjects given insolvable problems who were led to believe their failure was due to difficulty of the problem performed better on the posttest than subjects given no treatment. The authors suggested that people redouble their efforts following situation-specific failures.
In two other studies, however, subjects supplied with ability attributions (incompetence) for their treatment failures performed better than all other groups. These authors argue that small amounts of failure attributed to ability motivate subjects to perform better in order to reestablish their control, or competence (Wortman, Panciera, Shusterman, & Hibscher, 1976; Hanusa & Schultz, 1977). Hanusa and Schultz also included an effort-attribution group, whose performance was unaffected by the treatment.

A problem for helplessness theory is that (with the exception of Tennen and Eller's double-helplessness, ability-attribution group) no subjects given unsolvable problems in these three studies showed performance deficits. This may be due to the fact that the posttest was presented to subjects as a separate experiment from the treatment. It immediately followed the treatment in each case, but took place in a different room, and involved a different task and different experimenter. Expectancies of noncontrol may not have generalized to the new situation.

It is perhaps more problematic for the theory that in several cases attributions about helplessness facilitated the performance of depressed persons, or those given helplessness treatments. This, of course, is completely inconsistent with the theory. It appears, as Wortman and Dintzer (1978) have argued, that attributions are not as straightforwardly linked with behavior as the helplessness model suggests. Amount of helplessness training and other variables, such as certainty of uncontrollability, probably mediate the effects
of attributions on performance.

Other challenges concerning the role of attributions in Abramson's et al. (1978) model have been made. Whether helpless subjects make attributions at all has been questioned. Hanusa and Schultz (1977) were unable to elicit any spontaneous reports of attributions about helplessness from their subjects. Also, Wortman and Dintzer (1978) charged that unless the model specifies how and when the attributions characteristic of depression are made, it becomes circular as it applies to depression. This author agrees.

Abramson et al. (1978) asserted that the evidence to date provides "some support" for their conception of the role of attributions in helplessness (p. 63). It is this author's observation that the support is almost negligible. The findings to date are disparate, and few are explainable by the current theory. Helplessness theory became more complex, probably necessarily, as it began to be applied to human behavior. However, as Huesman (1978) pointed out, the incorporation of attributions appears to have increased the theory's explanatory and predictive power at the price of precision and falsifiability. At the very least, much more work is required to clarify and substantiate the theory's explanations of the function of attributions in both helplessness and depression.

**Emotional deficits in helplessness**

**Animal research.** Animal studies first spurred speculation that helplessness involves an emotional disruption. Overmier and Seligman...
(1967) reported helpless behavior in dogs tested 24 hours after one session of inescapable shock, but normal behavior in dogs not tested until 48, 72, or 144 hours after inescapable shock. In the estimation of Maier and Seligman (1976), this phenomenon "hints of a transient emotional disturbance" (p. 15). Additionally, Maier and Seligman cited several studies of stress in animals (e.g., Weiss, 1968; 1971a; 1971b; 1971c), and the large "experimental neurosis" literature (e.g., Masserman, 1943) as suggesting that uncontrollability results in significant emotional stress.

The animal literature obviously provides only speculation about the existence or nature of the emotional dimension of learned helplessness. Overmier and Seligman's (1967) observation that response retardation dissipates with time, as do emotions, in no way constitutes evidence that emotions are associated with that response retardation. Furthermore, if the dissipation of helplessness indicates "transient emotional disturbance," this mitigates against the basic claim that the central mechanism in helplessness is a cognitive one.

Except for Overmier and Seligman (1967), none of the studies cited by Maier and Seligman (1976) measured disruption of learning (i.e., the motivational/cognitive deficit of helplessness). For that reason, it is impossible to state the relationship between those results and helplessness. Finally, controllability was not explicitly manipulated in the experimental neurosis studies. Therefore, controllability might be a factor in those animals'
emotional distress, but so might any number of other uncontrolled factors. Strong evidence that helplessness involves an affective component, and, perhaps more pertinent to the present discussion, an affective component similar to the affect of depression, clearly awaited human studies.

**Human research.** As was noted earlier, Seligman (1975) incorporated emotionality into helplessness theory, proposing that the initial emotional state in helplessness is fear, which is replaced by depression as the uncontrollability of the situation is realized. Interestingly, he cited performance facilitation noted by Roth and Bootzin (1974) in "helpless" subjects as supporting this idea. Roth and Bootzin found that college students initiated more adaptive, controlling responses after exposure to unsolvable problems. They suggested that a curvilinear relationship exists between uncontrolable outcomes and controlling behaviors. The initial reaction to uncontrollable experiences may be increased effort to gain control which, if unsuccessful, is followed by response retardation. Roth and Kubal (1975) supported this notion. They found facilitation following one uncontrollable task, but deficits following three such tasks. This sequence fits logically with Seligman's argument for a fear—depression emotional progression, however it obviously says nothing directly about emotion in helplessness. In that Abramson et al. (1978) did not mention a fear—depression sequence, however, it appears that this thinking is irrelevant to current theory.

In studies which have measured emotion directly, generally a
few 1-item measures have been administered immediately before or after the posttest. Two methodological problems are present in these studies. First is the questionable reliability of 1-item measures. Secondly, only a few arbitrarily-chosen dimensions of emotion are measured in each study. Since the range of possible emotions is not tapped, it is impossible from these findings characterize the emotional quality of helplessness. However, the cumulative findings suggest that helplessness produces a complex array of emotional responses, not simply "depressed affect." Therefore, findings to date appear not strongly supportive of the theory.

Consistent with Hiroto and Seligman's (1975) helpless group, who reported greater frustration than other groups, Cohen's et al. (1976) helpless group quit earlier on a frustration tolerance task than solvable-problem counterparts. Krantz's et al. (1974) helpless group, when in a high stress condition, rated themselves more incompetent, passive, and hostile than nonhelpless groups. Teasdale (1978) reported increased despondency, and Willis and Blaney (1978) found increased depression, and lowered optimism and confidence among helpless subjects. Roth and Bootzin (1974) reported more stress and frustration, and Glass and Singer (1972) reported more helpless, incompetent, and weak feelings among subjects given insolvable problems. Helplessness in Roth and Kubal's (1975) study was associated with feelings of helplessness, incompetence, stress, frustration, depression, anger, fatigue, displeasure about

In two studies, Klein and Seligman (1976) monitored sadness, nervousness, and anger on 1-item 11-point scales before the experiment, after the noise treatment, and before and after solvable-problem "therapy." No mood shifts were found for any group, with the single exception of a decrease in sadness following solvable-problem therapy. The authors hypothesized that the measures may have been insensitive to pick up on emotional changes.

In three studies, emotional changes during the experiment were assessed using a more sophisticated instrument, the Multiple Affect Adjective Check List (Zuckerman, Lubin, Vogel, and Valerius, 1964). Gatchel et al. (1975) administered the MAACL before the experiment, after helplessness training, and following anagram trials. Helpless subjects scored higher than the controllable-outcome group on all three subscales—hostility, anxiety, and depression—following training, but the groups did not differ at the other two assessment points. Helpless subjects also reported feeling more "helpless." Likewise, Miller and Seligman (1975) found increased depression, anxiety, and hostility among nondepressed subjects given inescapable noise. Depressed subjects reported increased anxiety and hostility after the treatment. Cole and Coyne (1977) found an increase in depression and hostility in all subjects, regardless of type of treatment problems they
received. Like the studies cited above, results of these three suggest that negative but complex emotional reactions accompany helplessness.

**Attribution and affect in helplessness**

One principal question of the present thesis concerns the role of attributions on affect in helplessness. In three studies attributions about helplessness were manipulated, and effects on affect as well as performance were measured. Unfortunately, the results yield little information about these factors in helplessness. In two studies (as reviewed earlier), the predicted performance deficits were not produced among persons given the helplessness treatment. In the third study, affect data went unreported.

As has been noted, Wortman et al. (1976) manipulated subjects' perceptions along the internal-external dimension. They hypothesized that personal attributions about failure would lead to greater stress in helplessness. Their results support this prediction. Individuals who attributed failure to incompetence experienced greater stress than those who attributed it to task difficulty, or those who received a solvable-problem treatment. The latter two groups did not differ from each other in terms of stress. More specifically, the incompetence-attribution group reported feeling greater helplessness, upset, frustration, anger, and arousal on 7-point semantic differential-type scales. In contrast, the task difficulty group experienced no greater stress than controls.

Recall, however, that performance deficits were not induced in either
the internal- or external-attribution group. The persons who made ability attributions and reported high stress performed better on the posttest than other groups. Therefore, the results cannot be interpreted in light of helplessness theory. Wortman et al. argue, however, that stress in helplessness-inducing situations is a function of attributions about one's performance, not lack of control per se.

Tennen and Eller (1977) also induced ability or task difficulty attributions for failures. They measured affect on three 1-item, 7-point sliding scales which addressed anger, nervousness, and sadness before and after the helplessness treatment. All subjects' nervousness decreased after the treatment. Sadness decreased for those given solvable problems, and one group given insolvable problems reported a large increase in anger. That particular group, however, (the group which received only one 48-trial problem) showed no performance deficits, so these results, again, say nothing about affect in helplessness.

Finally, Klein, Fencil-Morse, and Seligman (1976) measured sadness, nervousness, and anger before and after the treatment phase on 11-point sliding scales. They reported that sadness decreased following solvable problems, and anger increased after insolvable problems, "but these scales are at best crude indicators of mood, so the data will not be reported" (p. 512).

One consistent thread appears to exist among this data: experience with solvable problems makes people feel less sad. Over all of the studies which have measured affect, the effects of exposure
to uncontrollable aversive outcomes are less clearcut, and difficult to distill to a few dimensions. In some cases, somewhat consistent with Seligman's (1975) original theory of emotion in helplessness, it appears that uncontrollable situations induce emotional activation (stress, anger, arousal) which may facilitate performance. In other cases, where response deficits are produced, frustration, hostility, depression, and anxiety are rather consistently reported. Abramson's et al. (1978) model predicts a unidimensional emotional response to helplessness treatment: dysphoria or depressed affect. In contrast, findings to date have the flavor of a general, undifferentiated stress reaction. Helplessness appears not to be characterized by any one negative emotional dimension to the exclusion of others.

**Affect in depression**

In contrast to a rather generalized stress reaction, current definitions of actual depressive mood are quite specific. The *DSM III* (Task Force on Nomenclature and Statistics, 1980) defines mood as "a prolonged emotion that colors the whole psychic life" (p. 205). The mood of depression is described as:

dysphoric mood . . . characterized by symptoms such as depressed, sad, blue, hopeless, low, down in the dumps, irritable. The mood disturbance must be prominent and relatively persistent . . . and does not include momentary shifts from one dysphoric mood to another dysphoric mood, e.g., anxiety to depression to
anger, such as are seen in states of acute psychotic turmoil. (p. 213) [underlining added]

Thus, depressed persons are not expected to show anxiety or anger proportionate to their depressed mood.

Similarly, Aaron Beck (1967) noted that anger is relatively absent in depressed persons, as is anxiety, when depression is defined by his instrument, the Beck Depression Inventory. Beck described the affect characteristic of depression as dejected mood, which encompasses the descriptors miserable, hopeless, blue, sad, lonely, unhappy, downgraded, humiliated, ashamed, worried, useless, and guilty (p. 17). In contrast with helplessness theorists, Beck's thesis is that the affect of depression follows from the manner in which people interpret important negative events which occur in their lives. One pervasive tendency of depressives, he asserts, is to perceive negative events as attributable to defects in themselves. Self-depreciating interpretations produce sad affect. Thus, attributions determine affect according to Beck's theory (Beck, 1967; 1976).

Affect and Attribution in the Normal Personality

Recent work by Weiner and his colleagues (Weiner, Russell, & Lerman, 1978) provides evidence that causal attributions mediate affect in normal persons following their success or failure on a task. Their methodology allows an assessment of the qualitative affective differences which follow from various attributions, and is modeled in the present study. Before the study is described,
some background for their work is presented.

Working in the area of achievement motivation, Weiner and colleagues (Weiner, Frieze, Kukla, Reed, Rest, & Rosenbaum, 1971) theorized that four major causal elements are involved whenever people interpret or predict an achievement-related outcome. These elements are effort, ability, task difficulty, and luck. Any one can be deemed the primary causal element, but this decision is made after an active assessment of the role of all four on the outcome. That is, the individuals weigh their ability level against the difficulty of the task, consider effort expended, and the role of luck, then arrive at a decision regarding the importance of each factor in the outcome. Causality, and responsibility for the outcome, then, are attributed differentially to the causal elements.

Weiner et al. (1971) proposed that attributions influence both the expectancy that an outcome will occur again and the affect that is aroused in regard to a particular outcome (or, its reward value). Expectancy and goal attractiveness are thought to jointly determine one's level of motivation to achieve an outcome; therefore, attributions play a potentially very important role in achievement-related behavior.

Weiner and colleagues categorized the four causal elements along the dimensions of stable-unstable, intentionality, and internal-external. With regard to a given task, ability and task difficulty are factors not presumed to change (stable), while effort and luck fluctuate (unstable). Weiner et al. argued in 1971 that expec-
tancies about the occurrence of an outcome (for example, a good grade) are formed primarily as a function of the stability of the perceived cause. When an outcome is attributed to stable elements (e.g., ability), one outcome (a good grade) predicts another similar one. When attributions are to unstable elements (e.g., luck), expectancies for future outcomes are not based on previous outcomes. This position was adopted by Abramson et al. in 1978 as applied to the stability of helplessness.

Second, some attributed causes clearly involve intention (e.g., effort), whereas others are unintentional (e.g., ability). This dimension has not been researched very much, although it clearly is involved in judgements of moral culpability (Weiner et al., 1978).

Third, some attributions (e.g., ability and effort) refer to qualities of the person (are internal), and some (e.g., task difficulty and luck) refer to qualities in the environment (are external). For a time, the internal-external dimension was thought to mediate affect in a simple and straightforward way. Specifically, affect was thought to increase as outcomes were attributed to internal qualities. Thus, for example, pride in accomplishments and shame for failures would increase to the degree that one assumes internal causality and responsibility (Weiner, 1974).

More recent work has shown that the relationship between affect and attribution is more complex than this. Elig and Frieze (1975) and Frieze (1976) explored subjectively perceived causes of successes and failures by eliciting them in a free response format.
They found that many such causes exist. Weiner et al. (1978) suggested that some internal attributions such as effort may maximize certain emotions such as shame, but external attributions (e.g., teacher personality) may maximize other emotions such as anger. Their research was the first attempt to catalog the quality of emotional responses which are specific to a variety of attributed causes. Weiner et al. selected the 10 ascriptions for success and the 11 ascriptions for failure which encompasses the majority of those causes described by Elig and Frieze and Frieze. Subjects in their study were presented with a short vignette describing a success or failure along with the supposed cause. Subjects were then asked to describe the feelings of the stimulus person in the story.

The dependent measure was a list of either 85 positive affects (following success stories) or 150 negative affects (following failure stories). Each affect was responded to on a rating scale anchored at the poles by "not at all" and "extremely."

Results showed that within both success and failure conditions, there was a large overlap in the affects which were endorsed for the various attributed causes. For example, "pleased," and "happy" were among the 10 most highly rated affects for all 10 of the success causes. Regardless of perceived cause, success was associated with pleasure. Similarly, "uncheerful" and "displeasure" were frequently cited for the failure outcome regardless of the reason for the failure. Beyond the similarities, however, the various causes were related to very specific affects. "Discriminating
affects" were isolated for each cause by performing t tests on the mean intensity rating of an affect for one attributed cause as compared to its rating for all other attributed causes combined. The discriminating affects are summarized in Table 1, which is taken from Weiner et al. (1978). The principal conclusion of the study, illustrated in the table, is that different attributions produce distinct emotional reactions.

While guilt and shame were the highest given effort attributions, despair was given its lowest ratings when effort was the cause of the failure, apparently reflecting the volitional element which effort implies. Aggression was most strongly tied to attributions of others' personal characteristics or motivation, while assigning responsibility to one's own personality resulted in resignation and apathy. In discussing their results Weiner et al. suggested that the affect in depression (hopeless, helpless, depressed, resigned, aimless) perhaps follows from a proclivity toward the internal, stable attributions of ability, stable effort, personality factors, and intrinsic motivation. The authors also suggested that the affect which accompanies learned helplessness would vary as a function of attributions made about that helplessness. This latter issue is one of those investigated in the present study.

Learned helplessness is induced in humans by exposing them to noise which they are unable to turn off with the instruments available to them, or to discrimination problems for which there is no correct answer (i.e., uncontrollable bad outcomes). Abramson
Table 1

Discriminating Affects for Various Causal Attributions for Failure

<table>
<thead>
<tr>
<th>Ability</th>
<th>t</th>
<th>X</th>
<th>Personality</th>
<th>t</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td>incompetent</td>
<td>10.1</td>
<td>(7.5)</td>
<td>resigned</td>
<td>9.6</td>
<td>(6.4)</td>
</tr>
<tr>
<td>inadequate</td>
<td>8.0</td>
<td>(7.5)</td>
<td>apathetic</td>
<td>7.6</td>
<td>(5.5)</td>
</tr>
<tr>
<td>aimless</td>
<td>7.6</td>
<td>(6.1)</td>
<td>incompetent</td>
<td>4.8</td>
<td>(6.3)</td>
</tr>
<tr>
<td>panic</td>
<td>7.2</td>
<td>(7.1)</td>
<td>aimless</td>
<td>4.4</td>
<td>(5.4)</td>
</tr>
<tr>
<td>humble</td>
<td>6.8</td>
<td>(5.8)</td>
<td>solemn</td>
<td>2.1</td>
<td>(5.3)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unstable effort</th>
<th>Other's effort</th>
</tr>
</thead>
<tbody>
<tr>
<td>ashamed</td>
<td>ferocious</td>
</tr>
<tr>
<td>scared</td>
<td>revengeful</td>
</tr>
<tr>
<td>sorry</td>
<td>aggressive</td>
</tr>
<tr>
<td>panic</td>
<td>furious</td>
</tr>
<tr>
<td>guilty</td>
<td>bitter</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stable effort</th>
<th>Other's motivation and personality</th>
</tr>
</thead>
<tbody>
<tr>
<td>humble</td>
<td>revengeful</td>
</tr>
<tr>
<td>guilty</td>
<td>surprised</td>
</tr>
<tr>
<td>troubled</td>
<td>vicious</td>
</tr>
<tr>
<td>hopeless</td>
<td>wonderment</td>
</tr>
<tr>
<td>ashamed</td>
<td>fuming</td>
</tr>
</tbody>
</table>

(Standard deviations in parentheses)
<table>
<thead>
<tr>
<th>Task Difficulty</th>
<th>$t$</th>
<th>$\bar{X}$</th>
<th>Luck</th>
<th>$t$</th>
<th>$\bar{X}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>stunned</td>
<td>8.0</td>
<td>(7.1)</td>
<td>astonished</td>
<td>12.6</td>
<td>(7.1)</td>
</tr>
<tr>
<td>unexcited</td>
<td>7.7</td>
<td>(5.9)</td>
<td>overwhelmed</td>
<td>11.8</td>
<td>(6.6)</td>
</tr>
<tr>
<td>dumbfounded</td>
<td>6.9</td>
<td>(6.2)</td>
<td>surprised</td>
<td>10.8</td>
<td>(6.6)</td>
</tr>
<tr>
<td>thoughtful</td>
<td>6.8</td>
<td>(6.3)</td>
<td>stunned</td>
<td>10.0</td>
<td>(7.6)</td>
</tr>
<tr>
<td>displeasure</td>
<td>6.5</td>
<td>(8.7)</td>
<td>horrified</td>
<td>9.3</td>
<td>(7.0)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mood</th>
<th>Intrinsic motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>disgust</td>
<td>6.7 (8.3)</td>
</tr>
<tr>
<td>horrified</td>
<td>6.3 (6.3)</td>
</tr>
<tr>
<td>bewildered</td>
<td>6.0 (6.0)</td>
</tr>
<tr>
<td>frenzied</td>
<td>5.8 (6.0)</td>
</tr>
<tr>
<td>tormented</td>
<td>5.0 (6.8)</td>
</tr>
<tr>
<td></td>
<td>sad</td>
</tr>
<tr>
<td></td>
<td>resigned</td>
</tr>
<tr>
<td></td>
<td>helpless</td>
</tr>
<tr>
<td></td>
<td>apathetic</td>
</tr>
<tr>
<td></td>
<td>blue</td>
</tr>
</tbody>
</table>

| Fatigue-illness  | |
|------------------| |
| offended         | 7.0 (6.1) |
| unnerved         | 6.5 (7.0) |
| sorry            | 6.3 (8.1) |
| shaken           | 6.3 (7.9) |
| sullen           | 5.9 (8.0) |

et al. (1978) assert that "failure is a subset of uncontrollability involving bad outcomes" (p. 54). Thus, failure implies uncontrollability (though not vice versa), and Weiner's et al. (1978) findings on attribution and affect would seem to apply to the case of helplessness.

It will be recalled that Abramson et al. (1978) proposed that depression-prone individuals tend to make internal, stable, and global attributions for failure. This style would lead to relatively chronic and stable personal helplessness, which entails lowered self-esteem, according to the helplessness model. Yet the emotion accompanying this state is expected to be the same as that in helplessness which involves any or all other kinds of causal attributions, provided the uncontrollable outcome is an important one. The important question which this study addressed is the source of the emotion in helplessness (and depression, if one momentarily accepts the helplessness model)—in the experience of noncontrol over important events (as proposed by Seligman and colleagues), or in the interpretation (attribution) of that lack of control.

Introduction to the Present Study

The purposes of the present study, broadly, were two: (a) to assess the quality of the emotion which accompanies helplessness, and (b) to assess the relationship between various causal attributions for helplessness and the affect associated with them. In addition, the affect reported by a group of untreated depressives was compared
with affect reported by the "helpless" subjects to see if the moods of the two states are indeed parallel, as the helplessness model predicts. The helplessness treatment was a series of standard insolvable concept-formation, or discrimination problems (e.g., Hiroto and Seligman, 1975). Five groups were treated with insolvable problems. For one of these groups, no attribution about the cause of failing the problems was supplied. Other groups were given information designed to lead them to attribute their failures to ability, effort, task difficulty, or to having been tricked by the experimenter. A no-treatment control group did not attempt any problems. All groups responded to a modified version of Weiner's et al. (1978) list of negative affects, and the nondepressed groups completed an anagram-solving task. Those groups were compared on anagram performance and reported affect. Discriminating affects, which characterized each group as contrasted with all other groups, were isolated by a procedure similar to Weiner's et al. (1978). The affect of the untreated depressed sample was compared with that of the no-attribution helpless group. The following hypotheses were advanced.

**Performance deficits**

1. It was predicted that subjects treated with insolvable problems but not supplied with any attribution for their failures would show characteristic learning deficits on the anagram post-test, relative to controls. This is the helplessness effect reported by numerous researchers (e.g., Hiroto & Seligman, 1975) reviewed
earlier. In view of conflicting results of earlier research involving attribution manipulation, whether the other attribution groups would show anagram learning deficits was treated as an empirical question.

Affect

2. Based on research reviewed previously (e.g., Miller & Seligman, 1975; Lavelle, Metalsky, & Coyne, 1979), the no-attribution group was expected to report affect indicative of a generalized stressful reaction, including greater frustration, anxiety, hostility, and depression than controls. Whether any discriminating affects would emerge for this group was treated as an empirical question, since no evidence exists which bears on this point. Generally, however, fewer discriminating affects were expected to emerge for this group than for the various groups for which attributions were supplied.

3. Hypothesis 3 was based on the findings of Weiner et al. (1978), findings which were expected to generalize to the case of learned helplessness. Across subjects treated with insolvable problems, all were expected to report a number of common, or nondiscriminating affects. For example, "displeasure" and "upset" might be expected to receive similar intensity ratings by the various groups regardless of attribution about failure. However, discriminating affects were expected to emerge among the helpless groups which received different attributional information. The general flavor of the discriminating affects was expected to be as follows:
a. Feelings of incompetence and inadequacy would characterize the ability-attribution group.

b. The experimenter-trickery group would report hostility.

c. The effort-attribution group would be discriminably associated with guilt and shame.

d. The task difficulty group would exhibit a lack of excitement or involvement.

4. As compared with the no-attribution group, the depressed group was expected to reflect the tone of depression described by Beck (1967) and the DSM III (Task Force on Nomenclature and Statistics, 1980), including greater sadness, guilt, and hopelessness.
METHOD

The Present Investigation

Subjects

A total of 132 students at the University of Idaho agreed to serve as subjects in this study. Nondepressed subjects were 84 introductory psychology students, who received course credit for their participation. These persons were assigned randomly to experimental conditions, with the restrictions that equal numbers of males and females were assigned to each condition, and to each experimenter (one male and one female).

Data were discarded for 10 nondepressed subjects, who were replaced by others in the subject pool. Of the 10, five voiced suspicion that they were deceived on the discrimination task, three of these in the ability condition, and one each in the task difficulty and effort conditions. In addition, one subject in the effort condition thought he was being given insolvable anagrams and became too angry to go on. Another cited a dyslexic-like problem for her inability to solve the anagrams, and opted not to continue. Another person was replaced when we learned that English was not his native language, another when the experimenter ran out of time, and the last when the experimenter broke into fits of laughter upon hearing (for the fifteenth time) the taped bogus "ability attribution" instructions.

The depressed sample consisted of 38 persons drawn from two sources, the psychology department subject pool, and clients of the Student Counseling Center at the University of Idaho. A score of 9
41

or higher on the Beck Depression Inventory (Beck, 1967) was used to
categorize persons as "depressed." This is the score employed by
Seligman and colleagues in numerous studies as that which operation­
ally defines depression (Miller & Seligman, 1973; 1975; 1976; Miller,
Seligman, & Kurlander, 1975; Klein & Seligman, 1976; Klein, Fencil-
Morse, & Seligman, 1976).

Experimenters

All subjects drawn from the psychology department were tested
by one of two experimenters. One was a male undergraduate psychology
student, age 32, who conducted the experiment as part of an independent
study under the direction of the author at the University of Idaho.
The author, of the same age, served as the second experimenter.
Subjects drawn from the Counseling Center were tested by the Center
psychometrist, a male, age 32.

Materials

Beck Depression Inventory. The Beck Depression Inventory (BDI)
(see Appendix A) was used to classify subjects into depressed and
nondepressed groups. The BDI consists of a series of 21 symptoms,
which subjects rate according to the severity with which they are
experiencing those symptoms. The inventory yields a single score by
summation of item scores. The scale appears to have adequate
reliability and validity. Beck (1967) reports a split-half
reliability of .86 and a Spearman-Brown coefficient of .93. BDI
scores correlated between .61 and .73 with psychiatrists' ratings of
depth of depression in four separate studies (Beck, 1967).
Correlations of .75 with the MMPI D-Scale and of .75 and .82 with the Hamilton Rating Scale for Depression, an interview-based diagnostic depression scale (Hamilton, 1960), have been reported (Schwab, Bialow, Martin, & Clemmons, 1965; Williams, Barlow, & Agras, 1972). Changes in scores on the BDI have been shown to be predictive of changes in depression ratings by psychiatrists, and the BDI is more effective in distinguishing depression from anxiety than other self-report measures (Beck, 1967). Finally, Bumberry, Oliver, and McClure (1978) reported a correlation of .77 between BDI scores and a psychiatrist's rating of depth of depression in college students, who ranged between nondepressed and severely depressed, according to the ratings.

On a theoretical level, it may seem inappropriate to use Beck's depression scale as the criterion against which Seligman's theory is evaluated, in that Beck's theory is in many ways a competing one with Seligman's. However, since Beck's scale has been the "external criterion" for depression in all of Seligman's investigations relating helplessness and depression, the phenomenon measured by the BDI is clearly the phenomenon to which Seligman was applying his model.

**Discrimination problems.** Insolvable discrimination problems used in the helplessness training (Appendix B) were patterned after those used by Hiroto and Seligman (1975), who drew them from Levine (1966; 1971). Problems consisted of a series of 10 cards, each containing two stimulus patterns which varied along four dimensions: letter (A or T); letter size (large or small); letter color (red or black); and border (circle or square). The stimulus on the left side
of each card contained one value from each dimension (for example, a small red A bordered by a circle) and the stimulus on the right contained the complement (a large black T bordered by a square). On each problem, one of the values of one dimension was supposedly "correct"; for example, red, or small, or circle. Solutions to the problems required that subjects point to the side of the card which they believed contained the correct value. On each trial, they supposedly received feedback as to the correctness of their choice. By this process, subjects ostensibly could eliminate choices until they arrived at the correct value. In fact, for all but the control group, feedback was random and always followed this predetermined schedule: C-I-I-C-C-I-I-C-C-I, I-C-I-C-C-I-I-C-C-I, I-C-I-C-C-I-I-C-C-I, I-C-I-C-C-I-I-I-I-I. Subjects in each of the five insolvable problem groups were exposed to four problems with 10 trials, or cards, per problem. The patterns on each card were chosen randomly from among the 16 possible pattern combinations for two 4-dimensional figures.

A practice problem of five cards containing 5-dimensional stimulus figures was used to assure that subjects understood the problem-solving process. Dimensions on these problems were letter (X or O), underline texture (dashed or solid), number of dots (one or two), letter position (top or bottom of the card), and border color (red or blue).

Affect measure. The measure of negative affect used by Weiner et al. (1978) was adapted for use in this study. Weiner's measure
consisted of a randomized list of 150 negative affects to which subjects responded on a 9-point rating scale anchored at the extremes by "not at all" and "extremely." Twenty affects, whose meaning was unknown to ten percent or more of Weiner's subjects were eliminated from the list in this study. Seven descriptors were added, which include terms used by Beck (1967) or the DSM III (Task Force on Nomenclature and Statistics, 1980) to describe depressed mood. Subjects were asked to indicate terms for which they did not know the meaning. The affect measure is presented in Appendix C.

Anagrams. A series of 20 five-letter anagrams (Appendix D), drawn from Tresselt and Mayzner (1966) and those used by Teasdale (1978) was used in the posttest phase of the study. Anagrams were typed on cards, one per card, and contained in a binder. The letter sequence for solution of each anagram was 5-3-1-2-4; for example, DIUTA translates into AUDIT. All were single-solution anagrams. More difficult anagrams were placed at the beginning of the series to guard against early success eliminating a helplessness effect.

Before beginning the main data collection, the anagrams were piloted to ascertain whether they were of an appropriate difficulty level for the intended population. The initial anagram list (Appendix E) was piloted on 12 subjects, four males and eight females, who were not given any other treatments. Of these, only five discovered the solution to the anagrams over the 20 trials. One of these, an admitted anagram expert, reached criterion after only 5 trials. The other four, who (like the remainder of our sample) professed little or no prior
experience with anagrams, required an average of 13.5 trials to reach criterion. Aiming for a solvability rate of closer to 50%, four anagrams in the original list were replaced with easier ones, drawn from Tresselt and Mayzner (1966). Ten subjects, four males and six females, were then piloted using the revised set of anagrams. Six reached criterion for solution, in an average of 18.5 trials. Many trials were required to reach criterion, but given that slightly more than 50% of the subjects solved the pattern, the revised list was adopted for use in the study.

**Manipulation check.** A short questionnaire (Appendix F) was used to check whether subjects' attributions for their discrimination problem failures were successfully manipulated. Four attribution items assessed the degree to which ability, effort, task difficulty, and experimenter manipulation were perceived to have influenced performance. These items were rated on a 7-point scale anchored on the ends by "did not determine outcome at all" and "extremely important determinant of outcome." The midpoint was labeled "moderately important determinant of outcome."

**Additional measures.** On one additional questionnaire (Appendix G), subjects estimated the number of anagrams they had solved, and rated their success on that task on a 6-point scale. They were then instructed to consider their performance on the anagrams and attribute causality for their anagram performance on the same four items that were used to rate attributions about the discrimination problems.
Procedure

Client sample. Student Counseling Center clients who were referred to the psychometrist for MMPI testing were asked to participate in a research project. Those who agreed were tested by the psychometrist in the Center's testing room. After reading and signing an informed consent statement (Appendix H), they were given the Beck Depression Inventory and the negative affect measure. They were asked to respond to each in terms of how they had felt "lately." Results were forwarded to their counselors for interpretation to them.

Psychology students. Students in the psychology department volunteered or were recruited to participate in a study of "Feelings and Problem Solving." This phase of the study was conducted in a medium-sized room reserved for this purpose in the Student Health Center, which was decorated with wall hangings and potted plants. Students participated individually, with a single experimenter who, unless otherwise indicated, sat on the opposite side of a small table. Upon arrival, each student was met in a small waiting room by the experimenter, and escorted to the experiment room. Each person read and signed an informed consent statement (Appendix I), then filled out the BDI. At this point, the experimenter retired to a chair across the room. The completed BDIs were scored by the experimenter at a counter across the room from the subject, and persons scoring 9 or above were asked to complete the negative affect measure while the experimenter sat across the room. The meaning of these persons' BDI scores was discussed with them, they were given
information about counseling and credit for their participation, and dismissed. Persons scoring 8 or below on the BDI proceeded with the discrimination problems.

**Discrimination problems.** In the second phase of the experiment, the nondepressed students were presented with the Levine discrimination problems. They were informed:

In order that everyone who does this experiment hears exactly the same instructions, we have tape recorded some of them, and others I will be reading to you. For now, please pay attention to the tape recorder. I'll be stopping the recorder later to see if you have questions, but for now, please listen carefully.

All subjects heard the following tape recorded instructions, adapted from Hiroto and Seligman (1975):

In this experiment you will be looking at cards contained in this notebook. The cards are all something like this one. Each will have two stimulus patterns on it. The stimulus patterns on this card, and on the other sample cards which follow, are composed of five different dimensions. These dimensions are border, letter, underlining, dots, and pattern position. Each dimension has two values associated with it: the border color is red or blue, the letter is an X or an O, the underlining is either dashed or solid, there are 1 or 2 dots, and the pattern position is either high or low. Each
stimulus pattern on a card contains one value from each of the five dimensions.

Instructions to control subjects continued as follows:

You will be shown a number of cards of this type by the experimenter. As you see them, please point to the side of the card which seems to you to be the most interesting. Please pay attention to your own reactions, and point to the stimulus pattern which is automatically more pleasing, or interesting to you.

Let's go through the sample set of cards. Begin now by pointing to the most appealing pattern on this card.

Other groups heard the following instructions:

This notebook contains five sample cards of the type you are looking at, and also four sets of experimental cards. For these sample cards, we have chosen one of the ten values as being correct. For example, "X" or "red" or "solid" may be the correct answer. On each card, please point to the side which you think contains the correct value, and the experimenter will then tell you if your choice was correct or incorrect. The object for you is to figure out what the correct answer is so that you can choose correctly as often as possible.

Two procedures were used to manipulate attributions about performance. Differing tape recorded instructions about the cause of success and failure for the task were given to subjects in the
different attribution groups. These instructions were modeled in part after Kukla (1972), Hanusa and Schultz (1977), and Feather and Simon (1971). Secondly, false norms about the performance of subjects' peers on the task were shown to them (see Appendices J, K, & L). Usefulness of norms in manipulating attributions is substantiated by findings by Nisbett, Borgida, Crandall, and Reed (1976), Feather and Simon (1971), and Klein, Fencil-Morse, and Seligman (1976). Also, an attempt was made to impress subjects with the importance of the task, since Abramson, et al. (1978) proposed that only uncontrollability over important outcomes produces emotional effects.

The tape recorded instructions to the various groups continued as follows:

**No-attribution group and experimenter manipulation group**

We are very much interested in studying this type of pattern discrimination test. Psychologists really don't know yet what makes some people succeed while others fail on this type of test. These are important questions, however, and ones which we hope to help answer. Do your best. We hope you'll do well.

**Task difficulty attribution group**

We are very much interested in studying this type of pattern discrimination test, because these problems are very difficult to figure out. The task is a very difficult one. Even people who are quite
skillful, or who try hard, are frequently unsuccessful on these problems. Nevertheless, some people can solve them, and we'd like for you to attempt them. We want to show you, though, how college students of your age did on these same problems in a recent experiment.

On a graph which the experimenter will show you [Appendix J], you can see that out of four problems, no one solved all four, 1% solved three, 2% solved two, 7% solved one, and 90% failed all four. Do your best. We hope you'll do well.

**Ability attribution group**

We are very much interested in studying this type of pattern discrimination test because it seems to be a very pure measure of creative learning ability, which college students generally have a lot of. We've found that success on this test is mainly a function of people's ability. The degree of effort used really doesn't seem to matter nearly as much as the ability factor. Some people just seem to be good at this test, and others are not. However, as we said, college students generally do well. This graph [Appendix K] shows that out of four problems, in a previous experiment, 55% of students solved all of them, 30% solved three, 5% solved two, 7% solved one, and 3% didn't solve any. We're impressed with how well students are able to do this. Do your best. We hope you'll do well.
Effort attribution group

We are very much interested in studying this type of pattern discrimination test. Psychologists are interested in this because it seems to be a very pure measure of effort people put into it, that is, their motivation to focus their attention, try hard, and do well. Ability doesn't seem to play a very big role here. Our research shows that nearly all college students have sufficient ability to solve these problems successfully, it's really a matter of devoting full concentration to the task and being willing to not let up before we finish each problem. Most students do that pretty well. On a graph which the experimenter will show you [Appendix L], you can see that in a previous experiment, out of four problems, 45% of students solved all of them, 31% solved three, 13% solved two, 6% solved one, and 5% solved none. Do your best. We hope you'll do well.

Five demonstration trials of the 5-dimensional problem were presented first, to clarify the task of finding the correct value.

While control subjects merely pointed to the side which seemed most interesting, other groups heard the following recorded instructions:

Let's go through the sample set of cards. Choose one side of the card, and point to that side. The experimenter will say "correct" if the side you choose contains the
correct value. The experimenter will say "incorrect" if the side you choose does not contain the correct value.

For these groups, the experimenter gave random feedback, I-I-C-I-I, for these five trials. The experimenter then asked if the subject had any questions. When there were questions, an attempt was made to explain the answers by restating the recorded instructions.

Next, subjects heard the following recorded instructions:

Control subjects

We are now ready to proceed with the experimental cards. You will notice that the stimulus patterns on the experimental cards are different from those on the sample cards. However, the object is the same. Again, please pay attention to your reactions, and point to the side of the card which most appeals to you.

All other groups

We are now ready to proceed with the experimental cards. You will notice that the stimulus patterns on these cards are different from those on the sample cards. However, the object is the same. Please continue to point to the side of the card which you believe contains the correct value, and the experimenter will continue to tell you whether you are correct or incorrect.

At this point, the experimenter stated, "This is problem number 1. There is one correct value for this problem. You will have up to 15 seconds per card. I will tell you when you have 5 seconds left."
For the control group, the experimenter recorded the side of the card to which subjects pointed on each trial, and between trials, stated, "Please continue studying each stimulus pattern carefully, and continue pointing to the side which seems to be most interesting."

For other groups, the experimenter pretended to consult an answer sheet, then delivered trial-by-trial feedback according to the predetermined schedule. After the 10th trial of each problem, the subject was asked to guess the correct value for that problem. Regardless of the subject's response, the experimenter stated, "No, that's the wrong answer." The experimenter then stated:

We are now starting a new problem. You do not know at this point if we have chosen a different value as "correct" for this problem. I will continue to tell you if you are correct or incorrect in your response to each card.

At the conclusion of the last trial, the experimenter commented to the various groups, as follows:

No-attribution group
Hmmm, you didn't solve any of them, I don't know what the reason would be for that.

Task difficulty attribution group
Hmmm, you didn't solve any of them. That's not surprising—these are really hard problems.

Ability attribution group
Hmmm, you didn't solve any of them. I guess you weren't able to process all that information.
Effort attribution group
Hmmm, you didn't solve any of them. I guess you just
didn't concentrate hard enough.

Experimenter manipulation group
Hmmm, you didn't solve any of them. Now we can tell you the
reason for that.

This group heard the following recorded information:
The reason you didn't get any right answers was that, unknown
to you, the experimenter gave you false feedback about all
of your guesses. The experimenter actually said "correct"
and "incorrect" in a random, scrambled-up order as you were
doing the task. In fact, you could not have solved these
problems.

Manipulation check. For all groups except the controls, the
taped instructions continued, as follows:
We would like for you to think about your performance, now,
on this task. What do you think influenced your performance
the most? On the form which the experimenter will hand you,
there are four factors listed. Please put an X in the space
which you think best represents how important each factor
was in determining how well you did.

The experimenter handed the Attribution Manipulation Check
(Appendix F) to the subject and returned to the chair on the opposite
side of the room.

Measurement of affect. As soon as the manipulation check was
completed, which generally took only a moment, the experimenter handed the affect measure and instructions for completing it (Appendix C) to the subject. Subjects were asked to read the instructions and fill it out, and told that they could ask questions of the experimenter, who again moved to the other side of the room. In fact, no nondepressed subject took more than 10 minutes.

Anagrams task. The posttest was presented in the same location by the same experimenter as the treatment. Although there is argument that the helplessness phenomenon becomes interesting only as it can be shown to generalize to new situations (Wortman & Brehm, 1975), for two reasons this issue was ignored in the present study. The first was simplicity. Elaborate deception is required to induce subjects to believe that the posttest is part of a separate experiment (e.g., Hanusa & Schultz, 1977). This could be forgone in the present study for the second reason, that this study was unconcerned with generalization of effects. Generalization is thought to depend on the stability and globality of attributions (Abramson et al., 1978), which were not at issue here. Herein we were mainly concerned with achieving helplessness so that its attendant affect could be measured. For this reason, the procedure of early, successful helplessness studies was closely followed.

All subjects heard the following tape recorded instructions, adapted from Hiroto and Seligman (1975):

Now we would like for you to solve some anagrams. Anagrams are words with the letters scrambled. The problem for you
is to unscramble the letters so that they form a word. When you've found the word, tell the experimenter what it is. Now, there may be a pattern or principle by which to solve the anagrams. But that's up to you to figure out. We can't answer any questions now. After the experiment is over, we will answer all questions. Please begin.

The experimenter used a stopwatch to measure subjects' response times, and recorded those times in a notebook held out of the subjects' visibility. If subjects gave the correct word, the experimenter said, "That's correct. Now try the next one." In cases where a subject gave a nonsense word, the experimenter replied, "That's not a word. Please try again." Subjects were given a maximum of 100 seconds to solve each anagram. At 85 seconds, subjects were informed that they had 15 seconds left. At 100 seconds, the experimenter said, "Time is up. Please try the next one." The experimenter flipped the cards in the binder immediately when subjects correctly solved an anagram, or at the end of the 100-second interval. Subjects were not allowed to do any writing.

Additional measures. Subjects were told that there were a couple more questionnaires for them to fill out, which were self-explaining. The experimenter again moved across the room while the remaining form (Appendix 6) was completed.

Debriefing. At this point, subjects were handed a typed description of the study which explained the deception as well as
the purposes for it (Appendix M). They were probed for suspicion, and asked about their degree of familiarity with anagrams. All subjects reported little or no such experience. They were given credit for their participation, asked not to discuss any aspect of the experiment with friends or classmates, and dismissed.

**Design and Analyses**

Two main types of data were collected in the study, anagram performance data and affect data. Different types of analyses were conducted on the two.

**Anagram data.** Anagram performance was measured on four indices similar to those used by Klein et al. (1976). These were (a) mean response latency, that is, seconds to anagram solution (with times of 100 seconds automatically being counted as failures); (b) trials to criterion for solution of the anagram pattern, defined as the trial number of the third successive trial with a response latency of less than 15 seconds, after which every anagram is solved; (c) number of failures to solve an anagram within 100 seconds; and (d) the conditional probability of solving an anagram given that the previous anagram was solved. It might be noted that Klein et al. and other researchers defined criterion for solution of the anagram pattern as three successive anagram solutions in less than 15 seconds each. However, in this research, it was obvious that subjects could solve three consecutive anagrams and still not have learned the solution pattern (i.e., they continued to have failures). Therefore, the criterion was modified, as indicated in (b) above,
in this study.

The experimental design relevant to this data was a single-treatment design with six levels. The six levels consisted of the five groups which received different attributions about the treatment and the control group. The anagram data were intended to serve as a manipulation check to insure that helplessness-inducing conditions had been achieved, and to compare performance effects obtained under various attribution conditions. One-way analyses of variance and selected a priori t tests were used to analyze the anagram data.

Affect data. Following Weiner's et al. (1978) methodology, analyses of affect data proceeded by first compiling lists of the 10 affects receiving the highest intensity ratings (principal affects) for each of the 7 groups of subjects (the six nondepressed groups plus the depressed sample). An extensive series of simple t tests was used to compare the principal affects of the various groups. Following from Hypotheses 2 and 4, a priori t tests compared the no-attrition group with the control group, and the depressed subjects with the no-attrition group.

In order to more thoroughly explore the data, a factor analysis of the affect measure was planned. It was intended that analyses of variance performed on the factors would allow a second means of discovering whether different attributions yielded differences in the affect of helplessness.

Other analyses. Additional measures were analyzed by 1-way
analyses of variance. These included the attribution manipulation check (Appendix F), subjects' estimated number of anagrams solved, their self-perceived success on them, and their attributions about anagram performance (Appendix G).
RESULTS

Anagram Data

Subjects' performance on the anagrams was measured on the four variables mentioned earlier: mean response latency, number of trials to criterion for solution of the anagram pattern, number of failures, and conditional probability of solving an anagram given that the previous one was solved. The latter measure was calculated by dividing the total number of solutions, minus one, into the number of solutions which followed a solution.

Results of a priori t tests which contrasted the control and the no-attribution groups on the four dependent measures show that helplessness was not achieved. Means and t values are presented in Table 2. Although the no-attribution group performed more poorly than controls on all four measures, t statistics are very small, and not significant.

One-way analyses of variance were used to compare the anagram results of the six nondepressed groups (the control group and the five groups exposed to insolvable problems, hereafter referred to as IP groups). These tests yielded no significant effects. However, it will be noted in Table 3 that, without exception, the IP groups performed more poorly than the controls. Also, on each dependent measure, the effects are greater for groups which received an attribution about the failure than for the no-attribution group.
Table 2

Means of Controls and No-attribution "Helpless" Subjects on Four Measures of Anagram Performance

<table>
<thead>
<tr>
<th>Performance measure</th>
<th>Controls</th>
<th>No-Attribution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>SD</td>
</tr>
<tr>
<td>Response latency</td>
<td>34.41</td>
<td>21.36</td>
</tr>
<tr>
<td>Trials to criterion</td>
<td>13.86</td>
<td>5.52</td>
</tr>
<tr>
<td>Number of failures</td>
<td>5.00</td>
<td>4.08</td>
</tr>
<tr>
<td>Conditional probability of success</td>
<td>.82</td>
<td>.16</td>
</tr>
</tbody>
</table>

a n = 14 for each group.
b Degrees of freedom for each test = 26.

The experimenter trickery group tended to perform the most poorly. On two dependent measures, response latency and trials to criterion, the results approach significance.

Tests for sex effects were also conducted. A six (group) by two (sex of subject) analysis of variance on each dependent variable yielded no significant main effects or interactions. A similar analysis (condition by sex of experimenter) yielded no experimenter effects.

Manipulation of Attributions

A 1-way analysis of variance performed on each item of the
<table>
<thead>
<tr>
<th>Performance measure</th>
<th>Control</th>
<th>No attribution</th>
<th>Ability</th>
<th>Effort</th>
<th>Experimenter Trickery</th>
<th>Task Difficulty</th>
<th>F (^a)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response latency</td>
<td>34.41</td>
<td>41.42</td>
<td>52.29</td>
<td>47.12</td>
<td>58.83</td>
<td>47.77</td>
<td>1.99</td>
<td>.09</td>
</tr>
<tr>
<td>Trials to criterion</td>
<td>13.86</td>
<td>14.07</td>
<td>16.64</td>
<td>17.21</td>
<td>19.00</td>
<td>16.43</td>
<td>2.09</td>
<td>.07</td>
</tr>
<tr>
<td>Number of failures</td>
<td>5.00</td>
<td>6.14</td>
<td>8.29</td>
<td>7.00</td>
<td>8.86</td>
<td>7.07</td>
<td>1.39</td>
<td>.24</td>
</tr>
<tr>
<td>Conditional probability of success</td>
<td>.82</td>
<td>.80</td>
<td>.67</td>
<td>.66</td>
<td>.62</td>
<td>.69</td>
<td>1.59</td>
<td>.17</td>
</tr>
</tbody>
</table>

\(^a\)For each F test, degrees of freedom = 5 and 78.
attribution manipulation check (Appendix E) revealed that the experimenters were only partially successful in manipulating subjects' attributions for their failures on the Levine discrimination problems (Levine, 1971). Means and associated F statistics are presented in Table 4 for the IP groups on each item of the instrument. Results were significant only for the item "something the experimenter did," although the results on the task difficulty item approached significance. A posteriori Tukey comparisons (Kirk, 1968) comparisons showed that the group given instructions that the experimenter had tricked them cited the "experimenter" item to a greater extent than any of the other groups (for each comparison, q [65] > 4.82, p < .01). None of the other groups differed from each other on the "experimenter" item. Since the results of the task difficulty item were so close to significance, Tukey contrasts were used to explore differences between those means as well. Those tests showed a significant difference between the no-attribution group and the task difficulty group, with the latter citing task difficulty much more strongly for their failure, q (65) = 3.98, p < .05. None of the other groups differed from each other on the task difficulty item. Since the no-attribution group would be an appropriate group with which to compare other groups about the success of the manipulations, it would appear that the experimenters were at least "marginally successful" in inducing the task difficulty group to believe that they had failed the discrimination task because of its difficulty.
Table 4
Scores of the Insolvable-problem Groups on Four Measures of Failure Attribution

<table>
<thead>
<tr>
<th>Group</th>
<th>Attribution item</th>
<th>No attribution</th>
<th>Ability</th>
<th>Effort</th>
<th>Experimenter trickery</th>
<th>Task difficulty</th>
<th>F^a</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Effort</td>
<td>4.00</td>
<td>4.50</td>
<td>3.93</td>
<td>3.21</td>
<td>4.71</td>
<td>1.56</td>
<td>.19</td>
</tr>
<tr>
<td></td>
<td>Task difficulty</td>
<td>3.64</td>
<td>4.86</td>
<td>4.57</td>
<td>4.07</td>
<td>5.50</td>
<td>2.34</td>
<td>.06</td>
</tr>
<tr>
<td></td>
<td>Ability</td>
<td>4.21</td>
<td>4.21</td>
<td>3.57</td>
<td>2.64</td>
<td>4.07</td>
<td>1.83</td>
<td>.13</td>
</tr>
<tr>
<td></td>
<td>Experimenter</td>
<td>1.93</td>
<td>2.36</td>
<td>2.43</td>
<td>6.14</td>
<td>2.14</td>
<td>16.63</td>
<td>.0001</td>
</tr>
</tbody>
</table>

^aFor each F test, degrees of freedom = 4 and 65.
Analyses of Additional Measures

One-way analyses of variance were performed on the estimated number of correctly solved anagrams, subjects' self-rated perceptions of success on the anagrams, and on each of four items which measured attributions about performance on the anagrams (Appendix G). These analyses involved all six of the nondepressed groups (controls plus five IP groups). Results, summarized in Table 5, did not reach significance on any measure.

The mean number of actual anagram solutions for each group is also given in Table 5, below the estimated number. It will be noted that groups were equally accurate in estimating their number of solutions, with each underestimating its successes by a margin of about two anagrams.

Means on the success/failure perception item indicate that most groups saw their anagram performance as something between a "slight success" (rating of 4) and a "slight failure" (rating of 3).

Ability, effort, and task difficulty were all rated as important factors in determining how well people did on the anagrams. The experimenter's behavior was not seen as important, even by the group which had previously been tricked. The insignificant differences between groups on these attribution items indicate, not surprisingly, that information given to subjects about the first discrimination task did not influence their perceptions about the second task.
### Table 5
Self-reported Perceptions of Anagram Performance for all Nondepressed Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>Control</th>
<th>No attribution</th>
<th>Ability</th>
<th>Effort</th>
<th>Task difficulty</th>
<th>Experimenter trickery</th>
<th>F&lt;sup&gt;a&lt;/sup&gt;</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated number correct&lt;sup&gt;b&lt;/sup&gt;</td>
<td>13.21</td>
<td>11.14</td>
<td>9.93</td>
<td>10.64</td>
<td>9.00</td>
<td>9.93</td>
<td>1.20</td>
<td>.31</td>
</tr>
<tr>
<td>(15.00)</td>
<td>(13.86)</td>
<td>(11.71)</td>
<td>(13.00)</td>
<td>(11.14)</td>
<td>(12.93)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Success/failure perception</td>
<td>3.93</td>
<td>3.71</td>
<td>3.29</td>
<td>4.21</td>
<td>3.21</td>
<td>3.86</td>
<td>1.23</td>
<td>.30</td>
</tr>
<tr>
<td>Attributions for:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Effort</td>
<td>4.64</td>
<td>3.79</td>
<td>5.00</td>
<td>5.14</td>
<td>5.29</td>
<td>5.43</td>
<td>2.08</td>
<td>.08</td>
</tr>
<tr>
<td>(b) Task difficulty</td>
<td>5.21</td>
<td>4.50</td>
<td>5.14</td>
<td>5.00</td>
<td>5.36</td>
<td>5.57</td>
<td>1.09</td>
<td>.37</td>
</tr>
<tr>
<td>(c) Ability</td>
<td>4.93</td>
<td>4.79</td>
<td>5.00</td>
<td>5.07</td>
<td>5.71</td>
<td>5.07</td>
<td>.59</td>
<td>.70</td>
</tr>
<tr>
<td>(d) Experimenter</td>
<td>2.36</td>
<td>2.07</td>
<td>2.50</td>
<td>2.36</td>
<td>2.71</td>
<td>1.71</td>
<td>.51</td>
<td>.77</td>
</tr>
</tbody>
</table>

<sup>a</sup> For each F test, degrees of freedom = 5 and 78.

<sup>b</sup> The number in parentheses just below the estimated number of correct anagrams is the actual number correct for each group.
Affect Data

Purpose. The purposes for collecting the affect data were
(a) to isolate the feelings associated with helplessness per se;
(b) to compare the feelings associated with helplessness under varying attributions for the helplessness; and (c) to compare the feelings associated with helplessness with the feelings associated with depression.

The main analyses of the affect data were completed as planned. However, results should be viewed in light of the facts that helplessness was not achieved, and also, with one and possibly two exceptions, subjects' attributions about their failures were not successfully manipulated.

Identification of "unknown" affects. The first step in the analysis of the affect data was the identification of words on the affect measure (Appendix C) which were unknown to ten percent or more of the total sample of 122 subjects. Words which were either checked (the procedure by which subjects were instructed to indicate unknown words) or left blank were counted as unknowns. Seven such words were isolated, including "vindictive," "defected," "apathetic," "sullen," "sedate," "woeful," and "wonderment." These words are indicated by the superscript "u" in Appendix C, and were eliminated from consideration in further analyses.

Identification of "principal affects." Principal affects were defined as the words which received the highest ratings within each group. Simple means were generated on each adjective for each of
the seven groups in the total sample. The resulting lists were scanned, and the ten most highly-rated affects located. Principal affects for each group are presented in Table 6.

Feelings associated with problem failure. It was planned that the no-attribution IP group and the control group would be compared in order to isolate the affect associated with helplessness per se. Simple a priori $t$ tests were used to make those comparisons, which were done on the principal affects of the no-attribution group. As presented in Table 7, the no-attribution group felt more incompetent, flustered, dumbfounded, and marginally ($p < .06$) more frust-rated than the controls. They also felt significantly less composed and thoughtful.

Discriminating and nondiscriminating affects. Discriminating and nondiscriminating affects were identified via comparisons involving the principal affects for the five IP groups. (Results of the control group and the depressed group were not included in these analyses.) The purpose here was to compare the feelings generated by different attributions for subjects' failure to solve the discrimination problems. Simple $t$ tests were used to compare each principal affect for a given group with ratings given that affect by the other four groups combined. Discriminating affects were defined as those which were rated more highly by one group than by the other groups combined. Nondiscriminating affects were defined as those which appeared on three or more principal affect lists, but were not associated with one list more strongly than others. Originally, the
<table>
<thead>
<tr>
<th>Depressed group</th>
<th>X</th>
<th>SD</th>
<th>Control group</th>
<th>X</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. dissatisfied</td>
<td>6.89</td>
<td>2.54</td>
<td>1. composed</td>
<td>6.71</td>
<td>1.14</td>
</tr>
<tr>
<td>2. unsatisfied</td>
<td>6.84</td>
<td>2.21</td>
<td>2. thoughtful</td>
<td>6.43</td>
<td>1.78</td>
</tr>
<tr>
<td>3. frustrated</td>
<td>6.68</td>
<td>2.29</td>
<td>3. calm</td>
<td>6.00</td>
<td>2.00</td>
</tr>
<tr>
<td>4. angry</td>
<td>6.57</td>
<td>1.92</td>
<td>4. anxious</td>
<td>4.29</td>
<td>2.13</td>
</tr>
<tr>
<td>5. worried</td>
<td>6.53</td>
<td>2.43</td>
<td>5. unexcited</td>
<td>4.29</td>
<td>2.13</td>
</tr>
<tr>
<td>6. troubled</td>
<td>6.47</td>
<td>2.38</td>
<td>6. apprehensive</td>
<td>3.71</td>
<td>1.86</td>
</tr>
<tr>
<td>7. unhappy</td>
<td>6.26</td>
<td>2.25</td>
<td>7. indifferent</td>
<td>3.57</td>
<td>2.53</td>
</tr>
<tr>
<td>8. anxious</td>
<td>6.13</td>
<td>2.02</td>
<td>8. passive</td>
<td>3.57</td>
<td>1.99</td>
</tr>
<tr>
<td>10. concern</td>
<td>6.10</td>
<td>2.44</td>
<td>10. aggressive</td>
<td>3.21</td>
<td>2.49</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No-attribution group</th>
<th>Ability group</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. calm</td>
<td>1. thoughtful</td>
</tr>
<tr>
<td>2. incompetent</td>
<td>2. calm</td>
</tr>
<tr>
<td>3. thoughtful</td>
<td>3. anxious</td>
</tr>
<tr>
<td>4. dissatisfied</td>
<td>4. dumbfounded</td>
</tr>
<tr>
<td>5. anxious</td>
<td>5. flustered</td>
</tr>
<tr>
<td>6. flustered</td>
<td>6. composed</td>
</tr>
<tr>
<td>7. unexcited</td>
<td>7. uneasy</td>
</tr>
<tr>
<td>8. frustrated</td>
<td>8. dissatisfied</td>
</tr>
<tr>
<td>9. dumbfounded</td>
<td>9. unsatisfied</td>
</tr>
<tr>
<td>10. composed</td>
<td>10. surprised</td>
</tr>
<tr>
<td>Effort group</td>
<td>X</td>
</tr>
<tr>
<td>-------------</td>
<td>-----</td>
</tr>
<tr>
<td>1. collected</td>
<td>5.71</td>
</tr>
<tr>
<td>2. dissatisfied</td>
<td>5.64*</td>
</tr>
<tr>
<td>3. composed</td>
<td>5.50</td>
</tr>
<tr>
<td>4. calm</td>
<td>5.36</td>
</tr>
<tr>
<td>5. thoughtful</td>
<td>5.14</td>
</tr>
<tr>
<td>6. unsatisfied</td>
<td>4.86*</td>
</tr>
<tr>
<td>7. anxious</td>
<td>4.79</td>
</tr>
<tr>
<td>8. incompetent</td>
<td>4.79*</td>
</tr>
<tr>
<td>9. apprehensive</td>
<td>4.58**</td>
</tr>
<tr>
<td>10. surprised</td>
<td>4.57</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task difficulty group</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. calm</td>
</tr>
<tr>
<td>2. collected</td>
</tr>
<tr>
<td>3. thoughtful</td>
</tr>
<tr>
<td>4. composed</td>
</tr>
<tr>
<td>5. passive</td>
</tr>
<tr>
<td>6. anxious</td>
</tr>
<tr>
<td>7. dissatisfied</td>
</tr>
<tr>
<td>8. indifferent</td>
</tr>
<tr>
<td>9. humble</td>
</tr>
<tr>
<td>10. resigned</td>
</tr>
</tbody>
</table>

For the depressed group, n = 38. For all other groups, n = 14.

*Discriminating affects at the .05 significance level.

**Discriminating affects at the .01 significance level.

†Affects rated significantly lower by group indicated than by all other groups.
Table 7
Comparison of Controls and the No-attribution Group on the Principal Affects of the No-attribution Group

| Principal affect | Controls | | | | | No attribution group | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| | $\bar{X}$ | SD | | | | $\bar{X}$ | SD | | | |
| calm | 6.00 | 2.00 | | | | 4.57 | 2.68 | | | 1.60 | .12 |
| incompetent | 1.50 | 1.29 | | | | 4.00 | 2.63 | | | 3.19 | .004 |
| thoughtful | 6.43 | 1.78 | | | | 4.00 | 1.61 | | | 3.77 | .0009 |
| dissatisfied | 2.57 | 2.03 | | | | 3.78 | 2.23 | | | 1.51 | .14 |
| anxious | 4.29 | 2.13 | | | | 3.64 | 2.24 | | | .78 | .44 |
| flustered | 2.00 | 1.36 | | | | 3.57 | 1.83 | | | 2.58 | .02 |
| unexcited | 4.29 | 2.13 | | | | 3.57 | 2.21 | | | .87 | .39 |
| frustrated | 1.93 | 1.82 | | | | 3.50 | 2.31 | | | 2.00 | .06 |
| dumbfounded | 1.43 | .76 | | | | 3.43 | 2.95 | | | 2.45 | .02 |
| composed | 6.71 | 1.14 | | | | 3.43 | 2.38 | | | 4.66 | .0001 |

$^a$Degrees of freedom for each test = 26.

.01 level was adopted as the significance level necessary to define a discriminating affect. However, only one affect reached significance by this criterion ("apprehensive," which was rated more highly by the effort attribution group). Therefore, in the following
paragraphs, discriminating affects at both the .05 level and the .01 level are presented.

**Nondiscriminating affects.** According to the above criteria, "calm," "anxious," "thoughtful," and "composed" qualify as nondiscriminating affects. In fact, they appear among the principal affects for all five of the IP groups. Additionally, "collected" appears on three principal affect lists, and is considered a discriminating affect only at the less conservative .05 level. (It is significantly associated with the task difficulty group, $t = 2.16$, $p < .04$.)

In addition to qualifying as nondiscriminating affects, these five feelings were the most highly rates ones for all IP groups combined. Across the five groups ($n = 70$), "calm" received a mean rating of 5.30, "thoughtful" was rated 5.17, "composed," 4.76; "collected," 4.69; and "anxious," 4.26. Only one other word, "dissatisfied," was rated higher than 4.0 overall (mean of "dissatisfied" = 4.11). Also, at the experimental group level, most of the principal affects, and certainly most of the negative ones, were rated below 4.50, the midpoint of the rating scale (see Table 6). Overall, ratings given to the affects were low, but those given negative affects were decidedly lower. It appears that very little negative affect was aroused in this study.

**Discriminating affects.** Principal affects which were significantly associated with one group as compared with the other IP groups combined are indicated by asterisks in Table 6. None of the
principal affects of the no-attribution group were rated more highly by that group than by the others at either the .05 or .01 level. However, on two, "thoughtful," and "composed," the no-attribution group scored lower than other groups (they felt less thoughtful and composed).

No affect characterized the ability group more strongly than other groups at either the .05 or the .01 level. The effort attribution group reported being more dissatisfied and unsatisfied than other groups, and also felt more incompetent (all these at the .05 level). They also felt more apprehensive ($p < .01$).

For the experimenter trickery group, no discriminating affects emerged. However, "passive" bordered on significance ($p < .07$), with the trickery group tending to feel more passive than other groups. Also, the adjective "sedate" was eliminated from consideration because it was unknown to more than ten percent of subjects. Had it not been rejected on those grounds, it would have strongly distinguished the trickery group. (The mean for "sedate" for this group was 4.07, as opposed to 2.17 for the other combined IP groups, $p < .001$. All 14 of the subjects in the trickery group rated this item, though only 46 of the 56 subjects in other IP groups gave it a rating.)

Finally, for the task difficulty group, three adjectives qualified as distinguishing affects at the .05 level. This group reported feeling more collected, passive, and resigned than did the other combined groups.
Affect of Depressed Sample versus Affect of Problem Failure

As planned, the depressed group and the no-attribution group were contrasted on the 10 principal affects of the depressed group. The a priori purpose was to contrast the affect of helplessness with that of depression. Results, presented in Table 8, show that the depressed group scored higher on all of its principal affects than the no-attribution group scored on those affects. However, overall, depressed persons gave affects much higher ratings than did the IP groups, which renders the present result relatively unimportant.

Factor Analysis

It was planned that a factor analysis would be performed on the affect instrument. However, the depressed sample appeared to have scored much higher, overall, on the items than did the IP groups. This observation was tested by calculating mean scores across the 130 items which remained on the affect measure after the "unknowns" were dropped. These means, and also the range of average item scores for each group, are presented in Table 9. A 1-way analysis of variance performed on the mean item scores was significant ($F_{6,115} = 19.30; p < .0001$), and Duncan multiple range testing showed that the depressed sample made higher ratings, overall, on the affect measure (at $p < .01$) than the six other groups. The latter groups did not differ from each other. The average rating given principal affects by each group is also presented in Table 9. The average principal affect rating for the depressed sample was also higher than those for other groups, however no statistical
Table 8
Comparison of Depressed and No-attribution Groups
on the Principal Affects of Depressed Subjects

<table>
<thead>
<tr>
<th>Principal affect</th>
<th>Depressed</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>SD</td>
<td>X</td>
<td>SD</td>
<td>t</td>
<td>p</td>
<td></td>
</tr>
<tr>
<td>dissatisfied</td>
<td>6.89</td>
<td>2.54</td>
<td>3.79</td>
<td>2.23</td>
<td>4.03</td>
<td>.0002</td>
<td></td>
</tr>
<tr>
<td>unsatisfied</td>
<td>6.84</td>
<td>2.21</td>
<td>2.71</td>
<td>1.94</td>
<td>6.15</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>frustrated</td>
<td>6.68</td>
<td>2.29</td>
<td>3.50</td>
<td>2.31</td>
<td>4.43</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>angry</td>
<td>6.57</td>
<td>1.93</td>
<td>4.00</td>
<td>1.62</td>
<td>4.46</td>
<td>.0001</td>
<td></td>
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<td>6.53</td>
<td>2.44</td>
<td>2.21</td>
<td>1.89</td>
<td>5.98</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>troubled</td>
<td>6.47</td>
<td>2.38</td>
<td>1.92</td>
<td>1.59</td>
<td>6.60</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>unhappy</td>
<td>6.26</td>
<td>2.25</td>
<td>1.43</td>
<td>0.85</td>
<td>7.79</td>
<td>.0004</td>
<td></td>
</tr>
<tr>
<td>anxious</td>
<td>6.13</td>
<td>2.02</td>
<td>3.64</td>
<td>2.24</td>
<td>3.83</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>upset</td>
<td>6.10</td>
<td>2.26</td>
<td>1.79</td>
<td>1.12</td>
<td>6.81</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>concern</td>
<td>6.10</td>
<td>2.44</td>
<td>2.00</td>
<td>1.57</td>
<td>5.85</td>
<td>.0001</td>
<td></td>
</tr>
</tbody>
</table>

\(^a_n = 38.\)

\(^b_n = 14.\)

\(^c\)For each test, degrees of freedom equaled 50.
Table 9
Means and Related Statistics for Affect Item Ratings
and for Principal Affects Ratings, by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean item score calculated over 130 items</th>
<th>Mean item score calculated over 10 principal affects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Depressed</td>
<td>4.12$^a$</td>
<td>1.14</td>
</tr>
<tr>
<td>Control</td>
<td>1.73$^b$</td>
<td>0.38</td>
</tr>
<tr>
<td>No-attrition</td>
<td>1.80$^b$</td>
<td>0.56</td>
</tr>
<tr>
<td>Ability</td>
<td>2.10$^b$</td>
<td>1.05</td>
</tr>
<tr>
<td>Effort</td>
<td>2.75$^b$</td>
<td>1.26</td>
</tr>
<tr>
<td>Trickery</td>
<td>2.20$^b$</td>
<td>0.92</td>
</tr>
<tr>
<td>Task difficulty</td>
<td>2.20$^b$</td>
<td>0.98</td>
</tr>
</tbody>
</table>

$^a,b$Means with the same superscript do not differ from each other at $p < .05$.

For the depressed group, n = 38. For all other groups, n = 14.
comparisons were done on these ratings.

One further consideration is not apparent from Table 9, but is suggested by Table 6. The highest-rated affects for depressed subjects clearly are negative feelings. In contrast, most IP groups gave their highest ratings to words like "calm," "thoughtful," and "composed." For any given affect, it is likely that mean differences are even greater between the depressed and the IP groups than Table 9 suggests.

It was judged that differences between the experimental groups of these magnitudes would distort the correlations between items, and therefore distort the factors in a factor analysis. Therefore, it would have been necessary to delete the depressed sample from the factor analysis, which would have reduced the sample size by nearly a third, from 122 to 84. The affect measure, after eliminating unknown words, consisted of 130 items. In any case, it would have been necessary to reduce the number of variables before factoring, but the reduced sample size would require a drastic reduction of variables. It was not feasible to even approximate the standard rule of using ten times the number of subjects as variables (Nunnally, 1967); but if a reasonable way to reduce the variable list to 30-40 had been available, an exploratory factor analysis may have been feasible.

The data were examined to determine the effect of dropping the "trivial" items, those with low means, similarly as Weiner et al. (1978) had done. Employing cutoff criteria for trivial items of a
mean of less than 2.0 over all 84 nondepressed subjects, and less than 3.0 for any particular group resulted in dropping 69 items, leaving 61 items in the pool. That number was considered still too large for factoring. Raising the cutoff criterion to a whole group mean of 2.5 resulted in only four more items being dropped. (Twenty-three items had total-group means between 2.0 and 2.5, but on most of these, one or more groups scored above 3.0.) It was deemed not appropriate to raise the per-group cutoff score above 3.0, since the highest item scores for some groups were in the 3.0-3.5 range (see Table 6).

The affect list might theoretically have been further reduced by dropping the items with high means, but, as mentioned above, only four item means were above 4.50, and only one item mean fell between 4.0 and 4.5. To reduce the cutoff ceiling lower would seem to restrict the range of item means in the remaining variables to an absurd degree. For these reasons, the factor analysis was abandoned.
DISCUSSION

The first question which this research set out to address was whether the effect of helplessness in fact parallels the effect of depression, as is the claim of the helplessness theory of depression. The second question was whether attributions mediate affect in helplessness. Since helplessness was not successfully induced, neither question was addressed. Nevertheless, three sets of results will be discussed: anagram performance, attributions about the discrimination task, and affect associated with that task. Anagram performance, the most thoroughly researched aspect of helplessness to date, is discussed first.

Anagram Performance

Lack of Helplessness Effects

In this study, each group which received insolvable problems later performed more poorly on the anagrams than the control group, however none of the differences reached significance. The no-attribution group, which was included in order to observe the effects of helplessness training per se, exhibited the smallest of these nonsignificant changes. The first question which the anagram results prompt is why the helplessness effect was not achieved. Procedural considerations will be discussed first, and theoretical considerations, later.

Procedural considerations. In the main, the procedure of Hiroto and Seligman (1975) was closely followed in this study, in order to
maximize the likelihood that the helplessness effect would occur. Only two deliberate departures from their procedure were made. First, the instructions were modified slightly, and second, the attribution manipulation check and affect measure were inserted between the first and second tasks.

Instructions for the discrimination problems used by Hiroto and Seligman were expanded somewhat in our study, in ways which were intended to make them less confusing. For example, the "dimensions" and "values" involved in the discrimination task were explained in somewhat greater detail. Also, the instruction, "In a few trials you can learn what the correct value is by this feedback" (Hiroto & Seligman, 1975, p. 317) was eliminated. By suggesting that the problems are rather easily solvable, this statement sets up conditions for an internal attribution for failure, or a case of personal helplessness, in Abramson's et al. (1978) terminology. We wished, of course, to avoid unwittingly creating such an expectation. (Helplessness research has been attacked on this very point. Blaney, 1977, for example, noted that subjects given helplessness treatments are virtually always told that their problems are solvable. Therefore, the treatments could as easily be considered esteem manipulations as control manipulations.) The deletion of this statement cannot account entirely for the lack of significant results, however, since our internal-attribution groups (ability and effort), which should theoretically have developed personal helplessness, showed insignificantly impaired performance. Another minor
change in instructions was eliminating the phrase "As you know" before the statement "anagrams are words with the letters scrambled" in the instructions preceding the anagrams task (Hiroto & Seligman, 1975, p. 319). This phrase seemed derogating to individuals who did not already know the meaning of the word "anagram." The net effect of these modifications in instructions may have been to make this experimental situation less esteem-threatening than Hiroto and Seligman's. As shall be discussed later, lowering the perceived threat could have influenced our results.

Another departure from Hiroto and Seligman was the insertion of attribution information in the instructions for four groups. This in itself should not eliminate the helplessness effect, which has been obtained by others (Klein, Pencil-Morse, & Seligman, 1976; Tennen & Eller, 1977) when attribution instructions were given.

Helplessness effects might have been mitigated by the insertion of two paper and pencil measures between the discrimination problems and the anagrams. Typically, subjects proceed quickly from one task to another. In studies where the second task is held in a different room from the first (e.g., Wortman, Panciera, Shusterman, & Hibscher, 1976) helplessness effects often are not found. In the present study, subjects completed the four-item attribution manipulation check, which generally took only a moment, and the 138-item affect measure, which generally took about ten minutes, before they moved on to the anagram task. Together, these measures probably were more lengthy than those taken in other reported research where helplessness
was obtained. For example, the Multiple Affect Adjective Checklist (Zuckerman et al., 1964) used by Miller and Seligman (1975) and other researchers, contains 89 items. Completing the more extensive measures used in this study may have disrupted whatever helplessness "set" or "state" was created, and weakened the behavioral effect.

Theoretical considerations. A second line of reasoning about the present lack of effects addresses the mechanism assumed to underlie helplessness deficits. It was noted in the introduction to this study that although problem-solving deficits regularly follow exposure to uncontrollable outcomes, the evidence is not conclusive that a belief in uncontrollability underlies those deficits. Recently, an alternate explanation for helplessness effects has been advanced which may bear on the present discussion. This is the "egotism" explanation of Frankel and Snyder (1978). Frankel and Snyder proposed that helplessness follows a threat to self-esteem, and "helpless" individuals are in fact operating in ways that prevent further loss of esteem. Specifically, they proposed that persons given insolvable problems do not try on a second task, in order to be able to attribute failure to effort, a fairly benign attribution in terms of self-esteem. In their study, anagram deficits were present after a series of failures on discrimination problems when subjects were told that the anagrams were moderately difficult, but the deficits were not found when subjects were told that the anagrams were very difficult. By the egotism explanation, the highly difficult task posed no threat to esteem, and subjects
exerted adequate effort, and performed well.

Other lines of thinking and a growing body of evidence are consistent with the egotism theory. Blayney's observation about possible esteem manipulation in much of the helplessness literature is consistent. Also, in two studies, Sacco and Hokanson (1978; 1982) reported that persons treated with inescapable noise performed differently on a second task, depending on whether the experimenter was present (public situation) or absent and ostensibly ignorant of the individual's results (private situation). In each study results predicted by helplessness theory were obtained in the public situation, but not in the private one. The authors argued that deficits associated with helplessness actually reflect subjects' attempts to manage interpersonal stress. Helpless subjects actually are behaving cautiously, seeking to avoid a negative evaluation by others and further loss of esteem (Sacco & Hokanson, 1978).

Other results reviewed previously could also be understood in terms of threats to esteem, and are thus consistent with egotism theory. Recall that Roth and Bootzin (1974) found performance facilitation after exposure to unsolvable tasks, and proposed a curvilinear relationship between performance and amount of exposure to, or "impact" of, the uncontrollable outcome. Roth and Kubal (1975) tested these ideas. They found that higher importance of the training task and high amounts of training increased the likelihood of helplessness effects. When the training task was described as a "really good predictor of success in college" (p. 683), exposure to
50 trials at one insolvable task resulted in performance facilitation, but deficits followed exposure to three insolvable tasks with a total of 120 trials. When the training task was described simply as "a problem in concept formation" (p. 683), the lower exposure produced strong facilitation; higher exposure less pronounced, and nonsignificant facilitation. Thus, only extended failure on the important problem produced the usual learning deficits. These authors did not offer an explanation for how "impact" of the helplessness treatment mediates results, but the possibility of esteem manipulation is obvious.

In a 1977 article, Tennen and Eller pointed out that Roth and Kubal had inadvertently supplied internal attributions to persons who received the three tasks, thus confounding attributions with amount of helplessness training. Tennen and Eller varied the two independently, and found no helplessness after 48 trials, helplessness after 96 trials when internal attribution were supplied, and facilitation after 96 trials for which external attributions were supplied.

Together, these findings suggest that achieving helplessness may require many trials at an unsolvable task (substantially more than 50) and internal attribution for failure, or some other esteem-threatening component in the experiment situation. Certainly there are studies in the literature in which esteem is not explicitly manipulated, or where only about 40 trials are used to create helplessness. Most notable are those from Seligman's lab. Generally,
however, it is possible to pinpoint esteem-relevant factors in the experimental situation. Subjects continue to be routinely told that there is something they can do to solve the problem (e.g., Alloy & Abramson, 1982), or the experimenter is present, or (as is usually the case) both. There is no evidence to date which would refute the egotism explanation of helplessness deficits in humans.

Two other recent studies support the egotism hypothesis. In a study designed to pit helplessness theory against the egotism explanation, Snyder, Smoller, Strenta, and Frankel (1981) measured anagram performance following the typical solvable or insolvable discrimination problems. Half of the subjects worked on the anagrams in the presence of music said to be distracting. Egotism predicts that persons supplied with the music "excuse" for poor performance would use adequate effort and perform well. Helplessness theory predicts that the distraction would further weaken the expectancy for control over outcomes, and further impair performance. As predicted, only the no-music group had performance deficits. Distraction, the authors stated, improved performance because low effort was no longer needed as an excuse for possible failure.

Finally, Alloy and Abramson (1982) found unexpected results when investigating the role of helplessness training on perceived controllability over outcomes on a second task. They interpreted their results as consistent with egotism theory and incompatible with helplessness theory. Previous research on the perceived
relationship between actions and outcomes has shown that normal persons exhibit an "illusion of control" (e.g., Alloy & Abramson, 1979; Langer, 1975). That is, they act as if objectively uncontrol- lable events are under their control. Depressed persons, on the other hand, accurately perceive noncontingent outcomes. In their 1982 study, Alloy and Abramson tested subjects given uncontrollable problems as well as depressed persons and untreated controls on perceived control in a noncontingency learning problem. As expected, depressed persons judged control accurately, but the "helpless" group, contrary to prediction and like the untreated controls, showed a robust illusion of control over positive outcomes. The authors concluded that "individuals exposed to uncontrollable events in a typical helplessness-induction procedure do not appear to be biased toward perceiving response-outcome relationships as noncontingent" (p. 1123). It appears that in this statement the authors dismiss the cornerstone of helplessness theory! Interestingly, that the behavior of "helpless" subjects did not parallel the behavior of depressed persons also led them to question the helplessness model of depression. "Whether laboratory-induced helplessness and other examples of experimenter-induced failure more closely model anxiety, depression, or some other natural phenomenon remains to be determined" (p. 1123). As they state, their results are consistent with the egotism explanation. Persons striving to re-establish self-esteem could be expected to "over- estimate" their control over later positive outcomes. The evidence
in favor of an egotism explanation of the helplessness phenomena is strong, to the point that Abramson herself appears to be leaning toward it.

If one accepts the egotism hypothesis for a moment, the lack of significant results in this study might be interpreted in terms of it. It seems highly plausible that subjects were not sufficiently threatened to achieve helplessness. First, as already mentioned, the instruction implying that the problems are usually solved was deleted, and overall the instructions were modified to make them less likely to confuse or offend. Second, only 40 insolvable trials were administered, a number which has been insufficient to produce helplessness previously, as discussed above. The author would recommend that more problems be used in future experiments. However, if they are, and especially if instructions are made more understandable, the problem itself should be made more complex. Once the instructions to the discrimination problem are understood, the 4-dimensional problem appears to be quite a simple one. As our subjects worked on the task, some seemed baffled and confused by it; others, however (perhaps half) appeared to understand both the instructions and the necessary problem-solving strategy. These people seemed surprised and perplexed at the bogus feedback, although they did not report suspicion. Often they would spontaneously comment that they must not have understood the instructions, or that the task must not be as simple as they had thought. A more difficult task, perhaps a 5- or 6-dimensional Levine figure would
seem necessary to carry the deception over substantially more trials, and possibly to create enough distress to result in helplessness.

A third potential contributing factor to a nonthreatening situation in this study was the interpersonal climate, which was probably quite a safe and comfortable one. All subjects in the study had one, and usually two, phone contacts with the experimenter before arriving at the experiment. Most subjects' names were drawn from a large list of student volunteers, and initial calls were made to them asking if they were interested in participating in the study. Also, it was quickly learned that a reminder call the night before the scheduled appointment was necessary to insure that subjects would show up. During these calls, it was usually necessary to give detailed instructions for finding the research room. Out of eagerness that subjects show up, the experimenters likely came across as remarkably friendly, outgoing, and helpful people. Although great pains were taken to present a neutral interpersonal situation once the subjects arrived at the experiment, we in fact had done everything we could to be nice, and subjects probably found us quite disarming.

The most plausible explanation for our failure to achieve a helplessness effect appears to be the combination of factors which contributed to making our procedures and experimental situation nonthreatening.

**Attributions and Performance**

Since group differences in performance on the anagrams were
not significant, comments about those results must be made with much caution. However, as noted previously, the results are highly consistent in that groups supplied with attributions performed more poorly than the no-attribution group, and still more poorly than the control group. Most notable is that the experimenter trickery group performed worst of all. On every measure, the absolute difference in performance between the trickery group and the no-attribution group is greater than that between the no-attribution group and the control group. This suggests, however weakly given the lack of statistical differences, that the effect of attributions on performance is more powerful than the effect of experiencing uncontrollable outcomes. The role of attributions should be carefully considered in future helplessness studies, and attributions most certainly should not be allowed to be manipulated inadvertently (e.g., Blaney, 1977).

Manipulation of Attributions for Failure

Only the external attributions, to experimenter trickery and task difficulty were successfully manipulated in the study, and the task difficulty effect is rather weak. Observing this, one might ask whether the problem lies in the attribution information supplied to subjects or in the measuring instrument.

Attribution Information

The present procedure combined methods used by other researchers to induce the various attributions, so there was no shortage of
attributional information to subjects. Bogus graphs, which were successfully used by Klein, Fencil-Morse, and Seligman (1976), direct instructions (e.g., "The task is a very difficult one.") adapted from Kukla (1972), and extemporaneous experimenter comments ("Hmmm, I guess you weren't able to process all of that information.") similar to those used by Hanusa and Schultz (1977) were all used. Hanusa and Schultz and Klein et al. employed manipulation checks which showed that their manipulations were generally effective. An exception is that Hanusa and Schultz's effort-attribution group ranked task difficulty as the most important cause of their failure, which was also true of the effort group in the present study (see Table 4, p. 64). Subjects have a great deal of internal information on how much effort they exert on a given task. In the present study, subjects were told that effort was salient, and encouraged to try hard. It is expectable that they were quite accurately aware of the amount of effort they exerted. Effort may be an especially difficult attribution to manipulate. There is no apparent reason, however, why ability was not successfully manipulated in this study.

Manipulation Check

It is possible that attributions were effectively manipulated, but the manipulation check did not pick up on them. The "ability" and "effort" items showed least sensitivity to the manipulation, which could have resulted from the wording of the instructions and the instrument. The instructions ask subjects to indicate "how
important each factor was in determining how well you did."
The instruction is followed by four items and 7-point Likert scales ranging from "did not determine outcome at all" to "extremely important determinant of outcome." Conceivably some subjects confused "importance" with the absolute level of the factor which influenced the situation. For example, it is straightforward to respond to the task difficulty and experimenter items. High task difficulty or high experimenter interference explain the task failure, so these items are appropriately rated highly, indicating their importance. To answer the ability and effort items appropriately, however, required subjects to realize that low ability or low effort was highly important, and mark the scale in the high range. Possibly the slight switch in response set necessary to respond correctly induced confusion. This argument is weakened, however, by the fact that the ability group was not distinguished from other groups on both performance and affect measures. For the ability group, at least, it appears that the attribution manipulation simply was not effective.

Nevertheless, it would probably be preferable in future research to ask two questions about each attributional factor, one addressing the level to which a factor was present (e.g., "how much effort did you apply; how difficult was this task?") and one addressing the importance of the factor (how important was this to your overall outcome?) to tease out possible confounding. It is also possible that a more sensitive instrument could be
devised by using a forced-choice response format in the manipulation check, which would require subjects to make finer discriminations between attributional factors. Hanusa and Schultz allude to using "paired comparisons" (p. 608) on their measure. Other researchers have asked subjects to divide a specified number of "points" between the potential attributional factors (e.g., Rizley, 1978). This format would prohibit the assigning of high importance to all factors, and possibly encourage finer discriminations. However, one could argue that the more restrictive formats do not allow subjects to respond as they actually perceive things to be. There is some evidence that people "naturally" form relatively complex attributions about events (MacArthur, 1972).

Affect Results

Lack of Negative Affect

This study was primarily concerned with affect in helplessness and its determinants. Unfortunately, negative affect was very minimally aroused by the insolvable problem treatment. This outcome gives credence to the thesis developed earlier, that subjects were not sufficiently threatened to develop helplessness. Indeed, the adjectives rated most highly by all subjects were "calm," "thoughtful," "composed," and "collected." Even these words were rarely rated higher than the midpoint of the scale, which suggests that subjects didn't feel any of the checklist of emotions very strongly, or else were adverse to reporting them. One wonders if a list of positive
emotions would have evoked stronger ratings. (Perhaps the experimenters provided a more positive situation than we had heretofore imagined!) Of course, helplessness theory also states that an outcome must be an important one, or highly aversive, to create depressed feelings (Abramson et al., 1978). In that we apparently did not achieve this condition, the present lack of results is not unsupportive of helplessness theory.

Two considerations must be kept in mind as the affect results are discussed. First is that behaviorally, no group developed helplessness. The affect results reflect feelings engendered by a series of failures, but not helplessness-inducing failures. Second, the methodology used herein capitalizes on chance to a large degree. The ten highest-rated adjectives within each experimental group were isolated, and comparisons performed on those adjectives. Chance high ratings would therefore contribute to the likelihood that an item would appear among the principal affects for a group, whereas chance low ratings would not. This fact, coupled with the fact that 70 t tests were performed on the affect data, dictates that one take a conservative approach to interpreting any statistically significant data.

Feelings Associated with Insolvable Problems

The study's first hypothesis was that the no-attribution group would exhibit greater stress than controls, consisting of divergent emotions, but including greater frustration, anxiety, hostility, and depression. To an extent this prediction was borne out.
Hostility and anxiety were not aroused, relative to controls. However, the no-attribution group felt much less thoughtful and composed than the control group, and even less than the other IP groups when they were combined. The no-attribution group was also marginally more frustrated than controls. The strongest flavor, however, given the higher ratings of "dumbfounded" and "flustered" is one of unpleasant surprise. At a much greater intensity this may translate into the first phase of a general stress reaction.

Attribution and Affect Following Insolvable Problems

It was predicted that the emotions generated by the various attributions would roughly correspond with those reported by Weiner et al. (1978). In the main, this was not the case, although results may have been more similar to Weiner's had our attribution manipulations been more successful or helplessness been achieved.

No discriminating affects emerged for the ability group, which had been expected to report incompetence or inadequacy. As noted earlier, the lack of emotional effects here suggests that this manipulation was ineffective.

The effort attribution group reported more distinguishing negative affect than any other group, although they did not report shame or guilt. The higher ratings given to "apprehensive" made this the only adjective to distinguish a group at the originally-adopted .01 level of significance. This group also felt more
dissatisfaction and incompetence than other groups. These results suggest that the internal attribution of effort may engender more stress than other attributions.

The experimenter trickery group showed no hostility at all, contrary to prediction. This group seemed especially unaroused and indifferent in their affect ratings. Recall that this group performed most poorly of all groups on the anagrams (though nonsignificantly). Possibly the indifference they reported after the training task extended to the anagrams and depressed their performance there.

Finally, the task-difficulty group reported more collectedness, passivity, and resignation than other groups. This offers support for the hypothesis that this group would exhibit a lack of involvement, a result which is consistent with Weiner's et al. (1978) finding that "unexcited" and "thoughtful" were among the discriminating affects for their task-difficulty group. It appears that our subjects, when encountered with failure on a task which apparently held low importance, and which was either extremely difficult or involved an interfering experimenter, reacted with low emotional involvement, and simply waited it out.

Other investigators of attributions in helplessness (e.g., Pittman & Pittman, 1979; Hanusa & Schultz, 1977) have interpreted their findings in terms of the blend of reactance theory (Brehm, 1966; 1972) and helplessness theory which was proposed by Wortman and Brehm in 1975. Wortman and Brehm proposed that small amounts of
exposure to uncontrollability lead to reactance; that is, to motivational arousal, attempts to re-establish control, and hostility and aggression. More extensive exposure to uncontrollability leads to the passivity and performance deficits of helplessness. The reactance phenomena occur only when one has a prior expectancy for control over the threatened outcome. If there is no prior expectancy for control, the reactance phase is bypassed and helplessness rather quickly ensues. Both reactance and helplessness are seen as dependent on the importance of the outcome, however, and are proportional to it. Loss of control over an unimportant outcome creates neither reactance nor helplessness.

Subjects in the present study demonstrated neither reactance (facilitated anagram performance, and hostility) nor helplessness. By this theory as well as egotism theory, it would appear that lack of importance or "goal attractiveness" (Weiner et al., 1971) of success on the discrimination problems is the most plausible explanation for our overall lack of effects.

Importance of the Training Task

We might speculate briefly on why the helplessness training task apparently held such low importance for the present subjects. The issue of a relatively small amount of helplessness training and other esteem-relevant factors have already been discussed. In addition, the present instructions stressed the importance of the task in terms of its importance to science. The experimenters' interest in studying these "important questions" was emphasized,
and our subjects were urged to do their best. In contrast, other researchers have told subjects that the training task is a predictor of success in college (Roth & Kubal, 1975); that if they do their best on the task, in the experimenters' judgement, they will receive additional credit for participating (Pittman & Pittman, 1979); or that the experiment relates "perceptual aptitude and intelligence" (Snyder et al., 1981); and furthermore, that perceptual skill is an important predictor of intelligence (Frankel & Snyder, 1978).

It is likely that these instructions are more ego-involving, and thus enhance the perceived importance of the task more than our entreaty on behalf of the advancement of knowledge. However, all of the instructions above also suggest an internal attribution for the ensuing failure—specifically, to ability or effort. One potential way of increasing involvement without making implications about causality for failure would be to tell subjects they will be rewarded with money or extra credit points for every discrimination problem which they solve. A study in which task importance and attributions about performance were crossed factors would be an interesting one, and may provide data relevant to the Wortman and Brehm (1975) reactance/helplessness explanation, the egotism explanation (Frankel & Snyder, 1978), and the learned helplessness explanation (Abramson et al., 1978) for the performance deficits which sometimes follow exposure to insolvable problems.

**Affect of Depression Versus Affect of Helplessness**

Not surprisingly, the depressed sample in this study reported
much more negative affect than the relatively unaffected experimental groups. Although it was impossible to compare the quality of emotion reported by depressives with the quality of emotion in helplessness in this study, this issue remains an important one. Helplessness researchers to date have not shown that helpless subjects feel like actual depressed persons, although they often perform similarly on anagram problems (e.g., Klein et al., 1976). Depression, like helplessness training, manifests itself in poor anagram performance, but presumably having the flu, having just passed one's final oral exam, or having run a marathon could have similar effects. Substantiating the helplessness theory of depression requires that an emotional parallel be demonstrated. Contrary to the interpretation of some writers (e.g., Abramson et al., 1978), this is not accomplished by research which reports all manner of disturbed affect accompanying helplessness. Substantiation requires that helpless subjects and a criterion group of depressed persons respond similarly to the same instrument, and differently than nondepressed controls. Since there is a general lack of consensus on the definition of depression, its emotional component notwithstanding (Depue & Monroe, 1978), the instrument in question needs to survey the spectrum of emotions, ideally even positive ones.

Finally, substantiation of the helplessness theory of depression requires more than the demonstration of behavioral and emotional similarities between helplessness and depression. The factors which appear to influence laboratory helplessness--amount
of exposure to unsuccessful outcomes, attributions (including when they occur), task importance, prior expectancy for control, esteem variables--must be clarified. Only then can the role of these factors be investigated relative to depression, in the laboratory and naturalistic settings, and the theory stand, fall, or simply fade away.
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These consist of pages:

- BECK DEPRESSION INVENTORY (APPENDIX A PAGES 108-111)
- AFFECT MEASURE (APPENDIX C PAGES 113-115)
- ANAGRAMS AND SOLUTION WORDS (APPENDIX D PAGE 116)
- ORIGINAL ANAGRAMS AND SOLUTION WORDS (APPENDIX E PAGE 117)

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Sample Discrimination Problem Card
APPENDIX F

Attribution Manipulation Check

1. Effort, or how hard I tried

| Did not determine outcome at all | Moderately important determinant of outcome | Extremely important determinant of outcome |

2. Difficulty of the task

| Did not determine outcome at all | Moderately important determinant of outcome | Extremely important determinant of outcome |

3. My ability

| Did not determine outcome at all | Moderately important determinant of outcome | Extremely important determinant of outcome |

4. Something the experimenter did

| Did not determine outcome at all | Moderately important determinant of outcome | Extremely important determinant of outcome |
On the task which you just completed, there were 20 anagrams (words with the letters scrambled). Of the 20, what is your guess of the number which you solved? Please write that number in the blank. _______

How successful do you consider your performance on the anagram task to be? Please check the appropriate space on this scale:

<table>
<thead>
<tr>
<th>complete failure</th>
<th>moderate failure</th>
<th>slight failure</th>
<th>slight success</th>
<th>moderate success</th>
<th>complete success</th>
</tr>
</thead>
</table>

On the next page are some factors which may have influenced your performance on the anagrams task, again, the task you just completed. Please put an X in the space which you think best represents how important each factor was in determining how well you did at solving the anagrams.
Informed Consent Form for Counseling Center Clients

To the client:

As part of my doctoral research, I am asking Student Counseling Center clients who are referred for testing to complete some additional questionnaires. Your participation in this research is totally voluntary. If you are willing to complete the questionnaires, which takes about 15 minutes, your results will be forwarded to your counselor for interpretation to you, or I will be available to do the interpretation for you. For my research purposes your results will be treated with complete confidentiality. Your name will never be associated with your results in the research.

If you agree to participate in my study, please sign your name below. Thank you.

Elaine Johnson, Counselor
Student Counseling Center
Informed Consent Form for Psychology Department Subjects

The Department of Psychology supports the practice of protection for human subjects participating in research. The following information is provided so that you can decide whether you wish to participate in the present study. You should be aware that even if you agree to participate you are free to withdraw at any time, without penalty.

This study is concerned with problem-solving and feelings. You will be asked to solve some intellectual problems, and to fill out some questionnaires concerning your feelings.

Your participation is solicited, but is strictly voluntary. Do not hesitate to ask any questions about the study. Be assured that your name will not be associated in any way with the research findings. We appreciate your cooperation very much.

Sincerely,

Elaine Johnson,
Principal Investigator

Signature of student agreeing to participate
APPENDIX J

Bogus Feedback Graph used in
Task Difficulty Attribution Condition
APPENDIX K

**Bogus Feedback Graph used in Ability Attribution Condition**
APPENDIX L

Bogus Feedback Graph used in Effort Attribution Condition
APPENDIX M

Debriefing Statement

The experiment in which you just participated is actually a test of one of the major theories of depression in humans. The broad issues which we are trying to address are what depression is, what causes it, and eventually, what the most effective psychological treatments of it are.

In this experiment we are testing the learned helplessness theory of depression. As you may have learned in your psychology class, when animals or humans are given a series of insolvable problems, later, on solvable problems, they do not perform well. They behave as if they have learned that they are helpless on such tasks. Martin Seligman, who created the "learned helplessness" idea, believes that in humans, depression is very similar to learned helplessness. He believes that if people are given insolvable problems in the laboratory, they experience a mini version of depression in the laboratory.

That is what we are doing in this experiment. The first set of problems, the "pattern discrimination test," was actually insolvable. You could not have solved any of those problems. We are mainly interested in what feelings you experienced after you attempted those problems. (Some of you served as "controls." You were not asked to actually "solve" the problems. You are the group against which the other groups will be compared.) The
feelings you reported following your attempt at the unsolvable problems will be compared with feelings reported by persons who are depressed.

We expect that people who attempt insolvable problems will not do as well on the anagrams as the controls, who did not try to solve those problems.

Thank you for participating. You will receive 1 hour of credit toward your psychology grade. We have an important request to make of you. We will be running this experiment for the rest of the semester, and possibly for the rest of the year. It is extremely important to us that you not discuss this experiment with any of your friends. We will be asking many more people to participate. Obviously our results would be worthless if the students in our study were aware that the first task is insolvable, or knew the solution to the second task, the anagrams task. Therefore, we are relying on your complete cooperation in maintaining the confidentiality of our procedures.

This research is the final requirement for my PhD degree in psychology from Iowa State University. Thank you for your help and cooperation.

Elaine Johnson
Counselor,
University of Idaho

Craig Brodahl
Research assistant