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Toward Validating the Diathesis-Stress and Causal Mediation Components of the Hopelessness Theory of Depression

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Mark Hudson Wagner

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TO

TOWARD VALIDATING THE DIATHESIS-STRESS AND CAUSAL MEDIATION COMPONENTS OF THE HOPELESSNESS THEORY OF DEPRESSION

By

Mark Hudson Wagner

A THESIS

Submitted to
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ABSTRACT

TOWARD VALIDATING THE DIATHESIS-STRESS AND CAUSAL MEDIATION COMPONENTS OF THE HOPELESSNESS THEORY OF DEPRESSION

By

Mark Hudson Wagner

The Diathesis-Stress and Causal Mediation components of the Hopelessness Theory of Depression (HTD; e.g., Abramson, Metalsky and Alloy, 1988) were evaluated by measuring 43 undergraduate students' affective responses to midterm exam grades. In an attempt to logically isolate the depressive responses proposed by HTD (i.e., the etiologically defined hopelessness subtype), each subject's baseline condition regarding attributional style, recent important negative life events (INLEs), and depression was evaluated. While 17 subjects viewed their exam outcome as negative, no pattern of enduring depressive mood response or feelings of hopelessness was shown, and therefore, hypotheses regarding the prediction of such responses were not viewed as adequately tested. Further, the consistency between finding no enduring depressive mood response in a sample from which depressives were selected and trait theory for depression was discussed. Issues regarding the measurement of INLEs, and methodological and theoretical implications are addressed.

For my parents, Charles and Elizabeth Wagner,
who have taught me very much.

ACKNOWLEDGMENTS

Special thanks to Dr. Dozier W. Thornton, the chairman of my committee, for his constant support and patience through this project. Thanks also to the members of my committee: Dr. Mark E. Rilling, Dr. Michael K. Lindell, and Dr. John E. Hunter. Thanks also to Dr. Leonard VanderJagt for his contributions during the development of this project, and his support throughout. I would like to recognize further Dr. Thornton and Dr. Rilling for their special inspiration, Dr. Thornton and Dr. Lindell for their many valuable consultations, and Dr. Hunter for his direction on addressing the Trait Theory of Depression.

Thanks to Dr. Lindell and to Leslie Wolowitz for allowing me to collect data in their classes. Thanks to Brenda Mayne for performing the subject solicitation speeches and for her help in collecting data. Thanks to Kent Phillippe for his help with SPSS. Thanks also to Denise Bachman and Dave Herrod for their help in the questionnaire preparation and data collection and organization, and more thanks to Denise for her help in a hundred or more hours of data entry.

Thanks to Maureen Marks, David Rosenberg, and Alexis Vlahos for their special friendship and support.

Love and very special thanks to Christine for her love, friendship, support, understanding, encouragement, guidance, effort and sacrifice, and for growing with me in our marriage, all while pursuing her doctorate. I am truly fortunate.

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Having taken five years to complete this thesis,
I would like to share some thoughts --

On Procrastination:

A boy who did always procrastinate
When asked why all of his poems were late
Said it took too much time
To find words that would rhyme

-- A "Limerick" by the author written to complete an overdue poetry assignment for a Creative Writing class in the 9th grade.

How many graduate students does it take to screw in a light bulb?
One -- but it takes him nine years.

-- from The Big Book of New American Humor, William Novak and Moshe Waldoks (Eds.)

My mother said, "You won't amount to anything because you procrastinate!"
I said, "Just wait."

-- Judy Tenuta, quoted in The Big Book of New American Humor

Argue for your limitations, and sure enough, they're yours.

-- from Illusions, by Richard Bach

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ABBREVIATIONS

ASQ	**A**ttributional **S**tyle **Q**uestionnaire.
BDI	**B**eck **D**epression **I**nventory.
BHS	**B**eck **H**opelessness **S**cale.
HTD	The **H**opelessness **T**heory of **D**epression.
INLE	**I**mportant **N**egative **L**ife **E**vent, (and the absence of an important positive life event).
LEI	**L**ife **E**vents **I**nventory.
LHTD	The **L**earned **H**elplessness **T**heory of **D**epression.
LHTD-R	The **L**earned **H**elplessness **T**heory of **D**epression - **R**eformulated.
MAACL	**M**ultiple **A**ffect **A**djective **C**heck **L**ist, Today Form.
MAACL-R	**M**ultiple **A**ffect **A**djective **C**heck **L**ist - **R**evised, Today Form.
PAQ	**P**articular **A**ttribution **Q**uestionnaire.

INTRODUCTION

The research reported here was designed to evaluate the Hopelessness Theory of Depression (HTD; Abramson, Metalsky and Alloy, 1986; Abramson, Metalsky and Alloy, 1988; Alloy, Abramson, Metalsky and Hartlage, 1988). HTD consists of two fundamental theoretical components, the Diathesis-Stress component and Causal Mediation component. A recent test of HTD (Metalsky, Halberstadt and Abramson, 1987) suggested support for both components of the theory. Though the study of Metalsky et al. (1987) showed a great improvement in theoretical soundness over an earlier test of HTD (Metalsky, Abramson, Seligman, Semmel and Peterson, 1982), their test used a methodology that was inconsistent with some of the basic tenants of HTD. These inconsistencies leave their results open to wide interpretation. Therefore, by adapting the methodology of Metalsky et al. (1987) to be consistent with HTD, this study was designed to provide a more sound and more interpretable test of HTD.

Before discussing the details of this study, some background information relevant to its development will be presented. First, the evolution of HTD from its roots in Seligman's (1975) Learned Helplessness Theory of Depression (LHTD)

will be traced. Next, the research implications of HTD will be presented. Then a discussion of research testing the Diathesis-Stress and Causal Mediation components of HTD will be presented. Included will be a summary and a critique of the Metalsky et al. (1987) study. Then a discussion of how the shortcomings of the Metalsky et al. (1987) study were addressed in the present, and finally, the resulting research will be reported.

The Learned Helplessness Theory of Depression (LHTD)

The first reports of the learned helplessness phenomenon came from experiments noting that dogs exposed to inescapable electrical shock later showed motivational, cognitive, and emotional deficits (Overmier and Seligman, 1967; Seligman and Maier, 1967). The deficits were assessed in later trials when the contingencies had changed such that escape from the shock was then possible. The fact that the dogs initiated very few attempts to escape the shock was seen to evidence their motivational deficit. When a dog did successfully escape the shock, it rarely followed that experience with another escape attempt in the next trial. This apparent failure to learn from the successful escape experience was seen to evidence the dogs' cognitive deficit. Their emotional deficit was evidenced by their not appearing to demonstrate much overt emotionality while they were being shocked in these later trials.

Seligman (1975) noted that depressed humans show the same three classes of deficits. Depressed humans show a decline in their initiation and persistence of voluntary responses (motivational deficit), in their perception of

opportunities and controllable situations (cognitive deficit), and show greater levels of sadness with lowered self-esteem (emotional deficit). Given the similarities between the deficits demonstrated by dogs exposed to inescapable shock and those demonstrated by depressed humans, Seligman (1975) suggested that the cause of human depression may be similar to the cause of the dog's deficits, and proposed that depressed humans have expectations that they cannot control their outcomes.

The Reformulated Learned Helplessness Theory of Depression (LHTD-R)

Abramson, Seligman and Teasdale (1978) noted that LHTD did not explain certain qualitative variations in both how people perceive the uncontrollability of their situations and the patterns of deficits they demonstrate as a result of those perceptions (i.e., experiencing personal vs. universal helplessness,[1] and the generality and chronicity of their helplessness deficits). To account for these variations, Abramson et al. (1978) proposed a reformulation (LHTD-R) of LHTD that emphasized the importance of the causal attributions people make to explain their helpless situations. They suggested that causal attributions for positive or negative outcomes could be meaningfully described along three orthogonal, continuous dimensions (i.e., internal vs. external, stable vs. unstable, and global vs. specific dimensions of causal attributions). Figure 1 presents the cognitive context of each type of causal attribution (where "types" are the endpoints of each of the proposed dimensions of causal attributions) and also presents the consequences people are

The cognitive context of each type of causal attribution			The corresponding consequences expected for the individual if his/her view is that their situation is important and helpless
The individual's belief regarding the nature of his/her situation	Type of causal attribution made for the situation	A corresponding generic example of each type of causal attribution	
Relevant others (i.e., peers) in my situation would view it as controllable	Attribute the situation to **INTERNAL** causes (DAS)	I am somehow the cause of this situation	[a]Personal helplessness, sadness, and lowered self-esteem
Relevant others (i.e., peers) in my situation would view it as not controllable	Attribute the situation to **EXTERNAL** causes (RAS)	Something or someone else is the cause of this situation	Universal helplessness, sadness, and no deficit in self-esteem
My situation is due to factors that impact many areas in my life	Attribute the situation to **GLOBAL** causes (DAS)	This situation was caused by something which will effect my life in many ways	Demonstration of deficits in a wide variety of areas
My situation is due to factors relevant only to this particular situation	Attribute the situation to **SPECIFIC** causes (RAS)	This situation was caused by something which will not effect my life in many ways	Demonstration of specific deficits related to the situation at hand
My situation is due to longstanding factors likely to persist as factors in my life	Attribute the situation to **STABLE** causes (DAS)	This situation was caused by something which will continue to impact my life in the future	Deficits are demonstrated in a chronic pattern
My situation is due to transient factors that are neither persistent nor unalterable	Attribute the situation to **UNSTABLE** causes (RAS)	This situation was caused by something which will not continue to effect my life in the future	Deficits are demonstrated in a transient fashion

Figure 1

The Cognitive Context and Expected Consequences of Six Types of Causal Attributions

Note. DAS = Depressogenic Attributional Style, and RAS = Depression Resistant Attributional Style.

[a] = Abramson et al. (1978) address the emotional deficit described by Seligman (1975) by distinguishing self-esteem and affective deficits. They contend that affective deficits in depression result from the expectation that bad outcomes which are important to the individual will occur, or that good outcomes which are important to the individual will not occur, independent of the controlability of those outcomes. Further, they state that "depressed individuals who believe their helplessness is personal show lower self-esteem than individuals who believe their helplessness is universal" (p. 66)

expected to experience for making each type of causal attribution regarding a situation they perceive as helpless. Figure 2 (adapted from Abramson et al., 1978, p.57) demonstrates how the three attributional dimensions can fully interact to qualitatively describe and distinguish various attributions regarding the cause of a single event, whether positive or negative. Furthermore, Figure 2 demonstrates the eight (2 x 2 x 2 = 8) unique combinations of attributional "types" that might be represented in causal attributions for a single event. Of course, because the attributional dimensions are continuous, causal attributions may be represented anywhere along each of the three dimensions, thus yielding an infinite variety of combinations of attributional characteristics possible between these eight combinations. Also, two different attributions for a single event might be represented similarly across the attributional dimensions. For example, "My conversation sometimes interests him/her" and "I sometimes dress in a way that he/she finds attractive" are both internal, specific, unstable causal attributions that might be made for a successful interpersonal encounter.

Further examination of Figure 1 reveals that the combined consequences expected for attributing helplessness to causes which are internal, global and stable are consistent with depressive symptomatology (i.e., lowered self-esteem, sadness and a broad pattern of cognitive and motivational deficits that are chronic in nature). For this reason, such an attribution has been hypothesized to be depressogenic, and the tendency to make such attributions has been referred to as a hypothesized depressogenic attributional style (e.g., Abramson et al., 1986; Abramson et al., 1988; Alloy et al., 1988). Correspondingly,

			STABLE	UNSTABLE
GLOBAL	INTERNAL	POS	I am attractive to men/women	My conversation sometimes interests men/women
		NEG	I am unattractive to men/women	My conversation sometimes bores men/women
	EXTERNAL	POS	People are accepting of others for potential future relationships	People sometimes get in friendly moods
		NEG	People are competitive with others in potential future relationships	People sometimes get in rejecting moods
SPECIFIC	INTERNAL	POS	I am attractive to him/her	My conversation sometimes interests him/her
		NEG	I am unattractive to him/her	My conversation sometimes bores him/her
	EXTERNAL	POS	He/She is accepting of others for potential future relationships	He/She sometimes gets in a friendly mood
		NEG	He/She is competitive with others in potential future relationships	He/She sometimes gets in a rejecting mood

Figure 2

Examples of Eight "Types" of Causal Attributions for Positive or Negative Events

Note. In these examples, it is assumed that the situation is one where the desired outcome is gaining the acceptance of another. POS = Positive life event: In this example, acceptance (i.e., a successful interpersonal encounter). NEG = Negative life event: In this example, rejection (i.e., a failed interpersonal encounter).

attributing helplessness to causes that are external, specific and unstable is expected to result in no loss of self-esteem and contextually circumscribed affective, cognitive and motivational deficits that are transitory in nature. The course and nature of these consequences are contrary to depression in any enduring, disabling sense, and represent instead limited reactions to what are viewed as isolated events. Recognizing that LHTD-R suggests that the moderate character of these deficits are due the nature of the causal attributions one makes rather than to the event that elicited them (and hence the deficits), such an attribution will be referred to as depression resistant and the tendency to make such an attribution will be referred to as a depression resistant attributional style.[2]

Abramson et al. (1978) suggested that these qualitative differences in the patterns of causal attributions people make regarding both the positive and negative outcomes of past and present events (i.e., depressogenic or depression resistant attributional styles) can serve to predict the recurrence of their expectations for outcomes in future situations. However, they stressed that it is ultimately the expectations for future outcomes that determine the occurrence of helplessness deficits (i.e., "when highly desired outcomes are believed improbable or highly aversive outcomes are believed probable, and the individual expects that no response in his repertoire will change their likelihood;" Abramson et al., 1978, p.68). Figure 3 displays the defining characteristics of a depressogenic and depression resistant attributional styles, and their corresponding implications for future expectations and consequent symptoms.

	Nature of causal attributions for FAILURE experiences	[a] Nature of causal attributions for SUCCESS experiences	Expectations for outcomes of future experiences	Consequent symptoms expected
Depressogenic Attributional Style	INTERNAL GLOBAL and STABLE	EXTERNAL SPECIFIC and UNSTABLE	Imminence of continued negative outcomes independent of responses	Feelings of helplessness, motivational and cognitive deficits with sadness and low self-esteem
Depression Resistant Attributional Style	EXTERNAL SPECIFIC and UNSTABLE	INTERNAL GLOBAL and STABLE	Possibility of future positive outcomes dependent on responses	Feelings of control, with intact cognitive and motivational functioning and intact self-esteem

Figure 3

Defining Characteristics of Depressogenic and Depression Resistant Attributional Styles

[a] - The role of causal attributions for positive events (e.g., success) in DAS and RAS is not explicitly stated in Abramson et al. (1978). Rather, they note that "the particular attribution that depressed people choose for failure is probably irrationally disposed toward global, stable and internal factors and, for success, possibly toward specific, unstable, and external factors" (p.68), and that one indication for treatment is to "change unrealistic attributions for success toward internal, stable, global" factors (p.69). Seligman, Abramson, Semmel and Von Baeyer (1979) state that "the role of attributions for good outcomes [in the onset of depression] seems less direct [than those for bad outcomes]. Among the possibilities are that attributions to global, stable and internal factors for good outcomes blunt the impact of bad outcomes, that such attributions increase 'ego strength,' or that good outcomes are less remembered or valued by depressives" (pp 246-247).

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In summary then, Abramson et al. (1978, p. 68) present the following as an explicit statement of LHTD-R:

1. Depression consists of four classes of deficits: motivational, cognitive, self-esteem, and affective.

2. When highly desired outcomes are believed improbable or highly aversive outcomes are believed probable, and the individual expects that no response in his repertoire will change their likelihood, (helplessness) depression results.

3. The generality of the depressive deficits will depend on the globality of the attribution for helplessness, the chronicity of the depression will depend on the stability of the attribution for helplessness, and whether self-esteem is lowered will depend on the internality of the attribution for helplessness.

4. The intensity of the deficits depends on the strength, or certainty, of the expectation of uncontrollability and, in the case of affective and self-esteem deficits, on the importance of the outcome.

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The Hopelessness Theory of Depression (HTD)

HTD is in small part a modification of LHTD-R, and in large part, a painstaking clarification of LHTD-R. Both aspects of HTD are presented.

The Hopelessness Theory of Depression (HTD): Modifications of the Reformulated Learned Helplessness Theory of Depression (LHTD-R)

HTD, as its name implies, emphasizes the role of feelings of hopelessness in the onset of depression (Abramson et al., 1986; Abramson et al., 1988; Alloy et al., 1988). The distinction that HTD makes between helplessness and hopelessness is intricate. First, "helplessness" is reassigned its original meaning from Seligman's (1975) LHTD. Specifically, HTD views helplessness as "the expectation that one cannot control outcomes regardless of their hedonic valence or their likelihood of occurrence," (Alloy et al., 1988, p. 7). Second, "hopelessness" is assigned the meaning formerly granted "Helplessness" in LHTD-R. Specifically, HTD views hopelessness as the "expectation that highly desired outcomes are unlikely to occur or that highly aversive outcomes are likely to occur and that no response in one's repertoire will change the likelihood of occurrence of these outcomes," (Abramson et al., 1986, p. 7; Abramson et al., 1988, p. 4; Alloy et al., 1988, p. 7). Therefore, by redefining terms, but without changing the operational logic of LHTD-R, HTD views helplessness as one part of the larger set of expectations that comprise hopelessness.

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By reemphasizing that hopelessness is a set of expectations, HTD proposes that uncontrollability need not be experienced in order for depression to occur. Rather, HTD proposes that depression will occur when the expectation of uncontrollability (and the other expectations that comprise hopelessness) are elicited. HTD suggests that a perceived occurrence of an important negative life event (INLE) is capable of eliciting expectations of hopelessness and a full spectrum of depressive deficits if the INLE is attributed to internal, global and stable causes.[3] Therefore, one operationally significant change in HTD from LHTD-R is the requirement of the occurrence of only an INLE rather than actually experiencing an uncontrollable event or situation in the theory's etiological model.

Another operationally significant change in HTD relative to LHTD-R is presented by Abramson et al. (1986) when they state:

> We [postulate] that attributing a negative life event to an internal cause does not, by itself, contribute to lowering self-esteem. Instead, attributing a negative life event to an internal, stable, global cause contributes to lowered self-esteem. This revision is based on a number of studies (e.g., Crocker, Alloy, & Kayne, 1987; Dweck & Licht, 1980; Janoff-Bulman, 1979) showing that internal attributions per se are not maladaptive and, in some cases, may be very adaptive (e.g., attributing failure to lack of effort leads to increased trying).[4] (p. 25)

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The Hopelessness Theory of Depression (HTD): Clarifications of the Reformulated Learned Helplessness Theory of Depression (LHTD-R)

With the exception of the theoretical modifications just mentioned, HTD is logically identical to LHTD-R. However, the primary value of HTD is the painstaking clarity with which it explains its logic, limits, etiological postulates and methodological implications.

In considering the etiology of depression, HTD puts considerable weight on the distinctions between necessary, sufficient and contributory causes, and between proximal and distal causes. Figure 4 defines each of these types of causes in a manner consistent with their use in HTD.

Briefly stated, HTD proposes that among the many possible subtypes of the heterogeneous disorder of depression (Depue and Monroe, 1978), the hopelessness subtype of depression is the result of a chain of contributory causes that culminate in hopelessness, which is viewed as a proximal sufficient cause of depression (i.e., hopelessness depression). The framework for this etiological chain of hopelessness depression is presented in Figure 5, and will now be explained component by component, starting with the cause most proximal to the manifestation of hopelessness depression, working back to its most distal contributory causes.

HTD proposes that hopelessness is a proximal sufficient cause of depression. The primary implication of this is the proposition that for all instances in which one experiences the set of expectations by which HTD defines hopelessness, one will then experience depression. However, HTD also

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Type of cause	Defining probability statements for each type of cause	Defining characteristics for each type of cause
Necessary	P(E/S) = 1.00	For every instance in which the SYMPTOMS have occurred, the EVENT has always occurred first
	P(not E/S) = 0.00	The SYMPTOMS never occur when the EVENT has not occurred first
Sufficient	P(S/E) = 1.00	For every instance in which the EVENT occurs, the SYMPTOMS will then also occur
	P(E/not S) = 0.00	If the SYMPTOMS have not occurred, then the EVENT must not have occurred either
Contributory	P(S/E) > P(S/not E)	The SYMPTOMS are more likely to occur when the EVENT has occurred than when it has not.
	P(E/S) < 1.00	There are instances in which the SYMPTOMS occur when their EVENT has not occurred, therefore the EVENT is not a necessary cause
	P(S/E) < 1.00	There are instances in which the EVENT occurs but the SYMPTOMS do not then also occur, therefore the EVENT is not a sufficient cause
Proximal	This is a qualitative category, independent of the probability dependent categories	This is a causal EVENT that occurs relatively near the end of an etiological chain of causal EVENTS, and which therefore occurs proximal to the occurrence of the SYMPTOMS
Distal	This is a qualitative category, independent of the probability dependent categories	This is a causal EVENT that occurs relatively near the beginning of an etiological chain of causal EVENTS, and which therefore occurs distal to the occurrence of the SYMPTOMS

Figure 4

Defining Characteristics of Five Types of Causes

Note. P = Probability, E = the preceding occurrence or presence of a causal EVENT, S = the subsequent set of SYMPTOMS, and P(X/Y) = the probability of X occurring or being present given the occurrence or presence of Y.

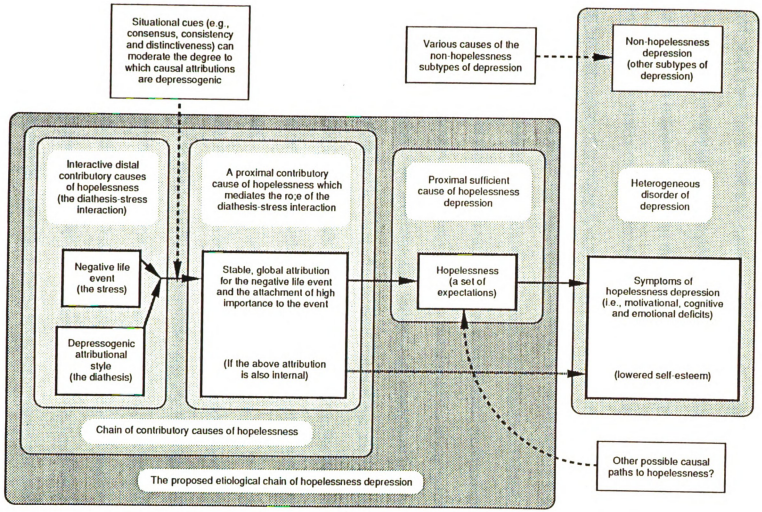

Figure 5

The Etiological Chain Proposed by the Hopelessness Theory of Depression

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recognizes, or at least does not exclude the possibility that "other factors such as genetic vulnerability, norepinephrine depletion, loss of interest in reinforcers, etc. also may be sufficient to cause depression" (Abramson et al., 1988, p. 8).

HTD proposes an etiological chain of contributory causes which culminate in hopelessness, and therefore depression.[5] The contributory cause in this chain that is most proximal to the experience of hopelessness is the actual formation of a global and stable attribution regarding the cause of an INLE. This attribution is not necessarily internal. HTD asserts that a global and stable attribution is able to account for broad cognitive, motivational and emotional deficits that are chronic in nature. If, in addition to being global and stable, the attribution is also internal, these deficits will be accompanied by a lowered self-esteem.[6] As a contributory cause, depressogenic attributions are not considered sufficient to cause depression, but are suggested to contribute to the formation of hopelessness. Whether depressogenic attributions are internal as well as global and stable is expected to impact only on whether self-esteem is lowered.

Two contributory causes in the etiological chain proposed by HTD that are relatively distal to the formation of hopelessness are the experience of an INLE and the condition of one having a depressogenic attributional style. HTD proposes that the contribution that each of these causes makes toward the formation of hopelessness is firstly conditional on their co-occurrence, secondly moderated by situational cues that provide information about the causes of the

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INLE, and thirdly mediated by the actual attribution made for the cause of the INLE.

HTD uses the concept of a cognitive diathesis-stress mechanism to explain the necessary co-occurrence of an INLE and one having a depressogenic attributional style for either to contribute to the formation of hopelessness. Alloy, Clements and Kolden (1985, p. 387) state that "a diathesis is simply a predisposition to a disorder; thus, a cognitive diathesis refers to risk factors for disorder that are belief-based or attitudinal in nature." They continue by stating that "stressful life events [i.e., INLE's].... in their passive role... provide the occasion for the operation of the cognitive diathesis.... [and] in their active role... activate or prime depressogenic self or causal schemata so that they become accessible in memory and can bias the processing of situational information (Riskind & Rholes, 1984)." (p. 389)

Therefore, consistent with the notion of a cognitive diathesis-stress mechanism, HTD proposes that the role of a depressogenic attributional style (the diathesis) in biasing actual causal attributions is not elicited without the occurrence of an INLE (the stress), about which such depressogenic attributions could then be made. Correspondingly, HTD proposes that the experience of an INLE in the absence of a depressogenic attributional style would be no more likely to elicit a biased depressogenic attribution than would any other event.

Therefore, the functional role of the "triggering" of a depressogenic attributional style by an INLE in the etiological chain proposed by HTD is the

active biasing of the attributional process toward actually making a depressogenic attribution for the cause of the INLE. However, HTD allows for the fact that relevant and evident cues in the environment can moderate this process and in some instances override the biasing effect of a depressogenic attributional style, especially when these situational cues provide overwhelming evidence that the INLE was due to an external, specific and unstable cause. So, for example, the "triggering" of a depressogenic attributional style by an INLE is most likely to result in one actually making a depressogenic attribution (internal, as well as global and stable) when the situational cues around the occurrence of the INLE are characterized by a low degree of consensus (supporting the internality of the attribution), a low degree of distinctiveness (supporting globality) and a high degree of consistency (supporting stability).

Ultimately then, the co-occurrence of having a depressogenic attributional style and experiencing an INLE contributes to the formation of hopelessness to the degree that their co-occurrence effectively elicits an actual depressogenic attribution regarding the cause of the INLE. Without the formation of such an attribution, their co-occurrence would not be expected to contribute to the formation of hopelessness, and therefore, hopelessness depression. This is the manner in which HTD proposes that depressogenic attributions mediate the contribution of the proposed cognitive diathesis-stress mechanism to the formation of hopelessness depression.

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Toward an Appropriate Test of the Hopelessness Theory of Depression (HTD)

Since HTD is primarily a clarification of LHTD-R, many issues relevant to conducting an appropriate test of HTD are raised by considering the weaknesses of past investigations of LHTD-R.[7] Abramson et al. (1986) assert that the empirical basis of typical investigations of LHTD-R rests upon establishing that two conditions exist in a given sample:

> 1) A high proportion of depressed (or future depressed) subjects in the sample must exhibit the hypothesized depressogenic attributional style, and 2) A high proportion of nondepressed (or future nondepressed) subjects in the sample must not exhibit the hypothesized depressogenic attributional style. (p. 40)

However, HTD allows for all four possible combinations between whether one is depressed and whether one has a depressogenic attributional style. Figure 6 presents how HTD can account for each of these four combinations. Figure 6 also demonstrates how other factors can figure into explaining each possible combination, such as whether one has experienced an INLE, whether the causal attributions one makes for the INLE are moderated by situational cues, and whether one is experiencing a non-hopelessness type of depression. Examination of Figure 6 clearly demonstrates that investigating the existence of any simple relationship between depressive symptoms and one having a depressogenic attributional style will provide insufficient information upon which to base either a critique of, or a supportive argument for, LHTD-R (Abramson et al., 1986; Abramson et al., 1988; Alloy et al., 1988).

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Presence of depressive symptoms	Presence of a DAS (diathesis)	Experience of an INLE (stress)	Possible explanation of each combination which is consistent with the characteristics of the etiological chain proposed by HTD
YES	YES	YES	1. Hopelessness depression alone 2. Hopelessness depression while also experiencing non-hopelessness depression 3. Non-hopelessness depression without also experiencing hopelessness depression (due to situational cues overriding the bias to form a depressogenic attribution for the INLE
CELL 1[a]			
YES	YES	NO	4. Non-hopelessness depression and an absence of hopelessness depression due to incomplete diathesis-stress co-occurrence
YES	NO	YES	5. Non-hopelessness depression and an absence of hopelessness depression due to incomplete diathesis-stress co-occurrence
CELL 2[b]			
YES	NO	NO	6. Non-hopelessness depression and an absence of hopelessness depression due to incomplete diathesis-stress co-occurrence
NO	YES	YES	7. Absence of non-hopelessness depression and an absence of hopelessness depression due to situational cues overriding the bias to form a depressogenic attribution for the INLE
CELL 3[c]			
NO	YES	NO	8. Absence of non-hopelessness depression and an absence of hopelessness depression due to incomplete diathesis-stress co-occurrence
NO	NO	YES	9. Absence of non-hopelessness depression and an absence of hopelessness depression due to incomplete diathesis-stress co-occurrence
CELL 4[d]			
NO	NO	NO	10. Absence of non-hopelessness depression and an absence of hopelessness depression due to incomplete diathesis-stress co-occurrence

Figure 6

Possible Explanations for the Presence or Absence of Depressive Symptoms

Note. The reader may find it helpful to refer to Figure 1 (see page 4) which provides a schematic representation of the characteristics of the etiological chain proposed by HTD. DAS = depressogenic attributional style, HTD = Hopelessness Theory of Depression, INLE = important negative life event, and LHTD-R = Reformulated Learned Helplessness Theory of Depression. Regarding each 2 X 2 cell, CELL 1 = Depressed subjects display a DAS which typical research on LHTD-R viewed as supporting LHTD-R; CELL 2 = Depressed subjects do not display a DAS which typical research on LHTD-R viewed as disputing LHTD-R; CELL 3 = Non-depressed subjects display a DAS which typical research on LHTD-R viewed as disputing LHTD-R; and CELL 4 = Non-depressed subjects do not display a DAS which typical research on LHTD-R viewed as supporting LHTD-R.

[a]It is erroneous to support LHTD-R based on attributing the incidence of hopelessness depression to the co-occurrence of depressive symptoms and a DAS (i.e., 1 and 2) when HTD can account for their co-occurrence without hopelessness depression (i.e., 3 and 4).

[b]Since HTD can explain depressive symptoms occurring in persons without a DAS (i.e., 5 and 6), it is erroneous to dispute LHTD-R based on such a finding.

[c]Since HTD can explain the absence of depressive symptoms in persons with a DAS (i.e., 7 and 8), it is erroneous to dispute LHTD-R based on such a finding.

[d]It is erroneous to support LHTD-R based on the co-absence of depressive symptoms and a DAS (i.e., 9 and 10) because HTD can explain the absence of each in the presence of the other (i.e., 5, 6, 7 and 8).

In an effort to partition HTD into parts that are more readily testable (i.e., logically refutable), two separate components of HTD have been delineated based on the logical characteristics of the etiological chain proposed by HTD (Abramson et al., 1986; Abramson et al., 1988; Alloy et al., 1988; Metalsky et al., 1982; Metalsky et al., 1987). These components of HTD, namely HTD's Diathesis-Stress component and HTD's Causal Mediation component, will now be individually addressed.

The Diathesis-Stress Component of the Hopelessness Theory of Depression

The Diathesis-Stress component of HTD is intended to address the interactive nature of the two distal contributory causes of hopelessness depression (i.e., having a depressogenic attributional style and the occurrence of an INLE; see Figure 5, page 14). Therefore, the Diathesis-Stress component of HTD is the proposition that a depressogenic attributional style (the diathesis) is essentially a latent predisposition to form depressogenic attributions (which may contribute to the development of hopelessness depression) and that the perceived occurrence of an INLE (the stress) can activate that predisposition. Inherent in the Diathesis-Stress component of HTD is the proposition that neither having a depressogenic attributional style without experiencing an INLE (see Figure 6, page 19, cases 4 and 8) nor experiencing an INLE without having a depressogenic attributional style (see Figure 6, cases 5 and 9) will bias one toward making a depressogenic attribution.

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Consistent with this conceptualization of HTD, Abramson et al. (1986) state that the first of two steps toward an adequate test of the Diathesis-Stress component of HTD is "a demonstration that the interaction between the hypothesized depressogenic attributional style and negative life events [i.e., INLE] predicts future depression, specifically hopelessness depression." (p. 49)

However, they continue that the second step is "a demonstration that this interaction predicts the complete constellation of symptoms hypothesized to constitute the hopelessness subtype of depression as opposed to only a subset of these symptoms or symptoms that constitute other subtypes of depression." (p. 49) In particular, Abramson et al. (1986) state that hopelessness depression "should be characterized by at least three major symptoms: 1) retarded initiation of voluntary responses (motivational symptom); 2) difficulty in seeing that one's responses control outcomes related or similar to the outcome about which one feels hopeless (cognitive symptom); and 3) sad affect (emotional symptom)." (p. 13)

A comment on what constitutes an adequate test of the Diathesis-Stress component of the hopelessness theory of depression.

The author presently suggests that requiring the experience of an INLE, and the condition of having a depressogenic attributional style, to interact in predicting a specific set of depressive symptoms hypothesized to characterize hopelessness depression (as required by Abramson et al., 1986) rather than to interact in predicting depressive symptoms in general, does not logically

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address the diathesis-stress question of the Diathesis-Stress component of HTD. To require that any cause of hopelessness depression predict a specific set of "hopelessness depression symptoms" assumes that such a set of symptoms has been reliably associated with hopelessness depression per se, and that this set of symptoms serves to define hopelessness depression. However, Abramson et al. (1986) specifically state that HTD "represents a theory-based approach to the classification of a subset of depressive disorders (see also Seligman, 1978) that is process-oriented rather than symptom oriented." (p. 11). Therefore HTD emphasizes that the defining characteristic of hopelessness depression is the process by which it is caused (i.e., the etiological chain proposed by HTD), and not the sub-set of depressive symptoms that are predicted to be displayed as a result of that process. Therefore, it would seem more appropriate to first investigate whether the proposed process produces depressive symptoms, and then determine whether there is a reliable pattern in the set of symptoms produced by the process that is distinguishable as a sub-set of a larger set of general depressive symptoms.[8]

Therefore, the author suggests that the first test of the Diathesis-Stress component of HTD recommended by Abramson et al. (1986) (i.e., testing whether having a depressogenic attributional style and experiencing an INLE interact to predict depression) is both appropriate and adequate for determining if these two factors comprise a contributory diathesis-stress component in the etiological chain proposed by HTD (i.e., adequately tests the Diathesis-Stress component of HTD). Certainly, such a test would not have direct implications for

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other parts of the etiological chain proposed by HTD, but it would help resolve whether having a depressogenic attributional style and experiencing an INLE act independently, interactively, or act at all in contributing to the onset of depression.

The Causal Mediation Component of the Hopelessness Theory of Depression

The Causal Mediation component of HTD is intended to address the sequential and probabilistic nature of the causes in the etiological chain proposed by HTD (see Figure 5, page 14). In this regard, HTD segments the etiological chain proposed by HTD into four "links" (i.e., the diathesis-stress mechanism, actual attributions for an INLE, the development of hopelessness, and hopelessness depression) and a confirmation of the Causal Mediation component of HTD would entail showing that the "links" connect in the predicted order and fashion. More specifically, Abramson et al. (1986) state that an adequate test of the Causal Mediation component of HTD would involve testing the following linkages:

> 1) Individuals who exhibit the hypothesized depressogenic attributional style should be more likely than individuals who do not to attribute a particular negative life event (stress) to an internal, stable, and global cause and view this event as important... 2) A stable, global attribution for a particular life event and viewing that life event as important should increase the likelihood of becoming hopeless.... 3) The occurrence of

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hopelessness should increase the likelihood of the development of depression (specifically, hopelessness depression). (pp. 49-50)

Furthermore, Abramson et al. (1986) stress that these linkages should be shown to be probabilistically consistent with their predicted role in the etiological chain proposed by HTD (i.e., show that the diathesis-stress mechanism acts as a contributory cause in the chain, etc.; see Figure 5, page 14, and Figure 4, Page 13).

Investigation of the Diathesis-Stress and Causal Mediation Components of the Hopelessness Theory of Depression (HTD)

A considerable amount of research on LHTD-R was conducted before the conceptually more clear HTD was available to guide the methods of such research (for reviews, see Barnett and Gotlib, 1988; Brewin, 1985; Coyne and Gotlib, 1983; Peterson and Seligman, 1984; and Sweeny, Anderson and Bailey, 1986). The present discussion, however, will address two studies whose methods are more consistent with the logic of HTD.

The study of Metalsky et al. (1982) was the first to address the Diathesis-Stress component of HTD although it did not address the Causal Mediation component of HTD.[9] To test the Diathesis-Stress component of HTD, Metalsky et al. (1982) assessed the onset of depressive symptoms in undergraduates with versus without a depressogenic attributional style (internal, as well as global and stable) after they had received an exam grade they were pleased with (a positive life event) or an exam grade they were displeased with (INLE).

They found that internal and global (but not stable) attributional styles for INLE's were correlated with depressive mood responses after experiencing an INLE but not with depressive mood responses after experiencing a positive life event. Williams (1985) noted that the Metalsky et al. (1982) study only examined the relationship between having a depressogenic attributional style (internal, as well as global and stable) and changes in depressive symptomology within positive life event and INLE groups, rather than whether the INLE group was more likely to show depressive symptoms than the positive life event group. Williams (1985 carried out this missing between groups comparison using data from the Metalsky et al. (1982) study and found that the between groups difference was not statistically significant. Williams (1985, p. 1574) stated "this implies that mood disturbance is no more related to attributional vulnerability when students have suffered the stress of exam disappointment than when they have suffered no such stress.

In a later study, Metalsky et al. (1987) investigated both the Diathesis-Stress and Causal Mediation components of HTD. In their test of the Diathesis-Stress component of HTD, Metalsky et al. (1987) heeded the comments of Williams (1985) and stated the following:

> In line with this component of the theory [i.e., the Diathesis-Stress component of HTD], we predicted that the content of college students' attributional styles [i.e., depressogenic attributional style vs. depression resistant attributional style, as measured at baseline]... would interact significantly with the outcomes students received on a class midterm

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> exam to predict their subsequent depressive mood responses. We further predicted that the hypothesized attributional diathesis [i.e., having a depressogenic attributional style vs. depression resistant attributional style, as measured at baseline]... would be significantly correlated with students' subsequent depressive mood responses in the presence, but not in the absence, of receipt of a negative outcome on the midterm exam (i.e., that the form of the interaction would be consistent with that predicted by the theory). (p. 387)

Furthermore, Metalsky et al. (1987) conducted a preliminary investigation of whether people might have different attributional tendencies for different types of events and therefore show a specific vulnerability for depressive mood responses to those types of events about which they have a depressogenic attributional style. To study this, Metalsky et al. (1987) assessed students' attributional styles with a revised version of the attributional style questionnaire (ASQ) that had subscales for negative interpersonal outcomes (unrelated to exam outcome) and negative achievement outcomes (related to exam outcomes).[10] They predicted that having a depressogenic attributional style for negative achievement events would predict students' depressive mood responses to a negative exam outcome while having a depressogenic attributional style for negative interpersonal events would not.

Regarding the Diathesis-Stress component of HTD, Metalsky et al. (1987) found that having a depressogenic attributional style for negative achievement events predicted students' enduring depressive mood responses to a negative

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exam outcome (measured two days after the students' receipt of their exam grades) but not their immediate depressive mood responses (measured upon students' receipt of their grades), and that having a depressogenic attributional style for negative interpersonal events did not predict students' immediate or enduring depressive mood reactions to their grades. In their consideration of why having a depressogenic attributional style for negative achievement events only predicted students' enduring mood responses to their grades, Metalsky et al. (1987) noted:

> Recent work by Weiner (1986) [sic] suggests one possible explanation for this finding. Weiner proposed that once people perceive that an event has occurred, they initially may experience a primitive emotional response. Those primitive emotions, which include happy for success and sad or frustrated for failure, are labeled "outcome-dependent, attribution-independent" by Weiner because in his view they are determined by the attainment or nonattainment of a desired goal and not by the causal attribution for the outcome. Weiner further argued that following the immediate emotional reaction, a causal attribution will be sought (particularly if the outcome is negative, unexpected, or important; see Pittman & Pittman, 1980; Pyszczynski & Greenberg, 1981; Wong & Weiner, 1981) and a more differentiated set of emotions then will be generated by the chosen attribution ("attribution-dependent").... [Hence], once causal attributions for the negative life event have been made and the immediate depressive mood response has begun to subside, the

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> hypothesized attributional diathesis then may begin to operate (through particular causal attributions) to predict how enduring the depressive mood response will be.[11] (p. 392)

Therefore, the findings of Metalsky et al. (1987) that exam outcome was the best predictor of immediate depressive mood responses to exam grades, and that the interaction between exam outcome and having a depressogenic attributional style for negative achievement events was the best predictor for enduring mood responses to grades, can be respectively viewed as compatible with the notion of outcome-dependent attribution-independent and attribution dependent emotional responses as suggested by Weiner (1985). Within the same context, the idea that people may show a specific vulnerability for depressive reactions to certain general types of events (i.e., achievement or interpersonal events) is supported by the ability of having a depressogenic attributional style for negative achievement events to predict enduring depressive mood responses to a negative exam outcome (a negative achievement event) while having a depressogenic attributional style for interpersonal events was not a significant predictor of such responses.

In their test of the Causal Mediation component of HTD, Metalsky et al. (1987) made the following predictions:

> First, failure students' [i.e., students who received a negative outcome on their exam] attributional styles as measured [one to three weeks prior to the receipt of exam grades] should be predictive of the particular attributions they subsequently made for their low midterm grades.

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> Second, failure students' particular attributions for their low midterm grades should be predictive of their subsequent depressive mood responses. Third, failure students' attributional styles should not have a direct effect, beyond that of particular attributions for the receipt of a low midterm grade, in predicting their subsequent depressive mood responses. (p. 387)

In making these predictions, Metalsky et al. (1987) have deviated in two ways from examining what Abramson et al. (1986) said would comprise an adequate test of the Causal Mediation component of HTD (see page 23). First, rather than seeking to determine if particular attributions for an INLE predict hopelessness and then if hopelessness in turn predicts the onset of depressive mood responses, Metalsky et al. (1987) ignored the role of hopelessness and predicted that particular attributions will predict depressive mood responses. Second, Metalsky et al. (1987) have tightened HTD's conceptualization of the mediating role of particular attributions with their third prediction for the Causal Mediation component of HTD. The test of the Causal Mediation component of HTD recommended by Abramson et al. (1986) suggested an additive causal mediation role for particular attributions in the etiological chain proposed by HTD but did not logically exclude the possibility that attributional style might have an additional role in the causation of hopelessness that is not mediated by the particular attributions people make. This would have allowed particular attributions to function as a <u>partial</u> mediator (James and Brett, 1984) in the etiological chain proposed by HTD. By suggesting that students' attributional

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styles have no power in predicting their depressive mood responses to their midterm grades that cannot be accounted for by the particular attributions they make for getting those grades, Metalsky et al. (1987) are suggesting that particular attributions function as a complete mediator (James and Brett, 1984) in this process.

The study by Metalsky et al. (1987) supported all three of their hypotheses for the Causal Mediation component of HTD, but as with their test of the Diathesis-Stress component of HTD, the support was relative to the prediction of students' enduring depressive mood responses to negative exam outcomes.

The logic of typical investigations of LHTD-R was criticized for suggesting that LHTD-R could be supported or disconfirmed based on the correlational relationship between the presence of depressive symptoms and the condition of having a depressogenic attributional style in subjects in a given sample (see page 18 and Figure 6, page 19). The issues raised in Figure 6 show that it is necessary for research to consider factors in addition to attributional style and depressive symptomology to draw defendable conclusions about the validity of HTD. Alloy et al. (1988) state the following:

> Three factors will influence the magnitude of differences in attributional styles between depressed vs. non-depressed (of future depressed vs. future non-depressed) subjects in a given sample: (1) the base-rate of the hypothesized depressogenic attributional style; (2) the base-rate of

negative life events [i.e., INLE's]; and (3) the base-rate of subtypes of depression other than hopelessness depression.

Further examination of Figure 6 can illustrate the value of information about these three base-rates, or baseline conditions, for research testing HTD. Notice that explanation 1 in Figure 6 is the only instance where the observed information can be explained by the occurrence of hopelessness depression. Notice also that adding information about the occurrence of an INLE to information about depressive symptoms and attributional style still does not isolate explanation 1 from explanations 2 and 3. Only by adding further information about the occurrence of non-hopelessness subtypes of depression can explanation 1 be logically isolated and ultimately tested. Further, lacking information about any one of the three baseline conditions mentioned above, it is impossible to logically isolate hopelessness depression and test HTD because any relationship between the other two baseline conditions and depressive symptomology could be explained within the logic of HTD (see Figure 6, page 19).[12]

While Metalsky et al. (1987) took considerable care to attempt a fair and appropriate test of the Diathesis-Stress and Causal Mediation components of HTD, they did not measure the baseline condition of students' experiences of INLE's (e.g., other INLE's they may have experienced prior to their participation in the study) or address the issue of non-hopelessness subtypes of depression in their study. Because of these gaps in the logic and design of their study, Metalsky et al. (1978) can not (and do not) claim to have fully and logically

isolated a hopelessness depression response in students, or to have similarly tested HTD. For example, with regard to not addressing the baseline condition of non-hopelessness depression in their sample, Metalsky et al. (1987, p. 393) state that "similar to other investigators, we treated depression as a unitary phenomenon and did not search for hopelessness depression." Therefore, they recognized that their results were interpretable only with reference to depression in general and did not lend specific support to the notion of hopelessness depression.

The potential confounding impact of Metalsky et al. (1987) not measuring the baseline condition of students' experiences of INLE's on interpreting their results is less clear. Since Metalsky et al. (1987) measured temporally constrained changes in depressive mood, it is not likely that any students' experiences of INLE's prior to the experiment exaggerated the increases in depressive mood that were observed. However, it is possible that the observed increases in depressive mood could have been curtailed to some degree by students mood states as they related to earlier experiences of INLE's (e.g., they were already depressed and did not become much more depressed after the receipt of a negative exam grade) or that their mood reactions were otherwise moderated by earlier experiences of INLE's. In any instance though, future studies of HTD can avoid the concern of how the experience by subjects of other INLE's prior to an experiment might confound such research by directly addressing the issue.

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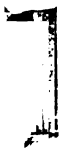
Critical Appraisals of the Reformulated Learned Helplessness Theory of Depression (LHTD-R) and the Hopelessness Theory of Depression (HTD)

Since HTD is in small part a modification of LHTD-R, and in large part, a clarification of LHTD-R, criticisms of both theories are relevant to this study.

In an early review of investigations of the role of cognition in depression, Coyne and Gotlib (1983) concluded that "neither Beck's nor the learned helplessness model of depression has a strong empirical base." (p. 472) In particular, Coyne and Gotlib (1983) point out: (a) the failure to obtain significant depressed-non-depressed group differences for attributions for success and failure, (b) depresses-non-depressed group differences of disappointing magnitude for attributions for hypothetical events, and (c) inconsistent depressed-non-depressed group differences for attributions for stressful life events. They also point to failures to predict subsequent depression from current cognitions. They draw attention to the study of Lewinsohn, Steinmetz, Larson and Franklin (1981) which found that:

> People who are vulnerable to depression are not characterized by stable patterns of negative thinking of the type postulated by the cognitive theorists. Apparently people change their expectancies and subscribe to irrational beliefs as a result of being depressed, and these cognitive changes reverse themselves as the individual recovers. (p. 218)



Considering the results of such studies of cognitive vulnerabilities to depression, Coyne and Gotlib (1983, p. 499) state:

> It is likely to be difficult to distinguish empirically a hypothesis concerning latent cognitive factors from the traditional assumption that when confronted with certain internal and external stimuli, some people become depressed, and negative thinking is simply one characteristic of this state.

Coyne and Gotlib (1983, p. 501) thus state that "The field in general would benefit from the recognition and articulation of rival hypotheses to explain why depressed persons make negative self-reports." They suggest that particular issues worth investigating are the environmental antecedents and consequences of depressed persons' negative verbalizations and the coping strategies and behaviors of such individuals.

In an ensuing dialogue stimulated by the Coyne and Gotlib (1983) article, Segal and Shaw (1986a, 1986b; representing Beck's Cognitive Theory of Depression) and Coyne and Gotlib (1986) debate the above issues and also discuss the implications of conceptual modifications and changes in emphases in cognitive theories of depression. The result of the dialogue is summarized well by Segal and Shaw (1986b, p. 707) when they state "While many of the criticisms raised by Coyne and Gotlib are valid and shared concerns, the divergence in views is most apparent when solutions for these difficulties are considered." While all parties seem to advocate a diversification of focus in future research, Coyne and Gotlib (1986, p. 695) maintain that "the central

defect in current cognitive approaches to depression is their inattention to the difficulties faced by depressed persons in their everyday environments, how they cope, and with what consequences." Segal and Shaw (1986b) advocate the emphasis of the diathesis-stress nature of cognitive models of depression over investigations of the cognitive diathesis alone, and also consider the future investigation of cognitive constructs that are more interpersonal in nature.

In a review of studies of the relationship between attributions and depression, Brewin (1985) considered five causal models. In the symptom model, a bad event leads to the onset of depression which leads to depressive attribution. In the onset model, a bad event leads to depressive attributions which leads to the onset of depression. In the vulnerability model (a diathesis-stress model similar to the etiological chain proposed by HTD), a bad event interacts with a depressive attributional style to produce depressive attributions which leads to the onset of depression. In the recovery model, a bad event leads to the onset of depression and depressive attributions or a depressive attributional style can lead to the maintenance of depression which would otherwise remit. In the coping model, a depressive attributional style leads to the onset or maintenance of depression. Brewin (1985) concluded that the research to date provided support for the symptom, recovery, and coping models, but did not support the two models most similar to LHTD-R, namely the onset and vulnerability models.

The criticisms of LHTD-R just presented are valid and have resulted, in part, in the more clear restatement and reformulation of LHTD-R as HTD. As

discussed earlier (see pages 18-21 and Figure 6), typical investigations of LHTD-R base their findings on simple depressed-non-depressed group differences (like those mentioned by Coyne & Gotlib, 1983) and thus have ignored the diathesis-stress nature of LHTD-R. Such studies drew attention to the need to state LHTD-R more clearly. Also, consistent with the findings of Brewin (1985), and as discussed earlier on pages 24-32, investigations that have addressed the diathesis-stress nature of LHTD-R (or of HTD) have still failed to address all of the methodological implications of the theory.

Barnett and Gotlib (1988) offer an excellent analysis of the methodological issues that pertain to the identification of psychosocial factors that may cause depression, and of how many studies do not adequately distinguish the antecedents, concomitants and consequences of depression. This concern of Barnett and Gotlib (1988, p. 97) is clearly stated:

> The failure in most studies to evaluate the interaction between initial symptoms and the predictor variable... confounds attempts to link the predictor with the actual onset of depression. For example, a measure of cognitions may be a significant predictor of subsequent level of depression, but because subjects differ in their initial symptom levels, it is not clear whether cognitions are predicting the onset, exacerbation, or remission of depression in a group of subjects (cf. Hammen, Mayol, deMayo, & Marks, 1986).

Barnett and Gotlib (1988) advocate for the use of prospective research to investigate etiological factors in depression. They suggest that a premorbid

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case-control design or a two-wave panel design ("in which a psychosocial variable is used at one time to predict subjects' subsequent levels of depression." p. 97) can be used effectively, particularly when the distinction between remitted depressives and normal controls can be maintained in the non-depressed portion of a subject sample.

When considering research on the relationship between attributional style and depression, Barnett and Gotlib (1988) point to a large body of research that is critical of LHTD-R along the same lines as the critique presented by Coyne and Gotlib (1983), including later studies that also failed to show that attributional style alone predicted various aspects of the course and symptoms of depression. They also note that "Remitted depressives did not exhibit more attributional biases than control subjects." (p. 103)

However, Bartlett and Gotlib (1988, pp. 103, 106) note that:

> There have been no adequate tests in adults of the full diathesis-stress model proposed by Peterson and Seligman (1984). The positive results obtained by Metalsky et al. (1987) in their study of negative mood are promising, and suggest that the interaction of attributional style and negative life events should be investigated in prospective research using proper measures of depression to explore the issue more fully.

The Peterson and Seligman (1984) model that Barnett and Gotlib (1985) refer to is similar to that proposed by HTD, though less conservative, and is concisely summarized by Brewin (1985, p. 303) as requiring "(a) prior measurement of attributional style, (b) the occurrence of a bad event, (c) an

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attribution for the event in line with the previously determined style, and (d) the ability of attributional style to predict depression following the event." Barnett and Gotlib (1988) note that the use by Metalsky et al. (1987) of an adjective check list rather than a measure of depression as their dependant measure limits the comparability of that study to other depression research. Therefore, they apparently believe Metalsky et al. (1987) did not measure depression and therefore failed criterion (d) stated above.

The implications of this literature that are critical to LHTD-R, and hence HTD, are derivable from the conclusions of Barnett and Gotlib (1988, p. 97) when they state "The review suggests that whereas there is little evidence in adults of a cognitive vulnerability to clinical depression, disturbances in interpersonal functioning may be antecedents or sequelae of the disorder." The implications are first, that future investigations of cognitive vulnerability to depression must be designed to provide conclusive tests of such theories. While they are correct in saying there is little supportive evidence for a cognitive vulnerability to depression, they are also correct in not saying that such theories have been conclusively tested and refuted. Their concerns regarding isolating the temporal relationship of cognitions such as depressive attributions and depression pertain to this implication for research design. Second, research that addresses these important methodological concerns should be extended beyond undergraduate student samples to samples of the clinically depressed. Third, as was a conclusion of the dialogue between Coyne and Gotlib (1983, 1986) and Segal and Shaw (1986a, 1986b), other factors such as interpersonal

functioning are being conclusively shown to play an etiological role in the onset of depression, thus warranting the development of multifaceted models of depression that incorporate interpersonal, environmental, and if they prove to be of utility, cognitive factors.

The implications of this literature for this study must be viewed in light of the fact that the study was designed and conducted prior to obtaining the insights of Barnett and Gotlib (1988). As will be seen in the Method (see pages 45-56), this study uses a synthesis of the premorbid case-control and two-wave panel research designs advocated by Barnett and Gotlib (1988). It also provides a method that is consistent with the full methodological implications of HTD. However, this study 1) was not designed to distinguish between remitted depressives and normal controls, 2) used an adjective check list for mood as the dependent measure, and 3) used a sample of premorbid undergraduate students, some of which showed a change in mood, rather than a sample of premorbid clinical depressives. Barnett and Gotlib (1988) therefore, would have grounds based on these points to criticize this study as also providing "little evidence in adults of a cognitive vulnerability to clinical depression" (Barnett and Gotlib, 1988; p. 97) even if all its hypotheses were supported. However, they would likely acknowledge that this study allowed for a strong test of whether some people may have a cognitive vulnerability to experiencing an enduring depressive mood response (short of a clinical depression) in response to an INLE.

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A More Appropriate Test of the Hopelessness Theory of Depression (HTD)

The present study was designed to be another step, beyond those taken by Metalsky et al. (1982) and Metalsky et al. (1987), toward a wholly appropriate and adequate test of HTD. The primary focus of this study is to modify the methods used by Metalsky et al. (1987) in a manner that allows for the logical identification of depressive mood responses of the hopelessness type. In order to do so, the challenge to be met is to obtain information on the baseline condition of students types of attributional styles, experiences of INLE's, and the incidence of non-hopelessness subtypes of depression. The measurement of the baseline condition of attributional styles and INLE's is described in the methods, but the operationalization of the baseline condition of non-hopelessness subtypes of depression merits discussion here.

A serious obstacle to obtaining information on the baseline incidence of non-hopelessness depression is that both hopelessness depression and non-hopelessness depression require information about each other to be logically identified. That is, to isolate hopelessness depression, one needs information on the baseline condition of non-hopelessness depression, while non-hopelessness depression is most generally defined as the presence of depressive symptomology in the absence of hopelessness depression. This study addresses the apparent circularity of these definitions by screening all depressed subjects from its sample, thereby assuring that there is a zero incidence of non-hopelessness depression (or of any subtype of depression) in the sample.

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So by adding a measure of INLE's and a measure of depression during the baseline period, subjects who are depressed and/or have experienced a recent INLE can be screened out of the sample, yielding a zero incidence for each of these factors in the sample. Given such a sample and using methods otherwise comparable to those of Metalsky et al. (1987), a similar test of the Diathesis-Stress and Causal Mediation components of HTD is possible with the benefit of being able to logically identify whether subjects' depressive mood responses are of the hopelessness type.

For this reason, the predictions of this study are very similar to those of Metalsky et al. (1987). However, the following are differences in the predictions used in this study. First, all predictions are stated in the context of having determined the baseline condition of subjects' attributional styles, experiences of INLE's, and the incidence of non-hopelessness depression. Second, in accordance with the findings of Metalsky et al. (1987), mood related predictions are made with regard to subjects' enduring depressive mood responses. Third, two additional predictions are added to the test of the Causal Mediation component of HTD that are designed to begin to explore the relationship between feelings of hopelessness and hopelessness depression.

The study of Metalsky et al. (1987) did not address the experience of hopelessness as a component of the etiological chain proposed by HTD in their test of the Causal Mediation component of HTD. While this has been noted as a weakness in that test of the Causal Mediation component of HTD (see pages 31-32), steps toward correcting that weakness in this study were limited to

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taking two measures of subjects' hopelessness, one during the baseline period and a second after all other data were collected. This is because the author has chosen to maintain a high degree of comparability between the methods of this study and those of Metalsky et al. (1987) so that the impact of the sample selection methods of this study might be better isolated. Any measures of hopelessness between these two implementations could have caused experiential differences for subjects that would have limited the comparability of the two studies. Therefore, the two hypotheses for the Causal Mediation component of HTD regarding hopelessness are limited to elaborating on the relationship between feelings of hopelessness and the experience of a depressive mood response of the hopelessness type, and do not examine the functional role of hopelessness in the etiological chain proposed by HTD.

Diathesis-Stress Component Hypotheses (Diathesis-Stress H^{1-3})

Thus, regarding the Diathesis-Stress component of HTD, this study predicts that among a sample of students who, at baseline, are not depressed, and report no recent INLE's:

Diathesis-Stress H^{1}) There will be an interaction between students' attributional styles as measured before their midterm exam and the outcomes students received on their exams that will predict their subsequent enduring depressive mood responses.

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Diathesis-Stress H^2) For students who receive a low exam grade, there will be a significant positive correlation between the state of students having a depressogenic attributional style at baseline and increases in students enduring depressive mood subsequent to the receipt of their exam scores.

Diathesis-Stress H^3) For students who receive a high exam grade, there will not be a significant positive or negative correlation between the state of students having a depressogenic attributional style at baseline and increases in students enduring depressive mood subsequent to the receipt of their exam scores.

Causal Mediation Component Hypotheses (Causal Mediation H^{1-5})

Regarding the Causal Mediation component of HTD, and given the same sample, this study predicts:

Causal Mediation H^1) For students who receive a low exam grade, there will be a significant positive correlation between students' attributional styles as measured before their midterm exam and their respective attributions for their performance on their midterm exam.

Causal Mediation H^2) For students who receive a low exam grade, there will be a significant positive correlation between students' respective attributions for their performance on their midterm exam and students' enduring depressive mood responses.

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Causal Mediation H^3) For students who receive a low exam grade, there will be a significant positive correlation between students' respective attributions for their performance on their midterm exam and students' enduring depressive mood responses that is independent of any correlation between students attributional styles as measured before their midterm exam and their enduring depressive mood responses.

Causal Mediation H^4) There will be a significant positive correlation between students' feelings of hopelessness (measures two days after the receipt of their exam grades) and students' enduring depressive mood responses.

Causal Mediation H^5) There will be a significant positive correlation between students' increases in feelings of hopelessness from baseline (Time 1, see method below) to two days after the receipt of exam grades and students' enduring depressive mood responses.

METHOD

Subjects

The subjects for this study were 43 undergraduate students at Michigan State University, (23 enrolled in an introductory psychology course and 20 enrolled in a psychology statistics course). The initial subject pool consisted of 343 who took the first midterm exam in one or the other class. Attrition due to voluntary nonparticipation in the study or incomplete participation resulting in missing data left 124 subjects. The selection of students out of the sample for having a high depressive mood or for having experienced an INLE (see pages 47-48) yielded the research sample of 43 subjects.[13]

It was assumed that students' enrolling in these classes would have little or no knowledge of the measures or theories used in this study. Therefore, this sample was assumed to be free of any bias that might result from subjects having such knowledge. Students' participation in this study was voluntary, although it did fulfill a requirement to gain formal exposure to the research process for students in the introductory psychology course, and it earned bonus points toward their final grade for students in the psychology statistics class.

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Measures

The degree to which students had a depressogenic attributional style toward making global and stable attributions for negative achievement events was measured with the revised version of the Attributional Style Questionnaire (ASQ, see Appendix A) used by Metalsky et al. (1987). Similarly, the nature of the actual attributions students made for their performance on their exam was measured using the Particular Attribution Questionnaire (PAQ, see Appendix B) developed by Metalsky et al. (1987). The PAQ also asks students whether they were "happy" or "not happy" with their exam grade and was used to measure students' subjective evaluation of their exam outcome.[14] Metalsky et al. (1987) reported that the ASQ had a reliability coefficient of .79 for measuring the degree to which students had a depressogenic attributional style, and that the PAQ had a reliability coefficient of .81 for measuring the degree to which students' respective attributions for their exam outcomes were depressogenic.

Metalsky et al. (1982) recommended the use of the Multiple Affect Adjective Check List - Today Form (MAACL; Zuckerman & Lubin, 1965) over the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, and Erbaugh, 1961) for measuring subjects' transient levels of mood because the BDI "measures more enduring symptoms of depression rather than ... instantaneous levels of depressive affect" (Metalsky et al., 1982, p. 614). Metalsky et al. (1987) also used the MAACL. The depression scale of the MAACL-Revised (MAACL-R, see Appendix D; Zuckerman & Lubin, 1985) was used to measure transient mood in this study because it retained the temporal

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sensitivity of the MAACL, but also has been restandardized using a sample more similar to the subjects in this study (i.e., undergraduate students) and now takes subjects' gender and response frequency into account in determining scores. Zuckerman and Lubin (1985) reported that the reliability (Alpha) of the depression scale on the MAACL-R Today Form among college students ranges from .74 (n=245) and .75 (n=60) to .80 (n=536). They also reported several studies that support the convergent and discriminant validity of the MAACL-R scales in college student samples.

The BDI (see Appendix E) was used to identify those subjects who displayed general depressive symptoms at baseline (i.e., BDI score > 9). In their recommendations for the use of the BDI, Kendall, Hollon, Beck, Hammen and Ingram (1987) reserve the use of the term "nondepressed" for subjects who score 0-9 on the BDI. Depressed subjects were selected out of further analyses for reasons already discussed (see pages 40-41). Beck et al. (1961) reported the internal split-half reliability of the BDI as .86 rising to .93 with a Spearman-Brown correction. They also reported the correlation between BDI scores clinicians' ratings of depth of depression to be .65 (n=226) and .67 (n=183).

The Beck Hopelessness Scale (BHS, see Appendix F; Beck, Weissman, Lester, and Trexler, 1974) was used to measure students' feelings of hopelessness. Beck et al. (1974) reported a reliability coefficient (Alpha) of .93 for the BHS. They also reported that the BHS correlated .74 with clinical ratings of hopelessness and .62 with attempted suicide.

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The Life Events Inventory (LEI, see Appendix G; Cochrane & Robertson, 1973) was used to identify those subjects who had experienced an important negative life event (INLE; i.e., endorsed any event on the LEI as "extremely negative") in the last six months. Such subjects were selected out of further analyses for reasons already discussed (see pages 40-41). However, the LEI was designed to measure general life stress due to cumulative life events. Since this study used the LEI only to identify the experience of any singular extremely negative life event, there is no directly applicable reliability data available to report. However, the LEI appeared to offer a valid sampling of potentially stressful events including several specifically related to experiences common to students. The LEI also offers opportunities to report stressful events not offered elsewhere on the inventory.

Procedure

Although there are several differences between this study and that of Metalsky et al. (1987), an attempt was made to replicate the procedure employed by that study where possible. The following procedure reflects as much of a procedural replication as was possible based on the constraints of subject availability, class and exam schedules and information from the Metalsky et al. (1987) study and from personal communications with Gerald I. Metalsky.[15]

All measures in class were administered in large lecture halls with terraced seating and no windows. These settings may have created a moderate

demand characteristic to participate in the portion of the study conducted in class both through pressure to conform to the activities of a large group and through the lack of an alternative activity being provided to participate in while others completed questionnaires. However, such a demand seemed likely to produce a larger and more representative sample of the class rather than produce a systematic sampling bias.

All measures out of class were administered in single sessions within a period of about two weeks in one of several moderate size classrooms similar in appearance and location or in the subjects' lecture hall after class had ended. The variety of times and locations available for giving these measures was intended to increase participation by appealing to the subjects' convenience.

Time 1.

Students were solicited to participate in what was designed to be perceived as two independent studies (i.e., "The Mood Study," and the "Personality and Style" study; see Figures 7, 8 & 9), and completed consent forms for each study before their participation began.[16]

The Mood Study consisted of all administrations of the MAACL-R. A rationale for The Mood Study which was sufficiently vague not to suggest the true nature of the experiment or to create a demand characteristic for participant response styles (see Appendix H) was given to the students verbally in class by a graduate student. To help mask the temporal relationship between MAACL-R administrations and the exam, the MAACL-R was administered in

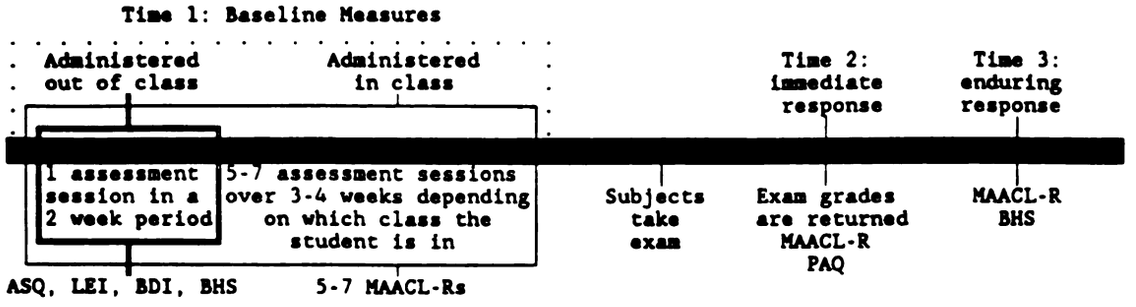

Figure 7

The Complete Study as Conducted

Note. For Figures 7, 8 and 9: Time 1 = A period beginning in the second week of classes in the term, Time 2 = ten minutes after exam grades are returned, Time 3 = two days after Time 2, ASQ = Attributional Style Questionnaire, BDI = Beck Depression Inventory, BHS = Beck Hopelessness Scale, LEI = Life Events Inventory, MAACL-R = Multiple Affect Adjective Check List-Revised (Depression Scale), PAQ = Particular Attributions Questionnaire.

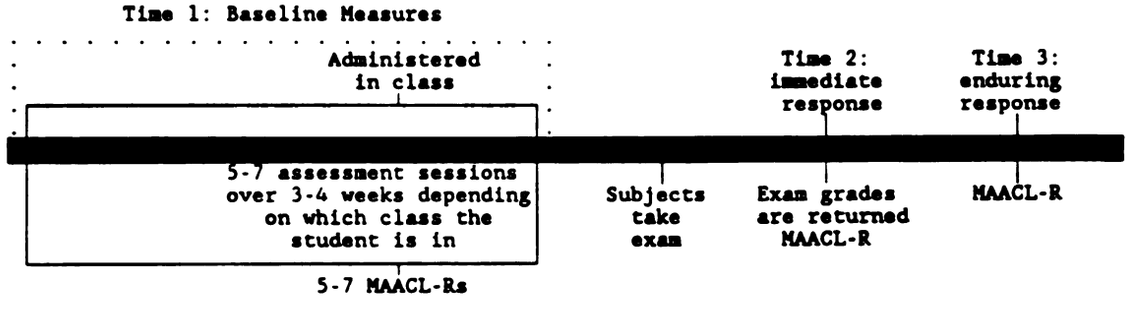

Figure 8

"THE MOOD STUDY"

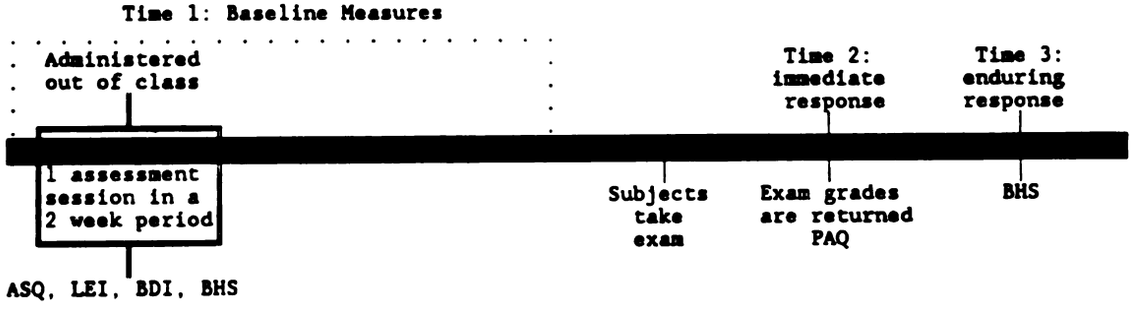

Figure 9

The "Personality and Style" Study

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every class session beginning the second week of the term until two class sessions after the exam, with the exception of the day of the exam. This resulted in five baseline MAACL-R administrations in the psychology statistics course and seven in the introductory psychology course (the exam in the latter occurred one week later). MAACL-R administrations occurred as follows. At the beginning of class, an MAACL-R Today Form was distributed to each member of the class. Subjects were asked to complete the form upon receipt of it (identifying themselves only with their student I.D. numbers), and when it had been determined that all subjects had completed their form, they were then asked to return the form to the end of their aisle to be collected.

Solicitation for participation in the Personality and Style study was done by a different graduate student and on a different day than for The Mood Study (see Appendix I). The Personality and Style study consisted of the remaining non-MAACL-R measures (i.e., the ASQ, BDI, LEI, PAQ and both administrations of the BHS). Of these, only the ASQ, BDI, LEI and the first administration of the BHS were given in the assessment session out of class. All four measures were administered in single sessions, and subjects were permitted to attend only one of the many available sessions out of class.

Time 2.

At Time 2 (i.e., five days and the first class meeting after subjects took their exam), exam grades were posted outside of each classroom ten minutes before the start of class so students could view them as they entered the room.

At the start of class, the instructor announced that the exam grades were posted and that students should check their grade if they had not yet done so. After the remaining students checked their grade, the MAACL-R was administered. Immediately following, the PAQ was administered in the same manner as the MAACL-R.

Time 3.

At Time 3 (i.e., two days and the next class meeting after Time 2), the MAACL-R was administered. Immediately following, the second administration of the BHS was done in the same manner as the MAACL-R.

Subsequent to Time 3.

The true rational for this study and the rational for any deceptions was presented in both written and verbal form to both classes (see appendix J). Subjects were given the opportunity to ask questions of the experimenter both in and out of class.

Statistical method

Most of the hypotheses in this study were tested using a special variation of a multiple regression/correlation analysis approach to the analysis of covariance called the analysis of partial variance (Cohen & Cohen, 1983, pp 402-423). Multiple regression/correlation analysis involves a wide variety of procedures that determine the specific relationship between the variance

associated with two or more independent variables and the variance associated with a dependent variable. A more specific application of multiple regression/correlation analysis involves the statistical control of irrelevant sources of variation by using a setwise hierarchical multiple regression/correlation analysis as a special instance of the analysis of covariance.

In their discussion of a multiple regression/correlation analysis approach to the analysis of covariance, Cohen and Cohen (1983, pp. 379-402) provide a procedure for partialing the variance associated with a set of independent variables (i.e., the covariates) from that of the dependent variable so the relationship between another set of independent variables (i.e., the research factors) and the remaining variance of the dependent variable can be determined. They note that for such an analysis of covariance to be valid, a test of the assumption of homogeneity of regression of the dependent variable on the covariates must be conducted because the calculations used to adjust the dependent variable for the effects of the covariates assume that the slope of their regression lines are equal. This serves to ensure that when the dependent variable is adjusted for the effects of the covariates: 1) meaningful variance from the dependent variable is not lost, and that 2) irrelevant variance from the covariates does not remain and contaminate the adjusted dependent variable.

Thus, the covariates which are presumed to carry irrelevant variance are entered into the multiple regression/correlation analysis equation first to partial their distorting influence out of the equation. By definition then, the adjusted

dependent variable correlates 0.00 with the set of covariates. Then the research factors are entered into the equation in whatever order or manner is logical given the experimental design so their relationship to the adjusted dependent variable can be determined (i.e., to test the research hypotheses).

Finally, the interaction terms between the covariates and the research factors are entered into the equation to test the assumption of homogeneity of regression. If this last set of interaction terms are found to account for a significant portion of the remaining variance of the dependent variable (after the dependent variable is adjusted for the covariates and the research factors), the assumption of homogeneity of regression is violated and the analysis of covariance must be considered invalid. Otherwise the assumption of homogeneity of regression is supported and the analysis of covariance is considered valid and interpretable.

The analysis of partial variance is a special application of the multiple regression/correlation analysis approach to the analysis of covariance. Typically, the independent variables in an analysis of covariance (i.e., often the covariates and more often the research factors) are represented with regard to group membership. The distinguishing characteristic of the analysis of partial variance is that it allows for the use of quantitative independent variables as covariates and research factors in an analysis of covariance. That is, in the analysis of partial variance, the independent variables that form the covariates and the independent variables that form the research factors may be of any

formal type (i.e., their values may be represented on nominal, ordinal, interval or ratio scales).

Cohen and Cohen (1983, p. 407) note that "measurement error may decrease or increase or even change the sign of a partial relationship" and that therefore the reliability of the independent variables used in an analysis of partial variance must be evaluated. They state that "we cannot stress too strongly our conviction that the best way to deal with this problem is to finesse it entirely by using independent variables whose reliability is, if not perfect, at least high," (p. 411) and that "failing to correct when reliability is .8 or more will usually not matter much, but the risk is very great when it is as low as .5 or .6." (p. 409) So quantitative independent variables that are determined to have a high reliability may be used in an analysis of partial variance.

A special application of the analysis of partial variance involves the study of change, which is how the analysis of partial variance was used in this study. To study change with the analysis of partial variance, one simply uses a pre-intervention measure of the dependent variable as the covariate to be partialed out in the first step of the regression equation (Cohen and Cohen, 1983). Thus, by adjusting the dependent variable for pre-intervention scores on the same measure, any remaining variance in the adjusted dependent variable will correlate 0.00 with the pre-intervention measure and can be viewed as due to a change from that condition. Consequently, any relationships determined to exist between any research factors and the adjusted dependent variable can be viewed as related to the change that occurred between the pre and post

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intervention conditions. Therefore, since this study is concerned with changes in depressive mood, all post intervention measures of depressive mood were adjusted for an estimate of students' baseline level depressive mood before the research factors (i.e., measures of depressogenic attributional style, exam outcome, students' actual attributions for their performance on their exams, and hopelessness) were entered into their regression equations.

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RESULTS

All data analyses were done using the SPSS-X Data Analysis System, Release 3.0 (SPSS Inc., 1988), on the mainframe computer at Michigan State University. Although the hypotheses of this study focused on the prediction of students' enduring (i.e. two days between the receipt of exam grades and Time 3) depressive mood responses to the receipt of their exam grades, corresponding analyses of students' immediate (i.e., Time 2) mood responses will also be presented for comparison.

Tests of assumptions necessary for an analysis of partial variance

The analysis of partial variance assumes that the independent variables used in an analysis either have a high reliability or that their has been a correction for measurement error. The reliability coefficients reported here used data only from the 43 students used in the data analyses. The reliability coefficient for the Attributional Style Questionnaire's (ASQ) measurement of students' attributional styles toward making global and stable attributions for negative achievement events was .86. The reliability coefficient for the Particular Attribution Questionnaire's (PAQ) measurement of the degree to which students

formed a global and stable attribution for their exam performance upon the receipt of their exam grades was .87.[17] Since ASQ scores and PAQ scores were calculated by taking the simple average of scores on their globality and stability subscales, these coefficients were calculated to reflect the reliability of the linear combinations of those subscales (Nunnally, 1978).

Students' baseline moods were estimated by taking the mean of Multiple Affect Adjective Check List-Revised (MAACL-R) depression scale scores from several baseline implementations of the MAACL-R. The reliabilities (Alphas) of MAACL-R depression scores for each of the baseline assessments were .95 (n=22), .59 (n=23), .60 (n=41), .84 (n=40), .83 (n=34) and .86 (n=40).[18]

The analysis of partial variance also requires that a test for the assumption of homogeneity of regression of the dependent variable on the covariate independent variable be conducted for every analysis. This assumption was supported for every analysis conducted in this study. That is, in no instance did the interaction terms between the covariate and the research factors account for a significant portion ($p<.05$) of the remaining variance of the dependent variable after the dependent variable was adjusted for the covariates and the research factors.[19] So as not to detract from results for the tests of research hypotheses, the results of the tests for the homogeneity of regression are presented in Table A, Appendix K rather than in the tables describing the analysis of partial variance analyses. These tests would otherwise be seen as the final step in each analysis of partial variance.

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Tests of hypotheses: Description of statistics

A brief discussion of the statistics used in reporting the results of the hypothesis tests (i.e., R^2, sr^2, pr, and pr^2; Cohen & Cohen, 1983) is presented here. This discussion is conducted with reference to Table 1 [which reports the statistical analysis of the first Diathesis-Stress hypothesis (Diathesis-Stress H^1); see page 64) to give an example of the application of these statistics in this study. Table 1 reports an analysis of partial variance designed to determine if students' ASQ scores interacted with their exam outcomes to uniquely and significantly predict their MAACL-R depression scores at Time 3.

The R^2 statistic is the proportion of the dependent variable variance (in this case, Time 3 MAACL-R depression score) that is shared with all of the optimally weighted independent variables that are in a regression equation in a single step. Therefore, in the first step of the equation, students' baseline MAACL-R depression scores accounted for 16% (R^2=.16) of the variance in their Time 3 MAACL-R depression scores. In step 2, the research factors of ASQ score and exam outcome were simultaneously entered into the equation so their individual effects would be partialed out before testing the effect of their interaction in the third step. The R^2 for the second step, .18, represents the proportion of the variance of Time 3 MAACL-R depression score that is accounted for by ASQ score, exam outcome and baseline MAACL-R depression score.

The sr^2 statistic is the proportion of the dependent variable variance that is accounted for by all of the independent variables entered into the equation in

a single step, less the proportion of the dependent variable variance that is accounted for by all of the independent variables entered into the equation in all prior steps. Therefore, sr^2 represents the net increase in R^2 due to the addition into the equation of the independent variables just entered in a given step. Therefore, given an R^2 for step two of .18, the sr^2 of step two is .02 (.18 -.16 =.02). The sr^2 for the first step of an equation is always equal to the R^2 for the same step since 0.00% of the dependent variable variance is accounted for before the first step. An F value is determined relative to the sr^2 for a given step as an indication of the significance of the net increase in R^2 due to the inclusion of the independent variables in that step.

The pr statistic is the correlation between an independent variable and the dependent variable after both have been adjusted for the effects of all other independent variables in the equation thus far. Thus the pr statistic gives an indication of the strength of the relationship between the aspects of an independent variable and the dependent variable that are unique relative to the other independent variables in the equation at that step. So in Table 1, the portion of ASQ score that remains after it has been adjusted for the effects of both baseline MAACL-R depression score and exam outcome correlates with the portion of Time 3 MAACL-R depression score that remains after it has also been adjusted for the effects of both baseline MAACL-R depression score and exam outcome at pr=.01.

The pr^2 statistic for an independent variable is the proportion of the remaining dependent variable variance, after it has been adjusted for all other

independent variables in the equation, that is uniquely accounted for by an independent variable after that independent variable has also been adjusted for the other independent variables in the equation. It differs from the sr^2 statistic in that not only the independent variable, but also the dependent variable, is adjusted for the effects of the other independent variables before the proportion is calculated. Thus an independent variable's pr^2 represents the proportion of the dependent variable variance that is not associated with the other independent variables that is uniquely associated with the particular independent variable. If only one independent variable is entered in the first step of an equation, there are no other independent variables to partial out of the dependent variable or the independent variable, and so in this special instance, $R^2 = sr^2 = pr^2$. Also, due to computational equality in the numerators of the formulas for pr and sr (from which sr^2 is calculated), for <u>any</u> given step, the F value for sr^2 and the t value for pr and pr^2 are <u>always</u> significantly different from zero to the same degree (Cohen and Cohen, 1983, see p. 107). Therefore, when only one independent variable is entered in a step of an equation, only the F value is given and its significance applies equally to the sr^2 and pr^2 for that set. When more than one independent variable is entered in a single step, T values for each independent variable's <u>within-set</u> contributions are also given.

In using the analysis of partial variance in this study, the statistics of interest are the pr and pr^2 for the independent variable that is entered in the last step of each equation. For example, in Table 1, a significant pr and pr^2 value for the ASQ score by exam outcome interaction, if obtained, would have supported

the hypothesis that this interaction predicted student's depressive mood responses to a unique and significant degree.

The significance or nonsignificance of the contribution of a covariate (in this case, baseline MAACL-R depression score) to an analysis of partial variance equation has no direct bearing on the interpretability of the results pertaining to the research factors entered in subsequent steps of the equation (Cohen and Cohen, 1983). By definition, the pr^2 represents a research factor's relationship with the dependent variable after both have been adjusted for the covariate, so its significance reflects its unique contribution regardless of the significance of the covariate. However, other information can be derived from the significance of a covariate in an analysis of partial variance, so such information is provided for later interpretation.

Tests of the Diathesis-Stress hypotheses (Diathesis-Stress H^{1-3}

Diathesis-Stress H^1: There will be an interaction between students' attributional styles as measured before their midterm exam and the outcomes students received on their exams that will predict their subsequent enduring depressive mood responses.

In order to test this hypothesis, an analysis of partial variance was done to determine if Students' ASQ scores interacted with their exam outcomes to uniquely and significantly predict their MAACL-R depression scores at Time 3. The results in Table 1 show that baseline MAACL-R depression score correlated pr=.39 with Time 3 MAACL-R depression score and accounted for 16% ($sr^2=pr^2=.16$ $p<.01$) of the variance in Time 3 MAACL-R depression score. Beyond that, neither ASQ score (pr=.01, ns) or exam outcome (pr=-.16, ns), or their interaction (pr=.01, ns), correlated significantly with students' enduring (Time 3) depressive mood responses to the receipt of their exam grades. Thus, this hypothesis was not supported.

Table 2 shows the corresponding findings (relative to Diathesis-Stress H^1) for students' immediate mood responses to receiving their grades. The ASQ score by exam outcome interaction did not correlate uniquely with students' immediate mood responses (pr=-.09, ns). However, the simultaneous entry of ASQ score and exam outcome in the second step yielded a significant increment in the proportion of Time 2 MAACL-R depression score accounted for by the equation ($sr^2=.19070$, $p<.05$). Further, the within set analysis shows that

Table 1

Summary of Results for Test of Diathesis-Stress Hypothesis 1

Order of entry of set	Predictor(s) in set	Cumulative R^2	Increment in R^2 for set (sr^2)	F for increment in R^2 for set	t for within-set predictors	df	Partial correlation (pr)	Squared partial correlation (pr^2)
1	Baseline MAACL-R	.16	.16	7.76**		1,41	.40	.16
2	Double entry	.18	.02	.50		3,39	-.16	.03
	ASQ				.07	39	.01	.00
	exam outcome				-1.00	39	-.16	.03
3	ASQ by exam outcome interaction	.18	.00	.00		4,38	.01	.00

Note. Dependant variable = Time 3 MAACL-R depression score. Sample = all subjects. For Tables 1 and 2, ASQ = average of scores on the Stability and Globality subscales for negative achievement outcomes on the modified Attributional Style Questionnaire, MAACL-R = score on the Multiple Affect Adjective Check List-Revised (Depression Scale).
**=p<.01

Table 2

Summary of Results for Test of Time 2 Comparison to Diathesis-Stress Hypothesis 1

Order of entry of set	Predictor(s) in set	Cumulative R^2	Increment in R^2 for set (sr^2)	F for increment in R^2 for set	t for within-set predictors	df	Partial correlation (pr)	Squared partial correlation (pr^2)
1	Baseline MAACL-R	.00	.00	.00		1,41	.00	.00
2	Double entry	.19	.19	4.60*		3,39	.44	.19
	ASQ				-.24	39	-.04	.00
	exam outcome				3.03**	39	.44	.19
3	ASQ by exam outcome interaction	.20	.01	.33		4,38	-.09	.01

Note. Dependant variable = Time 2 MAACL-R depression score. Sample = all subjects.
*=p<.05
**=p<.01

exam outcome correlated pr=.44 ($p<.05$) with Time 2 MAACL-R depression score and uniquely accounted for 19% of the Time 2 MAACL-R depression score variance ($pr^2=.19$, $p<.01$). Therefore, exam outcome predicted students's immediate mood responses to the receipt of their exam grades, while ASQ score and the ASQ score by exam outcome interaction did not.

Diathesis-Stress H^2: For students who receive a low exam grade, there will be a significant positive correlation between the state of students having a depressogenic attributional style at baseline and increases in students enduring depressive mood subsequent to the receipt of their exam scores.

In order to test this hypothesis, an analysis of partial variance was done using only data from students with a negative exam outcome to determine if ASQ score uniquely predicted Time 3 MAACL-R depression score after both had been adjusted for baseline MAACL-R depression score. Table 3 shows that ASQ score was not correlated to Time 3 MAACL-R depression score for negative exam outcome students (pr=.01, ns). Thus, this hypothesis was not supported. Negative exam outcome students' baseline MAACL-R depression score correlated only pr=.11 with Time 3 MAACL-R depression score, and uniquely accounted for only 1% ($pr^2=.01$, ns) of the Time 3 MAACL-R depression score variance. This is in contrast to the corresponding correlation of pr=.40 and 16% of the variance accounted for by all students as shown in Table 1. Table 4 shows that ASQ score also did not correlate significantly with

Table 3

Summary of Results for Test of Diathesis-Stress Hypothesis 2

Order of entry of set	Predictor(s) in set	Cumulative R^2	Increment in R^2 for set (sr^2)	F for increment in R^2 for set	df	Partial correlation (pr)	Squared partial correlation (pr^2)
1	Baseline MAACL-R	.01	.01	.18	1,15	.11	.01
2	ASQ	.01	.00	.00	2,14	.01	.00

Note. Dependant variable = Time 3 MAACL-R depression score. Sample = subjects with a negative exam outcome. For Tables 3 and 4, ASQ = average of scores on the Stability and Globality subscales for negative achievement outcomes on the modified Attributional Style Questionnaire, MAACL-R = score on the Multiple Affect Adjective Check List-Revised (Depression Scale).

Table 4

Summary of Results for Test of Time 2 Comparison to Diathesis-Stress Hypothesis

Order of entry of set	Predictor(s) in set	Cumulative R^2	Increment in R^2 for set (sr^2)	F for increment in R^2 for set	df	Partial correlation (pr)	Squared partial correlation (pr^2)
1	Baseline MAACL-R	.00	.00	.03	1,15	-.04	.00
2	ASQ	.01	.01	.14	2,14	-.10	.01

Note. Dependant variable = Time 2 MAACL-R depression score. Sample = subjects with a negative exam outcome.

Time 2 MAACL-R depression score for students with negative exam outcomes (pr=-.10, ns).

Diathesis-Stress H^3: For students who receive a high exam grade, there will not be a significant positive or negative correlation between the state of students having a depressogenic attributional style at baseline and increases in students enduring depressive mood subsequent to the receipt of their exam scores.

In order to test this hypothesis, an analysis equivalent to that described for Diathesis-Stress H^2 was done using only the data from students with a positive exam outcome. Table 5 shows that, as was the case for negative exam outcome students, positive exam outcome students' ASQ scores did not correlate with their Time 3 MAACL-R depression scores (pr=-.01, ns). Thus, this hypothesis was supported. Baseline MAACL-R depression score correlated pr=.52 ($p<.05$) with Time 3 MAACL-R depression score, and uniquely accounted for 27% ($pr^2=.27$, $p<.01$) of the Time 3 MAACL-R depression score variance. This is in contrast to the corresponding correlation of pr=.11 and 1% of the variance accounted for by students with negative exam outcomes as shown in Table 3. Table 6 shows that ASQ score did not correlate significantly with Time 2 MAACL-R depression score for students with positive exam outcomes (pr=.16, ns).

Table 5

Summary of Results for Test of Diathesis-Stress Hypothesis 3

Order of entry of set	Predictor(s) in set	Cumulative R^2	Increment in R^2 for set (sr^2)	F for increment in R^2 for set	df	Partial correlation (pr)	Squared partial correlation (pr^2)
1	Baseline MAACL-R	.27	.27	8.68**	1,24	.52	.27
2	ASQ	.27	.00	.00	2,23	-.01	.00

Note. Dependant variable = Time 3 MAACL-R depression score. Sample = subjects with a positive exam outcome. For Tables 5 and 6, ASQ = average of scores on the Stability and Globality subscales for negative achievement outcomes on the modified Attributional Style Questionnaire, MAACL-R = score on the Multiple Affect Adjective Check List-Revised (Depression Scale).
**=p<.01

Table 6

Summary of Results for Test of Time 2 Comparison to Diathesis-Stress Hypothesis 3

Order of entry of set	Predictor(s) in set	Cumulative R^2	Increment in R^2 for set (sr^2)	F for increment in R^2 for set	df	Partial correlation (pr)	Squared partial correlation (pr^2)
1	Baseline MAACL-R	.05	.05	1.14	1,24	.21	.05
2	ASQ	.07	.02	.60	2,23	.16	.03

Note. Dependant variable = Time 2 MAACL-R depression score, Sample = subjects with a positive exam outcome.

Tests of the causal mediation hypotheses (Causal Mediation H^{1-5})

Causal Mediation H^1: For students who receive a low exam grade, there will be a significant positive correlation between students' attributional styles as measured before their midterm exam and their respective attributions for their performance on their midterm exam.

In order to test this hypothesis, a standard multiple regression/correlation analysis (there are no relevant covariates to justify an analysis of partial variance) using only data from students' with a negative exam outcome was done to determine if ASQ score accounted for a significant proportion of the PAQ score variance. Table 7 shows that ASQ score correlated $pr=.68$ ($p<.01$) with PAQ score and accounted for 46% ($sr^2=.46$, $p<.01$) of the PAQ score variance for these students. Thus this hypothesis was supported. However, for students with a positive exam outcome, ASQ score also correlated $pr=.46$ ($p<.05$) with PAQ score and accounted for 21% ($sr^2=.21$) of the PAQ score variance, as shown in Table 8. Also, for all students in the research sample, ASQ score correlated $pr=.33$ ($p<.05$) with PAQ score and accounted for 11% ($pr^2=.11$, $p<.05$) of the PAQ score variance, as shown in Table 9.

Table 7

Summary of Results for Test of Causal Mediation Hypothesis 1

Order of entry of set	Predictor(s) in set	Cumulative R^2	Increment in R^2 for set (sr^2)	F for increment in R^2 for set	df	Partial correlation (pr)	Squared partial correlation (pr^2)
1	ASQ	.46	.46	12.67**	1,15	.68	.46

Note. Dependant variable = PAQ score. Sample = subjects with a negative exam outcome. For Tables 7, 8 and 9, ASQ = average of scores on the Stability and Globality subscales for negative achievement outcomes on the modified Attributional Style Questionnaire, PAQ = average of scores on the Stability and Globality subscales for the Particular Attributions Questionnaire which measured subjects' attributions for their exam outcomes.
**=p<.01

Table 8

Summary of Results for Test of Positive Exam Outcome Comparison to Causal Mediation Hypothesis 1

Order of entry of set	Predictor(s) in set	Cumulative R^2	Increment in R^2 for set (sr^2)	F for increment in R^2 for set	df	Partial correlation (pr)	Squared partial correlation (pr^2)
1	ASQ	.21	.21	6.30*	1,24	.46	.21

Note. Dependant variable = PAQ score. Sample = subjects with a positive exam outcome.
*=p<.05

Table 9

Summary of Results for Test of Total Sample Comparison to Causal Mediation Hypothesis 1

Order of entry of set	Predictor(s) in set	Cumulative R^2	Increment in R^2 for set (sr^2)	F for increment in R^2 for set	df	Partial correlation (pr)	Squared partial correlation (pr^2)
1	ASQ	.11	.11	4.87*	1,41	.33	.11

Note. Dependant variable = PAQ score. Sample = all subjects.
*=p<.05

Causal Mediation H^2: For students who receive a low exam grade, there will be a significant positive correlation between students' respective attributions for their performance on their midterm exam and students' enduring depressive mood responses.

In order to test this hypothesis, an analysis of partial variance was done using only data from students with a negative exam outcome to determine if PAQ score uniquely predicted Time 3 MAACL-R depression score after both had been adjusted for baseline MAACL-R depression score. Table 10 shows that PAQ score did not significantly correlate ($pr=-.12$, ns) with Time 3 MAACL-R depression score for these students. Thus, this hypothesis was not supported. However, Table 11 shows that PAQ score correlated $pr=-.53$ ($p<.05$) with Time 2 MAACL-R depression score and uniquely accounted for over 28% ($pr^2=.283212$. $p<.05$) of the Time 2 MAACL-R depression score variance.

Causal Mediation H^3: For students who receive a low exam grade, there will be a significant positive correlation between students' respective attributions for their performance on their midterm exam and students' enduring depressive mood responses that is independent of any correlation between students attributional styles as measured before their midterm exam and their enduring depressive mood responses.

In order to test this hypothesis, an analysis of partial variance using only data from students with a negative exam outcome was done to determine if

Table 10

Summary of Results for Test of Causal Mediation Hypothesis 2

Order of entry of set	Predictor(s) in set	Cumulative R^2	Increment in R^2 for set (sr^2)	F for increment in R^2 for set	df	Partial Correlation (pr)	Squared partial correlation (pr^2)
1	Baseline MAACL-R	.01	.01	.18	1,15	.11	.01
2	PAQ	.03	.01	.21	2,14	-.12	.01

Note. Dependant variable = Time 3 MAACL-R depression score. Sample = subjects with a negative exam outcome. For Tables 10 and 11, MAACL-R = score on the Multiple Affect Adjective Check List-Revised (Depression Scale), PAQ = average of scores on the Stability and Globality subscales for the Particular Attributions Questionnaire which measured subjects' attributions for their exam outcomes.

Table 11

Summary of Results for Test of Time 2 Comparison to Causal Mediation Hypothesis

Order of entry of set	Predictor(s) in set	Cumulative R^2	Increment in R^2 for set (sr^2)	F for increment in R^2 for set	df	Partial correlation (pr)	Squared partial correlation (pr^2)
1	Baseline MAACL-R	.00	.00	.03	1,15	-.04	.00
2	PAQ	.28	.28	5.53*	2,14	-.53	.28

Note. Dependant variable = Time 2 MAACL-R depression score. Sample = subjects with a negative exam outcome.
*=$p<.05$

PAQ score uniquely predicted Time 3 MAACL-R depression score after both had been adjusted for baseline MAACL-R depression score and ASQ score. Table 12 shows that PAQ score did not correlate significantly ($pr=-.18$, ns) with Time 3 MAACL-R depression score, and uniquely accounted for only 3% ($pr^2=.03$, ns) of the Time 3 MAACL-R depression score variance beyond the 0.0% ($pr^2=.00$, ns) uniquely accounted for by ASQ score. Thus, this hypothesis was not supported. However, Table 13 shows that PAQ score correlated $pr=-.65$ ($p<.01$) with Time 2 MAACL-R depression score and uniquely accounted for 43% ($pr^2=.43$, $p<.01$) of the Time 2 MAACL-R depression score variance beyond the negligible 1% ($pr^2=.01$, ns) accounted for by ASQ score.[20]

Causal Mediation H^4: There will be a significant positive correlation between students' feelings of hopelessness (measured two days after the receipt of their exam grades) and students' enduring depressive mood responses.

In order to test this hypothesis, an analysis of partial variance was done using only data from students with a negative exam outcome to determine if Time 3 hopelessness uniquely predicted Time 3 MAACL-R depression score after both had been adjusted for baseline MAACL-R depression score.[21] Table 14 shows that Time 3 hopelessness did not correlate significantly ($pr=-.19$, ns) with Time 3 MAACL-R depression score for these students. Thus, this hypothesis was not supported. Similarly, Table 15 shows that Time 3

Table 12

Summary of Results for Test of Causal Mediation Hypothesis 3

Order of entry of set	Predictor(s) in set	Cumulative R^2	Increment in R^2 for set (sr^2)	F for increment in R^2 for set	df	Partial correlation (pr)	Squared partial correlation (pr^2)
1	Baseline MAACL-R	.01	.01	.18	1,15	.11	.01
2	ASQ	.01	.00	.00	2,14	.01	.00
3	PAQ	.04	.03	.42	3,13	-.18	.03

Note. Dependant variable = Time 3 MAACL-R depression score. Sample = subjects with a negative exam outcome. For Tables 12 and 13, ASQ = average of scores on the Stability and Globality subscales for negative achievement outcomes on the modified Attributional Style Questionnaire, MAACL-R = score on the Multiple Affect Adjective Check List-Revised (Depression Scale), and PAQ = average of scores on the Stability and Globality subscales for the Particular Attributions Questionnaire which measured subjects' attributions for their exam outcomes.

Table 13

Summary of Results for Test of Time 2 Comparison to Causal Mediation Hypothesis 3

Order of entry of set	Predictor(s) in set	Cumulative R^2	Increment in R^2 for set (sr^2)	F for increment in R^2 for set	df	Partial correlation (pr)	Squared partial correlation (pr^2)
1	Baseline MAACL-R	.00	.00	.03	1,15	-.04	.00
2	ASQ	.01	.01	.14	2,14	-.10	.01
3	PAQ	.43	.42	9.67**	3,13	-.65	.43

Note. Dependant variable = Time 2 MAACL-R depression score. Sample = subjects with a negative exam outcome.
**=p<.01

Table 14

Summary of Results for Test of Causal Mediation Hypothesis 4

Order of entry of set	Predictor(s) in set	Cumulative R^2	Increment in R^2 for set (sr^2)	F for increment in R^2 for set	df	Partial correlation (pr)	Squared partial correlation (pr^2)
1	Baseline MAACL-R	.01	.01	.21	1,14	.12	.01
2	Time 3 hopelessness	.05	.04	.48	2,13	-.19	.04

Note. Dependant variable = Time 3 MAACL-R depression score. Sample = subjects with a negative exam outcome. For Tables 14 and 15, MAACL-R = score on the Multiple Affect Adjective Check List-Revised (Depression Scale), and hopelessness = score on the Beck Hopelessness Scale.

Table 15

Summary of Results for Test of Time 2 Comparison to Causal Mediation Hypothesis 4

Order of entry of set	Predictor(s) in set	Cumulative R^2	Increment in R^2 for set (sr^2)	F for increment in R^2 for set	df	Partial correlation (pr)	Squared partial correlation (pr^2)
1	Baseline MAACL-R	.00	.00	.01	1,14	-.03	.00
2	Time 3 hopelessness	.00	.00	.03	2,13	.05	.00

Note. Dependant variable = Time 2 MAACL-R depression score. Sample = subjects with a negative exam outcome.

hopelessness did not correlate significantly (pr=.05, ns) with Time 2 MAACL-R depression score variance.

Causal Mediation H^5: There will be a significant positive correlation between students' increases in feelings of hopelessness from baseline (Time 1, see method below) to two days after the receipt of exam grades and students' enduring depressive mood responses.

In order to test this hypothesis, an analysis of partial variance was done using only data from students with a negative exam outcome to determine if their net change in hopelessness (Time 3 hopelessness - baseline hopelessness = net change in hopelessness) uniquely predicted Time 3 MAACL-R depression score after both had been adjusted for baseline MAACL-R depression score.[22] Table 16 shows that net change in hopelessness did not correlate significantly (pr=.02, ns) with Time 3 MAACL-R depression score for these students. Thus, this hypothesis was not supported. Table 17 shows that net change in hopelessness correlated nonsignificantly at pr=-.34 (p=.20) with Time 2 MAACL-R depression score and uniquely accounted for over 12% (pr^2=.121925, ns; p=.2021) of the Time 2 MAACL-R depression score variance.

Descriptive statistics

While the above are the results of specific tests of each of the hypotheses in this study, the interpretation of those tests can be facilitated by viewing a concise and meaningfully organized presentation of the means for

Table 16

Summary of Results for Test of Causal Mediation Hypothesis 5

Order of entry of set	Predictor(s) in set	Cumulative R^2	Increment in R^2 for set (sr^2)	F for increment in R^2 for set	df	Partial correlation (pr)	Squared partial correlation (pr^2)
1	Baseline MAACL-R	.01	.01	.21	1,14	.12	.01
2	Net change in hopelessness	.02	.00	.01	2,13	.02	.00

Note. Dependant variable = Time 3 MAACL-R depression score. Sample = subjects with a negative exam outcome. For Tables 16 and 17, MAACL-R = score on the Multiple Affect Adjective Check List-Revised (Depression Scale), and net change in Hopelessness = difference in score on the Beck Hopelessness Scale from Time 1 to Time 3.

Table 17

Summary of Results for Test of Time 2 Comparison to Causal Mediation Hypothesis 5

Order of entry of set	Predictor(s) in set	Cumulative R^2	Increment in R^2 for set (sr^2)	F for increment in R^2 for set	df	Partial correlation (pr)	Squared partial correlation (pr^2)
1	Baseline MAACL-R	.00	.00	.01	1,14	-.03	.00
2	Net change in hopelessness	.12	.12	1.81	2,13	-.35	.12

Note. Dependant variable = Time 2 MAACL-R depression score. Sample = subjects with a negative exam outcome.

important variables in this study. Table 18 shows the baseline, Time 2, and Time 3 MAACL-R depression score group means for the total research sample, and for the positive and negative exam outcome groups. It also shows each group's mean ASQ score as measured at baseline and PAQ score as measured at Time 2. Table 18 shows that, at baseline, the mean MAACL-R depression score and mean ASQ score for each portion of the sample appear to be about equivalent. Students with a negative exam outcome showed an elevated immediate depressive mood response to the receipt of their exam grades (mean Time 2 MAACL-R depression score=66.941), and made slightly less global and stable attributions for their exam performance (mean PAQ score=2.534) than would have been expected based on their mean baseline ASQ score (3.206), but their mean MAACL-R depression score dropped to below baseline two days later (Time 3 MAACL-R depression score=49.674). Students with a positive exam outcome showed a reduced immediate depressive mood response to the receipt of their exam grades (mean Time 2 MAACL-R depression score=46.500), and made more global and stable attributions for their exam performance (mean PAQ score=4.635) than would have been expected based on their mean baseline ASQ score (3.206), but their mean MAACL-R depression score returned to about baseline two days later (Time 3 MAACL-R depression score=53.923).

The mean Time 3 hopelessness scores were 1.707 for the total research sample, 1.520 for students with a negative exam outcome, and 2.000 for students with a positive exam outcome. The mean net change in hopelessness

Table 18

Summary of Descriptive Statistics

Portion of sample	Time 1 (baseline)		Time 2 (immediately after receiving grade)		Time 3 (2 days after Time 2)
	MAACL-R	ASQ	MAACL-R	PAQ	MAACL-R
Total research sample (n=43)	55.60 sd=14.78	3.07 sd=.96	54.58 sd=23.24	3.80 sd=1.68	52.23 sd=16.23
Students with a negative exam outcome (n=17)	56.26 sd=14.69	3.21 sd=.76	66.94 sd=33.82	2.53 sd=1.12	49.67 sd=8.10
Students with a positive exam outcome (n=26)	55.16 sd=15.11	2.97 sd=1.07	46.50 sd=1.82[a]	4.64 sd=1.45	53.92 sd=19.83

Note. MAACL-R = Multiple Affect Adjective Check List-Revised: depression score. ASQ = Attributional Style Questionnaire: score for achievement events. PAQ = Particular Attribution Questionnaire: attribution for exam outcome. SD = Standard deviation.
[a] = 23 of 26 had a score of 47.

scores was -.585 for the total research sample, -.520 for students with a negative exam outcome, and -.677 for students with a positive exam outcome. These reflect values and changes in values on a 20 point scale.

A correlation matrix depicting the relationships between the independent and dependent variables of this study for the full research sample is presented in Table B, Appendix L. Appendix L also shows a corresponding correlation matrix for the subset of the research sample that had a negative exam outcome in Table C, and another for the subset that had a positive exam outcome in Table D. Appendix L also contains tables depicting corresponding correlation matrices for the full subject sample (as opposed to the selected research sample) in Table E, and for various meaningful subsets of that sample in Tables F-K).

DISCUSSION

The purpose of this study was to conduct a test of the hopelessness theory of depression (HTD), and in particular, tests of the Diathesis-Stress component and Causal Mediation component of HTD. While various tests of HTD and the revised learned helplessness theory of depression (LHTD-R) have been conducted (for reviews, see Barnett and Gotlib, 1988; Brewin, 1985; Coyne and Gotlib, 1983; Peterson and Seligman, 1984; and Sweeny et al., 1986), these tests have often disregarded important theoretical components of HTD in a manner that severely limited the degree to which they could justifiably refute or lend support to HTD (Abramson et al., 1986; Abramson et al., 1988; Alloy et al., 1988). That is, while most tests of HTD and LHTD-R have adequately controlled for subjects' baseline conditions of having a depressogenic attributional style, none to date have also adequately controlled for subjects' baseline conditions of experiencing important negative life events (INLE) or incidence of non-hopelessness subtypes of depression. Without controls for these factors, any set of results pertaining to the relationship between the incidence of having a depressogenic attributional style and the incidence of depression, whether supportive or refuting, can be explained by HTD, thus rendering the theory untested. Therefore, in this study all subjects

who reported experiencing an extremely negative life event in the six months prior to the experiment or who scored higher than nine on the Beck Depression Inventory (BDI) were removed from the sample. Then a time series study was done measuring students' baseline levels of depressogenic attributional style, hopelessness and depressive mood for comparison with their immediate (Time 2) and enduring (Time 3) mood responses following the receipt of their midterm exam grades. A measure of the attributions students made for their performance on their exam was made directly after their Time 2 mood response was assessed, and a second measure of hopelessness was made after their Time 3 mood response was assessed.

It will be considered below that the results of this study raise questions about the practical versus heuristic utility of examining HTD as a complete and resolved theory, and even about the overall validity of HTD. It will be shown that this study did not support a pattern of hypotheses which, when considered together, could have provided strong support for HTD. When considering possible explanations for these data, it will be recognized that the results of this study are consistent with, although not conclusively supportive of, trait theory for depression and alternative conceptualizations of the relationship between cognition and depression (e.g., the contention of Barnett and Gotlib, 1988, and Lewisohn et al., 1981, that attributional style is concomitant with depression). It will be further recognized that limitations in the ability of this study to isolate a subject sample demonstrating an enduring depressive mood response to an important negative life event may have contributed to its inability to conclusively

evaluate HTD. Methodological issues raised by this study and recent developments in the HTD literature will then be discussed. Finally, when this study is considered in the context of trying to test a rapidly and continuously evolving theory, it will be suggested that the specific limitations of this study are overshadowed by the more apparent implication that it is premature to attempt to evaluate HTD as though it were a complete and resolved theory. As a foundation for later elaboration on these points, a discussion of the hypothesis testing of this study will now be presented.

Six of the eight hypotheses of this study focused on predicting subjects' Time 3 depressive mood responses to an INLE (i.e., a negative exam outcome). This focus was chosen because it has been suggested that immediate mood responses to a negative exam outcome can be transitory in nature and attribution-independent for some students, while a measure of depressogenic attributional style has been able to predict enduring depressive responses to a negative exam outcome in other students (Metalsky et al., 1987). However, Table 18 shows that the mean depression scale scores on the revised Multiple Affect Adjective Check List (MAACL-R) for both positive and negative exam outcome groups were actually slightly lower at Time 3 than they were at baseline. Similarly, baseline MAACL-R depression score correlated $pr = .40$ ($p < .01$) with Time 3 MAACL-R depression score, suggesting that the depressive mood of these students at Time 3 was similar to their mood at baseline. Therefore, as the hypothesis testing is summarized below, the

implications of the results of this study for HTD will be qualified in light of this absence of an enduring mood response.

With regard to the Diathesis-Stress component of HTD, this study did not support the assertion that students' attributional styles would interact with their exam outcomes to predict their subsequent enduring mood responses (Diathesis-Stress H^1). Rather, the interaction of these factors did not correlate significantly ($pr = .01$, ns) with Time 3 MAACL-R depression scores. In light of this, the inability to show that attributional style predicted Time 3 MAACL-R depression scores for those with negative exam outcomes (Diathesis-Stress H^2) is not surprising, and the success in showing that attributional style did not predict Time 3 MAACL-R depression scores for those with positive exam outcomes (Diathesis-Stress H^3) lacks relevance. The purpose of Diathesis-Stress H^2 and H^3 was to confirm that, if the interaction predicted in Diathesis-Stress H^1 had occurred, it occurred in a fashion consistent with the Diathesis-Stress component of HTD. Specifically, these hypotheses were to show that the nature of the interaction would be for a high Attributional Style Questionnaire (ASQ) measurement of students' attributional styles toward making global and stable attributions for negative achievement events to predict an increase in MAACL-R depression score from baseline to Time 3 for students with a negative exam outcome. Therefore, the inability to support Diathesis-Stress H^2 can be credited to the absence of an ASQ score by exam outcome interaction upon which to elaborate, and the absence of a Time 3 MAACL-R depression score effect to predict. The success of Diathesis-Stress H^3 appears to be due to

the hypothesis being phrased in a manner that requires a significant result to accept the null hypothesis. Therefore, this hypothesis could be rejected only if a high ASQ score significantly predicted an increase in MAACL-R depression score from baseline to Time 3 for students with a positive exam outcome. Clearly then, Diathesis-Stress H^3 can hold meaning relevant to the Diathesis-Stress component of HTD only if elaborating on significant results supporting Diathesis-Stress H^1 and H^2.

With regard to the Causal Mediation component of HTD, it was shown that students' attributional styles as measured at baseline uniquely accounted for over 45% of the variance in students' subsequent attributions for their performance on their exam (Particular Attribution Questionnaire; PAQ) for students with a negative exam outcome (Causal Mediation H^1). However, the assertion that students' PAQ score would predict their Time 3 MAACL-R depression scores was not supported (Causal Mediation H^2). Correspondingly then, there was also no support for the assertion that the relationship between PAQ score and Time 3 MAACL-R depression score would still be present after both were adjusted for students' ASQ scores (Causal Mediation H^3). Similarly, there was no support for the assertions that students' Time 3 hopelessness scores (Causal Mediation H^4) and their net change in hopelessness from baseline to Time 3 (Causal Mediation H^5) would predict their enduring depressive mood responses.

The first three hypotheses for the Causal Mediation component of HTD were designed to isolate and test specific components of the etiological chain

proposed by HTD. Support for Causal Mediation H^1 did not hinge upon the occurrence of an enduring depressive mood response. According to the Causal Mediation component of HTD, given an INLE, the formation of causal attributions is expected to precede a hopelessness type depressive mood response, and such a response is only expected if the causal attributions are depressogenic in nature. So the established relationship between ASQ score and PAQ score in Causal Mediation H^1 need not be qualified by the absence of a Time 3 MAACL-R depression score effect. On the other hand, given no enduring depressive mood response to predict, the inability to find support for Causal Mediation H^{2-5} is not surprising.

Clearly, these data do not lend support to HTD. Toward understanding these unexpected findings, it is important to consider how to characterize best the Time 3 MAACL-R depression scores that were obtained. Most hypotheses focused on how to predict an enduring mood response to an INLE. Without such a response, there was nothing to predict, and many hypotheses were left unsupported. At issue is first, whether the Time 3 results are valid, and second, how the students' moods at Time 3 are to be explained.

Regarding the validity of these results, it is worth noting that students immediate mood responses to their exam outcomes were very similar to those of the students in the Metalsky et al. (1987) study. Tables 19 and 20 show the results of both studies for a test of the assertion that students' attributional styles would interact with their exam outcomes to predict their subsequent immediate (Time 2) mood responses.[23] Metalsky et al. (1987) found that only

Table 19

Summary of Results of the Metalsky et al. (1987) Study that Correspond to the Test of the Time 2 Comparison to Diathesis-Stress Hypothesis 1

Order of entry of set	Predictor(s) in set	Cumulative R^2	Increment in R^2 for set (sr^2)	F for increment in R^2 for set	t for within-set predictors	df	Partial correlation (pr)	Squared partial correlation (pr^2)
1	Baseline MAACL-R	.03	.03	3.06		1,92	.18	.03
2	Double entry	.22	.19	11.04***		2,90	.44	.20
	ASQ				1.23	90	.13	.02
	exam outcome				4.51***	90	.43	.18
3	ASQ by exam outcome interaction	.23	.00	.41		1,89	-.07	.01

Note. Table from Metalsky et al. (1987, p.389). Dependant variable = Time 2 MAACL-R depression score. Sample = all subjects. For Tables 19 and 20, ASQ = average of scores on the Stability and Globality subscales for negative achievement outcomes on the modified Attributional Style Questionnaire, MAACL-R = score on the Multiple Affect Adjective Check List-Revised (Depression Scale).
***-p<.001

Table 20

Summary of Results of the Test of the Time 2 Comparison to Diathesis-Stress Hypothesis 1 that Correspond to the Metalsky et al. (1987) Results in Table 19

Order of entry of set	Predictor(s) in set	Cumulative R^2	Increment in R^2 for set (sr^2)	F for increment in R^2 for set	t for within-set predictors	df	Partial correlation (pr)	Squared partial correlation (pr^2)
1	Baseline MAACL-R	.00	.00	.00		1,41	.00	.00
2	Double entry	.19	.19	4.60*		3,39	.44	.19
	ASQ				-.24	39	-.04	.00
	exam outcome				3.03**	39	.44	.19
3	ASQ by exam exam outcome interaction	.20	.01	.33		4,38	-.09	.01

Note. Dependant variable = Time 2 MAACL-R depression score. Sample = all subjects.
*-p<.05
**-p<.01

exam outcome correlated significantly ($pr = .43$, $p < .001$) with Time 2 MAACL-R depression score variance (see Table 19). Similarly, this study found that only exam outcome correlated significantly ($pr = .44$, $p < .05$) with Time 2 MAACL-R depression score (see Table 20). Both studies found that baseline MAACL-R depression scores did not uniquely predict Time 2 MAACL-R depression scores and that the ASQ scores by exam outcome interaction accounted for virtually 0.0% of the Time 2 MAACL-R depression score variance. The clear similarity between these findings suggests that, at least with regard to students' immediate responses to the receipt of their exam grades, the subjects and the measures of the two studies functioned comparably.

One explanation for the obtained results is that depression may be primarily a trait dependent phenomenon, and that all those prone to showing depressive responses to negative events were selected out of the research sample. This would suggest that the processes that comprise the etiological chain proposed by HTD are not real and therefore could not be revealed by this study. Another explanation is that the absence of an identifiable enduring depressive mood response in the research sample was due to the subjects not experiencing the return of their exam grades as an INLE. This would suggest that without students showing an enduring depressive mood response, several hypotheses in this study could not be tested. Each explanation will be considered respectively.

If attributional style does not interact with INLEs to cause depressogenic attributions and thus cause hopelessness and then depression, the results of

this study might be reflecting such a reality. This argument would be consistent with the position of Barnett and Gotlib (1988, p. 106) that "there are a number of reasons to expect negative results in research... [that investigates] the interaction of attributional style and negative life events... [with] prospective research using proper measures of depression" In support of this expectation, they point to two issues. First, Barnett and Gotlib (1988, p. 106) state that "our review of the literature suggests that an abnormal attributional style is not characteristic of the cognitive functioning of either premorbid or remitted depressives." Therefore they suggest that researchers will be unable to identify such a cognitive vulnerability in a prospective study that conforms to their design recommendations. Second, in response to some reports of low reliability for the ASQ, Barnett and Gotlib (1988, p. 106) state that:

> The low reliability of the measure may account for the general lack of significant results, due to the attenuation of all correlations involving the ASQ. A different and more substantive interpretation, however, is that the low reliability of the ASQ is not purely a psychometric problem; rather, it may accurately reflect the lack of cross-situational consistency in subjects' causal attributions (Cutrona,[Russell & Jones], 1985; Miller, [Klee & Norman], 1982). This interpretation is consistent with the paucity of empirical evidence of a trait-like cognitive vulnerability to depression and suggests the need to revise the reformulated learned helplessness model of depression.

The inconsistency between the results of this study and those of Metalsky et al. (1987), per se, does not challenge the possibility that this study may accurately reflect a reality that would be disconfirming of HTD. Given the cogent discussion of the implications of research methodology by Barnett and Gotlib (1988, see pages 36-38 above) it could be argued that the students who showed an enduring depressive mood response in the study of Metalsky et al. (1987) may have already been depressed, and that their attributional style interacted with their receipt of a negative exam outcome to exacerbate their depressive condition. That is, students who are already depressed could be viewed as exhibiting depressive symptoms in a trait-like fashion, including depressive attributions, which would leave them vulnerable to an exacerbation of their depression. Similarly, it could be suggested that since depressed students were selected out of the sample for this study, there were no students exhibiting trait-like depressive attributions, leaving no opportunity for such an effect to take place in the remaining students. Further, it could be suggested that the lack of an enduring depressive mood response in the remaining students argues for the contention of Gotlib and Barnett (1988) and Lewinsohn et al. (1981) that attributional style is only concomitant with depression, and may at that time act to exacerbate the condition, but is not a characteristic that predisposes a never-depressed or fully remitted depressive to a subsequent depression. This argument is consistent with the notable similarity in students' immediate mood responses to their exam outcomes between subjects in this study and those of the Metalsky et al. (1987) study (see Tables 19 and 20, p.

88). These results suggest that for this study there was a sufficient mood response at Time 2 to expect a Time 3 mood response to have been elicited in those predisposed, or cognitively vulnerable, to do so.

However, while this interpretation of the results of this study is wholly consistent with the data, it can not be conclusively derived from the data. In order to more strongly support the contention that this study confirms a trait theory for depression and refutes the postulates of HTD, it would be necessary to conduct a similar study and establish statistically that in a sample divided into depressed individuals, remitted depressives and normal controls, only those who are already depressed and who have a depressive attributional style and who experience a negative life event show a significant enduring increase in depressive mood. It would be helpful to show that the effect for this group is strong enough to still show the effect when the depressed group is combined with the nondepressed groups, because this would explain the results found by Metalsky et al. (1987). Without this evidence, and in light of other considerations that will now be discussed, this explanation for the results of this study must be viewed as one of several interpretations of this study that are consistent with the data.

A second explanation for the results of this study is that by not demonstrating a Time 3 MAACL-R depression score effect, the ability to predict such an effect could not be tested. Data consistent with viewing this missing effect as a simple manipulation failure will now be presented.

There are data regarding students' attained grades on their exams that may help explain the absence of a Time 3 MAACL-R depression score effect. As shown in Table 21, no students in either class (i.e., of all 343 that took an exam) achieved a failing grade on their exam.[24] This suggests that the grading in these classes may have been viewed by students as being relatively lenient. Such a view by students would be consistent with the fact that only four students in the research sample achieved an exam grade lower than their grade aspiration as reported at baseline (this finding is discussed further on page 95, below).

Another aspect of the grades received by students may help explain the absence of a Time 3 MAACL-R depression score effect. Of the 84 students in the unselected sample who received the lowest grades (i.e., a grade of 2.0, 1.5 or 1.0), 68 were selected out of the sample due to missing data, and an additional 13 were selected out due to high baseline Life Event Inventory (LEI) and/or BDI scores. This left three students with a grade of 2.0 as the lowest scoring subjects in the research sample. Therefore, those students who would be expected to be most likely to view their exam outcome as an INLE were selected out of the study.

Finally, there is data that suggests students' actual attributions for their exam outcomes are consistent with their not demonstrating an enduring depressive mood response to that event. Students' PAQ scores uniquely predicted over 28% of the variance in their Time 2 MAACL-R depression scores for those with a negative exam outcome. The sign of the correlation ($pr=-.53$),

Table 21

Number of Students who Achieved each Level of Grade on their Exam

	Achieved grade on midterm exam							
	4.0	3.5	3.0	2.5	2.0	1.5	1.0	0.0
Unselected sample (n=343)	88	32	63	76	61	18	5	0
Sample selected for missing data n=(108)	35	11	24	22	13	3	0	0
Fully selected research sample (n=43)	13	5	10	12	3	0	0	0
Positive exam outcome (n=26)	12	3	5	6	0	0	0	0
Negative exam outcome (n=17)	1	2	5	6	3	0	0	0

however, suggests that the relationship between PAQ score and Time 2 MAACL-R depression score was opposite of that which would be viewed as indicating depressogenic attributions. Table 18 shows that the nature of student's PAQ scores was for those with a negative exam outcome to make relatively less stable and global attributions, and for those with a positive exam outcome to make relatively more stable and global attributions. Therefore, both groups' attributional postures appear to be depression resistant given the context of their exam outcome (i.e., positive or negative; refer to Figure 3, page 8, regarding depression resistant attributional styles). These findings are consistent with the absence of an elevation in Time 3 MAACL-R depression score for both positive and, in particular, negative exam outcome groups.

Taken together, a) the data supporting the possibility that students may have viewed their exams as having been graded leniently relative to their expectations, b) the loss of a large proportion of students who achieved a poor grade from the research sample, and c) the demonstration by students of relatively depression resistant attributions for their exam performances, can all be viewed as suggesting that a manipulation failure may have occurred in this study, thus rendering HTD neither supported nor challenged by the results of the study. While this interpretation of the results must also be viewed as consistent with the data, it too can not be conclusively derived from the data. Again, research of the type suggested earlier (see p. 91) would help to better clarify how to characterize the results.

An important methodological issue regarding how to determine exam outcome based group assignment is raised by the low number of students who achieved an exam grade lower than their grade aspiration as reported at baseline. Metalsky et al. (1987) used a weighted difference score [i.e., (grade aspiration as reported at baseline - achieved grade) * reported importance of achievement events on the ASQ] to indicate the degree to which one found the receipt of their grade to be an INLE. This study used students' reports on the PAQ of being "happy" or "not happy" with their exam grade as an indicator of positive vs. negative exam outcome. The two methods correlated $r = 1.00$ in the Metalsky et al. (1987) study with regard to exam outcome based group assignment (G. I. Metalsky, personal communication, 1988), but only correlated $r = .10$ (ns) in this study. When the PAQ method is applied to the research sample of this study, 26 students are rated as having experienced a positive exam outcome and 17 as having experienced a negative exam outcome. When the weighted difference method is used, 32 subjects are rated as experiencing a positive exam outcome, four as experiencing a negative exam outcome, and seven are lost due to failure to complete the grade aspirations questionnaire. Therefore, the weighted difference method identified fewer students as having experienced a negative exam outcome than did the PAQ method.

Clearly, the two methods of determining exam outcome based group assignment did not function as comparably in this study as they did in the Metalsky et al. (1987) study. While every effort was made to implement both methods in this study just as they were in the Metalsky et al. (1987) study, it

must be considered that one or the other method may have malfunctioned in some manner in one or both of the studies. Another possible explanation is that the PAQ measure of exam outcome may have a different criterion for discriminating positive vs. negative exam outcome than does the weighted difference method. For example, the weighted difference method may require the detection of a relatively more conspicuous negative experience than the PAQ method to rate it as negative, and thus may assign those who have a mildly negative experince to a positive experience group. Conversely, the PAQ method may include students who experienced the receipt of their exam grade as a transitory, relatively unimportant negative life experience (e.g., students who might say "This bad grade has me feeling down today") in a group that was intended to include only those students who experienced the receipt of their exam grade as an INLE (e.g., students who might say "With this bad grade, I'll never be able to succeed"). However, there is insufficient data to conclusively determine exactly why the PAQ method and the weighted difference method functioned so differently in the two studies. Therefore, for the purposes of future research, it would be advisable not to view the two methods of determining exam outcome based group assignment as being equivalent, and to use both methods until further research is conducted on the assessment of INLEs due to negative exam outcomes.

Along similar methodological lines, it is interesting to note that while HTD (and even LHTD-R) clearly stipulate that attributional style and the experience of an INLE <u>both</u> interact to predict the hopelessness subtype of depression, little

research has focused on the appropriate measurement of INLEs while considerable research has been done on measuring attributional style. Research has been reported on various important issues pertaining to the measurement of attributional style, for example, that having a depressogenic attributional style as measured on the ASQ is equally characteristic of non-depressed social phobics, suggesting that having a depressogenic attributional style may not be specific to depression (Heimberg, Klosko, Dodge, Shadick, Becker and Barlow, 1989); that other measures of depressogenic attributional style with statistically orthogonal scales are more appropriate than the ASQ because the non-orthogonality of the subscales on the ASQ do not reflect the theoretical orthogonality of the concepts of globality, specificity, and internality of HTD (Hill and Kemp-Wheeler, 1986); that depressogenic attributional style might be more appropriately measured with regard to real events experienced by subjects rather than with regard to the hypothetical events on the ASQ (Norman and Antaki, 1988); and that cross cultural differences in how attributional styles for negative vs. positive events relate to depressive symptomatology may indicate that depressogenic attributional style might be best measured as the relative degree to which ones attributional style for negative events differs from ones attributional style for all types of events (Crittenden and Lamug, 1988). Yet there is a dearth of research that specifically addresses the measurement of INLEs in the context of HTD. Questions such as, what are the specific perceived qualities of events that effectively activate the diathesis proposed by the Diathesis-Stress component of HTD, and at what

magnitude must they be experienced, would be appropriate areas of investigation.

Further methodological considerations for the investigation of HTD are raised by a recent statement/reconceptualization of the theory by Abramson, Metalsky and Alloy (1989). Abramson et al. (1989) "deemphasize causal attributions because inferred negative consequences and inferred negative characteristics about the self are also postulated to contribute to the formation of hopelessness and, in turn, the symptoms of hopelessness depression." (p. 358) This change in emphasis introduces into the etiological chain proposed by HTD the notion of individuals having depressogenic inferential styles for inferring negative consequences of INLEs and/or for inferring negative characteristics about the self given the occurrence of an INLE. Abramson et al. (1989) state that making either of these types of inferences regarding an INLE can function similarly to making a depressogenic causal attribution about an INLE in the process of contributing to the formation of hopelessness.

Therefore, just as this study was designed to control for the baseline conditions of INLEs, depressogenic attributional style, and non-hopelessness subtypes of depression in order to provide an adequate test of HTD as it was originally stated (Abramson et al. 1986, Abramson et al. 1988, Alloy et al. 1988), studies of HTD as it is now stated by Abramson et al. (1989) will have to address the measurement and control of the baseline conditions for the two depressogenic inferential styles introduced in that statement of the theory. Similarly, even if this study had found a strong Time 3 MAACL-R depression

score effect to have occurred, and if all of its hypotheses had been supported, it would now be appropriate only to view the study as an adequate test of an earlier version of HTD, and not of the newest version, because it did not measure and control for the two depressogenic inferential styles introduced by Abramson et al. (1989).

Abramson et al. (1989) state "We anticipate further expansions and revisions of the hopelessness theory." (p. 365) Given the apparent fluidity of HTD in the current stage of its development, it is likely that further tests of the theory as a whole will come to be viewed as obsolete relative to even newer versions of the theory. While the speculation and research regarding the distal components of the etiological chain proposed by HTD has had heuristic value in the effort to understand the cognitive factors that may be antecedent, concomitant or consequent to possible subtypes of the heterogeneous disorder of depression, an approach of more enduring value would be to investigate the theory systematically in terms of its logical components to see if they merit continued inclusion in the theory.

For example, as much of the past research on HTD and LHTD-R can be viewed as examinations of some of the more distal components of the etiological chain proposed by HTD (e.g. the relationship between attributional style and depression), the most proximal component (i.e., the relationship between hopelessness and depression) has been virtually ignored. While discussing HTD and Beck's (1967, 1976) cognitive theory of depression, Alloy, Hartlage and Abramson (1988b) state "Indeed, we know of no work to date that

tests whether hopelessness and the negative cognitive triad are, in fact, sufficient causes of depression or whether they mediate the effects of the more distal diathesis and stress components of the theories." (p. 60). It would seem logical then, for future research on HTD to investigate this most proximal component of HTD (after which the theory is named) to see if it merits further inclusion in the theory.

In summary, the results of this study were perfectly consistent with the trait theory of depression. Further, this study did not provide support for HTD. However, the results were considered in the context of a subject sample that did not demonstrate any patterns of an enduring depressive mood response. Two explanations were offered for this unexpectedly absent mood response. The first explanation suggested that all necessary conditions for testing HTD were met and that the absence of the enduring mood response was due to sample selection for recent INLEs and current depression. This interpretation was considered to be supportive of the trait theory of depression and of the views of Barnett and Gotlib (1988), and to hold unfavorable implications for HTD. The second explanation suggested that even though 40% of the subjects in the research sample reported being "not happy" with their grade at Time 2 (immediately after receiving their grade), the absence of a Time 3 enduring mood response meant that certain hypotheses of this study could not be tested. This interpretation was presented as neither supportive nor challenging to HTD, the trait theory of depression, or to the views of Barnett and Gotlib (1988). Also discussed was how the two methods for determining exam

outcome based group assignment (i.e., the PAQ method and the weighted difference method) functioned quite differently in this study while they functioned identically in the Metalsky et al. (1987) study. Possible explanations for this difference were considered. The implications for future research involving the measurement of INLEs in the context of tests of HTD, and of investigating HTD in light of its most recent statement (i.e., Abramson et al., 1989) were also presented.

FOOTNOTES

1. Abramson et al. (1978) state that helplessness is the consequence of when people expect that their future responses will be futile in obtaining a desired future outcome. However, they make a distinction between personal helplessness, for people who view their situation as helpless yet also believe that relevant peers would likely be able to perform a response in their repertoire which would bring about the desired outcome, and universal helplessness, for people who view their situation as helpless and believe that relevant peers would find that they too do not have a response in their repertoire that would bring about the desired outcome.

2. Since LHTD, LHTD-R, and the subsequent interpretations of these theories primarily address the etiological factors of depression, a formal term for this type of attribution and the tendency to make it has not emerged consistently in the literature. The term depression resistant describes this type of attribution in a fashion that is consistent with the suggestion by Abramson et al. (1978, p.70) that one therapeutic strategy for treating depression is to help people "change unrealistic attributions for failure toward external, unstable, specific factors, and change unrealistic attributions for success toward internal, stable, global factors."

3. Abramson et al. (1986), Abramson et al. (1988) and Alloy et al. (1988) distinguish between the occurrence of a negative life event and an individual's "attachment" of importance to the event after its occurrence. This distinction is maintained in Figure 5 (a schematic diagram of the etiological chain of hopelessness depression; see page 14). But for the sake of brevity, for example, rather that refer to 'the experience of a negative life event and the attachment of importance to that event,' I will refer to 'the experience of an INLE' (i.e., important negative life event).

Also, "INLE" will be used to refer to the nonoccurrence of an important positive life event as well as the occurrence of an important negative life event. This is consistent with the logic of HTD as presented in Abramson et al. (1986), Abramson et al. (1988) and Alloy et al. (1988), and corresponds with their

similar definition and usage of the terms "negative event," "negative life event" and "important negative life event" in those papers.

4. First, this example assumes that attributing failure to a lack of effort is an internal, unstable and possibly specific attribution. The purpose of this example is to suggest that attributing failure to a lack of ability would be an internal, stable, and possibly global attribution, and that this is more consistent with what would be expected to lead to a lowered self-esteem.

Second, Alloy et al. (1988) state that in HTD "when negative life-events are attributed to internal, as well as stable, global causes, hopelessness will be accompanied by lowered self-esteem (Crocker, Alloy & Kayne, 1987; Tennen & Herzberger, 1987)," (p. 9) but they do not explicitly present this as different from LHTD-R. Similarly, Abramson et al. (1988) state that "when negative life events are attributed to internal as well as stable, global causes, Abramson et al. [(1978)] hypothesized that the expectation of hopelessness will be accompanied by lowered self-esteem." (p. 10, emphasis added) In Fact, Abramson et al. (1978) state that "whether self-esteem is lowered will depend on the internality of the attribution for helplessness" (p. 68), with no direct regard given to the globality or stability of the attribution. The statements of Alloy et al. (1988) and Abramson et al. (1988) are vague in that they may be read as consistent with Abramson et al. (1978) (e.g., the cognitive, motivational and affective hopelessness deficits, which depend on the stability and globality of attributions for uncontrollable events, will be accompanied by lower self-esteem, which depends only on the internality of attributions, if the uncontrollable events are attributed to internal, global, stable causes). However, if this is the case, these statements are inconsistent with Abramson et al. (1986). I have chosen to refer to the Abramson et al. (1986) interpretation of this issue in the text because it is the least vague and it clearly addresses its position as a revision of LHTD-R.

5. In Figure 1, HTD allows for the possibility that hopelessness might, in some instances, be elicited by causes other than the proposed chain of contributory causes. So the chain of contributory causes may be viewed as one of several possible causes of hopelessness, just as hopelessness is viewed as one of several possible causes of depression.

6. Since HTD states that the minimal conditions for viewing a causal attribution for an INLE as depressogenic is for that attribution to be global and stable in nature, it is important to define how references to depressogenic attributions and attributional styles are defined for this paper. The term "depressogenic attribution" will refer to the actual attribution of an INLE to a global and stable cause. The term "depressogenic attributional style" will refer to the tendency to make stable and global depressogenic attributions for INLEs. When the internality of a depressogenic attribution or depressogenic attributional style is

of issue, this will be stated clearly [e.g., by refering to a "depressogenic attribution (internal, as well as global and stable)"].

7. The practice of using the principles of HTD to critique investigations of LHTD-R is quite defendable. Besides the former being in large part a clarification of the latter, it has been noted that typical research on LHTD-R actually conforms better to the proposed principles of HTD. For example, Alloy et al. (1988, p. 8) note that "the majority of [studies investigating LHTD-R] focused on the occurrence of negative life-events rather than uncontrollable events..." In this regard, such studies could be more reasonably viewed as inadvertent tests of HTD than as tests of LHTD-R.

8. The "complete constellation of symptoms" for hopelessness depression that Abramson et al. (1986; p. 49) refers to is a legacy of the cognitive, motivational and emotional deficits that Seligman (1975) observed in dogs who had been exposed to inescapable electric shock. Seligman (1975) founded LHTD on his observance that these deficits were similar to those demonstrated by depressed humans. To the degree that Seligman's observations were accurate, it is unlikely that the symptoms displayed by people experiencing hopelessness depression (as defined by the process which produces it) will be extraordinarily different from those displayed by people who are experiencing a non-hopelessness subtype of depression. However, efforts to determine the nature of the depressive symptoms associated with hopelessness depression could be termed tests of a third component of HTD, namely the symptomological component of HTD. However, tests of this symptom component would have to be done after tests of the process components were completed.

9. HTD had not been formally published at the time the Metalsky et al. (1982) study was conducted and published. However, since Gerald I. Metalsky and Lyn Y. Abramson are among the primary HTD theorists (with Lauren B. Alloy), it is likely that the Metalsky et al. (1982) study was conducted in light of an informal though advanced conceptualization of HTD. In a critique of that study, Williams (1985) commended the authors for their unambiguous statement of LHTD-R, a statement that is clearly a precursor of HTD.

10. The original ASQ was presented by Peterson, Semmel, von Baeyer, Abramson, Metalsky and Seligman (1982), and had three items for each of the following goal outcomes: good achievement, bad achievement, good affiliation and bad affiliation. The ASQ used by Metalsky et al. (1987) had six items each for bad achievement and bad interpersonal outcomes. This was done to increase the reliability of the two bad outcome subscales so they could be examined separately. Metalsky et al. (1987) did not use the good outcome subscales in their version of the ASQ.

11. In this quote, Metalsky et al. (1987, p.392) cite "Weiner (1986)" and reference Weiner's work as a manuscript submitted for publication. In fact, Weiner's work was published in Psychological Review in 1985, and is referenced as such in this paper.

12. Table 5 is sufficient to illustrate this point. It demonstrates all possible relationships between whether one is depressed, has a depressogenic attributional style or has experienced an INLE. It is not necessary to breakdown each example further by splitting them based on whether one has a non-hopelessness subtype of depression. This is because hopelessness depression (and correspondingly non-hopelessness depression) is defined by its etiological process and therefore cannot be identified without information about both attributional style and INLE's. Hence, the situation of having information about the baseline incidence of non-hopelessness depression in the absence of information about the baseline incidence of attributional style or INLE's is empirically indeterminable (until a reliable covariate for one of these variables is established).

13. Two subjects of the 43 students in the research sample did not complete the measures of hopelessness. Therefore, neither of them are represented in the tests of Causal Mediation H^4 or H^5. Since these tests use only a portion of the research sample and only one of these subjects were in that portion of the sample, their absence is reflected by a change of only one degree of freedom in those tests.

14. Metalsky et al. (1987) measured student's exam outcome by calculating the degree to which students' actual exam grades exceeded or fell beneath the grades students had reported they would consider a failure (G. I. Metalsky, personal communication, 1988). This was viewed as a measure of students' subjective evaluation of their success or failure on the exam. They then multiplied this value by students' scores on the importance subscale of the ASQ to weight the exam outcome measure more heavily for those who found such achievement oriented events to be more important to them. This method appeared valid, especially since there was a +1.00 correlation between the classification of students into good vs. bad exam outcome groups using this method and the separation of students into groups of "happy" vs. "not happy" with their grade based on the reports by students on the PAQ within ten minutes of receiving their grades (G. I. Metalsky, personal communication, 1988). This study had intended to use the same method as Metalsky et al. (1987) to measure students' exam outcomes, but for this study that method correlated with the PAQ method only .10 ($p=.55$) with regard to exam outcome based group assignment. Therefore, the author chose to use the PAQ method since it is an immediate self-report of students' actual subjective evaluations of their exam outcomes. A grade aspiration questionnaire (Metalsky et al., 1987;

see Appendix C) was administered to subjects during an assessment session in class early in the baseline period of this study with the intent of duplicating the exam outcome measure used by Metalsky et al. (1987). However, since the PAQ method was used, the grade aspiration questionnaire served no utility and will not be further addressed.

15. Differences in assessment methods between this study and that of Metalsky et al. (e.g., using the MAACL-R rather than the MAACL) have already been noted as each measure was discussed in the method. Notable procedural differences between this study and that of Metalsky et al. (1987) were as follows. Subjects in this study were enrolled in one of two different classes and therefore took one of two different exams, as opposed to one class and one exam for the Metalsky et al. (1987) study. This study averaged two or more pre-exam MAACL-R scores to calculate baseline levels of depression while the Metalsky et al. (1978) study used a single implementation of the MAACL given two days after students took their exam but three days before they received their exam grades (they note that similar results were obtained using a baseline MAACL given two days before students took their exam). This study included one implementation each of the ASQ, BDI, LEI and BHS in an out of class testing session (and another BHS in class at the end of the study) while the Metalsky et al. (1987) implemented only the ASQ out of class and did not use the other measures. This study took place during mid-Spring of 1988 using 43 students at Michigan State University while the Metalsky et al. (1978) study took place during late-Winter of 1982 using 94 students at the University of Wisconsin.

16. In both classes after all data were collected, students were asked to hypothesize what the nature was of each of the two apparent experiments. In both classes, no one reported speculating that the two experiments were related.

17. The PAQ measures the degree to which an attribution for exam performance is global and stable and does not measure how depressogenic the attribution is. A global and stable attribution for a negative outcome is viewed to be depressogenic and a global and stable attribution for a positive outcome is viewed to be depression resistant.

18. The n's are unequal for the baseline implementations of the MAACL-R because not every student attended every implementation. During the baseline period, the MAACL-R was given seven times in the introductory psychology class and five times in the psychology statistics class. The first assessment in each class was dropped to reduce any novelty effect. Student's baseline depressive moods were estimated by taking the mean of remaining baseline measures with a minimum of two values required. The first two MAACL-R

depression score reliabilities reported have n's of 22 and 23 because they apply only to the students in the introductory psychology class, of which 23 were in the research sample. The other reliabilities applied to assessments in both classes so their n's of 41, 40, 34 and 40 are relative to the total research sample of 43 students.

19. The homogeneity of regression test (see Appendix K) for the analysis of partial variance testing the Time 2 comparison to Causal Mediation H^3 did approach significance. In this test, the set of factors testing homogeneity of regression correlated pr=.62 (p=.07) with the dependent variable. However, since this analysis of partial variance was only a comparison to a hypothesis test for this study, no further analysis was pursued.

20. This result is called into question by the near failure of the test for homogeneity of regression for this analysis of partial variance (see footnote 19).

21. This hypothesis, as originally stated, neglected to specify that this analysis is most appropriately done with specific regard to those students with a negative exam outcome. Such an analysis is logically consistent with all other analyses in this study that used immediate or enduring MAACL-R depression scores as a dependent variable and which did not use exam outcome as an independent variable. Therefore, to facilitate both the logical and interpretive consistency of this study, this analysis was done using only data from students with a negative exam outcome.

22. For identical reasons as described in footnote 19 regarding Causal Mediation H^4, this analysis was done using only data from students with a negative exam outcome.

23. The Metalsky et al. (1987) study used the original MAACL-Today Form in their study while this study used the revised version. Both versions have the same 132 items on the check list (except that item 52 was changed from "gay" to "lively"), but the revised version (i.e., the MAACL-R) has a more current and thorough restandardization.

24. Exam grades in the two classes were given on a four point basis, as is customary at Michigan State University (i.e., 0.0=failing to 4.0=A: 0.0 and 1.0 to 4.0 in .5 increments).

APPENDIX A

Attributional Style Questionnaire

ASQ

STUDENT ID# _____ Date _____

Directions

Please try to vividly imagine yourself in each of the situations or sequences of events that follow. Picture each situation as clearly as you can and as if the events were happening to you right now. Place yourself in each situation and decide what you feel would have caused it if it actually happened to you. Although events may have many causes, we want you to choose only one -- the major cause if the event actually happened to you. For each situation, you will write down this cause in the blank provided. Then we will ask you some questions about the cause.

It is important to remember that there are no right or wrong answers to the questions. The important thing is to answer the questions in a way that corresponds to what you would think and feel if the situations actually were occurring in your life.

A. Imagine that the following sequence of events actually happens to you:

You take an exam and receive a low grade on it.

The questions below ask about the cause of your low grade on the exam.

First, write down the one major cause of your low grade on the exam.

_____

1. Is it something about you or something about other people or circumstances that caused your low grade on the exam? (Choose one number.)

Totally caused by other people or circumstances	1	2	3	4	5	6	7	Totally caused by me

2. In the future when taking exams, will the cause of the low grade on this exam also cause other exam grades of yours to be low? (Choose one number.)

Will never again cause my exam grades to be low	1	2	3	4	5	6	7	Will always cause my exam grades to be low

3. Is the cause of your low grade on the exam something that causes problems just in that exam grade, or does it also cause problems in other areas of your life? (Choose one number.)

Causes problems just in that exam grade	1	2	3	4	5	6	7	Causes problems in all areas of my life

4. How important is it to you that your grade on the exam is low? (Choose one number.)

Not at all important	1	2	3	4	5	6	7	Extremely important

B. Imagine that the following sequence of events actually happens to you:

You don't have a boyfriend/girlfriend (or spouse) although you want one.

The questions below ask about the cause of your not having a boyfriend/girlfriend (or spouse) although you want one.

First, write down the one major cause of your not having a boyfriend/girlfriend (or spouse) although you want one.

_____

5. Is it something about you or something about other people or circumstances that caused your not having a boyfriend/girlfriend (or spouse) although you want one? (Choose one number.)

Totally caused by other people or circumstances	1	2	3	4	5	6	7	Totally caused by me

6. In the future when you want a boyfriend/girlfriend (or spouse), will the cause of your not having a boyfriend/girlfriend (or spouse) now also cause you not to have a boyfriend/girlfriend (or spouse) then? (Choose one number.)

Will never again cause me to not have a boyfriend/ girlfriend (or spouse)	1	2	3	4	5	6	7	Will always cause me to not have a boyfriend/ girlfriend (or spouse)

7. Is the cause of your not having a boyfriend/girlfriend (or spouse) something that causes problems just in that instance of wanting a boyfriend/girlfriend (or spouse), or does it also cause problems in other areas of your life? (Choose one number.)

Causes problems just in that instance of wanting a boyfriend/girlfriend (or spouse)	1	2	3	4	5	6	7	Causes problems in all areas of my life

8. How important is it to you that you don't have a boyfriend/girlfriend (or spouse) although you want one (Choose one number.)

Not at all important	1	2	3	4	5	6	7	Extremely important

C. Imagine that the following sequence of events actually happens to you:

A friend comes to you with a problem, and you are not as helpful as you would like to be.

The questions below ask about the cause of your not being as helpful as you would like to be to your friend.

First, write down the one major cause of your not being as helpful as you would like to be to your friend.

_____

9. Is it something about you or something about other people or circumstances that caused your not being as helpful as you would like to be to your friend? (Choose one number.)

Totally caused by other people or circumstances	1	2	3	4	5	6	7	Totally caused by me

10. In the future when a friend comes to you with a problem, will the cause of your not being as helpful as you would like to be to your friend now also cause you to not be as helpful as you would like to be to a friend then? (Choose one number.)

Will never again cause me to not be as helpful as I would like to be	1	2	3	4	5	6	7	Will always cause me to not be as helpful as I would like to be

11. Is the cause of your not being as helpful as you would like to be to your friend something that causes problems just your helping that friend, or does it also cause problems in other areas of your life? (Choose one number.)

Causes problems just in my helping that friend	1	2	3	4	5	6	7	Causes problems in all areas of my life

12. How important is it to you that you are not as helpful as you would like to be to your friend? (Choose one number.)

Not at all important	1	2	3	4	5	6	7	Extremely important

D. Imagine that the following sequence of events actually happens to you:

As an assignment, you give an important talk in class, and the class reacts negatively.

The questions below ask about the cause of the class reacting negatively to your talk.

First write down the one major cause of the class reacting negatively to your talk.

_____

13. Is it something about you or something about other people or circumstances that caused the class to react negatively to your talk? (Choose one number.)

Totally caused by other people or circumstances	1	2	3	4	5	6	7	Totally caused by me

14. In the future when you give important talks in class, will the cause of the class reacting negatively to this talk also cause the class to react negatively to other talks of yours? (Choose one number.)

Will never again cause the class to react negatively to my talks	1	2	3	4	5	6	7	Will always cause the class to react negatively to my talks

15. Is the cause of the class reacting negatively to your talk something that causes problems just in that instance of giving a talk, or does it also cause problems in other areas of your life? (Choose one number.)

Causes problems just in that instance of giving a talk	1	2	3	4	5	6	7	Causes problems in all areas of my life

16. How important is it to you that the class reacts negatively to your talk? (Choose one number.)

Not at all important	1	2	3	4	5	6	7	Extremely important

E. Imagine that the following sequence of events actually happens to you:

Your parents have been treating you in a negative way.

The questions below ask about the cause of your parents treating you in a negative way.

First write down the one major cause of your parents treating you in a negative way.

_____

17. Is it something about you or something about other people or circumstances that caused your your parents to treat you in a negative way? (Choose one number.)

Totally caused by other people or circumstances	1	2	3	4	5	6	7	Totally caused by me

18. In the future when interacting with your parents, will the cause of them treating you in a negative way also cause them to treat you in a negative way then? (Choose one number.)

Will never again cause my parents to treat me in a negative way	1	2	3	4	5	6	7	Will always cause my parents to treat me in a negative way

19. Is the cause of your parents treating you in a negative way something that causes problems just in that instance of interacting with them, or does it also cause problems in other areas of your life? (Choose one number.)

Causes problems just in that instance of interacting with my parents	1	2	3	4	5	6	7	Causes problems in all areas of my life

20. How important is it to you that your parents have been treating you in a negative way? (Choose one number.)

Not at all important	1	2	3	4	5	6	7	Extremely important

F. Imagine that the following sequence of events actually happens to you:

Your gradepoint average (GPA) for the semester is low.

The questions below ask about the cause of your low gradepoint average (GPA) for the semester.

First write down the one major cause of your low gradepoint average (GPA) for the semester.

_____

21. Is it something about you or something about other people or circumstances that caused your low gradepoint average (GPA) for the semester? (Choose one number.)

Totally caused by other people or circumstances	1	2	3	4	5	6	7	Totally caused by me

22. In the future when you receive your grades for a semester, will the cause of this semester's low gradepoint average (GPA) also cause other semesters gradepoint averages (GPA's) of yours to be low? (Choose one number.)

Will never again cause my semester gradepoint averages (GPA's) to be low	1	2	3	4	5	6	7	Will always cause my semester gradepoint averages (GPA's) to be low

23. Is the cause of your low gradepoint average (GPA) for the semester something that causes problems just in your gradepoint average for that semester, or does it also cause problems in other areas of your life? (Choose one number.)

Causes problems just in my gradepoint average for that semester	1	2	3	4	5	6	7	Causes problems in all areas of my life

24. How important is it to you that your low gradepoint average (GPA) for the semester is low? (Choose one number.)

Not at all important	1	2	3	4	5	6	7	Extremely important

G. Imagine that the following sequence of events actually happens to you:

At a party, people don't act interested in you.

The questions below ask about the cause of people not acting interested in you at the party.

First write down the one major cause of people not acting interested in you at the party.

---

25. Is it something about you or something about other people or circumstances that caused people to not act interested in you at the party? (Choose one number.)

Totally caused by other people or circumstances	1	2	3	4	5	6	7	Totally caused by me

26. In the future when at parties, will the cause of people not acting interested in you at this party also cause people to not act interested in you at other parties? (Choose one number.)

Will never again cause people to not act interested in me at parties	1	2	3	4	5	6	7	Will always cause people to to not act interested in me at parties

27. Is the cause of people to not act interested in you at the party something that causes problems just in people's interest in you at that party, or does it also cause problems in other areas of your life? (Choose one number.)

Causes problems just in people's interest in me at that party	1	2	3	4	5	6	7	Causes problems in all areas of my life

28. How important is it to you that at a party, people don't act interested in you? (Choose one number.)

Not at all important	1	2	3	4	5	6	7	Extremely important

H. Imagine that the following sequence of events actually happens to you:

You write a paper for a course and get a low grade on it.

The questions below ask about the cause of your getting a low grade on your paper.

First write down the one major cause of your getting a low grade on your paper

_____

29. Is it something about you or something about other people or circumstances that caused your getting a low grade on your paper? (Choose one number.)

Totally caused by other people or circumstances	1	2	3	4	5	6	7	Totally caused by me

30. In the future when writing papers for a course, will the cause of your getting a low grade now also cause you to get a low grade then? (Choose one number.)

Will never again cause me to get a low grade	1	2	3	4	5	6	7	Will always cause me to get a low grade

31. Is the cause of your getting a low grade on your paper something that causes problems just in that instance of writing papers, or does it also cause problems in other areas of your life? (Choose one number.)

Causes problems just in that instance of writing papers for a course	1	2	3	4	5	6	7	Causes problems in all areas of my life

32. How important is it to you that you got a low grade on a paper for a course? (Choose one number.)

Not at all important	1	2	3	4	5	6	7	Extremely important

I. Imagine that the following sequence of events actually happens to you:

Your professor gives an important lecture, and you don't understand it.

The questions below ask about the cause of your not understanding the lecture.

First write down the one major cause of your not understanding the important lecture.

_____

33. Is it something about you or something about other people or circumstances that caused you to not understand the important lecture. (Choose one number.)

Totally caused by other people or circumstances	1	2	3	4	5	6	7	Totally caused by me

34. In the future when listening to important lectures, will the cause of your not understanding the lecture now also cause you to not understand important lectures then? (Choose one number.)

Will never again cause me to not understand an important lecture	1	2	3	4	5	6	7	Will always cause me to not understand important lectures

35. Is the cause of your not understanding the important lecture something that causes problems just in your understanding that important lecture, or does it also cause problems in other areas of your life? (Choose one number.)

Causes problems just in my understanding that important lecture	1	2	3	4	5	6	7	Causes problems in all areas of my life

36. How important is it to you that you don't understand that important lecture? (Choose one number.)

Not at all important	1	2	3	4	5	6	7	Extremely important

J. Imagine that the following sequence of events actually happens to you:

Your teacher asks a question in class, and you don't know the answer. The questions below ask about the cause of your not knowing the answer to your teacher's question.

First write down the one major cause of your not knowing the answer to your teacher's question?

_____

37. Is it something about you or something about other people or circumstances that caused you to not know the answer to your teacher's question? (Choose one number.)

Totally caused by other people or circumstances	1	2	3	4	5	6	7	Totally caused by me

38. In the future when your teacher asks a question in class, will the cause of your not knowing the answer to this question also cause you to not know the answer to the other questions? (Choose one number.)

Will never again cause me to not know the answer	1	2	3	4	5	6	7	Will always cause me to not know the answer

39. Is the cause of your not knowing the answer to your teacher's question something that causes problems just answering that question, or does it also cause problems in other areas of your life? (Choose one number.)

Causes problems just in answering that question	1	2	3	4	5	6	7	Causes problems in all areas of my life

40. How important is it to you that when your teacher asks a question in class you do not know the answer? (Choose one number.)

Not at all important	1	2	3	4	5	6	7	Extremely important

K. Imagine that the following sequence of events actually happens to you:

Your relationship with your boyfriend/girlfriend (or spouse) ends even though you would like it to continue.

The questions below ask about the cause of your relationship with your boyfriend/girlfriend (or spouse) ending even though you would like it to continue.

First write down the one major cause of your relationship with your boyfriend/girlfriend (or spouse) ending even though you would like it to continue.

_____

41. Is it something about you or something about other people or circumstances that caused your relationship with your boyfriend/girlfriend (or spouse) to end even though you would like it to continue? (Choose one number.)

Totally caused by other people or circumstances	1	2	3	4	5	6	7	Totally caused by me

42. In the future when you are involved in a relationship, will the cause of your relationship with your boyfriend/girlfriend (or spouse) ending now also cause other relationships with boyfriends/girlfriends (or spouses) to end even though you would like them to continue? (Choose one number.)

Will never again cause my relationships with boyfriends/girlfriends (or spouses) to end	1	2	3	4	5	6	7	Will always cause my relationships with boyfriends/ girlfriends (or spouses) to end

43. Is the cause of your relationship with your boyfriend/girlfriend (or spouse) ending even though you would like it to continue something that causes problems just in your relationship with your boyfriend/girlfriend (or spouse), or does it also cause problems in other areas of your life? (Choose one number.)

Causes problems just in my relationship with my boyfriend/ girlfriend (or spouse)	1	2	3	4	5	6	7	Causes problems in all areas of my life

44. How important is it to you that your relationship with your boyfriend/girlfriend (or spouse) ends even though you would like it to continue? (Choose one number.)

Not at all important	1	2	3	4	5	6	7	Extremely important

L. Imagine that the following sequence of events actually happens to you:

A person with whom you really want to be friends does not want to be friends with you.

The questions below ask about the cause of the person not wanting to be friends with you.

First write down the one major cause of the person not wanting to be friends with you.

_____

45. Is it something about you or something about other people or circumstances that caused the person to not want to be friends with you. (Choose one number.)

Totally caused by other people or circumstances	1	2	3	4	5	6	7	Totally caused by me

46. In the future when you want to be friends with someone, will the cause of this person not wanting to be friends with you also cause other people to not want to be friends with you? (Choose one number.)

Will never again cause other people to not want to be friends with me	1	2	3	4	5	6	7	Will always cause other people to not want to be friends with me

47. Is the cause of the person not wanting to be friends with you something that causes problems just in that person wanting to be friends with you, or does it also cause problems in other areas of your life? (Choose one number.)

Causes problems just in that person wanting to be friends with me	1	2	3	4	5	6	7	Causes problems in all areas of my life

48. How important is it to you that a person with whom you really want to be friends does not want to be friends with you? (Choose one number.)

Not at all important	1	2	3	4	5	6	7	Extremely important

APPENDIX B

Particular Attribution Questionnaire

PAQ

STUDENT ID#: _____ DATE: _____

If you are happy with your midterm grade, please fill out Questions 1-12 (pages 1-2).

If you are not happy with your grade, please fill out Questions 13-24 (pages 3-4).

First, what is the one major cause of you obtaining a high grade on the Psychology exam?

_____

1. Is it something about you or something about other people or circumstances that caused your high grade on the Psychology exam? (Circle one number)

Totally caused by other people or circumstances	1	2	3	4	5	6	7	Totally caused by me

2. In the future, will the cause of your high grade on this exam also cause your grade on the next Psychology exam in this class to be high? (Circle one number.)

Will not cause my grade on the next Psychology exam to be high	1	2	3	4	5	6	7	Will cause my grade on the next psychology exam to be high

3. In the future, will the cause of your high grade on the exam also cause your grades on other exams to be high? (Circle one number.)

Will never cause my grades on other exams to be high	1	2	3	4	5	6	7	Will always cause my grades on other exams to be high

4. Is the cause of your high grade on this exam something that caused a positive outcome just in this exam grade, or does it also cause positive outcomes in your grades on exams in other Psychology courses? (Circle one number)

Caused a positive outcome just in my grade on this Psychology exam	1	2	3	4	5	6	7	Causes positive outcomes in my grades on all exams in other Psychology courses

5. Is the cause of your high grade on this exam something that caused a positive outcome just in this exam grade, or does it also cause positive outcomes in your grades on exams in courses outside of Psychology? (Circle one number)

Caused a positive outcome just in my grade on this Psychology exam	1	2	3	4	5	6	7	Causes positive outcomes in my grades on all exams in courses outside of Psychology

6. Is the cause of your high grade on this exam something that caused a positive outcome just in this exam grade, or does it also cause positive outcomes in other areas of your life? (Circle one number)

Caused a positive outcome just in my grade on this Psychology exam	1	2	3	4	5	6	7	Causes positive outcomes in all situations in my life

7. Potentially, there are a number of factors that may contribute to a person receiving a grade with which he/she is happy on this Psychology exam. Examples of some of these factors are the person's ability, how hard he/she tried, how easy the exam was, and how lucky he/she was. Questions 8a-d ask how important each of these factors was in determining <u>your</u> grade on this Psychology exam.

8. How important do you think that ability on your part was in determining your grade on the Psychology exam? (Circle one number)

Not at all important	1	2	3	4	5	6	7 Extremely important

9. How important do you think that effort on your part or trying hard was in determining your grade on the Psychology exam? (Circle one number)

Not at all important	1	2	3	4	5	6	7 Extremely important

10. How important do you think that easiness of the questions on the Psychology exam was in determining your grade on the Psychology exam? (Circle one number)

Not at all important	1	2	3	4	5	6	7 Extremely important

11. How important do you think that good luck was in determining your grade on the Psychology exam? (Circle one number)

Not at all important	1	2	3	4	5	6	7 Extremely important

12. How important is it to you that your grade on the Psychology exam is high? (Circle one number)

Not at all important	1	2	3	4	5	6	7 Extremely important

Questions 13-24 are for people who are <u>not happy</u> with their grade.

First, what is the <u>one</u> major cause of you obtaining a low grade on the Psychology exam?

---

13. **Is it something about you or something about other people or circumstances that caused your low grade on the Psychology exam? (Circle one number)**

Totally caused by other people or circumstances	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Totally caused by me**

14. **In the future, will the cause of your low grade on this exam also cause your grade on the next Psychology exam in this class to be low? (Circle one number.)**

Will not cause my grade on the next Psychology exam to be low	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Will cause my grade on the next psychology exam to be low**

15. **In the future, will the cause of your low grade on the exam also cause your grades on other exams to be low? (Circle one number.)**

Will never cause my grades on other exams to be low	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Will always cause my grades on other exams to be low**

16. **Is the cause of your low grade on this exam something that caused problems just in this exam grade, or does it also cause problems in your grades on exams in other Psychology courses? (Circle one number)**

Caused problems just in my grade on this Psychology exam	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Causes problems in my grades on all exams in other Psychology courses**

17. **Is the cause of your low grade on this exam something that caused problems just in this exam grade, or does it also cause problems in your grades on exams in courses outside of Psychology? (Circle one number)**

Caused a problem just in my grade on this Psychology exam	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Causes problems in my grades on all exams in courses outside of Psychology**

18. Is the cause of your low grade on this exam something that caused a problem just in this exam grade, or does it also cause problems in other areas of your life? (Circle one number)

Caused a problem just in my grade on this Psychology exam	1	2	3	4	5	6	7	Causes problems in all situations in my life

19. Potentially, there are a number of factors that may contribute to a person receiving a grade with which he/she is <u>not</u> happy on this Psychology exam. Examples of some of these factors are the person's lack of ability, how little he/she tried, how difficult the exam was, and how unlucky he/she was. Questions 17a-d ask how important each of these factors was in determining <u>your</u> grade on this Psychology exam.

20. How important do you think that a lack of ability on your part was in determining your grade on the Psychology exam? (Circle one number)

Not at all important 1 2 3 4 5 6 7 Extremely important

21. How important do you think that a lack of effort on your part or not trying hard was in determining your grade on the Psychology exam? (Circle one number)

Not at all important 1 2 3 4 5 6 7 Extremely important

22. How important do you think that difficulty of the questions on the Psychology exam was in determining your grade on the exam? (Circle one number)

Not at all important 1 2 3 4 5 6 7 Extremely important

23. How important do you think that bad luck was in determining your grade on the Psychology exam? (Circle one number)

Not at all important 1 2 3 4 5 6 7 Extremely important

24. How important is it to you that your grade on the Psychology exam is low? (Circle one number)

Not at all important 1 2 3 4 5 6 7 Extremely important

APPENDIX C

Grade Aspirations Questionnaire

AQ

STUDENT ID#: _____ DATE: _____

Instructions:

Please answer each of the questions that follow. Read each question carefully before responding.

1. What grade do you expect to receive on the first midterm exam in this Psychology course? (Choose one answer, a-h)

   a)4.0 b)3.5 c)3.0 d)2.5 e)2.0 f)1.5 g)1.0 h)0.0

2. What grade would you consider a failure on the first midterm exam in this Psychology course? (Choose one answer, a-h)

   a)4.0 b)3.5 c)3.0 d)2.5 e)2.0 f)1.5 g)1.0 h)0.0

3. What grade would you consider a success on the first midterm exam in this Psychology course? (Choose one answer, a-h)

   a)4.0 b)3.5 c)3.0 d)2.5 e)2.0 f)1.5 g)1.0 h)0.0

4. What grade would you be unhappy with on the first midterm exam in this Psychology course? (Choose one answer, a-h)

   a)4.0 b)3.5 c)3.0 d)2.5 e)2.0 f)1.5 g)1.0 h)0.0

5. What grade would you be happy with on the first midterm exam in this Psychology course? (Choose one answer, a-h)

   a)4.0 b)3.5 c)3.0 d)2.5 e)2.0 f)1.5 g)1.0 h)0.0

6. What grade on the first midterm exam in this Psychology course would make you feel hopeless about getting a good grade on the next midterm exam in this course? (Choose one answer, a-i)

   a)4.0 b)3.5 c)3.0 d)2.5 e)2.0 f)1.5 g)1.0 h)0.0

   i) There is no grade on the first midterm exam that would make me feel hopeless about getting a good grade on the next midterm exam in this course.

7. What grade on the first midterm exam in this Psychology course would make you feel hopeful or confident about getting a good grade on the next midterm exam in this course? (Coose one answer, a-i)

   a)4.0 b)3.5 c)3.0 d)2.5 e)2.0 f)1.5 g)1.0 h)0.0

   i) There is no grade on the first midterm exam that would make me feel hopeful or confident about getting a good grade on the next midterm exam in this course.

8. What grade on the first midterm exam in this Psychology course would make you feel <u>hopeless about getting a good grade in the course as a whole</u>? (Choose one answer, a-i)

a)4.0 b)3.5 c)3.0 d)2.5 e)2.0 f)1.5 g)1.0 h)0.0

i) There is no grade on the first midterm exam that would make me feel hopeless about getting a good grade in the course as a whole.

9. What grade on the first midterm exam in this Psychology course would make you feel <u>hopeful or confident about getting a good grade in the course as a whole</u>? (Choose one answer, a-i)

a)4.0 b)3.5 c)3.0 d)2.5 e)2.0 f)1.5 g)1.0 h)0.0

i) There is no grade on the first midterm exam that would make me feel hopeful or confident about getting a good grade in the next the course as a whole.

10. What grade on the first midterm exam in this Psychology course would make you feel <u>hopeless about school in general</u>? (Choose one answer, a-i)

a)4.0 b)3.5 c)3.0 d)2.5 e)2.0 f)1.5 g)1.0 h)0.0

i) There is no grade on the first midterm exam that would make me feel hopeless about school in general.

11. What grade on the first midterm exam in this Psychology course would make you feel <u>hopeful or confident about school in general</u>? (Choose one answer, a-i)

a)4.0 b)3.5 c)3.0 d)2.5 e)2.0 f)1.5 g)1.0 h)0.0

i) There is no grade on the first midterm exam that would make me feel hopeful or confident about school in general.

APPENDIX D

Multiple Affect Adjective Check List-Revised, Today Form

MULTIPLE AFFECT ADJECTIVE CHECK LIST

STATE / TODAY FORM

By Marvin Zuckerman
and
Bernard Lubin

Name..... Age..... Sex.....

Date..... Highest grade completed in school.....

DIRECTIONS: On this sheet you will find words which describe different kinds of moods and feelings. Mark an ☒ in the boxes beside the words which describe how you feel now - today. Some of the words may sound alike, but we want you to check all the words that describe your feelings. Work rapidly.

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MAA 001

			A	D		H	
			PA	SS			
1	☐	active	45	☐	fit	89	☐ peaceful
2	☐	adventurous	46	☐	forlorn	90	☐ pleased
3	☐	affectionate	47	☐	frank	91	☐ pleasant
4	☐	afraid	48	☐	free	92	☐ polite
5	☐	agitated	49	☐	friendly	93	☐ powerful
6	☐	agreeable	50	☐	frightened	94	☐ quiet
7	☐	aggressive	51	☐	furious	95	☐ reckless
8	☐	alive	52	☐	lively	96	☐ rejected
9	☐	alone	53	☐	gentle	97	☐ rough
10	☐	amiable	54	☐	glad	98	☐ sad
11	☐	amused	55	☐	gloomy	99	☐ safe
12	☐	angry	56	☐	good	100	☐ satisfied
13	☐	annoyed	57	☐	good-natured	101	☐ secure
14	☐	awful	58	☐	grim	102	☐ shaky
15	☐	bashful	59	☐	happy	103	☐ shy
16	☐	bitter	60	☐	healthy	104	☐ soothed
17	☐	blue	61	☐	hopeless	105	☐ steady
18	☐	bored	62	☐	hostile	106	☐ stubborn
19	☐	calm	63	☐	impatient	107	☐ stormy
20	☐	cautious	64	☐	incensed	108	☐ strong
21	☐	cheerful	65	☐	indignant	109	☐ suffering
22	☐	clean	66	☐	inspired	110	☐ sullen
23	☐	complaining	67	☐	interested	111	☐ sunk
24	☐	contented	68	☐	irritated	112	☐ sympathetic
25	☐	contrary	69	☐	jealous	113	☐ tame
26	☐	cool	70	☐	joyful	114	☐ tender
27	☐	cooperative	71	☐	kindly	115	☐ tense
28	☐	critical	72	☐	lonely	116	☐ terrible
29	☐	cross	73	☐	lost	117	☐ terrified
30	☐	cruel	74	☐	loving	118	☐ thoughtful
31	☐	daring	75	☐	low	119	☐ timid
32	☐	desperate	76	☐	lucky	120	☐ tormented
33	☐	destroyed	77	☐	mad	121	☐ understanding
34	☐	devoted	78	☐	mean	122	☐ unhappy
35	☐	disagreeable	79	☐	meek	123	☐ unsociable
36	☐	discontented	80	☐	merry	124	☐ upset
37	☐	discouraged	81	☐	mild	125	☐ vexed
38	☐	disgusted	82	☐	miserable	126	☐ warm
39	☐	displeased	83	☐	nervous	127	☐ whole
40	☐	energetic	84	☐	obliging	128	☐ wild
41	☐	enraged	85	☐	offended	129	☐ willful
42	☐	enthusiastic	86	☐	outraged	130	☐ wilted
43	☐	fearful	87	☐	panicky	131	☐ worrying
44	☐	fine	88	☐	patient	132	☐ young

APPENDIX E

Beck Depression Inventory

Date: _____

Name: _____ Marital Status: _____ Age: _____ Sex: _____

Occupation: _____ Education: _____

This questionnaire consists of 21 groups of statements. After reading each group of statements carefully, circle the number (0, 1, 2 or 3) next to the one statement in each group which **best** describes the way you have been feeling the **past week, including today.** If several statements within a group seem to apply equally well, circle each one. **Be sure to read all the statements in each group before making your choice.**

1	0	I do not feel sad.
	1	I feel sad.
	2	I am sad all the time and I can't snap out of it.
	3	I am so sad or unhappy that I can't stand it.
2	0	I am not particularly discouraged about the future.
	1	I feel discouraged about the future.
	2	I feel I have nothing to look forward to.
	3	I feel that the future is hopeless and that things cannot improve.
3	0	I do not feel like a failure.
	1	I feel I have failed more than the average person.
	2	As I look back on my life, all I can see is a lot of failures.
	3	I feel I am a complete failure as a person.
4	0	I get as much satisfaction out of things as I used to.
	1	I don't enjoy things the way I used to.
	2	I don't get real satisfaction out of anything anymore.
	3	I am dissatisfied or bored with everything.
5	0	I don't feel particularly guilty.
	1	I feel guilty a good part of the time.
	2	I feel quite guilty most of the time.
	3	I feel guilty all of the time.
6	0	I don't feel I am being punished.
	1	I feel I may be punished.
	2	I expect to be punished.
	3	I feel I am being punished.
7	0	I don't feel disappointed in myself.
	1	I am disappointed in myself.
	2	I am disgusted with myself.
	3	I hate myself.
8	0	I don't feel I am any worse than anybody else.
	1	I am critical of myself for my weaknesses or mistakes.
	2	I blame myself all the time for my faults.
	3	I blame myself for everything bad that happens.
9	0	I don't have any thoughts of killing myself.
	1	I have thoughts of killing myself, but I would not carry them out.
	2	I would like to kill myself.
	3	I would kill myself if I had the chance.
10	0	I don't cry any more than usual.
	1	I cry more now than I used to.
	2	I cry all the time now.
	3	I used to be able to cry, but now I can't cry even though I want to.
11	0	I am no more irritated now than I ever am.
	1	I get annoyed or irritated more easily than I used to.
	2	I feel irritated all the time now.
	3	I don't get irritated at all by the things that used to irritate me.
12	0	I have not lost interest in other people.
	1	I am less interested in other people than I used to be.
	2	I have lost most of my interest in other people.
	3	I have lost all of my interest in other people.
13	0	I make decisions about as well as I ever could.
	1	I put off making decisions more than I used to.
	2	I have greater difficulty in making decisions than before.
	3	I can't make decisions at all anymore.

_____ Subtotal Page 1 **CONTINUED ON BACK**

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14
0 I don't feel I look any worse than I used to.
1 I am worried that I am looking old or unattractive.
2 I feel that there are permanent changes in my appearance that make me look unattractive.
3 I believe that I look ugly.

15
0 I can work about as well as before.
1 It takes an extra effort to get started at doing something.
2 I have to push myself very hard to do anything.
3 I can't do any work at all.

16
0 I can sleep as well as usual.
1 I don't sleep as well as I used to.
2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
3 I wake up several hours earlier than I used to and cannot get back to sleep.

17
0 I don't get more tired than usual.
1 I get tired more easily than I used to.
2 I get tired from doing almost anything.
3 I am too tired to do anything.

18
0 My appetite is no worse than usual.
1 My appetite is not as good as it used to be.
2 My appetite is much worse now.
3 I have no appetite at all anymore.

19
0 I haven't lost much weight, if any, lately.
1 I have lost more than 5 pounds.
2 I have lost more than 10 pounds.
3 I have lost more than 15 pounds.

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

20
0 I am no more worried about my health than usual.
1 I am worried about physical problems such as aches and pains; or upset stomach; or constipation.
2 I am very worried about physical problems and it's hard to think of much else.
3 I am so worried about my physical problems that I cannot think about anything else.

21
0 I have not noticed any recent change in my interest in sex.
1 I am less interested in sex than I used to be.
2 I am much less interested in sex now.
3 I have lost interest in sex completely.

_____ Subtotal Page 2

_____ Subtotal Page 1

_____ Total Score

APPENDIX F

Beck Hopelessness Scale

STUDENT ID _____ DATE _____

Beck, Weissman, Lester, and Trexler
HS Scale

Your answers to the items on this inventory are to be recorded on a separate answer sheet which is attached. Print your name and student ID# on the answer sheet, then finish reading these directions.

Read each statement and then blacken the appropriate number on the answer sheet to indicate whether the statement is true or false when applied to you. Use the following scale:

1. True
2. False

This is a questionnaire to find out the way in which you view your expectancies for the future. Each item is a statement about the future. Please read each item and determine whether it is TRUE or FALSE as applied to you. This is a measure of personal belief: obviously there are no right or wrong answers.

22. I look forward to the future with hope and enthusiasm.

23. I might as well give up because I can't make things better for myself.

24. When things are going badly, I am helped by knowing they can't stay that way forever.

25. I can't imagine what my life would be like in 10 years.

26. I have enough time to accomplish the things I most want to do.

27. In the future, I expect to succeed in what concerns me most.

28. My future seems dark to me.

29. I expect to get more of the good things in life than the average person.

(Continued on next page)

30. I just don't get the breaks, and there's no reason to believe I will in the future.

31. My past experiences have prepared me well for my future.

32. All I can see ahead of me is unpleasantness rather than pleasantness.

33. I don't expect to get what I really want.

34. When I look ahead to the future, I expect I will be happier than I am now.

35. Things just won't work out the way I want them to.

36. I have great faith in the future.

37. I never get what I want so it's foolish to want anything.

38. It is very unlikely that I will get any real satisfaction in the future.

39. The future seems vague and uncertain to me.

40. I can look forward to more good times than bad times.

41. There's no use in really trying to get something I want because I probably won't get it.

APPENDIX G

Life Events Inventory

STUDENT ID# _____ DATE _____

The Life Experiences Inventory

Listed on the following pages are a number of events which sometimes bring about changes in the lives of those who experience them and which necessitate social readjustment.

Please rate those events which you have experienced in the last six months. To do this, blacken in the appropriate number on the answer sheet from 1 to 7 to indicate the extent to which you viewed the event as having either a positive or negative impact on your life at the time the event occurred. That is, indicate the type and extent of impact that the event had. A rating of 1 would indicate an extremely negative impact. A rating of 7 would indicate an extremely positive impact. (See example below)

Please indicate those events which you have NOT experienced in the last six months or which are not appropriate to you, but do NOT rate those events. To do this, blacken in the number 10 on the answer sheet. (See example below).

		1 2 3 4 5 6 7 8 9 10
1. =	extremely negative ----->	● O O O O O O O O O
		1 2 3 4 5 6 7 8 9 10
2. =	moderately negative ---->	O ● O O O O O O O O
		1 2 3 4 5 6 7 8 9 10
3. =	somewhat negative ------>	O O ● O O O O O O O
		1 2 3 4 5 6 7 8 9 10
4. =	no impact -------------->	O O O ● O O O O O O
		1 2 3 4 5 6 7 8 9 10
5. =	slightly positive ------>	O O O O ● O O O O O
		1 2 3 4 5 6 7 8 9 10
6. =	moderately positive ---->	O O O O O ● O O O O
		1 2 3 4 5 6 7 8 9 10
7. =	extremely positive ----->	O O O O O O ● O O O
		1 2 3 4 5 6 7 8 9 10
10.=	I have NOT experienced -> this event in the last six months or it is not appropriate to me	O O O O O O O O O ●

49. Marriage
50. Detention in jail or comparable institution.
51. Death of a spouse
52. Major change in sleeping habits (much more or less sleep)

Death of a close family member:

53. Mother
54. Father
55. Brother
56. Sister
57. Grandmother
58. Grandfather
59. Other (specify)_____

		1 2 3 4 5 6 7 8 9 10
1. =	extremely negative ----->	● O O O O O O O O O
		1 2 3 4 5 6 7 8 9 10
2. =	moderately negative ---->	O ● O O O O O O O O
		1 2 3 4 5 6 7 8 9 10
3. =	somewhat negative ------>	O O ● O O O O O O O
		1 2 3 4 5 6 7 8 9 10
4. =	no impact -------------->	O O O ● O O O O O O
		1 2 3 4 5 6 7 8 9 10
5. =	slightly positive ------>	O O O O ● O O O O O
		1 2 3 4 5 6 7 8 9 10
6. =	moderately positive ---->	O O O O O ● O O O O
		1 2 3 4 5 6 7 8 9 10
7. =	extremely positive ----->	O O O O O O ● O O O
		1 2 3 4 5 6 7 8 9 10
10.=	<u>I have NOT experienced</u> ->	O O O O O O O O O ●
	<u>this event in the last six months or it is not appropriate to me</u>	

60. Major change in eating habits (much more or much less food intake)
61. Foreclosure on mortgage or loan
62. Death of a close friend
63. Outstanding personal achievement
64. Minor law violations (traffic tickets, disturbing the peace, etc.)
65. <u>Male</u>: Wife/girlfriend's pregnancy
    <u>Female</u>: Pregnancy
66. Changed work situation (different work responsibility, major change in working conditions, working hours, etc.)
67. New Job

Serious illness or injury of close family member:
- 68. Father
- 69. Mother
- 70. Sister
- 71. Brother
- 72. Grandfather
- 73. Grandmother
- 74. Spouse
- 75. Other (specify)_____

76. Sexual difficulties
77. Trouble with employer (in danger of losing job, being suspended, demoted, etc.)
78. Trouble with in-laws
79. Major change in financial status (a lot better off or a lot worse off)
80. Major change in closeness of family members (increased or decreased closeness)
81. Gaining a new family member (through birth, adoption, family member moving in, etc.)

		1 2 3 4 5 6 7 8 9 10
1. =	extremely negative ----->	● O O O O O O O O O
		1 2 3 4 5 6 7 8 9 10
2. =	moderately negative ---->	O ● O O O O O O O O
		1 2 3 4 5 6 7 8 9 10
3. =	somewhat negative ------>	O O ● O O O O O O O
		1 2 3 4 5 6 7 8 9 10
4. =	no impact --------------->	O O O ● O O O O O O
		1 2 3 4 5 6 7 8 9 10
5. =	slightly positive ------>	O O O O ● O O O O O
		1 2 3 4 5 6 7 8 9 10
6. =	moderately positive ---->	O O O O O ● O O O O
		1 2 3 4 5 6 7 8 9 10
7. =	extremely positive ----->	O O O O O O ● O O O
		1 2 3 4 5 6 7 8 9 10
10.=	<u>I have NOT experienced</u> -> <u>this event in the last six months or it is not appropriate to me</u>	O O O O O O O O O ●

82. Change of residence
83. Marital separation from mate (due to conflict)
84. Major change in church activities (increased or decreased attendance)
85. Marital reconciliation with mate
86. Major change in number of arguments with spouse (a lot more or a lot less arguments)
87. <u>Married male</u>: Change in wife's work outside the home (beginning work, ceasing work, changing to a new job, etc.)
    <u>Married female</u>: Change in husband's work (loss of job, beginning new job, retirement, etc.)
88. Major change in usual type and/or amount of recreation
89. Borrowing more than $10,000 (buying home, business, etc.)
90. Borrowing less than $10,000 (buying car, TV, getting school loan, etc.)
91. Being fired from job
92. <u>Male</u>: Wife/girlfriend having abortion
    <u>Female</u>: Having abortion
93. Major personal illness or injury
94. Major change in social activities, e.g. parties, movies, visiting (increased or decreased participation)
95. Major change in living conditions of family (building new home, remodeling, deterioration of home, neighborhood, etc.)
96. Divorce
97. Serious injury or illness of a close friend
98. Retirement from work
99. Son or daughter leaves home (due to marriage, college, etc.)
100. Ending of formal schooling

		1 2 3 4 5 6 7 8 9 10
1. =	extremely negative ----->	● O O O O O O O O O
2. =	moderately negative ---->	O ● O O O O O O O O
3. =	somewhat negative ------>	O O ● O O O O O O O
4. =	no impact -------------->	O O O ● O O O O O O
5. =	slightly positive ------>	O O O O ● O O O O O
6. =	moderately positive ---->	O O O O O ● O O O O
7. =	extremely positive ----->	O O O O O O ● O O O
10.=	I have NOT experienced -> this event in the last six months or it is not appropriate to me	O O O O O O O O O ●

101. Separation from spouse (due to work, travel, etc.)
102. Engagement
103. Breaking up with boyfriend/girlfriend
104. Leaving home for the first time
105. Reconciliation with boyfriend/girlfriend

Other recent experiences which have had an impact on your life. List and rate.

106. _____
107. _____
108. _____

109. Beginning a new school experience at a higher academic level (college, graduate school, professional school, etc.)
110. Changing to a new school at same academic level (undergraduate, graduate, etc.)
111. Academic probation
112. Being dismissed from dormitory or other residence
113. Failing an important exam
114. Changing a major
115. Failing a course
116. Dropping a course
117. Joining a fraternity/sorority
118. Financial problems concerning school (in danger of not having sufficient money to continue

APPENDIX H

Solicitation Speech for "The Mood Study"

SOLICITATION SPEECH TO BE READ TO STUDENTS IN PARTICIPATING CLASSES PRIOR TO THEIR COMPLETING CONSENT FORMS

THE MOOD STUDY

Your instructor has consented to let us conduct a study in this class. First, we would like to tell you a little about the study, and what your participation in the study will involve. Then we will pass out consent forms for each of you to complete should you agree to participate in the study. Individual participation in this study is voluntary.

This study will require that you complete a questionnaire in class several times along the course of the term. The questionnaire will be given often, but not in every class. You will not be told in advance when the questionnaire will or will not be given. The questionnaire is a measure of affective state, and we will be looking at group affective states over time. A handout explaining the study in more detail will be provided shortly after you complete the last questionnaire in this study. Data from this study may be combined with data from other studies in this or other classes.

Participants will be expected to complete the questionnaire every time it is given in class. However, should you miss a class when the questionnaire was given, you should still continue to complete the questionnaire each time it is given when you are in class. Participants should always fill out the questionnaire when it is given when they are in class. Never skip it just because you have missed filling it out other times it has been given.

---> Are there any questions at this time?**

We will now pass out consent forms for this study. You should read them thoroughly. Then, if you agree to participate in the study, please sign the form, and put your Student ID# and today's date on the lines provided.

Thank you very much for your time and cooperation.

---> ** If any questions are asked by the students, the following procedure should be followed.

1. If a student's question can be answered by repeating one or more of the sentences from the speech above, then those sentences will be reread in response to the question.

2. If a student's question cannot be answered by repeating one or more of the sentences from the speech above, then the following reply will be given to the student's question:

We cannot answer that question now because it may interfere with the study. However, once the study is completed, we will be happy to answer that or any question about the study.

APPENDIX I

Solicitation Speech for the "Personality Style" Study

SOLICITATION SPEECH TO BE READ TO STUDENTS IN PARTICIPATING CLASSES PRIOR TO THEIR COMPLETING CONSENT FORMS

PERSONALITY STYLE

Your teacher has consented to let us conduct a study in this class. First, we would like to tell you a little about the study, and what your participation in the study will involve. Then we will pass out consent forms for each of you to complete should you agree to participate in the study. Individual participation in this study is voluntary.

This study will require that you complete four questionnaires in an out of class setting, and three questionnaires in class. To complete the out of class questionnaires, you will need to sign up for a 30 minute questionnaire session on one of the sign up sheets posted in the back of the classroom. A wide variety of times are available for those questionnaire sessions to make that part of the study as convenient for you as possible. The first of the measures to be completed in class will be given today. The second and third in-class questionnaires will be given at a different time later in the term. The questionnaires measure various aspects of personality and style. The experimenter will compare group results for relationships between these measures. A handout explaining the study in more detail will be provided shortly after you complete the last questionnaire in this study. Data from this study may be combined with data from other studies in this or other classes.

---> Are there any questions at this time?**

¦
¦ We will now pass out consent forms for this study. You
¦ should read them thoroughly. Then, if you agree to participate
¦ in the study, please sign the form, and put your Student ID# and
¦ today's date on the lines provided.
¦
¦ Thank you very much for your time and cooperation.
¦

---> ** If any questions are asked by the students, the following procedure should be followed:

1. If a student's question can be answered by repeating one or more of the sentences from the speech above, then those sentences will be reread in response to the question.

2. If a student's question cannot be answered by repeating one or more of the sentences from the speech above, then the following reply will be given to the student's question:

We cannot answer that question now because it may interfere with the study. However, once the study is completed, we will be happy to answer that or any question about the study.

APPENDIX J

Subject Debriefing Information Handout

DEBRIEFING INFORMATION FOR PARTICIPANTS IN STUDIES CONDUCTED BY MARK H. WAGNER IN SPRING OF 1988

This handout is for students who participated in either or both of the studies (The Mood Study, and Personality and Style) conducted by Mark H. Wagner in Dr. Lindel's PSY 215 class or Leslie Wolowitz's PSY 160 class in Spring of 1988. As each of these studies were part of a larger study, the larger study will be explained here.

THE THEORY BEHIND THE STUDY

The purpose of this study was to to examine the validity of HOPELESSNESS THEORY OF DEPRESSION (HTD). This theory suggests that some people have a way of thinking that makes them susceptible to becoming depressed (i.e. hopelessness depression, one of many types of depression). This way of thinking is called a depressogenic attributional style (DAS) because these people have a tendency to attribute the cause of important negative life events to causes that are internal, global, and stable. For example, if someone attributed being rejected by a member of the opposite sex to their not being attractive to any members of the opposite sex, they would be making a depressogenic attribution. It attributes the cause of the event (being rejected by a member of the opposite sex) to a cause that is internal (being unattractive is a personal characteristic), global (feeling unattractive to any member of the opposite sex, not just the one who rejected them), and stable (usually one's attractiveness does not change very quickly).

According to HTD, it takes more than a DAS for someone to become depressed. One first needs to experience an important negative life event (INLE) to make depressogenic attributions about. That is, an INLE must happen to a person with a DAS to bring about a hopelessness depression in that person.

HTD also suggests that the relationship between a DAS and the onset of hopelessness depression in the presence of an INLE is mediated by the actual attributions one makes about the cause of that event. Recall that a DAS is only a tendency to make depressogenic attributions. HTD suggests that one will develop hopelessness depression only if one makes an actual depressogenic attribution (internal, global and stable) about the cause of an INLE.

So the chain of events that typically lead to the development of hopelessness depression are as follows: First, a person has a DAS. Second, that person experiences an INLE. Third, the person actually attributes the cause of that INLE to internal, global and stable causes. Fourth, making those attributions makes that person feel hopeless and thereby brings about hopelessness depression.

HOW THE STUDY TESTED THE THEORY

First, it is important to understand that both of the studies conducted by Mark H. Wagner in this class were part of the same test of HTD. This study was presented to you as two separate studies to make it less likely that you would guess what the study was testing, which might have biased the data.

The questionnaires that were used during the 30 minute questionnaire session that took place out of your class measured depressive symptoms, feelings of hopelessness, DAS, and recent INLEs you may have experienced. The questionnaire that you completed repeated times in class was a measure of transient depressive mood (TDM). The questionnaire that you completed in class at the beginning of the term measured your own internal standard for what you would consider a good or a bad grade on your first midterm exam. You were not told that the last measure of TDM was going to be two days after receiving your midterm exam grades so you would not suspect that the study was measuring your moods around receiving your grades.

The following is an explanation of this study's test of the DAS-INLE interaction in causing hopelessness depression. Students data will be divided into the following groups:

1) DAS, low exam grade. 2) Non-DAS, low exam grade.
3) DAS, high exam grade. 4) Non-DAS high exam grade.

A low exam grade (relative to your own standard) is assumed to be an INLE. It is predicted that only group number 1 will show a lasting (2 days) increase in depressive mood in response to the receipt of their exam grades.

The following is an explanation of the study's test of the the mediation role actual attributions play in how DAS and INLEs interact to cause hopelessness depression. After receiving your exam grades, you completed a questionnaire that measured the actual attributions you made regarding why you performed the way you did on the exam. It is predicted that those who had DAS at baseline made depressogenic attributions for how they did on their exam. It is also predicted that these actual attributions will correlate positively with increases in depressive mood for those who received a low exam grade. Finally, it is predicted that students actual attributions regarding their exam performance will better predict their changes in TDM than will their baseline measures of DAS.

The last questionnaire given to you was a measure of hopelessness. HTD suggests that hopelessness depression is ultimately due to the development of feelings of hopelessness. Therefore, it is predicted that only students from group number 1 (above) will show elevated feelings of hopelessness from baseline to this last measure.

Finally, it is important to note that DAS, depressive mood, and feelings of hopelessness occur in varying degrees and might change over time. Therefore, if your responses on measures used in this study suggested mood change, it does not necessarily mean that your mood change warranted any concern since most peoples' moods vary from day to day. If however, you are concerned about any feelings you think may have been precipitated by this study, please contact Mark H. Wagner through the graduate office of Psychology at Snyder Hall (355-9561) or Dozier W. Thornton through the Psychology office at R.E. Olds Hall (353-3249).

I want to thank you for participating in my study. If you have any further questions about this study, or are interested in learning the results of the study, feel free to contact me through that graduate office of Psychology in Snyder Hall.

APPENDIX K

Tests for Homogeneity of Regression for Analyses of Partial Variance

Table A

Summary of Tests for Homogeneity of Regression for Analyses of Partial Variance

cf. Table	Predictors in set: Simultaneous entry of the products of the covariate with each independent variable for the equation	Cum. R^2	sr^2	F for increment in R^2 for set	Sig. F (p=)	t for within-set predictors	Sig. t (p=)	df	pr	pr^2
1	Set	.28	.10	1.53	.22			7,35	.35	.12
	Baseline MAACL-R * Exam Outcome					.06	.95	35	.01	.00
	Baseline MAACL-R * ASQ					.81	.42	35	.14	.02
	Baseline MAACL-R * ASQ * Exam Outcome					-.59	.56	35	-.10	.01
2	Set	.22	.02	.34	.79			7,35	.16	.03
	Baseline MAACL-R * Exam Outcome					.55	.58	35	.09	.01
	Baseline MAACL-R * ASQ					-.74	.46	35	-.12	.02
	Baseline MAACL-R * ASQ * Exam Outcome					-.65	.51	35	-.11	.01
3	Baseline MAACL-R * ASQ	.02	.01	.07	.80			3,13	.07	.01
4	Baseline MAACL-R * ASQ	.04	.03	.35	.56			3,13	.16	.03
5	Baseline MAACL-R * ASQ	.29	.02	.73	.40			3,22	.18	.03
6	Baseline MAACL-R * ASQ	.10	.03	.63	.43			3,22	.17	.03
10	Baseline MAACL-R * PAQ	.03	.00	.00	.97			3,13	-.04	.00
11	Baseline MAACL-R * PAQ	.28	.00	.05	.82			3,13	-.06	.00
12	Set	.14	.10	.60	.56			5,11	.32	.10
	Baseline MAACL-R * PAQ					-1.10	.29	11	-.31	.10
	Baseline MAACL-R * ASQ					1.07	.31	11	.31	.09
13	Set	.65	.21	3.36	.07			5,11	.62	.38
	Baseline MAACL-R * PAQ					1.58	.14	11	.43	.19
	Baseline MAACL-R * ASQ					-2.16	.05	11	-.55	.30
14	Baseline MAACL-R * Time 3 Hopelessness	.05	.00	.05	.82			3,12	-.07	.00
15	Baseline MAACL-R * Time 3 Hopelessness	.00	.00	.02	.90			3,12	-.04	.00
16	Baseline MAACL-R * Change in hopelessness	.10	.08	1.08	.32			3,12	-.29	.08
17	Baseline MAACL-R * Change in hopelessness	.16	.14	.50	.49			3,12	-.20	.04

Note. For each Table referred to, the regression step shown was the last step entered into the corresponding analysis of partial variance. MAACL-R = score on the Multiple Affect Adjective Check List-Revised, ASQ = average of scores on the Stability and Globality subscales for negative achievement outcomes on the modified Attributional Style Questionnaire, and PAQ = average of scores on the Stability and Globality subscales for the Particular Attributions Questionnaire. The test for Table 19 is not shown because Metalsky et al. (1987) did not provide this information. The test for Table 20 is the same as for Table 2, since they report the same APV. Cum. R^2 = cumulative R^2, sr^2 = increment in R^2 for the set, Sig. F = p value for given F statistic, Sig. t = p value for given t statistic, pr = partial correlation, pr^2 = squared partial correlation.

APPENDIX L

Correlation Matrices of All Independent and Dependent Variables for Various Portions of the Full Subject Sample

Table B

Correlation Matrix of All Variables for Subjects With Complete Data, a Low Beck Depression Inventory Score, and No Recent Important Negative Life Events

	Baseline MAACL-R Dep.	Time 2 MAACL-R Dep.	Time 3 MAACL-R Dep.	Attributional Style for Achievement	Attribution for Exam Performance	Subjective Exam Outcome	Objective Exam Grade	Baseline Hopelessness	Time 3 Hopelessness	Baseline to Time 3 Change in Hopelessness	Beck Dep. Inventory	Negative Life Event Status
Baseline MAACL-R Depression	1.00											
Time 2 MAACL-R Depression	.00	1.00										
Time 3 MAACL-R Depression	.40**	-.04	1.00									
Attributional Style for Achievement	.05	.02	.01	1.00								
Attribution for Exam Performance	-.08	.45**	.10	.33*	1.00							
Subjective Exam Outcome	.04	.44**	-.13	.12	-.62**	1.00						
Objective Exam Grade	-.07	.12	-.03	.22	-.22	.47**	1.00					
Baseline Hopelessness	.01	.37*	.11	.13	.00	.14	-.06	1.00				
Time 3 Hopelessness	.19	.08	.24	.29	.12	.11	-.15	.54**	1.00			
Baseline to Time 3 Change in Hopelessness	.19	-.31	.14	.17	.13	-.04	-.07	-.50**	.46**	1.00		
Beck Depression Inventory	.15	.21	.34	.31*	.12	-.07	-.26	.38*	.36*	-.02	1.00	
Negative Life Event Status												1.00

Note. n = 43. This data is based on the fully selected research sample. Beck Depression Inventory score is nine or lower. Subjects reported no extremely negative life events occuring in the past six months. Due to selection, there is no variation in Negative Life Event Status. * = $p < .05$, ** = $p < .01$.

Table C

Correlation Matrix of All Variables for Subjects With Complete Data, a Low Beck Depression Inventory Score, No Recent Important Negative Life Events, and Who Had a Negative Exam Outcome

	Baseline MAACL-R Dep.	Time 2 MAACL-R Dep.	Time 3 MAACL-R Dep.	Attributional Style for Achievement	Attribution for Exam Performance	Subjective Exam Outcome	Objective Exam Grade	Baseline Hopelessness	Time 3 Hopelessness	Baseline to Time 3 Change in Hopelessness	Beck Dep. Inventory	Negative Life Event Status
Baseline MAACL-R Depression	1.00											
Time 2 MAACL-R Depression	-.04	1.00										
Time 3 MAACL-R Depression	.11	.02	1.00									
Attributional Style for Achievement	-.04	-.10	.00	1.00								
Attribution for Exam Performance	-.34	-.49*	-.15	.68**	1.00							
Subjective Exam Outcome						1.00						
Objective Exam Grade	-.16	-.19	.15	-.04	.05		1.00					
Baseline Hopelessness	-.15	.46	-.19	.15	-.11		-.01	1.00				
Time 3 Hopelessness	.00	.05	-.19	.36	.11		-.15	.26	1.00			
Baseline to Time 3 Change in Hopelessness	.12	-.35	.04	.10	.18		-.15	-.68**	.53*	1.00		
Beck Depression Inventory	.09	.41	-.12	.21	-.25		-.25	.46	.24	-.22	1.00	
Negative Life Event Status												1.00

Note. n = 17. This data is based on subset the fully selected research sample. Beck Depression Inventory score is nine or lower. Subjects reported no extremely negative life events occuring in the past six months. Subjects reported being "not happy" with their grade. Due to selection, there is no variation in Negative Life Event Status, or in Subjective Exam Outcome. * = $p < .05$, ** = $p < .01$.

Table D

Correlation Matrix of All Variables for Subjects With Complete Data, a Low Beck Depression Inventory Score, No Recent Important Negative Life Events, and Who Had a Positive Exam Outcome

	Baseline MAACL-R Dep.	Time 2 MAACL-R Dep.	Time 3 MAACL-R Dep.	Attributional Style for Achievement	Attribution for Exam Performance	Subjective Exam Outcome	Objective Exam Grade	Baseline Hopelessness	Time 3 Hopelessness	Baseline to Time 3 Change in Hopelessness	Beck Dep. Inventory	Negative Life Event Status
Baseline MAACL-R Depression	1.00											
Time 2 MAACL-R Depression	.21	1.00										
Time 3 MAACL-R Depression	.52**	.16	1.00									
Attributional Style for Achievement	.09	.17	.04	1.00								
Attribution for Exam Performance	.05	-.12	.05	.46*	1.00							
Subjective Exam Outcome						1.00						
Objective Exam Grade	-.07	.11	.01	.28	.12		1.00					
Baseline Hopelessness	.16	.12	.29	.10	.27		-.27	1.00				
Time 3 Hopelessness	.33	.05	.42*	.26	.31		-.27	.85**	1.00			
Baseline to Time 3 Change in Hopelessness	.38	-.14	.33	.35	.13		.03	-.07	.47*	1.00		
Beck Depression Inventory	.20	.21	.48*	.37	.27		-.25	.34	.47*	.31	1.00	
Negative Life Event Status												1.00

Note. n = 26. This data is based on subset the fully selected research sample. Beck Depression Inventory score is nine or lower. Subjects reported no extremely negative life events occuring in the past six months. Subjects reported being "happy" with their grade. Due to selection, there is no variation in Negative Life Event Status, or in Subjective Exam Outcome. * = $p < .05$, ** = $p < .01$.

Table E

Correlation Matrix of All Variables for Subjects With Complete Data

	Baseline MAACL-R Dep.	Time 2 MAACL-R Dep.	Time 3 MAACL-R Dep.	Attributional Style for Achievement	Attribution for Exam Performance	Subjective Exam Outcome	Objective Exam Grade	Baseline Hopelessness	Time 3 Hopelessness	Baseline to Time 3 Change in Hopelessness	Beck Dep. Inventory	Negative Life Event Status
Baseline MAACL-R Depression	1.00											
Time 2 MAACL-R Depression	.30**	1.00										
Time 3 MAACL-R Depression	.43**	.16	1.00									
Attributional Style for Achievement	.17	.32**	.10	1.00								
Attribution for Exam Performance	-.12	-.14	.04	.37**	1.00							
Subjective Exam Outcome	.14	.28**	-.14	.03	-.55**	1.00						
Objective Exam Grade	-.13	.16	-.17	.03	-.25*	.41**	1.00					
Baseline Hopelessness	.40**	.34**	.33**	.20*	.01	.17	-.03	1.00				
Time 3 Hopelessness	.37**	.29**	.39**	.28**	.05	.15	.03	.84**	1.00			
Baseline to Time 3 Change in Hopelessness	-.07	-.09	.09	.13	.06	-.04	.11	-.33**	.24*	1.00		
Beck Depression Inventory	.53**	.32**	.39**	.41**	.06	.04	-.17	.66**	.60**	-.15	1.00	
Negative Life Event Status	.12	.29**	.26**	.19*	-.02	.13	.10	.11	.19	.15	.24*	1.00

Note. n = 108. This data is based on the full subject sample selected for complete data (as opposed to the fully selected research sample). This data is provided for comparitive purposes. * = $p < .05$, ** = $p < .01$.

Table F

Correlation Matrix of All Variables for Subjects With Complete Data, and Who Had a Negative Exam Outcome

	Baseline MAACL-R Dep.	Time 2 MAACL-R Dep.	Time 3 MAACL-R Dep.	Attributional Style for Achievement	Attribution for Exam Performance	Subjective Exam Outcome	Objective Exam Grade	Baseline Hopelessness	Time 3 Hopelessness	Baseline to Time 3 Change in Hopelessness	Beck Dep. Inventory	Negative Life Event Status
Baseline MAACL-R Depression	1.00											
Time 2 MAACL-R Depression	.34*	1.00										
Time 3 MAACL-R Depression	.55**	.15	1.00									
Attributional Style for Achievement	.09	.34*	.02	1.00								
Attribution for Exam Performance	-.14	.06	-.02	.58**	1.00							
Subjective Exam Outcome						1.00						
Objective Exam Grade	-.18	.07	-.30*	.03	-.03		1.00					
Baseline Hopelessness	.50**	.25	.40**	.13	.13		-.13	1.00				
Time 3 Hopelessness	.48**	.16	.39**	.23	.19		-.06	.82**	1.00			
Baseline to Time 3 Change in Hopelessness	-.10	-.17	-.04	.13	.10		.11	-.39**	.20	1.00		
Beck Depression Inventory	.69**	.33*	.58**	.23	.07		-.24	.74**	.67**	-.19	1.00	
Negative Life Event Status	.15	.17	.21	.15	.26		.02	.06	.09	.08	.20	1.00

Note. n = 53. This data is based on the full subject sample selected for complete data (as opposed to the fully selected research sample). Subjects reported being "not happy" with their grade. Due to selection, there is no variation in Subjective Exam Outcome. This data is provided for comparitive purposes. * = $p < .05$, ** = $p < .01$.

Table G

Correlation Matrix of All Variables for Subjects With Complete Data, and Who Had a Positive Exam Outcome

	Baseline MAACL-R Dep.	Time 2 MAACL-R Dep.	Time 3 MAACL-R Dep.	Attributional Style for Achievement	Attribution for Exam Performance	Subjective Exam Outcome	Objective Exam Grade	Baseline Hopelessness	Time 3 Hopelessness	Baseline to Time 3 Change in Hopelessness	Beck Dep. Inventory	Negative Life Event Status
Baseline MAACL-R Depression	1.00											
Time 2 MAACL-R Depression	.14	1.00										
Time 3 MAACL-R Depression	.38**	.30*	1.00									
Attributional Style for Achievement	.26	.33*	.17	1.00								
Attribution for Exam Performance	.07	-.03	-.07	.38**	1.00							
Subjective Exam Outcome						1.00						
Objective Exam Grade	-.26	.02	.04	.02	-.03		1.00					
Baseline Hopelessness	.17	.43**	.37**	.31*	.15		-.08	1.00				
Time 3 Hopelessness	.15	.48**	.48**	.36**	.13		.02	.85**	1.00			
Baseline to Time 3 Change in Hopelessness	.00	.15	.26	.14	-.02		.21	-.19	.35*	1.00		
Beck Depression Inventory	.26	.30*	.23	.63**	.17		-.17	.53**	.48**	-.06	1.00	
Negative Life Event Status	.05	.44**	.34*	.22	-.11		.08	.14	.27*	.29*	.28*	1.00

Note. n = 55. This data is based on the full subject sample selected for complete data (as opposed to the fully selected research sample). Subjects reported being "happy" with their grade. Due to selection, there is no variation in Subjective Exam Outcome. This data is provided for comparitive purposes. * = $p < .05$, ** = $p < .01$.

Table H

Correlation Matrix of All Variables for Subjects With Complete Data and a Low Beck Depression Inventory Score

	Baseline MAACL-R Dep.	Time 2 MAACL-R Dep.	Time 3 MAACL-R Dep.	Attributional Style for Achievement	Attribution for Exam Performance	Subjective Exam Outcome	Objective Exam Grade	Baseline Hopelessness	Time 3 Hopelessness	Baseline to Time 3 Change in Hopelessness	Beck Dep. Inventory	Negative Life Event Status
Baseline MAACL-R Depression	1.00											
Time 2 MAACL-R Depression	.16	1.00										
Time 3 MAACL-R Depression	.28**	.04	1.00									
Attributional Style for Achievement	.12	.33**	.07	1.00								
Attribution for Exam Performance	-.03	-.17	.10	.38**	1.00							
Subjective Exam Outcome	-.01	.25*	-.21*	.11	-.55**	1.00						
Objective Exam Grade	-.07	.12	-.13	.07	-.26*	.46**	1.00					
Baseline Hopelessness	.09	.28**	.23*	.14	.12	-.01	-.04	1.00				
Time 3 Hopelessness	.10	.15	.32**	.29**	.19	-.02	.03	.56**	1.00			
Baseline to Time 3 Change in Hopelessness	.01	-.12	.11	.17	.08	-.01	.08	-.44**	.49**	1.00		
Beck Depression Inventory	.22*	.32**	.36**	.35**	.23*	-.16	-.08	.39**	.39**	.01	1.00	
Negative Life Event Status	.14	.24*	.19	.21	-.03	.12	.10	-.03	.13	.19	.31**	1.00

Note. n = 87. This data is based on the full subject sample selected for complete data (as opposed to the fully selected research sample). Beck Depression Inventory score is nine or lower. This data is provided for comparitive purposes. * = $p < .05$, ** = $p < .01$.

Table I

Correlation Matrix of All Variables for Subjects With Complete Data and a High Beck Depression Inventory Score

	Baseline MAACL-R Dep.	Time 2 MAACL-R Dep.	Time 3 MAACL-R Dep.	Attributional Style for Achievement	Attribution for Exam Performance	Subjective Exam Outcome	Objective Exam Grade	Baseline Hopelessness	Time 3 Hopelessness	Baseline to Time 3 Change in Hopelessness	Beck Dep. Inventory	Negative Life Event Status
Baseline MAACL-R Depression	1.00											
Time 2 MAACL-R Depression	.16	1.00										
Time 3 MAACL-R Depression	.67**	.31	1.00									
Attributional Style for Achievement	-.14	.16	.02	1.00								
Attribution for Exam Performance	-.34	-.03	-.16	.47**	1.00							
Subjective Exam Outcome	.41	.33	.04	-.57**	-.54*	1.00						
Objective Exam Grade	-.19	.37	-.27	-.02	-.23	.31	1.00					
Baseline Hopelessness	.46*	.27	.44*	-.01	-.07	.38	.12	1.00				
Time 3 Hopelessness	.41	.30	.48*	.04	-.08	.35	.20	.93**	1.00			
Baseline to Time 3 Change in Hopelessness	-.19	.04	.07	.14	-.01	-.09	.20	-.26	.11	1.00		
Beck Depression Inventory	.65**	.17	.60**	.41	.12	-.01	-.34	.57**	.44**	-.40	1.00	
Negative Life Event Status	.20	.39	.44*	-.03	.07	.07	.15	.21	.23	.03	.15	1.00

Note. n = 21. This data is based on the full subject sample selected for complete data (as opposed to the fully selected research sample). Beck Depression Inventory score is 10 or higher. This data is provided for comparitive purposes. * = $p < .05$, ** = $p < .01$.

Table J

Correlation Matrix of All Variables for Subjects With Complete Data and No Recent Important Negative Life Events

	Baseline MAACL-R Dep.	Time 2 MAACL-R Dep.	Time 3 MAACL-R Dep.	Attributional Style for Achievement	Attribution for Exam Performance	Subjective Exam Outcome	Objective Exam Grade	Baseline Hopelessness	Time 3 Hopelessness	Baseline to Time 3 Change in Hopelessness	Beck Dep. Inventory	Negative Life Event Status
Baseline MAACL-R Depression	1.00											
Time 2 MAACL-R Depression	.03	1.00										
Time 3 MAACL-R Depression	.36*	-.01	1.00									
Attributional Style for Achievement	.09	-.06	-.06	1.00								
Attribution for Exam Performance	-.16	-.46**	.06	.35*	1.00							
Subjective Exam Outcome	.07	.43**	-.11	.04	-.65**	1.00						
Objective Exam Grade	-.10	.09	-.04	-.12	-.24	.47**	1.00					
Baseline Hopelessness	.05	.27	.03	.26	-.04	.24	.04	1.00				
Time 3 Hopelessness	.12	.02	.12	.34*	.02	.25	.02	.68**	1.00			
Baseline to Time 3 Change in Hopelessness	.09	-.30*	.12	.11	.08	.00	-.02	-.38**	.42**	1.00		
Beck Depression Inventory	.29*	.04	.07	.49**	.06	.03	-.19	.51**	.41**	-.10	1.00	
Negative Life Event Status												1.00

Note. n = 50. This data is based on the full subject sample selected for complete data (as opposed to the fully selected research sample). Subjects reported no extremely negative life events occuring in the past six months. This data is provided for comparitive purposes. * = $p < .05$, ** = $p < .01$.

Table K

Correlation Matrix of All Variables for Subjects With Complete Data and a Recent Important Negative Life Events

	Baseline MAACL-R Dep.	Time 2 MAACL-R Dep.	Time 3 MAACL-R Dep.	Attributional Style for Achievement	Attribution for Exam Performance	Subjective Exam Outcome	Objective Exam Grade	Baseline Hopelessness	Time 3 Hopelessness	Baseline to Time 3 Change in Hopelessness	Beck Dep. Inventory	Negative Life Event Status
Baseline MAACL-R Depression	1.00											
Time 2 MAACL-R Depression	.38**	1.00										
Time 3 MAACL-R Depression	.44**	.12	1.00									
Attributional Style for Achievement	.19	.47**	.12	1.00								
Attribution for Exam Performance	-.09	.06	.03	.41**	1.00							
Subjective Exam Outcome	.17	.17	-.22	-.04	-.45**	1.00						
Objective Exam Grade	-.17	.17	-.29*	-.07	-.25	.36**	1.00					
Baseline Hopelessness	.54**	.34**	.41**	.15	.05	.12	-.08	1.00				
Time 3 Hopelessness	.47**	.33*	.45**	.21	.08	.07	.01	.89**	1.00			
Baseline to Time 3 Change in Hopelessness	-.23	-.05	.01	.10	.06	-.12	.20	-.36**	.10	1.00		
Beck Depression Inventory	.63**	.37**	.47**	.32*	.08	.01	-.21	.73**	.66**	-.25	1.00	
Negative Life Event Status												1.00

Note. n = 58. This data is based on the full subject sample selected for complete data (as opposed to the fully selected research sample). Subjects reported at least one extremely negative life event occuring in the past six months. This data is provided for comparitive purposes. * = $p < .05$, ** = $p < .01$.

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