The Effect of Method of Measurement on Causal Reports: Do People Really Make Self-Serving Attributions?

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ABSTRACT

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Wong and Weiner (1981) hypothesized that their subjects considered external attributions of success and internal attributions of failure, an effect opposite to the self-serving bias common to attribution studies of success and failure, because subjects were requested to ask questions about examination situations. In most attribution studies, subjects asked to provide causal explanations. Two experiments investigated Wong and Weiner's hypothesis, probing whether Wong and Weiner's results occurred because of the method of questioning, the unexpected, low ego-involvement outcomes, or the frequency of response coding employed. Subjects were male and female undergraduate and graduate students, from various departments of Concordia University. Data were gathered in classroom sessions during the Winter session, 1984. In Experiment 1, 249 subjects, using conventional structured measures, reported attributions of hypothetical outcomes similar to those used in Wong and Weiner. Personal expectations and ego-involvement were manipulated. Analyses of Variance showed that subjects made self-serving attributions across levels of expectancy and ego-involvement ($p < .05$), suggesting that subject questioning or method of coding caused Wong and Weiner's findings. In Experiment 2, 486 subjects raised

questions or listed reasons in response to the same hypothetical outcomes. It was found, however, that while subject questioning did contribute to a reverse bias ($p < .05$), expectancy disconfirmation did also ($p < .05$), whereas coding method did not. It is discussed why the findings of the two experiments were dissimilar, how Wong and Weiner's hypothesis only partially explains their results, and why the evidence thus far for subject questioning does not necessarily imply that people do not make self-serving attributions; subject questioning may not reflect actual causal decisions.

This thesis is

lovingly dedicated

to my parents,

Jean-Paul

and

Mary

Leroux

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always just what they are), Melissa (even though we never see each other), Miranda (who presence is always a joy), and Susan (whose friendship extends an ocean of space).

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

PRELUDE

"...What was passing through the bullet-shaped head was a question concerning Mr. Flay's entry. Why had Flay, who never in the normal course of events would have raised an eyebrow to acknowledge his presence—why had he now gone to a part of the castle so foreign to him? And to force a conversation on a personality as unexpansive as his own. He ran his eyes over Mr. Flay in his own peculiarly rapid way and surprised himself by saying suddenly, 'To what may I attribute your presence, Mr. Flay?'"

—Mervyn Peake (Titus Groan)

PREAMBLE - THE STUDY OF CAUSAL ATTRIBUTIONS IN EDUCATIONAL RESEARCH

The present study is an investigation of the effects of method of measurement on the causal attributions reported by experimental subjects for achievement-related outcomes. For the uninitiated reader, it is helpful to first know how attribution theorists define causal attributions, and why attributions are important to educational research. Theorists define causal attributions as the causes people ascribe to events (Jones et al., 1971). In an academic situation, for example, when a student fails an exam, the student may attribute to such causes as low ability, insufficient studying, exam difficulty or bad luck (Weiner, Frieze, Kirk, Reed, Rest, & Rosenbaum, 1971). The study of attributions is important to educational research, because attributions provide a key for understanding how various personal and environmental processes and events operate to influence behaviors which affect achievement. Attributions have been found to be influenced by personal and environmental factors found in academic conditions such as sex of attributor, need for achievement, mood, performance of others, and classroom reward structure (Zuckerman, 1979; Ames & Ames, 1981). In turn, attributions have been found to influence affects, such as feelings of competence and guilt, and to influence expectations of future performance, both of which are related to subsequent achievement-related behaviors, such as task persistance, seeking help from professors and test performance (Covington & Omelich, 1979; Fowler & Peterson, 1981; Ames & Lau, 1982).

The temporal sequence of the determinants and effects of attributions, with examples, is outlined in Table 1. Appendix D provides a closer examination of theory and research concerning the attribution process: how attributions are formed, what properties of attributions determine their effects, and the actual effects of attributions.

Table I

The Attributional Process: Some Antecedents, Attributions and Effects (1)

Some Antecedents	Typical Achievement Attributions	Affect and Expectancy Effects	Some Behavioral Responses
Logical processing of perceived information*	Ability Effort Task ease or difficulty Luck	Affect (e.g., guilt, competence)	Doing homework Task-persistance
Prior beliefs**		Expectancy of future outcomes	Seeking help Remaining in School
Motives***			

(1) Table adapted from Weiner (1976)

* e.g., the performance of others, prior performance in similar and dissimilar situations
** e.g., the belief that difficult tasks require both ability and task
*** e.g., the need to protect self-esteem

CHAPTER ONE: THE EVIDENCE AND THEORY OF SELF-SERVING ATTRIBUTIONS

Introduction

In reporting their attributions of success and failure, people generally accept responsibility for success and deny blame for failure. For example, a person passing an examination will state that the outcome was due to his or her ability, whereas a person failing will state that the outcome was due to the difficulty of the task. This chapter reviews the explanations that have been developed for this phenomenon. The most popular explanation is that acceptance of responsibility for success and denial of blame for failure is based on motives to enhance and protect self esteem. Some have also argued, although less successfully, that this phenomenon is based on the methods with which people analyze information. Following the review of cognitive and motivational explanations of self-serving attributions, Tetlock and Levi's (1982) arguments are reviewed, which suggest that it is presently impossible to confidently ascribe acceptance of responsibility for success and denial of blame for failure in attributions to either motivational or cognitive processes, because the theories concerning these processes are incomplete. This thesis then takes a new approach and investigates the relationship between the phenomenon of internal attributions of success and external attributions of failure, and the methods with which attributions are measured. Wong and Weiner (1981) asked for attributions in an unusual way and found the rare and opposite effect of people considering external attributions in success and internal attributions in failure. Wong and Weiner hypothesized that it was their unusual method of questioning which led to the anomalous pattern of attributions. The present study tests their hypothesis by controlling for possibly confounding factors in Wong and Weiner's study, which may have equally caused their unusual findings.

Self-serving Attributions - an Increase in Self-esteem?

Weiner et al. (1971) developed a scheme with which to classify causal attributions, using the two dimensions of locus of control and stability. Locus of control refers to whether a cause resides within the attributor (internal), or outside of the attributor (external). Note that the present use of the term of locus of control does not refer to a personality trait, as it does in its conventional usage, but instead refers simply to the location of a cause. Weiner (1979) later contracted the term to locus, which better suggests its function to indicate whether a cause resides within, or outside of, the person. Stability refers to whether a cause remains invariant (stable) or variant (unstable) over time. Within this two-fold classification scheme, Weiner et al. placed the four attributions they theorized people use most often in achievement situations: ability, effort, task-difficulty and luck. Ability was classified as internal-stable, effort as internal-unstable, task-difficulty as external-stable, and luck as external-unstable. Weiner et al.'s classification scheme is illustrated in Figure 1.

Figure 1

Weiner et al.'s (1971) Classification Scheme

		Stability	
		Stable	Unstable
Locus of Control	Internal	Ability	Effort
	External	Task difficulty	Luck

Using the locus (of control) dimension in this classification scheme, researchers of achievement-related attributions have repeatedly found that success yields greater internal attributions, such as ability and effort, than failure, and that failure yields greater external attributions, such as task-difficulty and luck, than success. That is, people typically accept responsibility for success, but deny blame for failure. One survey, Zuckerman (1979), found that twenty-seven out of thirty-eight achievement-related studies showed this pattern of attributions, commonly referred to as self-serving attributions (e.g., Bradley, 1978), while two found that success yielded greater external attributions than failure and that failure yielded greater internal attributions than success. Internal attributions of success and external attributions of failure have been called self-serving attributions because researchers have generally believed that they result from a form of ego-defense. By accepting responsibility for success and denying blame for failure, people can alternatively enhance and protect their self-esteem (Miller, 1976; Bradley, 1978).

The belief that attributions can have motivational origins is long established in attribution theory; Heider (1958) suggested that causal attributions can be "influenced by the mere subjective needs and wishes as well as by the more objective evidence presented in the raw material" (p. 120-121). Nevertheless, the ascription of self-serving attributions to self-esteem related motives was long without data which showed that self-serving attributions in fact increase self-esteem. Zuckerman (1979) cited Nicholls (1975) and Riemer (1975) as supporting the notion that internal attributions of success and external attributions of failure are self-serving; these studies apparently showed that self-serving attributions are related to more positive affective states. This section shows, however, that these studies failed to establish this relationship, particularly because they did not demonstrate a relationship between attributions and specifically esteem-related affect. Later research (Weiner, Russell & Lerman, 1979; Forsyth & McMillan, 1981; McFarland & Ross, 1982) is reviewed which does, however, suggest a relationship between self-serving attributions and greater positive esteem-related affect. Nevertheless, note that the findings of these latter studies do not necessarily suggest that self-esteem related motives actually cause self-serving effects. Various cognitive processes could equally cause the occurrence of a pattern of attributions, which happen to bolster self-esteem. In a subsequent section, studies are reviewed which controlled for the nonmotivational hypotheses, and whose findings suggest that self-esteem related motives are indeed responsible. Additional research paradigms are reviewed, which also suggest the motivational origins of self-serving attributions.

In Nicholls (1975), fourth grade children worked at an angle-matching task. Each subject was given a book containing 20 pages. On each page of the book was an acute angle which subjects matched with eight different "standard" angles mounted on cardboard on a wall. Outcomes were manipulated; feedback on performance could be given regardless of actual choices because all angles in the book were equally distant in size between at least two of the standard angles, the difference between these standards being barely discernible. Subjects first completed a practice session, where they were given either 6 (failure) or 18 (success) correct responses; they were told fourth graders usually got about 12 correct on the test. In the actual test, subjects were given either 7 or 19 correct responses and were told 13 correct responses was the norm.

After the practice session, subjects were tested for anxiety (Are you worried about the test you are going to do?) and positive affect (Do you feel good about the test you are going to do?). After the test, subjects were asked, "How pleased do you feel with your score on the test you just did?". Subjects were asked to attribute to the four causal factors of ability, effort, task-difficulty and luck, after both the practice session and the test.

It was found that success on the practice session led to higher ratings of "feeling good" about the test than did failure. In addition, attributions were found to mediate affective responses to success and failure; correlations found that subjects who succeeded on the practice session were more anxious about the test if they attributed to effort than if they did not, and less worried if they attributed to task ease than if they did not. Subjects who succeeded on the practice session felt more positive about the test if success was not attributed to effort and was attributed to ability. Subjects who failed the practice session felt better about the test when they did not attribute to task. Subjects who succeeded on the actual test were more pleased when success was not attributed to task, and when success was attributed to ability.

Nicholl's findings show no clear relationship between locus and positive affect. While ability, an internal attribution, consistently showed a positive association with affect, effort, also an internal attribution, did not; subjects were more worried and felt less positive about the forthcoming test when they attributed success on the practice session to effort. With the external factor of task, however, success subjects in the practice session felt less worried if they attributed success to task-difficulty, and felt better when they did not attribute failure to task, but were more pleased with the actual task success when attributions to task were avoided. Apparently, the direction in which task is related to affect depends upon which affect is being measured, and possibly on the importance of the task.

While there is some support in the study that internal attributions for success and external attributions for failure are related to greater positive affect, the exceptions found in the experiment, concerning effort and task, fail to justify Zuckerman's unqualified statement that Nicholl's study demonstrates that self-serving attributions are related to greater positive affect. Also, the affects reported in Nicholls have no necessary connection with self-esteem, as would affects such as feelings of pride or competence. Thus, the findings of Nicholls only partly support the notion that people attribute success internally and failure externally because such attributions increase esteem-related affect.

In Riemer (1975), subjects from the University of Wisconsin, with no previous experience with piano, received individual instruction on the piano, lasting about 15 minutes. When the instruction was over, subjects were given an evaluation form in which it was shown that the subjects passed on the items of consistency, evenness, and coordination. In addition, the statement "You were successful" was written on the form. Attributions were manipulated; subjects were informed whether their success was entirely due to their ability, their effort, task simplicity, or chance. Ability and effort attributions were classified as internal, task and luck as external. Affect was measured by four questions concerning pride, eager to participate in another music practicum, rewardness of the feedback, and interest in studying piano. These four items were summed together. It was found that internality yielded greater positive affect than externality.

The findings of Riemer (1975) only partially demonstrate that self-serving attributions are related to greater positive affect. First, only success was used; self-serving attributions are those in which subjects accept greater for success than for failure; this study tells us nothing of the effect of external attributions of failure. Second, because the affect items were added, we don't know, as we do in the case of Nicholls (1975), whether internal attributions for success are consistently positively related with positive affect; nor whether attributions were associated with the first affect, pride, which is the affect most logically related to self-esteem. Finally, the findings of the study generalize to a narrow range of tasks which are novel to the actor and which require what are generally considered special skills. It gives no information about the effects of attributions to outcomes where the subject is familiar with the subject, as is usually the case in attributions made for academic situations. As in the case of Nicholls (1975), it is hard to understand how Zuckerman unqualifiedly states that this study shows that self-serving internal attributions are related to greater positive affect. Although neither Nicholls (1975) nor Riemer (1975) properly suggest that self-serving attributions are related to self-esteem related affect, three later studies (Weiner et al. 1979; Forsyth & McMillan, 1981; McFarland & Ross, 1982) do show evidence for an association between self-serving attributions and more positive self-esteem related affect.

Weiner et al. (1979) asked subjects to complete a questionnaire which contained twelve achievement conditions. Each condition consisted of an outcome (doing well or doing poorly), determined by one of six causes (ability, unstable effort, stable effort, personality, other people and luck). Subjects were asked to recall a time when they had experienced such a situation and the feelings they had incurred. To aid description of feelings, examples of six affects associated with success, six affects associated with failure, and one affect associated with both success and failure, were included with the instructions. Table 2 lists the discriminating affect for each causal attribution, across the conditions of success and failure. A discriminating affect is one that is reported significantly for one attribution relative to a composite of the other attributions (Weiner et al., 1979).

Table 2

Discriminating Affects as a Function of Outcome and Causal Attributions

ATTRIBUTION	SUCCESS	FAILURE
Ability	Competence	Incompetence
	Pride	Resignation
		Unhappiness
Unstable effort	Relief	Fear
	Satisfaction	
Stable effort	Contentment	Guilt
Personality	Pride	
Other	Gratitude	Anger
	Thankfulness	
	Excitement	
Luck	Surprise	Surprise
	Guilt	Sadness
	Relief	Stupidity

Note how the internal attributions of ability, unstable and stable effort, and personality all yield positive affect in success, and negative affect in failure. Note especially how attributions to the internal factors of ability and personality yield positive esteem-related affects in success (competence, pride) and negative esteem-related affects in failure (incompetence, unhappiness). This suggests that people experience greater sense of self-esteem when they attribute success internally and failure externally. The findings concerning other and luck are more complex. The findings concerning other seem to contradict the motivational explanation of self-serving attributions. Nevertheless, notice that other attributions do not result in self-esteem related affect; self-serving attributions are hypothesized to originate from specifically self-esteem related motives. Luck yielded negative self-esteem related affects in success (guilt) and in failure (stupidity). Considering these data, it would be difficult to determine, on the basis of self-esteem implications, whether people would prefer to attribute to luck in either failure or success Interestingly, the findings of Experiment 1 in the present study show that luck attributions were not preferred in either success or failure. It is possible that it is the affective consequences of task and other external attributions that usually cause failure subjects to attribute externally. Unfortunately, task attributions were not investigated in Weiner et al., but McFarland and Ross (1982), reviewed subsequently, supports this hypothesis.

In Forsyth and McMillan (1981), first year college students had completed a major course examination immediately preceding the data collection session. At the beginning of class, students were presented with the distribution of grades curve and were then given their graded exams. Three attribution questions probed the subjects' causal perceptions of their exam performance. A controllability question which asked subjects to what extent they thought test performance was caused by factors they could perform versus factors they could not control, a locus question which asked subjects to what extent they thought their performance was caused by personal versus environmental factors, and a stability question which asked subjects to what extent they thought that their performance was caused by factors that were stable versus factors that were unstable. Affective reactions were measured by sixteen items. At least several of these items were logically related to a sense of self-esteem: incompetent/competent, shame/pride, frustrated/fulfilled, inadequate/adequate, and bad/good. It was found that attributional locus across success and failure was associated with self-esteem related affects. Subjects who attributed success to internal causes reported more positive feelings of competence, adequacy, and "good", as well as more positive feelings of relaxation and calm, than subjects who attributed success to external causes. Additionally, subjects who attributed failure externally reported greater feelings of competence and adequacy than subjects who attributed failure internally.

McFarland and Ross (1982) also found that self-serving attributions are related to more positive self-esteem related affect. Female undergraduates wrote a social accuracy test on which they received false feedback concerning their success or failure. Subjects then answered questions which led them to believe that their performance was caused by ability or task difficulty. To measure affect, subjects were asked to respond to 77 mood adjective items. Factor analysis was performed on the mood items, resulting in 11 derived variables. A principal-components factor analysis, using varimax rotations, was performed on these variables; three factors with eigenvalues greater than one were retained for final rotation. These were named Negativity, Positivity and Self-esteem. High self-esteem feelings and egotism loaded positively on the Self-esteem factor; high self-esteem included pride, competence, confidence, smart, successful, effective, and efficient, and egotism included egotistic, boastful, self-centered, and conceited. Consistent with the motivational hypothesis of self-serving attributions, it was found that failure attributed to the external factor of task led to greater self-esteem feelings than failure attributed to the internal factor of ability, and that success attributed to ability led to greater self-esteem feelings than success attributed to task. Also, it was found that while attributions for failure had effects on Positivity and Negativity, as well as self-esteem, attributions for success were related only to self-esteem feelings. Because attributions for success were related only to self-esteem, McFarland and Ross's findings suggest that not only are self-serving attributions motive-based, but that they may occur specifically because of the operation of self-esteem related motives.

The findings of Nicholls (1975) and Riemer (1975) could not demonstrate whether self-serving attributions arise from self-esteem related motives, although they do suggest, to a limited extent, that self-serving attributions are positively associated with affect. Weiner et al. (1979), Forsyth and McMillan (1981), and McFarland and Ross (1982) demonstrated, however, that internal attributions for success and external attributions for failure can result in greater positive self-esteem related affects.

Self-serving Attributions: Cognitively or Motivationally Based?

While the findings of Weiner et al. (1979), Forsyth and McMillan (1981), and McFarland and Ross (1982) demonstrate that self-serving attributions are related to greater esteem-related affect, they do not demonstrate that self-serving attributions are actually caused by esteem-related motives. Another process may cause self-serving attributions, which incidentally results in greater self-esteem.

A competing motivational hypothesis is that of the need to maintain effective control. Miller and Ross (1975) note that Kelley (1971) postulated that it is important for individuals to be able to exercise control of their environment, and that Kelley further suggested that "The attribution to internal factors of self-success and the attribution to external factors of failure provide for the continuation of control attempts" (p.23). This implies that subjects who attribute self-servingly will show more positive expectations of future performance. This is not supported by either Nicholls (1975) or Riemer (1975), both of which measured expectancies. Nicholls' fourth grade subjects were additionally asked, following the practice session, how many correct responses they thought they would get on the subsequent test. One effect of attribution on expectancies was found; failing subjects had higher expectations when they attributed failure to effort, an internal factor. In this case, an internal attribution of failure increased expectancy to succeed, inconsistent with Kelley's notion that external attributions for failure provide for a continuation of control attempts. In Riemer (1975), subjects were also asked for their expectancies, concerning how confident they were that they could still successfully perform the pieces they learned, and how well they would do on a more difficult set of pieces. No relationship between attributions and expectancies was found. Subsequent research further suggests that Kelley's hypothesis is invalid concerning the relationship between the dimension of locus and attempts at control; studies such as Weiner (1976) (see Appendix D for a full review) have found that the stability, not the locus, of causes affects expectancies. Thus, if subjects were concerned with effective control, they would attribute success to stable factors, and failure to unstable factors. Concern for control could actually lead to an internal bias for failure, because subjects would rely on lack of effort, a controllable factor, which indicates that failure could be controlled for in the future.

Cognitive Explanations of Self-serving Attributions

Although the need for effective control hypothesis does not seem to compete with the self-esteem motives explanation of self-serving attributions, Miller and Ross (1975) argued that self-serving attributions could arise because of one or all of the following cognitive processes: a) people accept responsibility for expected outcomes more than for unexpected outcomes, and that people generally intend and expect to succeed, and not fail; b) people are more likely to perceive covariation between increasing success and self-behavior than between constant failure and self-behavior; and c) people have a mistaken concept of contingency where they perceive causality in co-occurrence of self-behavior with positive events, such as success, and ignore the co-occurrences of their behavior with negative events, such as failure, such that negative events yield neither stable nor environmental attributions.

Zuckerman (1979) argues that Miller and Ross's three explanations cannot account for the self-serving effects that occurred in many of the studies he reviewed. Zuckerman argues that Miller and Ross's first explanation, that people are more likely to attribute expected outcomes to internal factors, and that people expect success, is invalid for two reasons. First, it is unclear whether subjects typically expect to succeed at laboratory tasks. Some research has supported the notion of positive expectancies (e.g., Irwin, 1953) while other research has demonstrated the existence of negative expectancies (Kanouse & Hansen, 1971). Second, even if expectancies are positive, they do not affect attributional choice in the same way as do success and failure. In a review of 13 studies, Zuckerman showed that it is unclear whether expected outcomes are attributed more to internal factors, or more to stable factors, than unexpected ones, whereas the studies he reviewed on the effects of outcome clearly show that people attribute success more internally than failure. Thus, expectancies cannot account for the effect of task outcomes on attributions. Zuckerman argues that Miller and Ross's second suggestion, that people are more likely to perceive covariation between increasing success and self-behavior than between constant failure and self-behavior, is an invalid explanation of self-serving attributions, because the studies that Zuckerman reviewed which showed self-serving attributions typically provided subjects with a single feedback; subjects were unable to see if their behavior shifted with outcome changes. Zuckerman argues that Miller and Ross's third explanation, that people do not deny responsibility for failure because negative outcomes are insufficiently informative, and so yield neither stable, nor environmental attributions, is invalid because studies subsequent to those reviewed by

Miller and Ross show people not to merely accept greater responsibility for success than for failure, but to specifically avoid blame for negative outcomes, as well as assume responsibility for positive ones.

Evidence of Motivational Factors in the Occurrence of Self-serving Attributions

While Zuckerman shows that Miller and Ross's cognitive explanations do not supplant the motivational explanations of self-serving attributions, these arguments still do not positively demonstrate that self-esteem related motives actually cause self-serving attributions. Zuckerman found other studies, however, whose self-serving effects could not be readily explained in nonmotivational terms. Two (Miller, 1976; Sicoly & Ross, 1977) were specifically designed to rule out the cognitive explanations by Miller and Ross; another (Stevens & Jones, 1976) was designed for another purpose, but apparently achieves the same goal. Zuckerman notes that common to these studies was that the self-serving effects found were based on the differences between subjects who had the same success and failure experience, but varied on other dimensions. In addition, the crucial variables were manipulated following task completion, so that subjects' experience during task performance would not be affected. The result is that the effect of the manipulations are better understood in motivational, rather than in cognitive, terms.

Miller (1976) manipulated performance outcome and self-esteem involvement. High-involvement subjects performed a task described as a reliable test of social perception. Low-involvement subjects performed the same task, but described as a new, unvalidated measure. Description of task accuracy occurred after completion of the task. It was hypothesized that subjects, through their attributions, would tend to protect their self-esteem to a greater extent in high-involvement conditions than in low-involvement conditions. It was found that high-involvement success subjects made greater internal attributions than low-involvement success subjects and that high-involvement failure subjects made greater external attributions than low-involvement failure subjects. These results suggest that the tendency for people to accept responsibility for success and deny blame for failure is positively related to the self-esteem implication of performance outcomes; asymmetry in subjects' attributions was more pronounced if the task outcome was said to reliably reflect an important ability.

Stevens and Jones (1976) had subjects work on four tasks, whose outcomes were manipulated. Subjects then learned how others had done on the fourth task. According to Kelley's logical processing model (Kelley, 1967), subjects who failed on the fourth task and learned about others' success should make more internal attributions. Logically, if you do less well than anyone else in a similar situation, the reason(s) for your performance are personal. Nevertheless, results showed that subjects who failed at the fourth task and learned of others' success made more external attributions than those who learned of others' failure. This pattern suggests that, for failure subjects at least, a motivational factor operates in self-serving attributions; when analyses of available evidence in Stevens and Jones' study should have implied that personal failure was more due to personal factors, subjects instead attributed with greater externality.

In Sicoly and Ross (1977), subjects were asked to give causal explanations for the outcome of their performance on an experimental task. Subjects then evaluated the accuracy of judgments made by a confederate who assigned them more or less responsibility for their performance than they themselves had indicated. Sicoly and Ross hypothesized that subjects would judge the confederate's ratings as more accurate if the ratings allowed them to enhance or protect self-esteem. It was found that subjects assigned more responsibility for success and less blame for failure judged the confederate's ratings as more accurate than subjects who were assigned less responsibility for success and more responsibility for failure, respectively.

Zuckerman emphasizes that Miller and Ross's (1976) nonmotivational explanations of self-serving attributions do not readily apply to the findings of Miller (1976), Stevens and Jones (1976), and Sicoly and Ross (1977). This is because the self-serving effects found in the those studies were based on the differences between subjects who experienced the same success or failure outcomes, but who varied on other dimensions, instead of being based on differences between attributions for success and failure. In addition, those variables which did cause these non-outcome based differences were manipulated subsequent to task completion so that subjects' experience of the task during performance would remain unaffected. Thus in Miller (1976), for example, the importance of the task left the performance unaffected, and the greater self-serving effects under high-involvement occurred only because the outcome was more important to the subjects.

It is of interest to note other research, using alternate paradigms, which tends to support the findings of Miller, Stevens and Jones, and Sicoly and Ross, that self-esteem related motives are the cause of self-serving attributions. This research investigates the function of interactive variables (e.g, self-esteem, achievement motivation), and studies which compare the attributions for self-behavior with attributions for other's behavior.

<u>Interactive Variables</u>

<u>Self-esteem</u> It is thought that self-esteem is related to self-serving attributions because according to Heider's (1957) balance theory, high self-evaluation is more consistent with attempts to enhance or protect self-esteem, or both, than is low self-evaluation. Therefore, high self-esteem individuals will engage in more self-serving attributions than low self-esteem individuals (Zuckerman,

1979). Nevertheless, research reviewed by Zuckerman shows an inconsistent relationship between self-esteem and attributions of success and failure. Feather (1969) found no relationship between self-evaluation and attributions. Fitch (1970) reported that low self-esteem subjects attributed failure more to internal factors than did high self-esteem subjects. Levine and Uleman (1979) found that low self-esteem subjects made greater effort attributions for failure than high self-esteem subjects. Kuiper (1978) found depressed subjects (low self-esteem is a feature of depression) made internal attributions for failure whereas nondepressed subjects made external attributions for failure. The combined data of these studies suggest a relationship between self-esteem motives and attributions, although they show effects for failure only. Zuckerman states that only failure effects occurred because self-esteem measures probably tap the need to protect rather than the need to enhance one's self-evaluation.

<u>Achievement Motivation</u> Weiner and Kukla (1970) stated that high achievement motivation leads to internal attributions for success. Thus, high achievement motivation individuals can expect greater pride and higher interest in future similar tasks. Four of six studies using hypothetical outcomes have supported the relationship, whereas two have not. Three field studies have additionally supported the relationship (Zuckerman, 1979). Weiner and Kukla (1970, Experiment 5) also found that achievement motivation affects attributions for failure, males high in achievement

motivation were more likely to attribute failure to lack of effort, an internal factor, than males low in achievement motivation. This finding is contrary to the self-serving bias, but eight subsequent studies failed to replicate Weiner and Kukla's results. Overall, achievement motivation appears to cause self-serving attributions in success, but does not influence failure attributions. Zuckerman suggests that self-esteem is related to self-protective attributions for failure, whereas achievement motivation is related to self-enhancing attributions for success, perhaps because self-esteem focuses more on the need to avoid the self-esteem threats of failure and achievement motivation focuses more on the need to take pride in success. Zuckerman states there is a need to examine the effects of these dimensions within the same subjects.

Comparison with Others. The research here is far too extensive to review in any way within the confines of this thesis. So, I will restrict the discussion to describing the types of comparison with others research, and the general conclusions Zuckerman (1979) makes concerning these. Zuckerman relates that for some investigators (e.g. Ross et al., 1974), comparison between attributions for self and attributions for others is the crucial test of the hypothesis that self-serving attributions arise from the operation of esteem-related motives. Two paradigms of investigation exist; the "self/other paradigm", in which the actor's attributions of his or her own behavior are compared with those made for another, and the "actor/observer" paradigm, where an actor's self-evaluations and an observer's attributions of the actor's performance are compared. Because an actor should be interested in protecting or enhancing self-esteem, and be incapable of aiding the self-esteem of another through private attributions, and because an observer could also not be capable of maintaining the self-esteem of the actor, it was hypothesized that self-attributions in these studies would be based more on maintaining self-esteem than attributions of others' behaviors. The danger in self-other and actor-observer attributions comparisons, notes Zuckerman, is that differences may reflect cognitive differences as well as motivational ones (Jones & Nisbett, 1971; Monson & Snyder, 1977). Jones and Nisbett (1971) proposed that actors have more information concerning themselves than observers and attribute more to the situation that is coordinated with the behavior. The result is that actors tend to attribute their behavior to situational factors, such as difficulty of the task, whereas observers attribute the same behavior to the actor's personal characteristics, such as ability. So, if it is found that actors attribute failure more externally than observers, whereas a success condition shows no self-enhancing effects, the difference in failure could be easily ascribed to either motivational differences or to differences in the way information is processed. Self-other and actor-observer comparisons must show both self-enhancing and self-protecting attributional effects to support a motivational explanation and exclude a non-motivational one. Zuckerman found that experiments which used the actor/observer paradigm showed inconsistent evidence in favor of the self-serving hypothesis. In the self-other paradigm, however, particularly when the self and other were competing, but also when comparison occurred within the confines of hypothetical outcomes, Zuckerman found that people made greater self-serving attributions for the self than for the other.

Self-serving Attributions-Are They Really Motive-based?

Generally, research supports the hypothesis that internal attributions of success and external attributions of failure result from the operation of self-esteem related motives. It has been found that self-serving attributions are associated with greater positive esteem-related affect, that the nonmotivational explanations of Miller and Ross (1975) are not supported by subsequent research, and that alternate research paradigms favor motivational explanations (Zuckerman, 1979). Despite these findings, however, Tetlock and Levi (1982) argue that the research supporting the motivational explanation of self-serving attributions is inconclusive, because both cognitive and motivational theories of attributional inference are ill defined. Tetlock and Levi use the example of Miller (1976) to demonstrate this point. They argue that the three cognitive counter-explanations of Miller and Ross (1975) for self-serving attributions do not exhaust the possible cognitive explanations for self-serving attributions, and that at least one additional cognitive explanation of Miller's findings is available. In Miller (1976), subjects may have had self-schemata (i.e., prior beliefs) for the personality traits which their social perceptiveness test claimed to test. Thus, subjects in the "failure/high ego-involvement" condition faced a serious inconsistency between cognitions they had about themselves and the results of their performance. Consistency theory (McGuire, 1968) predicts that people resolve inconsistency by changing less-centered and established cognitions by the "principle of least effort". In the case of Miller's study, Tetlock and Levi suggest that subjects could have used the principle of least effort and changed the diagnostic validity of their performance rather than change belief in their capacities. Such a reaction is far from irrational. As Tetlock and Levi argue, self-schemata are based upon years of social experience and feedback. It would be irrational for subjects to change beliefs about themselves over the outcome of an isolated laboratory test.

When counter-explanations and counter-counter-explanations for self-serving attributions become as ingenious as these, it is obviously difficult to establish an experimental method that satisfactorily distinguishes the operation of cognitive processes from the operation of motives. Tetlock and Levi argue this problem exists because both cognitive and motivational theorists have insufficiently defined their theories. Consequently, each theory can be used to explain all sorts of attributional phenomena. They state that, at a minimum, cognitive theorists need to specify what, if any, types of evidence fall outside the explanatory range of strictly cognitive processes. In terms of motivational theories, which they see as even less precise and integrated, Tetlock and Levi see the need for motivational theorists to conduct much prior analysis before a clear motivational position is defined. For example, motivational theories of attributional inference lack formulations concerning the conditions required for the arousal of specific motives, and what are the processes by which motives influence attributions.

Tetlock and Levi offer several concrete suggestions for resolving the cognition-motivation debate. They suggest that theorists who explore how motives influence attributions may find cybernetic control theory useful (Carver, 1979). For example, a person facing an event which threatens self-esteem may search for an explanation which meets some minimum requirement of believability and emotional acceptability; each of any set of available explanations for an event would be assessed in terms of how it satisfies these requirements. Causal search ends when a satisfactory explanation is found. Tetlock and Levi suggest that cognition theorists follow signal detection theory (Green & Swets, 1966), and consider the incentives and costs for making various types of causal inferences. Such a cognitive theory might subsume motivational theories as "special cases". Perhaps the most attractive suggestion Tetlock and Levi offer, however, is a comprehensive approach which considers both cognitive and motivational viewpoints. Following McGuire (1960), Tetlock and Levi suggest that people may function as "honest brokers" seeking a "least-squares fit" when making attributions that represents a compromise between motivational and cognitive pressures. This suggestion is reasonable because it is likely that people are under constant pressure both to maintain self-esteem and to make accurate causal judgments. Nevertheless, as Tetlock and Levi state, more rigorous cognitive and motivational theories of attributional inference are required if we are to better understand how people cope with this "trade-off".

Chapter One-Summary

Weiner et. al. (1971) developed a two-fold classification scheme with which to classify attributions made in response to achievement outcomes. The first dimension, locus (of control), refers to whether a cause exists within, or outside of, the person; the second dimension, stability, refers to whether the cause varies over time. Using the locus dimension, researchers have found that the majority of achievement-related attribution studies show subjects to attribute success to internal factors and failure to external factors (Zuckerman, 1979).

Researchers named these attributions self-serving because they were thought to arise from the operation of self-esteem motives. Various research has supported this hypothesis; Weiner et al. (1979), Forsyth and McMillan (1981), and McFarland and Ross (1982) have found self-serving attributions to be related to more positive esteem-related affects, studies such as Miller (1976) and Sicoly and Ross (1976) demonstrated that self-serving attributions are better explained in motivational than in nonmotivational terms, interactive variables such as self-esteem and achievement motivation have been found to be positively related to self-serving attributions, and self-other attribution studies show self attributions to be more self-serving than attributions made for another (Zuckerman, 1979). Nevertheless, Tetlock and Levi (1982) note that Miller and Ross's (1975) arguments do not exhaust the possible cognitive explanations of self-serving attributions. Tetlock and Levi also argue that ascertainment of whether self-serving attributions result from either motivational processes or from cognitive processes is presently impossible, because neither cognitive nor motivational theorists have established when the processes indicated by their respective theories can or cannot occur. Thus, both sets of theories can be used to explain almost any kind of attributional effect. Both motivational and cognitive theorists need to further elaborate on their respective theories before it can be demonstrated that attributions clearly result from the operation of either self-esteem-related or cognitive processes. Finally, Tetlock and Levi suggest that better understanding of attributions will probably require a consideration of how cognitive and motivational processes interact. This approach does require, however, clarified cognitive and motivational theories.

CHAPTER TWO: ARE SELF-SERVING ATTRIBUTIONS RELATED TO A PARTICULAR FORM OF MEASUREMENT?

"What we observe is not nature itself,
but nature exposed to
our method of questioning"

-Zukav (1979)

Introduction

In Chapter One, it was shown that while most studies suggest that self-serving attributions arise from the operation of motivational factors, the state of both motivational and cognitive theories make it difficult to falsify either motivational or cognitive explanations. This study does not directly attempt to clarify either the motivational or cognitive position. It does, however, investigate the role of a factor, common to all studies, which could be related to the occurence of self-serving attributions; mainly, the way subjects are asked to make attributional responses. In most attribution studies, subjects are asked to evaluate the importance of causal factors preselected by the experimenter. Typically, the evaluations show a self-serving bias. Wong and Weiner (1981; Experiments 2 & 3), on the other hand, asked subjects to report what questions they would have given a test outcome. Wong and Weiner found that subjects freely considered attributions, but that the pattern of these attributions was opposite to that of self-serving attributions; success subjects considered external factors more than internal factors, and failure subjects considered internal factors more than external factors.

Wong and Weiner hypothesized that the unusual bias occurred because when people are asked to provide explanations of events they are concerned with maintaining self-esteem, but when they are free to only question causes, they become more concerned with searching for factors that will help control for outcomes in future similar situations. Nevertheless, because of the unusual nature of the hypothetical outcomes Wong and Weiner used, as well as the coding method used to score the open-ended responses found in their study, it is difficult to assess the true role of Wong and Weiner's non-reactive questioning in the occurence of these unusual attributions. A study is presented that attempts to control for the influence of these possibly confounding factors. The results of this study aid in understanding the role of method of questioning in the occurrence of self-serving attributions.

Wong and Weiner's Findings: An Effect of Causal Questioning?

Wong and Weiner's study was designed to investigate the heuristic rules that restrict causal search to selected areas of the total possible set of solutions. These heuristics were conceptualized as various focuses of attention that guide people to formulate hypotheses and seek information relevant to their search for causal understanding. It was hypothesized that attributional search focuses first on causal locus (whether possible causes for the event reside inside of or outside of the person), focuses next on causal controllability (whether the possible causes for the event are subject to personal influence), and focuses last on causal stability (whether the possible causes for the event are likely to change). To test their hypothesis, Wong and Weiner conducted two experiments in which perspective (whether the event occurred for the self or for a friend) and level of performance were manipulated. All outcomes were unexpected; a previous experiment (Wong and Weiner, 1981; Experiment 1), designed to document that people search for causes, and that this search is influenced by outcome (success, failure) and expectancy (expected vs. unexpected outcomes) had shown limited causal searching in response to expected outcomes. Preceding the outcome conditions in Experiment 2, subjects read the statement, "The following are four hypothetical situations. In each case, what questions would you ask yourself? Make sure that you write <u>at least five</u> questions in each case. You may work on the four situations in any order." All conditions were contained on a single sheet of paper, in the following non-counterbalanced order: self-failure, self-success, other-failure, other-success. An example of the outcome conditions is "Suppose you are strong in a subject, but you failed the mid-term test, what questions would you most likely ask youself?" (self-failure). Experiment 3 consisted of a procedure similar to that of Experiment 2, but subjects responded to a single outcome only, in a between-subjects design. After subjects completed writing their questions, they were introduced to the concept of causal dimensions. Subjects then read definitions of the dimensions of locus, stability, controllability, intentionality and generalizability (see Appendix D for definitions of the latter three dimensions), and were asked to code their questions according to each of the dimensions. The results of these subject codings were not reported.

Wong and Weiner found that subjects followed heuristic rules in their causal questions. Using a coding method which scored attributions according to frequency of occurrence in subjects' responses, Wong and Weiner found that subjects asked locus and control-focused questions with greater priority and salience than all other questions. Take note that the salience of certain types of questions in this experiment was not necessarily synonymous with their importance to the respondents; subjects could have repeated certain types of questions because the questions were easily rephrased or were easy to elaborate upon. This point, important to the present study, will be taken up later. Wong and Weiner also found that several attributions were associated almost exclusively with one or two treatment conditions, and that some attributions were unexpectedly associated with either success or failure. In Experiment 2, questions regarding error (e.g., "Did I study the wrong things?") (11.4%), emotion (e.g., "Was he too nervous?") (7.9%) and physical condition (e.g., "Was he tired?") (4.9%) were associated with failure, but not with success, whereas questions about luck (e.g., "Was it fate?") (15%) were associated with success, but not with failure. Cheating (e.g., "Did he cheat?") (13.2%) and help (e.g., "Who helped him?") (8.3%) questions were associated with others' success, but not with self-success. Similar asymmetrical attributions occurred in Experiment 3, which contained between-subjects factors. Error (11.6%), emotion (9.2%) and physical condition (8.0%) were exclusively associated with failure, luck (11.5%) was associated with success, and cheating (23.9%) and help (13%) were linked with others' success. Notable among these results are the findings concerning luck; luck is usually associated with failure, not success. Similar anomalies occurred with effort and task questions. Questions concerning effort (e.g., "Did he study a lot?") were considered more after failure (26.4% in Experiment 2; 24.0% in Experiment 3) than after success (17.2% and 16.8%). On the other hand, questions concerning task (e.g., "Was the test fair?") were considered more frequently following success (22.8% and 27.0%) than following failure (7.8% and 13.3%). Attribution studies typically find the opposite pattern; effort is more highly associated with success than with failure, task is more highly associated with failure than with success.

Wong and Weiner's findings concerning luck, effort and task attributions suggest that subjects were attributing in a way opposite to that of self-serving attributions.

Indeed, when attributional questions were collapsed into internal or external locus, analysis of variance (ANOVA) in both experiments showed that failure yielded greater internal attributional orientation than success, whereas success yielded greater external orientation than failure. This effect occurred for both attributions to self performance and attributions to other's performance. This pattern of attributional locus across success and failure is the reverse of that of the self-serving bias, where success is attributed internally, and failure externally. Wong and Weiner suggest that this anomalous effect occurred because defensive functioning prevails when people are asked to give an explanation of a already completed task, as they are asked in most studies, whereas adaptive functioning prevails when people are asked to spontaneously generate questions about event outcomes, as subjects were asked in Wong and Weiner's study. Wong (Appendix B) states: "When people are asked to explain their outcomes, people tend to internalize success but externalize failure. One widely accepted notion is that this attributional bias is defensively motivated because people want to defend their self-esteem and look good. However, when people are asked to spontaneously generate questions about certain outcomes, their main concern is not self-defense but problem-solving. In other words, they want to find out internal and controllable causes of the problem, so that they can solve it and prevent its future occurence Internally-oriented attributional search is adaptive because it increases the likelihood of one's success in solving the problem."

Critique of Wong and Weiner's Study

Wong and Weiner's hypothesis that attributional responses are influenced by whether subjects are specifically asked to provide causal explanations is supported by prior research (Enzle & Shopflocher, 1979). In Enzle and Shopflocher, subjects received help from a confederate which occurred in the presence of facilitating instructions from the experimenter, or which appeared to be spontaneous. Experimenters then asked half of the subjects to evaluate the confederate's prosocial dispositional qualities. According to the discounting principle (Jones & Davis, 1965), subjects who received help in the absence of instructions should have seen the favor as more internally motivated and evaluated the confederate more positively than subjects who were helped after receiving facilitating instructions. This asymmetric effect occurred, however, only with subjects who had been asked to make attributions regarding the confederate's attractiveness. Subjects who were not prompted to make attributions apparently did not do so, their confederate attractiveness ratings did not differ. Because Enzle and Shopflocher demonstrated that attributional questions can stimulate processes which do not operate when such questions are absent, Wong and Weiner's hypothesis may be correct; self-serving attributions are the result of defensive functioning which is caused by questions which demand attributional responses. Nevertheless, Wong and Weiner's hypothesis explains only why failure subjects attributed internally, it does not explain why success subjects unexpectedly attributed with an external bias. Would they not also be interested in seeking controllable factors so as to maintain the likelihood of future success? It is possible, therefore, that other factors influenced the unusual attributonal bias in Wong and Weiner's data. Upon investigation, it is conceivable that any of three additional factors, or an interaction of these, contributed to Wong and Weiner's unusual bias: expectancy disconfirmation, low ego-involvement, and the method by which attributional responses were coded.

<u>Expectancy Disconfirmation</u> In attribution studies where self-serving attributions have been found, outcomes are typically expected, or at least do not contain an obviously strong component of expectancy disconfirmation. In Wong and Weiner, it was always clearly specified to subjects that their performance was inconsistent with their "strength" in a subject. This statement may have decreased internality in success and increased internality in failure. Because "strength" was probably indistinguishable from "ability" to most subjects, the ability attributions that normally appear in success were suppressed (there were almost no ability attributions in Wong and Weiner's data), resulting in lowered internality for success. The lack of "strength" for success subjects may also have lowered effort attributions, because people may additionally

associate the word with a constant ability to "try" at a subject. Expectancy disconfirmation may have caused failure to yield greater internal attributions in Wong and Weiner, because subjects "knew" that they were capable of passing (i.e., they were "strong") and so considered effort, which, in association with their "strength", or ability, should easily control for most similar situations in the future. Failure was not a necessary condition and so failure subjects were prompted to search for ways in which it could be avoided.

Ego-involvement. The studies reviewed by Zuckerman (1979) in which subjects made self-serving attributions largely asked subjects to attribute for the outcomes of actual task performance. In Wong and Weiner, on the other hand, subjects made attributions for outcomes which were hypothetical in nature. A difference in the importance of hypothetical outcomes and actual outcomes to subjects could explain the unusual attributional effects found in Wong and Weiner. Actual task outcomes in experimental studies probably have relatively high ego-involvement, because subjects are told that the task reflects some skill trait. The outcome conditions in Wong and Weiner probably had little such ego-involvement, however, because it was not indicated in these that the hypothetical test reflected any type of skill, or was in any way important, aside from the fact that it was a mid-term test. Subjects had no reason to react defensively, because they did not have to interpret the test outcome as being important

Comparison of Wong and Weiner with another attribution study which similarly used an open-ended measure (Elig and Frieze, 1979) demonstrates how Wong and Weiner's results could have occurred because of low ego-involvement. Like Wong and Weiner, Elig and Frieze had subjects make open-ended responses in reaction to an achievement outcome. Unlike Wong and Weiner, however, Elig and Frieze's question (Why do you think you succeeded (failed) on this task?) specifically demanded a causal explanation Elig and Frieze gave their subjects fifteen anagrams and told them that the brightest 25% of college students could solve at least eight of the anagrams Subjects were further told that completing eight or more of the anagrams constituted success and that completing seven or less constituted failure Subjects were given thirty seconds to complete each anagram Success and failure were manipulated through rigging of anagram difficulty After they completed the anagram task, subjects totalled the number of anagrams they completed and rated their feeling of success or failure on a 9-point scale Subjects were given five attribution measures One open-ended measure and two versions each of a rating scale and percentage scales measure The open-ended measure was always given first and the structured measures followed in counterbalanced order across subjects

It was found that both structured measures yielded self-serving attributions The open-ended measure, however, showed little overall difference in locus across success and failure, although the only two significant differences in atttributions across success and failure, found in task-difficulty and interest in task attributions, reflected the self-serving bias. Subjects attributed more to task, an external factor, in failure than in success, and more to interest, an internal factor, in success than in failure. Although these data show no strong self-serving bias, they are nevertheless highly dissimilar to Wong and Weiner's attributional data, which show a pattern of attributional locus across success and failure opposite to that of the self-serving bias. Because subjects in Elig and Frieze were asked to give causal explanations whereas subjects in Wong and Weiner were not, Wong and Weiner's hypothesis is ostensibly correct: self-serving attributions occur specifically when people are publicly asked to give causal explanations of an event, and an opposite effect occurs when they are asked to raise questions. Nevertheless, the differences in the outcome conditions between Wong and Weiner and Elig and Frieze can also explain the attributional differences between the two studies. In Elig and Frieze, subjects were advised that the brightest 25% of college students could solve eight or more of the administered anagrams. Thus, the outcome on the task was important for the subjects, because it indicated personal ability. In Wong and Weiner, on the other hand, subjects were given no information as to task importance, aside from the statement that the test was a mid-term test.

Subjects may or may not have assumed that it was a test indicative of ability, or future success, or both. These differences in task importance are important. Miller (1976) found that task importance is positively related with self-serving attributions. In Miller, performance outcome and self-esteem involvement were manipulated. High-involvement subjects performed a task described as an established test of social perception. Low-involvement subjects performed the same task, but described as a new, unvalidated measure. Success on the task yielded internal attributions, whereas failure on the task yielded external attributions. Furthermore, high-involvement success subjects made greater internal attributions than low-involvement success subjects, and high-involvement failure subjects made greater external attributions than low-involvement failure subjects.

In light of Miller's study, it is feasible that the attributional differences between Wong and Weiner and Elig and Frieze occurred because of their differing levels of task-importance. Elig and Frieze used higher levels of task-importance, and self-serving effects occurred. Wong and Weiner used no clear indication of task-importance, and self-serving effects did not occur. This hypothesis explains why success subjects could attribute externally in Wong and Weiner's study; because outcome conditions had no implications for ability or future success, subjects did not attempt to internalize success; there were no particular affective benefits from doing so. Similarly, failure subjects could freely attribute failure to internal causes, because there was no threat to self-esteem in doing so.

Coding Scheme While most attributional studies that measure attributions use structured measures, Wong and Weiner, because of the nature of their investigation, used an open-ended measure. Attributions were scored on the basis of how often they occurred in subjects' responses. This method could cause the scoring of some factors to be artificially inflated Some factors, such as effort and task-difficulty, are probably easier to report and elaborate upon than others, such as luck. This is because a subject can list several reasons why an exam is difficult (e.g., "It was too long", "It had too many subjective questions"), or list several ways in which he or she worked (e.g., "I didn't study long enough", "I didn't study the right way"), but cannot list several reasons why he or she was lucky, because luck is, by nature of its accepted definition, inexplicable. Because task-difficulty and effort attributions are easy to elaborate upon, and because these factors contributed largely to the attributional bias found in Wong and Weiner, it is possible that the bias occurred because salience of these factors was mistaken to signify subjects' indication of their importance. The possibility is further strengthened by the fact that Wong and Weiner instructed subjects to provide a minimum of five questions. In such a situation, subjects would naturally tend to provide responses as much to fulfill the demands of the question, as to indicate their perceptions of causality. Thus, they would rely on the attributions of task and effort, which are easily repeated

Note also that Wong and Weiner (1981) is not the first study which used an unusual attribution measure and found attributional responses in a pattern opposite to the self-serving bias. The only two studies found by Zuckerman (1979) to yield attributions contrary to the self-serving bias shared the same measure, a measure uncommon to attributional research. McMahan(1973) asked sixth-grade, tenth-grade and college students to solve five-letter anagrams. Subjects were found to attribute success externally and failure internally. Menapace and Doby (1976) asked an equal number of psychiatric rehabilitees and college students to perform four experimental trials on the Purdue Pegboard, a test of manual dexterity. He also found subjects to attribute success externally and failure internally. The measure used by both McMahan and Menapace was the McMahan (1973) paired comparisons attribution measure (Table 4, Item 1). The measure contains all possible pairings of the four attributional factors of ability, effort, task-difficulty and luck.

Table 4

Paired Comparisons and Bi-polar Ratings Measures

Type of Measure	Example
1) Paired Comparisons	Of each pair, circle which is more responsible for your outcome: Ability, Luck Ability, Effort
2) Paired ratings:	My outcome was mainly due to: Ability_____Luck

Table adapted from Elig and Freize (1979)

There is no evidence directly comparing the attributions yielded by this measure with attributions yielded by other measures. Thus, it is unknown how much it normally differs from other measures in yielding attributional responses. The measure is criticized by Elig and Frieze (1979) as being an inferior measure to the similar within-dimension bi-polar scales used by Weiner (1976) (Item 2, Table 4), because the range of possible scores in the latter is larger though the use of rating scales. It is possibly this limiting quality of the measure that caused the unusual bias in McMahan (1972) and Menapace and Doby (1976). Because subjects are "forced" to decide between attributions, a misleading inflation of indicated causal importance can be created. For example, a success subject may feel that task was slightly more important than ability, but must as a consequence totally disqualify ability in this instance and attribute only to task. Thus, minimal differences in internal and external attributions of success and failure are inflated into substantially larger differences Note that neither study reports whether the task was described as indicating an important skill; a low level of ego-involvement may possibly have been present in one or both studies, creating a base-line of narrow differences in attributions of success and failure It is a situation somewhat analogous to that of Wong and Weiner, where subjects were likewise "forced" to repeat factors that are easily rephrased, yielding a misleading indication of their actual causal perceptions. Thus, the result was that bias in locus across success and failure was artificially magnified

<u>Possible Interactions</u> It is possible that expectancy disconfirmation, low ego-involvement, and coding did not operate alone in producing Wong and Weiner's unusual pattern of attributions. For example, expectancy disconfirmation may have prompted subjects to consider effort attributions in failure, but only did so substantially because low involvement suspended subjects' concern with maintaining immediate self-esteem. These factors may also have interacted with Wong Weiner's method of questioning. For example, if Wong and Weiner's method of asking for questions did indeed suspend subjects' tendency to attribute defensively, the frequency of response coding

used in Wong and Weiner's study may have caused the unusual attributional responses to be significantly different across success and failure, because the frequency of response coding misconstrued repetition of causal factors as reflecting subjects' perception of causal importance

CHAPTER 2-SUMMARY

In a study designed to investigate the heuristic rules people use to search for causes, Wong and Weiner found that subjects considered external attributions in success and internal attributions in failure, a pattern opposite in locus to that of self-serving attributions. Wong and Weiner hypothesized that their method of questioning, which asked people to raise questions, as opposed to list reasons, resulted in the unusual findings. When people are free to question causes, they no longer react defensively, but instead search for solutions to problems that may recur. Nevertheless, success subjects conspicuously asked neither personal nor controllable causes, suggesting that they felt neither a need to maintain self-esteem nor to maintain effective control. It was hypothesized that at least three three confounding factors, or possibly an interaction of these, explain Wong and Weiner's unusual findings. Subjects may have attributed success externally and failure internally, because a) they always performed inconsistently with their "strength" in the subject, b) outcomes were insufficiently ego-involving to prompt subjects to attribute defensively; and c) Wong and Weiner's coding scheme may have misconstrued the relevance of causal salience in subjects' responses, by assuming that repetition of causal factors reflected subjects' perceptions of the causes' importance. These factors may also have interacted with subject questioning to yield Wong and Weiner's unusual attributional findings.

An Introduction to the Experiments

The present experiments replicate Wong and Weiner's study, and investigate the confounding factors which may have contributed to their peculiar attributional findings: subject questioning, expectancy disconfirmation, low ego-involvement, and method of coding. The study consists of two experiments. In Experiment 1, subjects completed structured attribution measures; in Experiment 2, subjects completed open-ended attribution measures. Because these are varying dependent measures, they cannot be directly compared. Thus, their data were analyzed as belonging to two seperate experiments.

Experiment I probes for whether the unexpected, low ego-involvement conditions in Wong and Weiner were responsible for their unusual findings by having subjects respond on structured attribution measures. Elig and Frieze (1979) found that structured measures are more liable to yield self-serving attributions than their open-ended counterparts. Experiment I also includes expectancy and ego-involvement manipulations. If the unexpected, low involvement conditions (those used in Wong and Weiner) fail to yield self-serving attributions on the structured measures, which normally yield self-serving attributions, but the expected, high involvement conditions do, then the outcome conditions in Wong and Weiner were probably critical in yielding unusual attributions. If self-serving attributions occur across all outcome conditions, then it is more probable that the other factors of causal questioning or coding procedure determined Wong and Weiner's results.

Experiment 2 investigates the effect of subjects' causal questioning in an open-ended format by comparing data where subjects are asked to give questions with data where subjects are asked to list reasons. Note that analyses of expectancy and involvement are still included to determine their exact role in influencing Wong and Weiner's data, irregardless of their effects in Experiment I. Subjects responding to open-ended measures are free to attribute to factors other than the four which appear in the structured measure in Experiment 1; these extra factors may be sensitive to manipulations of expectancy and ego-involvement. For instance, a high-involvement subject who unexpectedly fails may question, in addition to task and luck, her motives, in her concern over the effects of the outcome, whereas a low involvement subject dismisses the outcome as task-related, because attributions to an unimportant outcome are not crucial to maintaining self-image. The resultant differences between high and low involvement subjects would differentially affect the locus of the attributions of the two respondents; the former would be more internal than the latter. Frequency of response coding in Experiment 2 is compared with subjects' own percentage assessments of the causes mentioned in their attributional statements or questions. Because assigning percentages "forces" subjects to indicate the relative strength of the causes they mentioned, we can see whether repetition of causal factors in Wong and Weiner's conditions reasonably reflects subjects' perceptions of their importance.

EXPERIMENT I

Introduction

Wong and Weiner found that success yielded more external attributions than failure and that failure yielded more internal attributions than success, a pattern opposite to the self-serving bias. They hypothesized that the unusual effect occurred because subjects were asked to raise questions, as opposed to being asked to list reasons. Because subjects only questioned the potential influence of causal factors, there was less concern about their effects on immediate sense of self-esteem as there would have been if they were considered definitely as causes. Esteem-threatening factors that would normally have been censored by the subjects were instead reported. Thus, internal attributions such as effort occurred in failure, and external attributions such as luck occurred in success.

Nevertheless, Wong and Weiner failed to consider that the unusual bias may have occurred because of the specific nature of the unexpected outcomes used in their study. If subjects are told that their success occurred in spite of the lack of "strength", they are unlikely to attribute success to the internal factor of ability, typically salient in success. As well, if subjects are told that their failure occurred in spite of the presence of their "strength", they are prompted to attribute to the internal factor of effort, because they know that failure is not a necessary condition.

Nor did Wong and Weiner consider that their outcome conditions could have been insufficiently ego-involving, both in their artificiality and in their lack of prompting, to cause subjects to attribute hedonistically. Ego-involvement is positively associated with self-serving attributions (Miller, 1976)

Involvement and expectancy may also have interacted to produce Wong and Weiner's unusual bias. For example, subjects may have tried to attribute unexpected failure to internal attributions only because the level of ego-involvement was low, which left them unconcerned with the self-esteem implications of the outcome. Thus, the factors of low ego-involvement and expectancy disconfirmation, alone or in interaction, could have had an effect at least equal to that of unusual questioning in producing the "control" bias of Wong and Weiner's study

The Implications of the Findings of Experiment 1

To test whether Wong and Weiner's unusual bias occurred because of either low ego-involvement or expectancy disconfirmation, subjects in the present experiment were asked to respond to hypothetical outcomes similar to those found in Wong and Weiner, but using conventional structured measures, which typically yield self-serving attributions for most achievement outcomes If self-serving effects occur in the expected, high ego-involvement conditions, but do not occur in the unexpected, low ego-involvement conditions (i e , those used in Wong and Weiner), then the unexpected, low involvement outcome conditions in Wong and Weiner were probably responsible for the unusual bias.

If self-serving effects occur across involvement and expectancy conditions, however, then the possible reasons for Wong and Weiner's effects are several; the unusual open-ended method of asking for attributions, the specific way attributional responses were coded in their study, or an interaction of the two, or, possibly, an interaction such as method of measurement by expectancy by ego-involvement The unusual method of asking for attributions may have caused the unusual bias by suspending subjects' tendency to attribute defensively, they were only asking questions, not giving reasons The coding procedure may have caused the unusual bias by mistaking repetition of causal factors to indicate subjects' emphasis of their importance. Method of asking questions and coding procedure may have interacted, in that the method of questioning may have suspended defensive behavior and led to few differences between success and failure, and the frequency of response coding caused this unusual data to be significantly different across success and failure in a way opposite to the self-serving bias. Note that both expectancy and ego-involvement may still have interacted with method of questioning in Wong and Weiner, even if they do not mediate attributions to success and failure in the present experiment Subjects responding to open-ended measures are free to attribute to factors other than the four which appear in the structured measure in the present experiment;

these extra factors may be sensitive to manipulations of expectancy and ego-involvement, and in turn influence locus.

The proper way to test whether outcome conditions of method of measuring attributions caused the unusual bias in Wong and Weiner is to manipulate both outcome conditions and attribution measurement in the same situation, with subjects randomly assigned across all conditions. This was done. Experiment 1 used structured measures, whereas Experiment 2 used open-ended measures, and the two experiments were conducted simultaneously, on the same population, using the same outcome conditions. Nevertheless, because the structured and open-ended data sets cannot be readily compared statistically, as they represent different dependent measures, and also so as to reduce the complexity of the report, the investigation is reported as two separate experiments.

Hypotheses

Introduction

This experiment explores the effects of ego-involvement and expectancy when participants complete structured attribution measures in response to hypothetical outcomes similar to those employed by Wong and Weiner. Because I am concerned with the self-serving bias, which requires examining the effects of outcome on attributions, I am interested in involvement and expectancy in terms of their interaction with outcome. Note that two forms of attribution measure were included; a percentage assessment measure, where subjects assess the value of each factor with a percentage figure, and a Likert scales measure, where subjects rate the effect of each factor on a 9-point rating scale. Inclusion of the two measures helps determine whether the results are dependent upon the specific type of structured measure used; Elig and Frieze (1979) found substantial differences between percentage assessment and Likert scales measures on individual causal factors, although both did show self-serving attributions. In Elig and Frieze, the percentage assessment measure found success/failure differences on task attributions, whereas the Likert scales measure did not. Also, the percentage assessment measure found success/differences on stable effort attributions, whereas the Likert scales measure did not, while the Likert scales measure found success/failure differences on unstable effort attributions, whereas the percentage assessment measure did not. A single category of effort was included in the present study. Note also that subjects always completed the percentage assessment measure first in the present experiment.

<u>Hypothesis I</u> The effects of outcome.

There will be a main effect of outcome on the four factors of ability, effort, task-difficulty, and luck, and on the collapsed measures of internality and externality. More specifically, .

1) Success will yield greater ability, effort, and internal attributions than failure.

2) Failure will yield greater task-difficulty, luck, and external attributions than success.

Explanation of Hypothesis I

Attribution studies using structured measures typically find that success yields greater internal attributions than failure, and that failure yields greater external attributions than success (Zuckerman, 1979). Because structured measures are used in the present experiment, self-serving findings should generally occur. Note that there may not be significant success/failure differences on all individual factors, across both the percentage assessment and the Likert scales measures. For example, there may not be self-serving effects on the measure of task across both measures; Elig and Frieze (1979) found no success/failure differences on the measure of task in their Likert scales condition.

Hypothesis II The effects of personal expectations.

There will be a main effect of expectancy on the measures of ability and luck More specifically:

1) Unexpected outcomes will be attributed less to ability and more to luck than expected outcomes

Explanation of Hypothesis II

Zuckerman (1979), in a review of studies which investigated the effects of expectancy on attributions, found no consistent effect of expectancy on effort and task attributions. Unexpected outcomes were generally attributed less to ability, and more to luck, however.

Hypothesis III The effects of ego-involvement.

1) There will be no main effect of ego-involvement on any dependent measure.

Explanation of Hypothesis III

One previous study (Miller, 1976), which contained an ego-involvement manipulation, showed no main effect for this factor.

Hypothesis IV The interaction effect of personal expectations and outcome.

There will be an outcome by expectancy interaction on individual attributions as well as on the attributional dimension of locus. The self-serving bias effect will be significantly greater in expected outcome conditions than in unexpected outcome conditions. More specifically:

1) Expected success will yield greater ability, effort and internal attributions than unexpected success.

2) Expected failure will yield greater task, luck and external attributions than unexpected failure.

Explanation of Hypothesis IV

To 1. Success subjects in Wong and Weiner's unexpected conditions always perform inconsistently with their "strength" in the subject. Because people probably associate "strength" with ability, it is possible that for this reason that success subjects in Wong and Weiner did not consider ability attributions. It is expected that the same effect will occur using unexpected outcomes in the present experiment. Lack of "strength" may have also been associated with lack of ability to "try" well at a subject; this could explain why success subjects in Wong and Weiner also avoided making effort attributions. Wong and Weiner's unexpected success conditions probably also forced subjects to consider task and luck attributions; these are more consistent with a success occurring despite a lack of "strength" in the subject. Compared to the unexpected success condition, the expected success condition in the present experiment should yield higher ability and effort attributions, because subjects always perform consistenly with their "strength". External attributions should be largely ignored by expected success subjects for the same reason, success was due to "strength".

To 2. Because failure subjects in Wong and Weiner always performed inconsistently with their "strength", subjects' knowledge that failure was a potentially controllable condition prompted them to search for ways as to how it could be avoided. Thus, the salience of questions concerning the controllable factor of effort in failure, which greatly increased the internal bias of failure. This effect should recur in the present experiment. When failure is consistent with strength, however, in the expected condition of this experiment, subjects will attribute defensively to the factors of task and luck, even though they are "weak"; the outcome condition does not logically exclude the operation of these esteem-protecting factors and subjects will not be "forced" in any way to avoid choosing them.

<u>Hypothesis V</u>: The interaction effect of ego-involvement and outcome.

There will be an outcome by ego-involvement interaction on individual attributions, as well as on the attributional dimension of locus. The self-serving effect will be significantly greater under high ego-involvement than under low ego-involvement. More specifically:

1) High ego-involvement success will yield greater ability, effort and internal attributions than low ego-involvement success.
2) High ego-involvement failure will yield greater task, luck and external attributions than low ego-involvment failure.

<u>Explanation of Hypothesis V</u>

Miller (1976) found that high ego-involvement conditions yield greater self-serving effects than low ego-involvement conditions. This finding demonstrates a positive relationship between ego-involvement and self-serving attributions. It is believed that Wong and Weiner's conditions created so little ego-involvement (remember subjects attributed to hypothetical, not actual, outcomes) that subjects were unconcerned with whether their attributions maintained self-esteem. The same outcome descriptions, emphasizing that the situation is crucial, and reflects self-success and self-image, however, will make subjects choose attributions more defensively.

Method

Subjects

Subjects were 249 male and female undergraduate and graduate students enrolled in a wide range of courses at Concordia University, during the Winter Term, 1984. All subjects were members of classes volunteered by professors for the purposes of the experiment (see Appendix A for the letter sent to professors).

Design of study

This experiment attempts to probe the reasons for the unusual attributional bias in Wong and Weiner (1981) by manipulating the following experimental conditions:

1. An outcome condition, in which hypothetical outcomes are described as successful or unsuccessful
2. An expectancy condition, in which an outcome is described as confirming or disconfirming the subject's prior "strength" in the subject.
3. An ego-involvement condition, in which the outcome is described as merely being a mid-term test, or is described as a test important to the subject, both in terms of the expectations of important others, and in terms of personal expectations of achieving subsequent academic and vocational success (A pilot study conducted with a group of graduate education students enrolled at Concordia University established the viability of the involvement manipulation)

4. A rating scale condition, in which attributions are measured by percentage assessments or on Likert scales.

Attributional effects of the outcome, expectancy, involvement and measure manipulations are assessed by recording subjects' attributions to the factors of ability, effort, task, and luck. The experiment is a 2 x 2 x 2 X (2) repeated measures design. The first factor, outcome, consists of two levels: success and failure. The second factor, expectancy, consists of two levels: expected and unexpected. The third factor, ego-involvement, consists of two levels: low and high. The fourth, and within-groups, factor, rating scale, consists of two levels: percentage assessment and Likert rating. This results in 16 factorial cells (see Figure 2). Each level of the fourth factor, rating scale, is analyzed separately because it involves different dependent measures, which cannot be compared statistically.

Percentage Ratings

Low Involvement

	Expected	Unexpected
Success		
Failure		

High Involvement

	Expected	Unexpected
Success		
Failure		

Likert Ratings

Low Involvement

	Expected	Unexpected
Success		
Failure		

High Involvement

	Expected	Unexpected
Success		
Failure		

Figure 2. The experimental design for Experiment 1. The dependent measures are ability, effort, task, luck, internality and externality.

Procedure

Sessions were typically conducted in the last half-hour of a class meeting. The experimenters first handed out questionnaires to all subjects and then read aloud the instructions found on the questionnaire cover page: "This questionnaire is intended to gather information about university students' attitudes towards course examinations. We would appreciate you completing all of the questionnaire items to the best of your ability. There are two sets of questions. For the first set of questions, which are on colored paper, mark your answers directly on the questionnaire. For the second set of questions, which are on white paper, mark your answers on the answer sheet. Please do not make any marks directly on the second questionnaire. Try to work at a steady pace and answer the questions in the order that they are given. We welcome your comments on this study; place these on the reverse side of the answer sheet. If you have any questions or problems, please raise your hand and you will be helped individually. Interested students will be provided with a more complete description of the study's purpose once all questionnaires are completed. If you participated in this study previously in another class, please do not complete this questionnaire again." Subjects had few problems in completing the attribution measures. Sessions were mainly quiet. After each session was over, interested students were presented with an oral or written explanation of the study's purpose, or both. See Appendix A. Completed measures required little correction A few subjects assigned percentage ratings which totalled in excess of 100%. Procedures for correcting these totals are found in Appendix B

Experimenters

Experimenters were four female graduate research assistants (Miranda D'Amico, Bette DeBellefeuille, Helma Kroeh-Sommer, and Gretchen Lowerison), and one male, myself Large classes of forty-five or more were attended by two or more experimenters, but most classes were sufficiently small to be attended by a single experimenter

Materials

Attribution measures Appendix A contains all the hypothetical outcomes used in the experiment Immediately preceding each hypothetical outcome description was the following explanation of how to use the percentage assessment measure "The following is a hypothetical course examination situation. Rate with a percentage figure how important each of the listed factors was in determining your performance on this hypothetical test. If you feel a factor had no influence on performance, give it a rating of 0%. If a factor had a small influence on performance, give it a low percentage rating, whereas if it had a large influence on performance, give it a high percentage rating. The total of all percentage ratings must not exceed 100%." Immediately below the instructions for the percentage assessment measure was the actual outcome condition. For example: "Suppose you know you are very weak in a subject, example "Suppose you know you are very weak in a subject, but you received an A on the first important course test, the mid-term exam Performance on this test is a strong indicator of your success in the course because a large portion of the final exam covers the same material as the mid-term <u>Success in the subject is highly important to you</u> <u>You feel you must succeed</u>, both because achievement is highly valued by you, you family and peers, and because you know that high course performance in the subject <u>is essential</u> to your future educational goals and to working in your chosen field Please rate how important you think each of the following factors was in determining your <u>unexpected</u> success on this <u>important</u> test" (Unexpected, high ego-involvement success) The next page, which contained the Likert scales, ran the following explanation "On the previous page, you indicated with percentage figures how important each of a series of factors was in determining your hypothetical test performance Below is the same list of factors This time, using the following rating scales, please rate how important each of the factors was in determining your hypothetical performance. Circle the number which best indicates the importance of each factor "

<u>Affect, Expectancy, Behavioral and Demographic Questionnaires</u> Immediately after completing the two attribution measures, subjects completed an affect, expectancy, and behavioral response questionnaire,

containing 16 affect items, 2 expectancy items, and 5 behavioral items They then completed four items which probed their comprehension of the hypothetical outcomes Finally, they completed a nine item demographic questionnaire containing items concerning age, sex, university level, academic major, pre-university grade average, first language, country of birth, and years of Canadian residence None of the above data are presented here All answers for the above items were completed on a separate, prepared answer sheet See Appendix A

Analyses

A 2 (Outcome success vs failure) X 2 (Expectancy expected vs unexpected) X 2 (Involvement low vs high) analysis of variance (ANOVA) was performed on the six dependent measures of ability, effort, task, luck, internality and externality, in both measurement conditions The measure of internality was created by adding ability and effort, that of externality by adding task and luck. ANOVAs were performed using the Statistical Package for the Social Sciences (SPSS) [Nie, Hull, Jenkins, Steinbrenner, & Bent (2nd Ed.) 1982].

Results

For all dependent measures, results on all measures are presented by effect, beginning with main effects, in the following order: outcome, expectancy, involvement, outcome by expectancy, outcome by involvement, expectancy by involvement, and outcome by expectancy by involvement Within each effect the dependent measures of ability, effort, task, luck, are presented first, the measures of internality and externality last Row and column means on all significant effects on internality and externality are presented in the text, cell means and cell sizes are presented in Tables 16 and 17 A summary of each effect is presented prior to its breakdown by percentage assessment and Likert scales questionnaire, except for instances where the effect occurred on one or two dependent measures only

As suggested by Winer (1971), I chose to run simple main effects tests to probe the location of success/failure differences in significant interactions For instance, the outcome by expectancy by involvement ANOVA performed on the measure of ability in the Likert scales condition of Experiment 1 yielded an outcome by involvement interaction. A significant simple main effect of outcome could have occurred at low or high involvement, and a significant simple main effect of involvement could have occurred at success or failure. Up to three significant simple main effects could have occurred within the interaction (there could not be four; this would indicate two main effects, of outcome and involvement). To test if there was a significant simple main effect of outcome at low involvement, for example, an additional ANOVA was performed on subjects low in ego-involvement. From this ANOVA at low involvement, the mean square of the main effect of outcome was taken, and divided by the error term from the three way outcome by expectancy by involvement ANOVA for ability. This results in the F-ratio for the simple main effect of outcome at low involvement. This figure, taken with the degrees of freedom of outcome at low involvement, and the residual degrees of freedom from the outcome by expectancy by involvement ANOVA, was used in a procedure which establishes the probability of the simple main effect of outcome at low involvement.

General Findings

Results showed a self-serving main effect of outcome on internality and externality across both measures. Results also showed a significant expectancy main effect on various measures, including both internality and externality, across both measures. Expected outcomes yielded greater internal attributions than unexpected outcomes, whereas unexpected outcomes yielded greater external attributions than expected outcomes. There were no outcome by expectancy interactions; the self-serving bias effect was not affected by the expectancy manipulation. There was an outcome by involvement interaction on the measures of ability, effort and internality in the Likert scales measure; success yielded greater effort and internal attributions than failure in the high involvement condition only, and there were greater effort and internal attributions in high involvement success than in low involvement success.

Outcome Main Effects

Hypothesis I was generally confirmed Self-serving effects were found on the measures of internality and externality in both questionnaire conditions, as well as on most individual measures

Percentage assessment measure There was a significant main effect of outcome on the measures of ability and task, and on the collapsed measures of internality and externality There was no main effect of outcome on effort and luck Success yielded greater ability attributions than failure (see Table 4), whereas failure yielded greater task attributions than success (see Table 8) Success (M = 73 88) yielded greater internality than failure (M = 52 24) (see Table 12), whereas failure (M = 42.27) yielded greater externality than success (M = 25.80) (see Table 14).

Likert scales measure There was a significant main effect of outcome on the measures of ability, effort and task, and on the measures of internality and externality. There was no main effect of outcome on luck. Success yielded greater ability and effort attributions than failure (see Tables 5 & 6), whereas failure yielded greater task attributions than success (see Table 11) Success (M = 6.52) yielded greater internality than failure (M = 5.02) (see Table 13), whereas failure (M = 4.01) yielded greater externality than success (M = 3.50) (see Table 15).

Expectancy Main Effects

Hypothesis II was confirmed; unexpected outcomes yielded greater luck and less ability attributions than expected outcomes Expectancy effects on other measures also occurred

<u>Percentage assessment measure</u> There was a significant main effect of expectancy on ability, task, luck, internality, and externality Expected outcomes yielded more ability attributions than unexpected outcomes (see Table 4), whereas unexpected outcomes yielded greater task and luck attributions than unexpected outcomes (see Tables 8 & 10) There was no main effect of expectancy on effort. Expected outcomes (M = 69 96) yielded greater internality than than unexpected outcomes (M = 56 13) (see Table 12), whereas unexpected (M = 39 54) outcomes yielded greater externality than expected outcomes (M = 28 55) (see Table 14).

<u>Likert scales measure</u> There was a main effect of expectancy on ability, effort, luck, internality and externality. Expected outcomes yielded greater ability and effort attributions than unexpected outcomes (see Tables 5 & 7), whereas unexpected outcomes yielded greater luck attributions than expected outcomes (see Table 11). Expected outcomes (M = 6.25) yielded greater internality than unexpected outcomes (M = 5.29) (see Table 13), whereas unexpected outcomes (M = 4.05) yielded greater externality than expected outcomes (M = 3.45) (see Table 15).

Involvement Main Effects

Hypothesis III was confirmed; there was no main effect of involvement on any dependent measure.

Outcome by Expectancy Interactions

Hypothesis IV failed to be confirmed; there was no outcome by expectancy interaction on any measure

Outcome by Involvement Interactions

Hypothesis V failed to be confirmed in the percentage assessment condition; there was no outcome by involvement interaction on any of the dependent measures. In the Likert scales measure, however, Hypothesis I was partially confirmed, there was a significant interaction of outcome by involvement on the measures of ability, effort and internality. There was no outcome by involvement effect on the measures of task, luck and externality. There were three simple main effects for ability; low and high involvement success yielded greater ability attributions than low and high involvement failure, respectively, $F(1, 235) = 19.184$, $p < .001$, and $F(1, 235) = 52.776$, $p < .001$, and high involvement success yielded greater ability attributions than low involvement success $F(1, 235) = 4.576$, $p < .05$ (see Table 5). There were two simple main effects for effort; high involvement success yielded greater effort attributions than high involvment failure and low involvement success, $F(1, 234) = 20.322$, $p < .001$, and $F(1, 235) = 12.963$, $p < .001$ (see Table 7). There were two simple main effects for internality; high involvement success ($M = 7.14$) yielded greater internal attributions than high involvement failure ($M = 4.78$) and low involvement success ($M = 5.90$), $F(1, 241) = 44.038$, $p < .001$, and $F(1, 241) = 12.514$, $p < .001$ (see Table 13).

Expectancy by Involvement Interactions

There was no expectancy by involvement interaction on any dependent measure in the percentage assessment condition. In the Likert scales measure, there was an expectancy by involvement interaction on the measure of ability; expected low involvement outcomes yielded greater ability attributions than unexpected low involvement outcomes, $F(1, 235) = 26.226$, $p < .001$ (see Table 5).

Outcome by Expectancy by Involvement Interactions

There was no outcome by expectancy by involvement interaction on any measure.

Table 4 Analysis of Variance for Outcome, Expectancy, and Ego-involvement (Dependent Measure Ability-Percentage Assessment)

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Tail Probability
Outcome(O)	21164.242	1	21164.242	76.080	.001
Expectancy(E)	8206.867	1	8206.867	29.502	.001
Involvement(I)	264.647	1	264.647	.951	.330
OE	343.900	1	343.900	1.236	.267
OI	.231	1	.231	.001	.977
EI	1940.362	1	1940.362	6.975	.009
OEI	20.706	1	20.706	.074	.785
ERROR	66486.058	239	278.184		

Table 5 Analysis of Variance of for Outcome, Expectancy and Involvement (Dependent Measure: Ability - Likert)

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Tail Probability
Outcome(O)	310.666	1	310.666	67.888	.001
Expectancy(E)	113.220	1	113.220	24.741	.001
Involvement(I)	6.695	1	6.695	1.463	.228
OE	.014	1	.014	.003	.956
OI	19.337	1	19.337	4.226	.041
EI	23.231	1	23.231	5.077	.025
OEI	5.397	1	5.397	1.179	.279
ERROR	1075.401	235	4.576		

Table 6. Analysis of Variance of for Outcome, Expectancy and Involvement (Dependent Measure: Effort - Percentage Assessment)

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Tail Probability
Outcome(O)	337.881	1	337.881	.725	.395
Expectancy(E)	143.372	1	143.372	.307	.580
Involvement(I)	13.094	1	13.094	.028	.867
OE	585.780	1	585.780	1.256	.263
OI	1308.403	1	1308.403	2.806	.095
EI	383.682	1	383.682	.823	.365
OEI	16.213	1	16.213	.035	.852
ERROR	111444.574	239	466.295		

Table 7. Analysis of Variance of for Outcome, Expectancy, and Involvement (Dependent Measure: Effort - Likert)

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Tail Probability
Outcome(O)	51.933	1	51.933	9.973	.002
Expectancy(E)	23.748	1	23.748	4.560	.034
Involvement(I)	18.000	1	18.000	3.457	.064
OE	5.117	1	5.117	.983	.323
OI	53.895	1	53.895	10.350	.001
EI	7.154	1	7.154	1.374	.242
OEI	.728	1	.728	.140	.709
ERROR	1218.518	234	5.207		

Table 8. Analysis of Variance of for Outcome, Expectancy and Involvement (Dependent Measure: Task - Percentage Assessment)

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Tail Probability
Outcome(O)	14444.910	1	14444.910	46.659	.001
Expectancy(E)	2785.644	1	2785.644	8.998	.003
Involvement(I)	305.826	1	305.826	.998	.321
OE	294.064	1	294.064	.950	.331
OI	205.665	1	205.665	.664	.416
EI	192.222	1	192.222	.621	.431
OEI	158.986	1	158.986	.514	.474
ERROR	73993.020	239	309.594		

Table 9. Analysis of Variance of for Outcome, Expectancy and Involvement (Dependent Measure: Task - Likert)

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Tail Probability
Outcome(O)	68.100	1	68.100	16.208	.001
Expectancy(E)	12.204	1	12.204	2.905	.090
Involvement(I)	.951	1	.951	.226	.635
OE	13.603	1	13.603	3.238	.073
OI	1.232	1	1.232	.293	.589
EI	.152	1	.152	.036	.849
OEI	.840	1	.840	.200	.655
ERROR	987.378	235	4.202		

Table 10. Analysis of Variance of For Outcome, Expectancy and Involvement (Dependent Measure: Luck - Percentage Assessment)

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Tail Probability
Outcome(O)	230.094	1	230.094	1.508	.221
Expectancy(E)	1588.379	1	1588.379	10.412	.001
Involvement(I)	207.786	1	207.786	1.362	.244
OE	161.567	1	161.567	1.059	.304
OI	62.385	1	62.385	.409	.523
EI	88.262	1	88.262	.579	.448
OEI	79.097	1	79.097	.518	.472
ERROR	36459.680	239	152.551		

Table 11. Analysis of Variance of for Outcome, Expectancy and Involvement (Dependent Measure: Luck - Likert)

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Tail Probability
Outcome(O)	2.070	1	2.070	.533	.466
Expectancy(E)	29.860	1	29.860	7.691	.006
Involvement(I)	.711	1	.711	.183	.669
OE	.014	1	.014	.003	.953
OI	.100	1	.100	.026	.873
EI	2.318	1	2.318	.597	.441
OEI	4.338	1	4.338	1.117	.292
ERROR	877.491	226	3.883		

Table 12. Analysis of Variance for Outcome, Expectancy and Ego-Involvement (Dependent Measure: Internality - Percentage assessment)

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Tail Probability
Outcome(O)	29025.781	1	29025.781	56.656	.001
Expectancy(E)	11843.048	1	11843.048	23.117	.001
Involvement(I)	398.840	1	398.840	.779	.378
OE	131.190	1	131.190	.256	.613
OI	1282.468	1	1282.468	2.503	.115
EI	604.387	1	604.387	1.180	.278
OEI	73.374	1	73.374	.143	.705
Error	123467.121	241	512.312		

Table 13. Analysis of Variance for Outcome, Expectancy and Ego-involvement (Dependent Measure: Internality - Likert)

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Tail Probability
Outcome(O)	138.163	1	138.163	34.743	.001
Expectancy(E)	57.804	1	57.804	14.536	.001
Involvement(I)	9.397	1	9.397	2.363	.126
OE	1.899	1	1.899	.478	.490
OI	47.892	1	47.892	12.043	.001
EI	.043	1	.043	.011	.917
OEI	5.462	1	5.462	1.373	.242
ERROR	958.386	241	3.977		

Table 14. Analysis of Variance for Outcome, Expectancy and Ego-involvement (Dependent Measure: Externality - Percentage Assessment)

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Tail Probability
Outcome(O)	16835.189	1	16835.1891	36.384	.001
Expectancy(E)	7542.967	1	7542.967	16.302	.001
Involvement(I)	998.647	1	998.647	2.158	.143
OE	111.332	1	111.332	.241	.624
OI	514.850	1	514.850	1.113	.293
EI	528.635	1	528.635	1.142	.286
OEI	11.161	1	11.161	.024	.877
Error	111513.397	241	462.711		

Table 15. Analysis of Variance for Outcome, Expectancy and Ego-Involvement (Dependent Measure: Externality - Likert)

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Tail Probability
Outcome(O)	16.166	1	16.166	5.385	.021
Expectancy(E)	22.265	1	22.265	7.417	.007
Involvement(I)	.004	1	.004	.001	.971
OE	2.487	1	2.487	.828	.364
OI	.487	1	.487	.162	.687
EI	4.047	1	4.047	1.348	.247
OEI	3.955	1	3.955	1.318	.252
ERROR	23.502	248	3.002		

Table 16. Means and Cell Sizes for Attribution Measures in the Percentage Assessment Condition

	Success				Failure			
	Expected		Unexpected		Expected		Unexpected	
	Low I (n=32)	High I (n=30)	Low I (n=30)	High I (n=32)	Low I (n=31)	High I (n=31)	Low I (n=31)	High I (n=31)
Measure	M	M	M	M	M	M	M	M
Internality	77.53	82.57	63.10	72.19	63.06	56.84	43.55	45.72*
Externality	21.84	17.43	36.73	27.34	36.29	38.48	49.35	44.87*
Ability	44.97	42.00	26.03	33.13	24.68	20.68	9.30	17.68
Effort	32.56	40.57	37.07	39.06	38.39	36.16	35.70	29.52
Task	15.31	11.40	24.40	20.16	29.35	32.29	37.30	33.48
Luck	6.53	6.03	12.33	7.19	6.94	6.19	13.70	12.84

*n=32

Table 17. Means and Cell Sizes for Attribution Measures in the Likert Measure Condition

Success

	Expected				Unexpected			
	Low I		High I		Low I		High I	
Measure	M	n	M	n	M	n	M	n
Internality	6.13	32	7.72	30	5.65	30	6.59	32
Externality	2.89	32	3.32	30	4.20	30	3.61	32
Ability	6.93	30	7.52	29	5.27	30	6.48	31
Effort	6.13	30	7.87	30	6.03	30	7.30	30
Task	3.77	30	4.21	29	4.87	30	4.97	30
Luck	2.14	28	2.48	27	3.36	28	2.73	30

Failure

	Expected				Unexpected			
	Low I		High I		Low I		High I	
Measure	M	n	M	n	M	n	M	n
Internality	5.98	31	5.23	31	4.45	31	4.34	32
Externality	3.76	31	3.85	31	4.16	31	4.25	32
Ability	5.55	31	4.40	30	3.26	31	3.94	31
Effort	6.33	30	6.40	30	5.87	31	5.03	31
Task	5.57	30	5.48	31	5.48	31	5.53	32
Luck	2.20	30	2.07	30	2.84	31	2.83	30

Discussion

Wong and Weiner (1981) and Experiment 1 - Why the Differences?

Self-serving attributions occurred in the present experiment, using Wong and Weiner's outcome conditions. As a main effect, success yielded greater internality than failure and failure yielded greater externality than success, in both the percentage assessment and the Likert scale conditions. These findings are opposite to those of Wong and Weiner (1981), where success yielded greater external attributions than failure, and failure yielded greater internal attributions than success. The main effects of outcome were qualified by few interactions, suggesting that differences in method of attribution measurement may have resulted in the differences between the findings of Wong and Weiner and those of the present experiment.

There was no outcome by expectancy interaction in the present experiment; findings were opposite those of Wong and Weiner whether outcomes were expected or unexpected. Thus, expectancy disconfirmation probably did not cause the unusual success/failure differences found in Wong and Weiner's study. In terms of the outcome by involvement interaction on effort and internal attributions in the Likert scales condition, however, it was found that there were self-serving success/failure differences in the high involvement condition, but not in the low involvement condition. This ostensibly suggests that low involvement caused the unusual findings of Wong and Weiner. Nevertheless, because there was only an absence of success/failure differences, and there were no data actually opposite to the self-serving bias, as found in Wong and Weiner, and because the effect occurred in the Likert scales condition only, on internal and effort attributions only, the outcome by involvement interaction can only partially explain why the results of the present study are so different from those of Wong and Weiner. The remaining differences between the present experiment and those of Wong and Weiner is that subjects in the present experiment gave causal explanations, not causal questions, and that these responses occurred in a structured format. It is most likely, then, that subject questioning and/or coding scheme were the causes of Wong and Weiner's unusual findings.

Note that the limited extent to which the factors of expectancy and involvement interacted with outcome in the present study does not rule out the possibility that both had greater effect on attributional locus in Wong and Weiner's experiment; there may have been measures such as motivation, attitude, or grading, that are sensitive to levels of expectancy and involvement and that could in turn have affected the locus of attributional responses across success and failure. Thus, the effects of these factors are still investigated in Experiment 2.

Main Effects - Findings of the Present Experiment, and Past Research

Elig and Frieze's (1979) finding that percentage assessment and Likert scales measures yield success/failure differences on a different set of factors was replicated. The percentage assessment measure found a main effect of outcome on the measures of ability and task, whereas the Likert scales measure showed a significant main effect on the measures of ability, effort and task. Analogous findings concerning the main effect of expectancy also occurred: there was an expectancy main effect on the measures of ability, task and luck in the percentage assessment condition, whereas there was an expectancy main effect on the measures of ability, effort and luck in the Likert scales measure. Nevertheless, when all individual causal factors were collapsed into the measures of internality and externality, there were no differences in outcome and expectancy main effects across the two measures. That is, the findings concerning the main effects on these collapsed factors were not scale specific.

The main effects of outcome on attributions were typical of those found in most attribution studies. Outcome yielded self-serving effects on all individual factors, except luck. Self-serving effects were also found in the collapsed measures of internality and externality, both in the percentage assessment and Likert scales conditions; success yielded greater internality than failure, and failure yielded greater externality than success. The main effects of expectancy were also similar to those found in most previous studies (cf. Zuckerman, 1979) examining expectancy effects: unexpected outcomes yielded less ability attributions and greater luck attributions than expected outcomes. The findings concerning effort and task were inconsistent across attribution measures; interestingly, no consistent findings for these factors can be found across previous studies (Zuckerman, 1979). Perhaps use of different attribution measures across studies causes this inconsistency. Finally, the absence of main effects of involvement was also similar to prior research; the previous experiment which used an ego-involvement manipulation (Miller, 1976) showed that involvement functions only in interaction with outcome to yield differences in attributions.

EXPERIMENT 2

The findings of Experiment 1 suggest that the unexpected nature of the outcome conditions in Wong and Weiner's study did not cause the occurence of their unusual attributional bias; expectancy did not interact with outcome on any dependent measure, although it did show a main effect on the measures of internality and externality. The outcome by involvement interaction on internal attributions in Experiment I, however, suggests that the low ego-involvement conditions in Wong and Weiner may have had a role in creating the unusual bias; it was shown that Wong and Weiner's outcome conditions yielded greater effort and internal attributions in high ego-involvement success than in low ego-involvment failure, but that no such outcome differences were found in the low involvement condition. Wong and Weiner probably found such a low level of internality in success because their outcomes were low in ego-involvement. Nevertheless, there are three reasons to believe why low involvement was not alone in influencing Wong and Weiner's unusual findings: a) there were no outcome by involvement effects on external attributions in Experiment I; b) there were no outcome by involvement effects on any factor in the percentage assessment condition; and c) success did not yield greater external attributions than failure and failure did not yield greater internal attributions than success, in either in the low or high ego-involvment conditions in Experiment I, as occurred in Wong and Weiner. Of course, because expectancy and involvement may have effects on attributions which did occur in the Wong and Weiner's open-ended coding scheme, but which do not occur in the structured measures of Experiment 1, both of these factors may have a larger effect on attributional locus than is suggested by the findings of Experiment 1, when subjects complete open-ended measures. Nevertheless, the most salient factors in Wong and Weiner were effort, task and luck, which were all contained in Experiment 1. Thus, it remains probable that the unusual bias in Wong and Weiner was initiated by another factor, or factors, which at least interacted with involvement and expectancy. The two factors likely to have contributed to the effect are: a) subjects asking questions, as opposed to listing reasons; and b) use of frequency of response data. These two factors are examined in the present experiment. Allowing subjects to ask questions may have caused the unusual bias by suspending subjects' need to attribute defensively. Using frequency of response data may have caused the unusual bias by mistaking salience of causal factors to indicate subjects' perceptions of their importance.

As in Experiment 1, all outcome conditions in Experiment 2 were modeled on those used in Wong and Weiner. Expectancy and ego-involvement manipulations were again investigated. As in Experiment 1, I am concerned with the self-serving bias; of interest are interactions involving the success/failure manipulation. In particular, I am generally more interested in effects concerning success/failure differences. Differences across involvement, expectancy or question type in either success or failure alone do not tell us whether or not a self-serving effect occurred across success and failure. Note that the term "question type" refers to whether subjects were asked to raise questions or list reasons.

<u>Hypothesis I</u> The effect of outcome.

> There will be few, if any, main effects of outcome.

<u>Explanation of Hypothesis I</u>

The lack of outcome main effects is explained by the fact that while Wong and Weiner showed subject questioning of an event yields external attributions of success and internal attributions of failure, Elig and Frieze (1979) showed that open-ended explanations of an event leads to few success/failure differences, with a slight bias towards internal attributions of success and external attributions of failure. Thus, few outcome main effects should occur when both question type conditions are combined. If any main effects do occur, they will be in the direction of the bias found in Wong and Weiner, because Wong and Weiner found greater success/failure differences than Elig and Frieze. However, outcome is expected to interact with other factors.

<u>Hypothesis II</u> The effect of personal expectations.

> Unexpected outcomes will yield greater external, and fewer internal, attributions than expected

outcomes.

Explanation of Hypothesis II

Because expectancy does not affect the measures of task and effort consistently across studies (including Experiment 1, where findings for effort and task varied across percentage assessment and Likert scales measures), no predictions are made for these factors. However, because expectancy affected internality and externality consistently across percentage assessment and Likert scales measure in Experiment 1, it is predicted that the same effects will occur in Experiment 2.

Hypothesis III The effect of involvement.

> There will no main effect of involvement on any measure.

Explanation of Hypothesis III

Neither Miller (1976), nor Experiment 1 of the present study, the two previous experiments containing an involvement manipulation, showed a main effect of involvement on any factor.

Hypothesis IV The effect of question type.

> The reasons condition will yield greater effort, task, internal, and external attributions than the questions condition.

Explanation of Hypothesis IV

The reasons condition should yield consistently greater attributions because all responses in the reasons condition will be attributional, whereas only part of the responses in the questions condition will be attributional. The latter will include various questions, such as concerning future action (e.g., "What will I do now?"), as well as attributional questions.

<u>Hypothesis</u> <u>V</u> The effect of coding.

The unexpected, low ego-involvement questions condition in this study, that is, the very same condition used in Wong and Weiner, should yield internal attributions of success and external attributions of failure. However, this effect will occur only when Wong and Weiner's frequency of response coding is used. When subjects' percentage assessments of their attributional responses are considered, the same condition should show fewer success/failure differences. This is because the scores of attributions that are inflated through use of frequency of response coding will be lowered when percentage assessments indicating subjects' own perceptions of causal importance are considered.

<u>Hypothesis</u> <u>VI</u> The interaction effect of outcome and question type.

There will be an outcome by question type interaction on the measures of task and externality. Wong and Weiner's unusual pattern of attributions will be greater in the questions level of the questionnaire type condition than in the reasons level. More specifically:

i) Success will yield greater task and external attributions than failure to a greater degree in the questions condition than in the reasons condition.

Explanation of Hypothesis VI

Because there were no expectancy or involvement interactions with outcome on the measures of task and externality in Experiment 1, it is probable that the effects concerning these factors in Wong and Weiner were caused largely by subject questioning. Thus, the questions condition will always replicate Wong and Weiner's effects concerning these factors, across expectancy and involvement conditions. The unusual bias should not occur in the reasons condition, however, because prior research (Elig & Frieze, 1979) shows that open-ended measures which ask subjects to list reasons show few differences between attributions for success and attributions for failure, and that any differences reflect the self-serving bias. It is possible that questionnaire type will affect internal attributions also, showing the questions condition yielding fewer internal attributions in success, but the results concerning internal attributions in Experiment 1 suggest that low involvement contributed to lowering self-serving effects on these factors. Nevertheless, because low involvement in Experiment 1 did not actually result in internal attributions of failure, it is possible that low involvement and subject questioning interacted to create the unusual effects concerning internality in Wong and Weiner. See hypothesis VIII.

Hypothesis VII The interaction effect of outcome and ego-involvement.

There will be an outcome by involvement interaction on the measures of effort and internality. Self-serving effects will be greater in the high ego-involvement condition than in the low ego-involvement condition. More specifically:

> High involvement success will yield greater effort and internal attributions than high involvement failure.

Explanation of Hypothesis VII

Because Experiment I showed self-serving effects for effort and internal attributions only under high ego-involvement conditions for effort and internal attributions only, it is probable that the same limited effect will occur in Experiment 2.

Hypothesis VIII - The interaction effect of outcome, involvement, and question type.

There will be an outcome by involvement by questionnaire interaction on the measures of effort and internality. Self-serving effects will be significantly greater in high involvement than in low involvement.

1) Success will yield greater effort and internal attributions than failure to a greater extent in the high ego-involvement reasons conditions than in the low ego-involvement reasons condition.
2) Failure will yield greater internal attributions than success to a greater extent in the low ego-

involvement questions condition than in in the high ego-involvement questions condition.

Explanation of Hypothesis VIII

To 1. Miller (1976) demonstrated the positive relationship between ego-involvement and self-serving attributions. Although Elig and Frieze (1979) showed that open-ended measures which ask for causal explanations yield few success/failure differences on individual attributions, those differences should increase with high ego-involvement. Because Experiment 1 showed that, using Wong and Weiner's outcome conditions, ego-involvement has an effect on internal attributions only, this hypothesis is restricted to internal attributions.

To 2. Miller (1976) found a positive relationship between ego-involvement and self-serving attributions, and Experiment 1 found that ego-involvement manipulations, using Wong and Weiner's outcome conditions, affect internality only. Thus, when Wong and Weiner's outcomes are increased in involvement in the questions level of the questionnaire condition, the "control" effect on these attributions should diminish.

Method

Subjects

Subjects were 486 male and female undergraduate and graduate students enrolled in a wide range of courses at Concordia University, during the Winter term, 1984. All subjects were members of classes volunteered by professors for the purposes of the experiment.

Design of Study

This experiment attempts to probe the reasons for the unusual bias found in Wong and Weiner by manipulating the following outcome conditions:

1. An outcome condition, in which hypothetical outcomes are described as successful or unsuccessful.
2. An expectancy condition, in which an outcome is described as confirming or disconfirming the subject's prior "strength" in the subject.
3. An ego-involvement condition, in which the outcome is described as merely being a mid-term test, or is described as a test important to the subject, both in terms of the expectations of important others and in terms of achieving subsequent academic and vocational success.
4. A question type condition, in which subjects are asked either to raise questions in response to the hypothetical outcome, or to list reasons explaining the hypothetical outcome.
5. A method of measurement condition, in which

attributional responses are measured by their frequency of response, or by the percentage assessments assigned to them by subjects.

Attributional effects of the outcome, expectancy, involvement and measure manipulations are assessed by coding subjects' open-ended questions or statements made in response to the hypothetical outcomes. The experiment is a 2 X 2 X 2 X 2 X (2) repeated measures design. The first factor, outcome, consists of two levels: success and failure. The second factor, expectancy, consists of two levels: expected and unexpected. The third factor, ego-involvement, consists of two levels: low and high. The fourth factor, question type, consists of two levels: questions and reasons. The fifth, and within-groups, factor, method of measurement, consists of two levels: frequency of response and percentage assessment. This results in 16 between group factorial cells (see Figure 3), as each level of the fifth factor, method of measurement, is analyzed separately because it involves different dependent measures, which cannot be compared statistically.

QUESTIONS

Low involvement

	Expected	Unexpected
Success		
Failure		

High involvement

	Expected	Unexpected
Success		
Failure		

REASONS

Low involvement

	Expected	Unexpected
Success		
Failure		

High involvement

	Expected	Unexpected
Success		
Failure		

Figure 3: The between groups experimental design. The dependent measures are effort, task, internality, and externality.

Experimenters

The same as in Experiment 1.

Procedure

The same as in Experiment 1.

Materials

All materials for Experiment 2 are found in Appendix A. Immediately preceding each hypothetical outcome description in the questions condition were the following instructions: "The following is a hypothetical course examination situation. In this situation, what would you most likely ask yourself, given the outcome? Make sure that you raise _at least five_ questions." Beneath the outcome description was the heading, _Questions_, followed by seven numbered lines, upon which the subjects were to write their questions. This format was based closely upon actual samples of Wong and Weiner's materials. Immediately preceding the hypothetical outcome description in the reasons condition was the statement, "The following is a hypothetical course examination situation. In this situation, what reasons would you give for your test outcome? Make sure that you list _at least five_ reasons." Following the description was the heading, _Reasons_, followed by seven numbered lines, upon which subjects were to write the reasons for the outcome. The paragraph describing the test outcome was identical across the questions and reasons levels of the questionnaire type condition, and identical to the descriptions used in

Experiment 1, except for the final sentence, which asked subjects once again to raise questions or list reasons. See Appendix A for the outcome conditions. On the second page of each questionnaire in the questions condition were the instructions: "Please copy onto the lines below all the questions you wrote on the the previous page, keeping them in their original order. Write them in a shortened form if you wish. Do not list any new questions on this page. After you have copied all the questions, please indicate with a percentage figure how important you think the factor mentioned in each question was in determining your hypothetical test performance. If what is referred to in the question had no effect on performance, give the question a rating of 0%. For example, these sorts of questions, "How shall I prepare for the final?", "Why did I fail this exam", and "How well will I do on the final?" should probably be rated zero, because they make no references to factors that could have affected test performance. However, if what is questioned had an effect on performance, as in questions such as, "Was I lucky?", "Was the exam fair?", or "Did I try hard?", give the question a percentage rating. If the factor mentioned had a small influence on performance, give it a low percentage rating. If the factor had a large influence on performance, give it a high percentage rating. The total of all percentages must not exceed 100%." Beneath these instructions was the heading "Questions" and, to the right, a heading composed of a percentage figure, to denote placement of the percentages. There were again seven numbered lines, paired with seven shorter lines, where subjects could write their percentage assessments. Beneath the percentage column was the warning: "Total must not exceed 100%. On the second page of the questionnaire in the reasons conditions were an analogous set of instructions: Please copy onto the lines below all the reasons you wrote on the previous page, keeping them in their <u>original</u> <u>order</u>. Write them in a shortened form if you wish. Do <u>not</u> write any <u>new</u> reasons on this page. After you have copied all the reasons, please indicate with a percentage figure how important you think each reason was in determining your performance on the test. If a reason had a small influence on performance, give it a low percentage rating. If the reason had a large influence on performance, give it a high percentage rating. The total of all percentages must <u>not</u> exceed 100%." The remainder of the page was similar in format to the respective page in the questions conditions, with the exception of the use of the heading, <u>Reasons</u>. A method was developed to correct questionnaires in which a single percentage assessment was given to a response in which two causes were listed or questioned, and for those questionnaires in which the total ratings exceeded 100%. See Appendix B.

<u>Dependent Measures</u>

<u>Affect, expectancy and behavioral response measures</u>

The same as those found in Experiment 1.

Attribution measures

Open-ended responses, in both the questions and reasons conditions, were coded with the scheme developed to code the responses in Wong and Weiner (1981). The scheme consists of nineteen classification categories: action, re-evaluation, miscellaneous, general, ability, effort, task, luck, study method, error, motivation, attitude, emotion, physical condition, cheating, help, teacher, knowledge, and situation. For definitions and examples of each of these categories, and for the method through which Wong and Weiner developed their coding scheme, see Appendix B. It was decided to replicate Wong and Weiner's study as closely as possible by neither adding nor subtracting categories, and by developing definitions of each category, illuminated by actual examples. The latter step was necessary because Wong and Weiner had made no formal definitions of each category, and had instead relied on key examples. Apparently, they had discussed the categories carefully, and had prior knowledge both of theoretical definitions of each category and of former coding schemes. We required formal definitions to maintain objectivity and repeatability, and because the judges used in this study were not equally familiar with attribution theory.

Judges were introduced to Wong and Weiner's coding by a written introduction, which is essentially a reduction of the method Wong and Weiner used to develop their scheme. See Appendix B. Judges familiarized themselves with the coding scheme by first reviewing examples of each category included in the introduction, and then by studying an actual sample of coded data from the Wong and Weiner study, consisting of the responses made to sixteen outcome conditions. This sample of data was forwarded by Wong upon request. Judges then covered the codings and attempted to code the responses themselves. There were six judges, four who were to complete the actual coding, one who was to act as a tie-breaker (all responses in the experiment were coded by pairs of judges), and one acted as back-up judge. Inter-judge consensus and consensus with Wong and Weiner's coding was then calculated. Inter-judge consensus was calculated by first going over each statement that was independently coded by the judges, and recording which coding judges most often used. The number of coded statements was then totalled, and then so was the number of times a judge agreed with the list of consensus codings. The number of times a judge agreed with the consensus codings was then divided by the total number of coded statements to determine inter-judge consensus for that individual. Thus, if there were seventy statements, and a judge agreed with the consensus list fifty-six times, the inter-judge consensus for that judge was .56/70 = .80. Consensus with Wong and Weiner's coding was then calculated by dividing the number of times the list of consensus codings agreed with Wong and Weiner's codings. Inter-judge consensus for the coding of the sample of Wong and Weiner data was .80, .82, .85, .85, for the regular judges, .95

for the tie-breaker, and .95 for the back-up judge. Consensus with Wong and Weiner's scoring was .94. Judges then coded another set of responses to twelve outcomes from the Wong and Weiner study, this time with the original codings removed. Inter-judge consensus was .78, .90, .88, .93 for the regular judges (judges presented in the same order as before) .92 for the tie-breaker, and .90 for the extra. Consensus with Wong and Weiner's coding was .90. This process of familiarization took several weeks, with weekly meetings to ascertain consensus, and discuss codings.

Two regular judges also originated definitions of each causal category, based upon Wong and Weiner's original codings. During the meetings convened to help judges' progress with the coding scheme, these definitions were refined and relevant examples were added. Furthermore, a comprehensive list of examples for each category was compiled. The completed scheme is found in Appendix B.

Some problems were encountered in creating the coding scheme. These occurred mainly in defining and differentiating the categories of re-evaluation and ability. Because subjects always performed inconsistently with their strength or weakness in a subject, there were a number of subjects in Wong and Weiner who questioned whether they were really strong or weak (e.g., "Am I deceiving myself about my potential?"). Wong and Weiner decided to code such questions as non-attributional responses, referred to as re-evaluation. Nevertheless, the use of this category was at times inconsistent in their coding, including several instances where subjects were definitely referring to task difficulty. This led to difficulties in refining the definition of the category. The main problem with this category, however, is deciding whether a response belongs here or in the category of ability. Because level of ability is always implicitly stated in the outcome descriptions, and always inconsistent with the outcome, subjects almost never referred to their ability without some sense of re-evaluation. This problem is substantial, because re-evaluation is not included as an attributional category, thus reducing the number of internal ability attributions in the analysis. The question remains as to whether re-evaluation should be classified attributionally as an ability question. Wong and Weiner decided they were not attributional, but more recently, Wong (Appendix B) suggests that they could be considered as internal, ability attributions. For the purposes of replication, the present study retains re-evaluation questions as non-attributional responses.

<u>Coding Procedure</u>

The order in which classes were coded was determined randomly, by picking numbered pieces of paper, corresponding to assigned class numbers, from a box. The six possible pairs of judges were arranged in a list in the first order that came to mind. Each pair was assigned a relatively equal number of subjects by providing them with enough classes until a quota of approximately fifty subjects was reached. Five of the six pairs completed another set of subjects later on, to complete scoring of all subjects. The second set was somewhat larger than the first, because coders were now capable of coding a greater number of subjects within a similar period of time. Each member of a coding pair independently coded his or her assigned subjects on a separate sheet. When the coding of the classes assigned to a pair of judges was completed by both members, the pair met and wrote their consensus on a new sheet. Discussion was used to resolve any coding disagreements. If disagreement persisted, the individual codings were given to the tie-breaker and she decided upon the final coding. Tie-breaking was required for less than 1% of codings.

Analyses

A 2 (Outcome: success vs. failure) X 2 (Expectancy: expected vs. unexpected) X 2 (Involvement: low vs. high) X 2 (Questionnaire: questions vs. reasons) analysis of variance (ANOVA) was performed on the four dependent measures of effort, task, internality and externality. The measure of internality was created by adding the categories of ability, effort, study method, error, motivation, attitude, emotion, physical condition, cheating and knowledge, that of externality by adding the categories of task, luck, help, teacher and situation. ANOVAs were run on these four measures for the purpose of replication; these were the four measures upon which Wong and Weiner ran

ANOVAs in their study. As in Experiment 1, the ANOVAs were performed using the Statistical Package for the Social Sciences (SPSS).

Results

The eight four-way ANOVAs in the present experiment yielded a group of interaction effects too large and complex to be reported by effect, as was done in Experiment 1; the reader would find great difficulty in deciphering the results if presented in this fashion. Thus, while main effects are presented in the same order as in Experiment 1, a different order of presentation is used for reporting interaction effects, organizing the data to answer these four questions: 1) Did the cells replicating Wong and Weiner's experimental conditions in the present experiment yield the same findings as Wong and Weiner? 2) In which other conditions, if any, did Wong and Weiner's effects occur? 3) In which conditions did self-serving effects occur? 4) What was the main cause of Wong and Weiner's effects? Answering the first question, whether the cells replicating Wong and Weiner's experiment yielded the same findings as Wong and Weiner, establishes whether Wong and Weiner's anomalous findings were a function of their experimental manipulations, or of uncontrolled factors specific to their experiment, such as atypical causal beliefs of the subject population, or coder bias. Answering the second question, whether Wong and Weiner's effects occurred in conditions other than those used specifically in Wong and Weiner's study, establishes whether Wong and Weiner's effects occurred because of the set of manipulations specific to their experiment, or whether modified versions of their conditions also yield the same results. Answering the third question, what conditions yielded self-serving effects, tells us more about what causes self-serving effects in open-ended measures. Answering the fourth question, what factor, or interaction of factors, was sufficient to cause Wong and Weiner's effects, establishes whether Wong and Weiner's hypothesis provides a sufficient, or even approximate, explanation of their results. Note that the answer to this latter question can be gleaned from the answer to question two, but the information is recapitulated so as to address the question more directly. The hypotheses concerning interactions are addressed in the answers to the four questions. In answering each question, effects on the measures of internality and externality are presented first, followed by the effects on the measures of effort and task. Row and column means for all significant effects on internality and externality are presented in the text. Cell means and cell sizes of all measures are presented in Tables 26 and 27.

Note that effects concerning success/failure differences are almost exclusively reported. The central question of the study concerns how Wong and Weiner's experimental conditions created their success/failure differences. Thus, findings concerning expectancy, involvement, and question type differences in success or failure only are generally omitted.

Summary of Findings

There were a total of 2460 responses, averaging 5.06 responses per subject. The relative frequency of each category was as follows (in the order of appearance in the coding scheme): general [where people asked "why" questions without mentioning any causal factor] (2.97%), ability (1.3%), effort (12.72%), task (15.65%), luck (4.19%), study method (4.27%), personal error (2.44%), motivation (5.98%), attitude (2.76%), emotion (3.50%), personal physical condition (1.87%), cheating (.48%), other's help/hindrance (1.14%), teacher [includes method of grading] (10.49%), knowledge (3.82%), situation (2.97%), action [e.g., "What am I going to do?] (7.2%), re-evaluation (3.0%), miscellaneous [includes all non-attributional responses that are not action or re-evaluation, and all incomprehensible responses] (13.29%).

It was found that the replication of Wong and Weiner's unexpected, low ego-involvement experimental conditions in the present experiment yielded the same findings as Wong and Weiner on the measures of internality, externality and effort, but not on the measure of task. There were no success/failure differences on the measure of task in these conditions. Wong and Weiner's findings were repeated in conditions other than those replicating their study. Wong and Weiner's findings concerning internality and externality occurred across all unexpected conditions, even when subjects listed reasons, and when percentage assessment data was considered. It was found that subject questioning also yielded Wong and Weiner's findings concerning internality and that subject questioning also yielded Wong and Weiner's findings concerning externality when ego-involvement was high. The expectancy and question type effects on the measures of internality and externality occurred across frequency of response and percentage assessment conditions. Wong and Weiner's findings concerning effort occurred in the question conditions only, across the frequency of response and percentage assessment conditions. Wong and Weiner's findings concerning task occurred in the expected questions condition only, in the frequency of response condition.

Few self-serving effects occurred; all of these were in the reasons condition. Self-serving effects on the measure of externality were found in the high ego-involvement reasons condition across both measurement conditions, self-serving effects were found on the measure of task in the high ego-involvement and unexpected levels of the frequency of response condition, and self-serving effects were found on the measure of effort in the unexpected, frequency of response condition.

Finally, it was found that expectancy disconfirmation explains Wong and Weiner's findings concerning both internality and externality, and that their hypothesis explains their effects on the measures of internality and effort.

<u>Outcome main effects</u>

Hypothesis I was not confirmed; there were main effects on the measures of effort and internality in the frequency of response conditions, and on the measures of internality in the percentage assessment condition. The main effect of outcome on the measures of effort (see Table 21) and internality (see Table 17) in the frequency of response condition showed that failure yielded greater effort than success; and that failure (M = 2.25) yielded greater internal attributions than success (M = 1.73). The main effect of outcome on the measure of internality (see Table 18) in the percentage assessment condition showed that failure (M = 46.37) yielded more internal ratings than success (M = 40.63).

<u>Expectancy main effects</u>

Hypothesis II was confirmed on the measures of internality and externality, across both measurement conditions. Unexpected outcomes (M = 2.20) in the frequency of response condition yielded greater external attributions than expected outcomes (M = 1.42) (see Table 20), whereas expected outcomes (M = 2.19) yielded greater internal attributions than unexpected outcomes (M = 1.79) (see Table 18). In the percentage assessment condition, unexpected outcomes (M = 39.21) yielded greater external ratings than expected outcomes (M = 25.69) (see Table 21), whereas expected outcomes (M = 46.50) yielded greater internal ratings than unexpected outcomes (M = 40.51) (see

Table 19). There was also a main effect of expectancy on the measure of task, across both measurement conditions. Unexpected outcomes in the frequency of response and the percentage assessment condition yielded greater task attributions than expected outcomes (see Tables 24 & 25).

<u>Involvement main effects</u>

Hypothesis III was not confirmed, there was a main effect of involvement on the measures of task and externality, in both measurement conditions. The main effect on the measures of task and externality in the frequency of response condition showed that low involvement outcomes yielded greater task attributions than high involvement outcomes (see Table 24), and that low involvement outcomes ($M = 2.00$) yielded greater external attributions than high involvement outcomes ($M = 1.57$) (see Table 20). The main effect of involvement on the measures of task and externality in the percentage assessment condition showed that low involvement outcomes yielded greater task ratings than high involvement outcomes (see Table 25) and that low involvement outcomes ($M = 36.69$) yielded greater external ratings than high involvement outcomes ($M = 27.44$) (see Table 21).

<u>Question type main effects</u>

Hypothesis IV was confirmed, there was a main effect of question type on the measures of effort, task, internality, and externality in the frequency of response condition, and on internal and external ratings in the percentage assessment condition. The reasons condition in the frequency of response condition yielded greater effort and task attributions than the questions condition (see Tables 22 & 24), and the reasons condition (M = 2.79, 2.07) also yielded greater internal and external attributions than the questions condition (M = 1.22, 1.52) (see Tables 18 & 20). The main effect of questionnaire type on the measures of internality and externality in the percentage assessment condition showed that reasons condition (M = 57.59, 36.76) yielded greater internal and external attribution ratings than the questions condition (M = 29.26, 27.37) (see Tables 19 & 21).

<u>Replication of Wong and Weiner's Experimental Conditions</u>

By way of summary, it was found that the frequency of response data in the unexpected low ego-involvement questions condition of the present study, the condition replicating Wong and Weiner (1981), yielded the same findings as Wong and Weiner on the measures of internality, externality, and effort, but not on the measure of task. This was demonstrated by an outcome by expectancy interaction on the measures of internality and externality, and by an outcome by expectancy interaction on the measure of effort, qualified by an outcome by expectancy by question type interaction. These interactions were not predicted; Experiment I had shown no outcome by expectancy interactions.

Simple main effects tests performed on the outcome by expectancy interaction on the measures of internality and externality showed that unexpected failure ($M = 2.30$) yielded greater internal attributions than unexpected success ($M = 1.23$), $F(1, 463) = 39.335$, $p < .001$, and that unexpected success ($M = 2.46$) yielded greater external attributions than unexpected failure ($M = 1.96$), $F(1,463) = 8.071$, $p < .005$ (see Tables 18 & 20). Because the outcome by expectancy interaction on the measures of internality and externality is not qualified by a higher order interaction, the cell replicating Wong and Weiner's unexpected conditions found the same results on these measures as Wong and Weiner (see Figure 4).

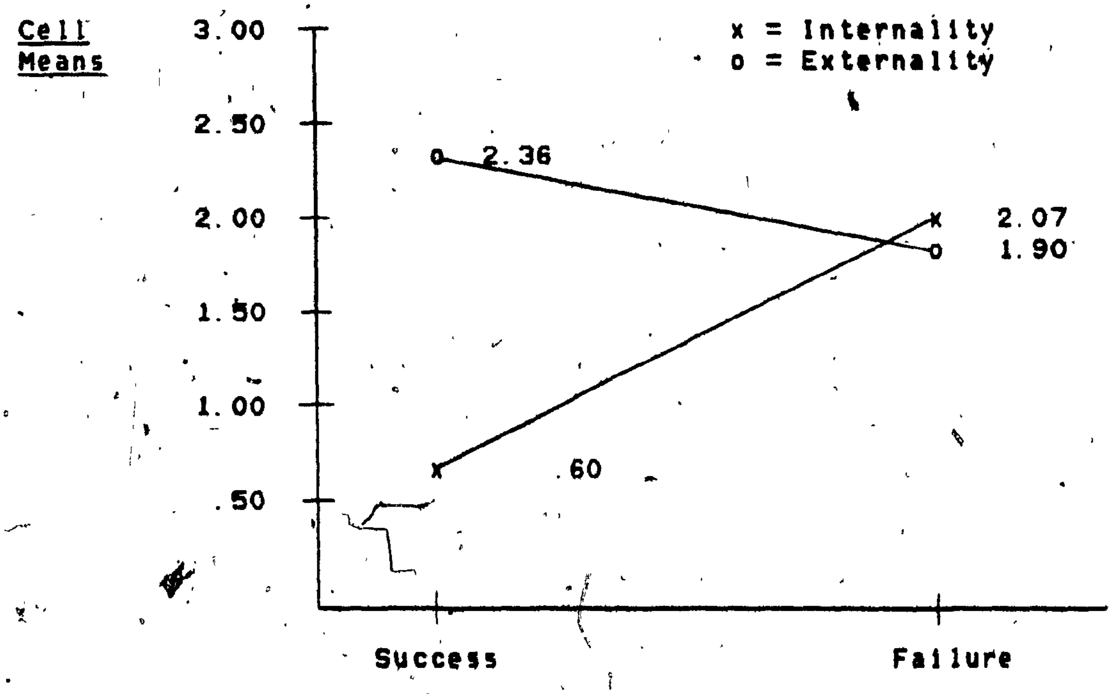

Figure 4: The Measures of Internality and Externality in the Replication of Wong and Weiner's Experimental Conditions.

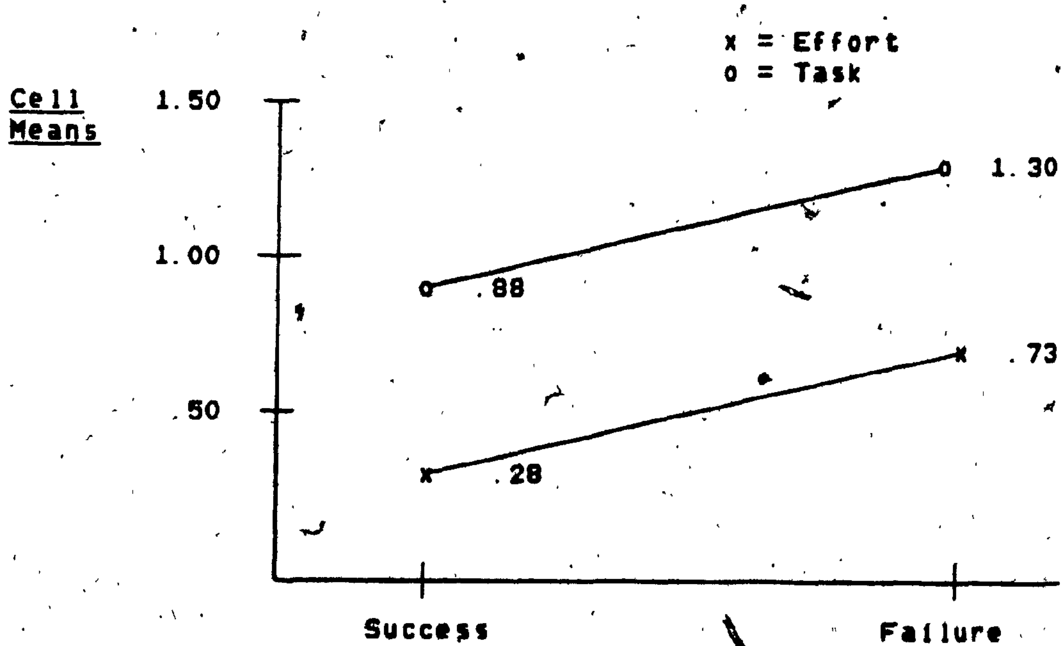

Figure 5: The Measures of Effort and Task in the Replication of Wong and Weiner's Experimental Conditions.

In the outcome by expectancy interaction on the measure of effort, failure yielded greater effort attributions than success in the expected condition only, $F(1, 463) = 8.208$, $p < .005$. This effect was qualified by an outcome by expectancy by question type interaction, however, which showed that Wong and Weiner's effects concerning effort were replicated in the questions condition; questions failure yielded greater effort attributions than questions success, across expected and unexpected conditions, $F(1, 463) = 5.239$, $p < .05$, and $F(1, 463) = 6.814$, $p < .01$, which includes the cells containing Wong and Weiner's unexpected condition.

Wong and Weiner's Effects in Other Conditions

Wong and Weiner's findings concerning task and external attributions of success, and effort and internal attributions of failure, occurred in cells other than the ones replicating their specific experimental conditions. In terms of internality and externality, success yielded greater external attributions than failure, and failure yielded greater internal attributions than success when outcomes were unexpected; failure yielded greater internal attributions than success when subjects asked questions, and success yielded greater external attributions than failure when subjects asked questions of outcomes that were high in ego-involvement. All these effects occurred in both the frequency of response and percentage assessment measurement conditions. In terms of the measures of effort and task, Wong and Weiner's findings of effort attributions of failure occurred in the expected, as well as the unexpected, questions condition, across both measurement conditions, while greater task attributions of success than of failure occurred in the expected questions condition, in the frequency of response measurement condition only. All the above findings are presented by method of measurement.

<u>Frequency of Response Data</u> Concerning the measures of internality and externality, because the outcome by expectancy interactions on these measures were unqualified, all unexpected conditions showed external attributions of success and internal attributions of failure. That is, Wong and Weiner's effects occurred in both the low and high ego-involvement unexpected conditions, and in both the unexpected questions and unexpected reasons conditions. Greater internal attributions of failure than success also occurred whenever subjects asked questions, there was an outcome by question type interaction on the measure of internality, unqualified by a higher interaction, questions failure ($M = 1.63$) (i.e., where subjects asked questions in response to a failure outcome) yielded greater internal attributions than questions success ($M = .75$), $F(1, 463) = 26.307$, $p < .001$ (see Table 18). Because the outcome by question type interaction was not otherwise qualified by a higher interaction, hypothesis VIII was not confirmed, that questions failure would yield greater internal attributions than questions success in the low ego-involvement

conditions than in the high ego-involvement conditions. Wong and Weiner's findings concerning externality were also replicated when subjects asked questions in high ego-involvment conditions. An outcome by question type interaction on the measure of externality showed that questions success ($M = 1.75$) yielded greater external attributions than questions failure ($M = 1.30$), $F(1, 463) = 7.915$, $p < .01$ (see Table 20). This was qualified by an outcome by involvement by question type interaction, however, which showed that questions success ($M = 1.65$) yielded greater external attributions than questions failure ($M = .98$) only when ego-involvement was high, $F(1, 463) = 8.13$, $p < .005$ (see Table 20). Thus, Hypothesis VI was not confirmed, that questions would yield greater external attributions of success than of failure, in the absence of higher order interactions

Wong and Weiner's findings concerning the measure of effort occurred across both the expected questions condition and the unexpected questions condition. The outcome by expectancy by question type interaction on the measure of effort showed that questions failure yielded greater effort attributions than questions success in Wong and Weiner's unexpected questions condition, and in the expected questions condition $F(1, 463) = 6.814$, $p < .01$, and $F(1, 463) = 5.239$, $p < .05$ (see Table 22). There were no further interaction effects on effort, so as in the case of internality, Hypothesis VIII was not confirmed, that failure questions will yield greater effort attributions in the low involvement condition.

Wong and Weiner's findings concerning the measure of task were replicated when subjects asked questions in the expected condition; an outcome by expectancy by question type interaction showed that questions success yielded greater task attributions than questions failure only when outcomes were expected, $F(1, 463) = 6.939$, $p < .005$ (see Table 24).

<u>Percentage Assessment Data</u>

In hypothesis V, it was predicted that Wong and Weiner's conditions would yield Wong and Weiner's findings only when frequency of response data was considered. Hypothesis V was not confirmed, however, Wong and Weiner's findings concerning the measures of internality, externality and effort occurred when percentage assessment data was considered, both in the low ego-involvement and unexpected conditions used in their study, and in other conditions. Findings concerning success/failure differences on the measures of internality and externality were exactly the same as those found in the frequency of response condition There was an unqualified outcome by expectancy interaction effect on internality and externality ratings Unexpected success ($M = 44.89$) yielded greater external ratings than unexpected failure ($M = 34.11$), $F(1, 441) = 7.791$, $p < .01$, and unexpected failure ($M = 48.80$) yielded greater internal ratings than unexpected success ($M = 31.25$), $F(1, 441) = 19.417$, $p < .001$ (see Tables 19 & 21).

Also as in the frequency of response condition, there was an outcome by question type interaction effect on the measures of internality and externality, questions success ($M = 31.70$) yielded greater external ratings than questions failure ($M = 23.58$), $F(1, 441) = 4.939$, $p < .05$, and questions failure ($M = 37.92$) yielded greater internal ratings than questions success ($M = 19.36$), $F(1, 441) = 20.935$, $p < .001$ (see Tables 19 & 21). As in the frequency of response condition, the outcome by question type interaction on the measure of externality was qualified by an outcome by involvement by question type interaction which showed that questions success ($M = 29.39$) yielded greater external attributions than questions failure ($M = 15.92$) in the high ego-involvement condition only, $F(1, 441) = 6.038$, $p < .05$ (see Table 21).

Success/failure differences on the measure of effort in Wong and Weiner's unexpected low involvement questions conditions of the present study were also replicated in the percentage assessment condition. An outcome by questionnaire type interaction on the measure of effort, unqualified by a higher order interaction, showed that questions failure yielded greater effort ratings than questions success, across expectancy and involvement conditions, $F(1, 441) = 9.898$, $p < .01$ (see Table 23).

Hypothesis V was confirmed on the measure of task only, effects on task differ across frequency of response and percentage assessment conditions, Unlike the frequency of response condition, there were no success/failure differences on task in the percentage assessment condition (see Table 25).

Self-serving Effects

Self-serving effects occurred in the reasons condition only. There was a self-serving effect on the measure of externality, in both the frequency of response and the percentage assessment condition, and on effort and task, in the frequency of response condition only.

The self-serving effect on the measure of externality occurred in an outcome by involvement by question type interaction in the frequency of response condition; reasons failure (M = 2.25) yielded greater external attributions than reasons success (M = 1.46) in the high involvement condition only F (1,463) = 16.801, p < .01 (see Table 20 & Figure 6). The effect was repeated in the percentage assessment condition, where there was an outcome by question type interaction; reasons failure (M = 40.65) yielded greater external ratings than reasons success (M = 32.59) This was qualified by an outcome by involvement by question type interaction, which showed that reasons failure (M = 40.57) yielded greater external ratings than reasons success (M = 24.73), in the high involvement condition only, F (1, 441) = 6.037, p < .05 (see Table 21 & Figure 7).

The self-serving effect on the measure of effort was found in an outcome by expectancy by question type interaction in the frequency of response condition; reasons success yielded greater effort attributions than reasons failure in the unexpected conditions only, F (1, 463) = 6.814, p < .01 (see Table 22). There was no self-serving effect for effort in the percentage assessment condition.

The self-serving effect on the measure of task occurred in an outcome by question type interaction in the frequency of response condition; failure reasons yielded greater task attributions than success reasons, F (1, 463) = 5.218, p < .05. This effect was qualified by an outcome by expectancy by question type interaction, which showed that there was a self-serving effect on task in the expected condition only, F (1, 463) = 4.714, p < .05. The outcome by question type interaction was also qualified by an outcome by involvement by question type interaction, which showed that there was a self-serving effect on task in the high involvement reasons condition only, F (1, 463) = 8.149, p < .01 (see Table 23). There were no self-serving effects for task in the percentage assessment condition.

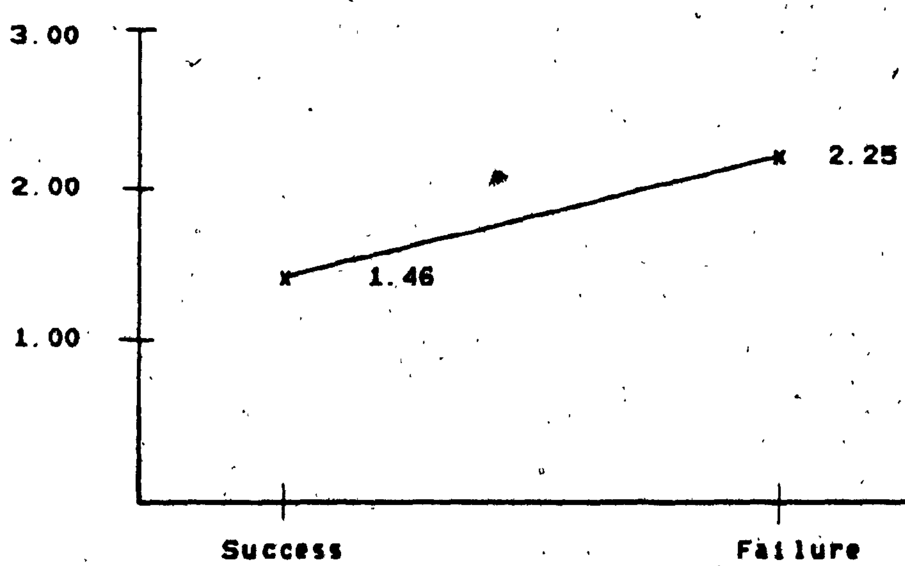

Figure 6: The self-serving effect on the measure of externality in the high ego-involvement reasons condition (frequency of response measurement.

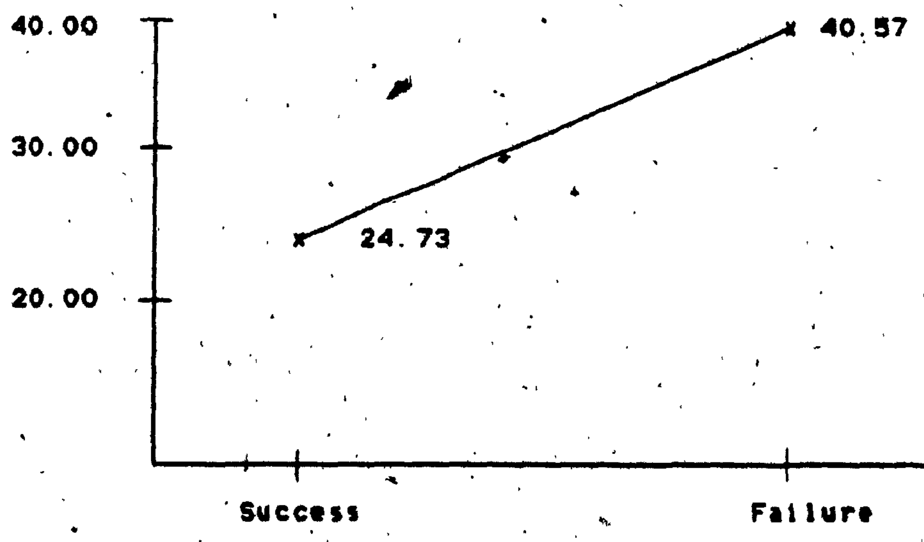

Figure 7. The self-serving effect on the measure of externality in the high ego-involvement reasons condition (percentage assessment measurement).

The Cause of Wong and Weiner's Unusual Attributional Bias

Expectancy and Subject Questioning Wong and Weiner hypothesized that the external attributions of success and internal attributions of failure in their study occurred because subjects asked questions, as opposed to listing reasons. In asking questions, subjects were no longer interested in maintaining self-esteem; instead, they became interested in searching for solutions to problems that may recur I hypothesized that Wong and Weiner's effect may just as easily have occurred because of the effects of expectancy disconfirmation, low ego-involvement, or coding scheme. Which factor, or interaction of factors, best explains Wong and Weiner's findings? The present study suggests that that depends, in part, upon which factors are considered, but in terms of the collapsed factors of internality and externality, Wong and Weiner's subject questioning explanation alone is insufficient, whereas expectancy disconfirmation sufficiently explains their findings concerning both these factors. For the measure of effort, on the other hand, Wong and Weiner's hypothesis provides the best explanation.

As previously reported, there was an unqualified outcome by expectancy interaction, across both measurement conditions, on the measures of internality and externality, where unexpected success yielded greater external attributions than unexpected failure, and unexpected failure yielded greater internal attributions than unexpected success. The fact that the outcome by expectancy interaction effect on these two measures was not qualified by a higher order interaction means that so long as outcomes were unexpected, Wong and Weiner's findings concerning these factors occurred whether involvement was high or low, whether subjects asked questions or listed reasons. Because the same outcome by expectancy interaction on the measures of internality and externality occurred in the percentage assessment condition, the effect holds true even when subject evaluations of causes are considered. Thus, expectancy disconfirmation provides a sufficient explanation of Wong and Weiner's results on the measures of internality and externality, when responses are open-ended questions.

In comparison to the unqualified outcome by expectancy interaction on the measures of internality and externality, there was an outcome by question type interaction on these same measures, across both measurement conditions, which showed that questions success yielded greater external attributions than questions failure, and that questions failure yielded greater internal attributions than questions success. The outcome by question type interaction on the measure of externality was qualified in both measurement conditions, however, by an outcome by involvement by question type interaction, which showed that success yielded greater external attributions than failure only when involvement was high. Because Wong and Weiner's outcome were low in ego-involvement, this means that subject questioning could not have caused their unusual effects on externality. Thus, Wong and Weiner's hypothesis provides a sufficient explanation for their findings concerning internality, but does not explain their findings concerning externality.

While expectancy disconfirmation sufficiently explains Wong and Weiner's findings concerning both internality and externality, their explanation better accounts for their findings concerning the measure of effort. There was an outcome by question type interaction, qualified by an outcome by expectancy by question type interaction, which showed that failure yielded greater effort attributions than success when subjects asked questions in either expected or unexpected conditions. This effect was replicated in the percentage assessment condition, where an unqualified outcome by question type interaction on effort ratings showed that questions failure yielded greater effort ratings than questions success.

<u>Ego-involvement and Method of Measurement</u> On the basis of the outcome by expectancy and outcome by questionnaire interactions on the measures of internality and externality in the present study, it is clear that both subject questioning and expectancy disconfirmation contributed to the effects concerning internality in Wong and Weiner's study, but that Wong and Weiner's effects concerning externality are explained only by the fact that outcomes were unexpected. It is also clear that subject questioning yielded Wong and Weiner's findings concerning effort. The

presence of low ego-involvement and frequency of response measurement in Wong and Weiner's study did not contribute to their results, however. Furthermore, Hypothesis VII was not confirmed; high involvement success did not yield greater internal attributions than high involvement failure. The outcome by involvement by question type interaction on the measure of externality shows that Wong and Weiner's findings of external attributions of success are apparently minimized, not increased, when subjects ask questions in a low ego-involvement condition. There were no other outcome by involvement effects on internality and externality. In terms of the use of frequency of response data, success/failure effects on attributions in the questions condition were virtually the same across the frequency and percentage assessment conditions of Experiment 2. That Wong and Weiner's findings concerning the measures of internality and externality are the same when frequency of response coding is used as when percentage assessment coding is used suggests that Wong and Weiner's results were not an artifact of frequency of response coding.

Table 18. Analysis of Variance for Outcome, Expectancy, Ego-involvement, and Question Type (Dependent Measure: Internality - Frequency of Response)

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Tail Probability
Outcome(O)	35.050	1	35.050	20.184	.001
Expectancy(E)	17.877	1	17.877	10.295	.001
Involvement(I)	5.290	1	5.290	3.047	.082
Question Type(Q)	296.961	1	296.961	171.009	.001
OE	34.152	1	34.152	19.667	.001
OI	3.653	1	3.653	2.104	.148
OQ	13.729	1	13.729	7.906	.005
EI	.723	1	.723	.416	.519
EQ	47.580	1	47.580	27.399	.001
IQ	.001	1	.001	.001	.978
OEI	1.338	1	1.338	.770	.381
OEQ	1.968	1	1.968	1.134	.288
OIQ	1.829	1	1.829	1.053	.305
EIQ	2.687	1	2.687	1.547	.214
OEIQ	6.458	1	6.458	.054	
ERROR	804.013	463	1.737		

Table 19. Analysis of Variance for Outcome, Expectancy, Ego-involvement, and Question Type (Dependent Measure: Internality - Percentage Assessment)

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Tail Probability
Outcome(O)	4535.873	1	4535.873	4.937	.027
Expectancy(E)	3612.463	1	3612.463	3.932	.048
Involvement(I)	2137.860	1	2137.860	2.327	.128
Question Type(Q)	92519.046	1	92519.046	100.700	.001
OE	14436.557	1	14436.557	15.713	.001
OI	828.446	1	828.446	.902	.343
OQ	16372.488	1	16372.488	17.820	.001
EI	593.121	1	593.121	.646	.422
EQ	7612.200	1	7612.200	8.285	.004
IQ	363.641	1	363.641	.396	.530
OEI	47.688	1	47.688	.052	.820
OEQ	420.592	1	420.592	.458	.499
OIQ	319.332	1	319.332	.348	.556
EIQ	1746.295	1	1746.295	1.901	.169
OEIQ	243.884	1	243.884	.265	.607
ERROR	405171.988	441	918.757		

Table 20. Analysis of Variance for Outcome, Expectancy, Ego-involvement, and Question Type (Dependent Measure: Externality - Frequency of response)

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Tail Probability
Outcome(O)	1.515	1	1.515	.901	.343
Expectancy(E)	74.107	1	74.107	44.074	.001
Involvement(I)	21.759	1	21.759	12.941	.001
Question Type(Q)	36.617	1	36.617	21.777	.001
OE	15.270	1	15.270	9.081	.003
OI	2.583	1	2.583	1.536	.216
OQ	15.428	1	15.428	9.175	.003
EI	.678	1	.678	.404	.526
EQ	.684	1	.684	.407	.524
IQ	.477	1	.477	.284	.594
OEI	2.306	1	2.306	1.371	.242
OEQ	1.034	1	1.034	.615	.433
OIQ	13.089	1	13.089	7.785	.005
EIQ	.567	1	.567	.337	.562
OEIQ	.513	1	.513	.305	.581
ERROR	778.498	463	1.681		

Table 21. Analysis of Variance for Outcome, Expectancy, Ego-involvement, and Question Type (Dependent Measure: Externality - Percentage Assessment)

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Tail Probability
Outcome(O)	1.734	1	1.734	.002	.963
Expectancy(E)	21426.147	1	21426.147	26.154	.001
Involvement(I)	9383.229	1	9383.229	11.454	.001
Question Type(Q)	9935.041	1	9935.041	12.127	.001
OE	11805.447	1	11805.447	14.410	.001
OI	298.722	1	298.722	.365	.546
OQ	7518.880	1	7518.880	9.178	.003
EI	118.994	1	118.994	.145	.703
EQ	159.823	1	159.823	.195	.659
IQ	578.315	1	578.315	.706	.401
OEI	959.718	1	959.718	1.171	.280
OEQ	33.352	1	33.352	.041	.840
OIQ	3727.961	1	3727.961	4.551	.033
EIQ	97.397	1	97.397	.119	.730
OEIQ	1.545	1	1.545	.002	.965
ERROR	61282.103	441	819.234		

Table 22. Analysis of Variance for Outcome, Expectancy, Ego-involvement, and Question Type (Dependent Measure: Effort - Frequency of Response)

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Tail Probability
Outcome(O)	2.672	1	2.672	4.531	.034
Expectancy(E)	1.850	1	1.850	3.136	.077
Involvement(I)	.987	1	.987	1.673	.197
Question Type(Q)	14.362	1	14.362	24.348	.001
OE	2.280	1	2.280	3.865	.050
OI	.075	1	.075	.128	.721
OQ	4.801	1	4.801	8.139	.005
EI	.025	1	.025	.043	.836
EQ	2.351	1	2.351	3.986	.046
IQ	2.923	1	2.923	4.956	.023
OEI	.387	1	.387	.656	.418
OEQ	3.248	1	3.248	5.507	.019
OIQ	.065	1	.065	.111	.740
EIQ	4.904	1	4.904	3.229	.073
OEIQ	.396	1	.396	.672	.413
ERROR	273.104	463	.590		

Table 23. Analysis of Variance for Outcome, Expectancy, Ego-Involvement, and Question Type (Dependent Measure: Effort - Percentage Assessment)

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Tail Probability
Outcome(O)	483.482	1	483.482	.821	.365
Expectancy(E)	846.597	1	846.597	1.437	.231
Involvement(I)	472.348	1	472.348	.802	.371
Question Type(Q)	3597.921	1	3597.921	6.109	.014
OE	477.055	1	477.055	.810	.369
OI	3.516	1	3.516	.006	.938
OQ	7394.111	1	7394.111	12.554	.001
EI	2.007	1	2.007	.003	.953
EQ	522.789	1	522.789	.888	.347
IQ	259.541	1	259.541	.441	.507
OEI	202.066	1	202.066	.343	.558
OEQ	2255.077	1	2255.077	3.289	.051
OIQ	40.384	1	40.384	.069	.794
EIQ	3587.033	1	3587.033	6.090	.014
OEIQ	4.423	1	4.423	.008	.931
ERROR	259735.161	441	588.969		

Table 24. Analysis of Variance for Outcome, Expectancy, Ego-involvement, and Question Type (Dependent Measure: Task - Frequency of Response)

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Tail Probability
Outcome(O)	.219	1	.219	.257	.612
Expectancy(E)	5.530	1	5.530	6.477	.011
Involvement(I)	7.551	1	7.551	8.845	.003
Question Type(Q)	.607	1	.607	.711	.400
OE	.842	1	.842	.987	.321
OI	.268	1	.268	.314	.576
OQ	6.396	1	6.396	7.491	.006
EI	.004	1	.004	.005	.945
EQ	.078	1	.078	.092	.762
IQ	.762	1	.762	.893	.345
OEI	2.059	1	2.059	2.412	.121
OEQ	3.809	1	3.809	4.461	.035
OIQ	3.325	1	3.325	3.895	.049
EIQ	1.039	1	1.039	1.217	.270
OEIQ	.334	1	.334	.392	.532
ERROR	395.298	463	.854		

Table 25. Analysis of Variance for Outcome, Expectancy, Ego-involvement, and Question Type (Dependent Measure: Task - Percentage Assessment)

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Tail Probability
Outcome(O)	58.529	1	58.529	.139	.709
Expectancy(E)	3367.610	1	3367.610	8.008	.005
Involvement(I)	3409.804	1	3409.804	8.108	.005
Question Type(Q)	277.554	1	277.554	.660	.417
OE	3.036	1	3.036	.007	.932
OI	14.890	1	14.890	.035	.851
OQ	1666.859	1	1666.859	3.964	.047
EI	5.030	1	5.030	.012	.913
EQ	22.208	1	22.208	.053	.818
IQ	211.635	1	211.635	.503	.478
OEI	2415.737	1	2415.737	5.744	.017
OEQ	1363.240	1	1363.240	3.242	.072
OIQ	939.103	1	939.103	2.233	.136
EIQ	66.477	1	66.477	.158	.691
OEIQ	1498.472	1	1498.472	3.563	.060
ERROR	185459.561	441	185459.561		

Table 26. Means and Cells Sizes for Attribution Measures in the Frequency of Response Measurement Condition

Questions

	Success				Failure			
	Expected		Unexpected		Expected		Unexpected	
	Low (n=32)	High (n=28)	Low (n=25)	High (n=29)	Low (n=33)	High (n=30)	Low (n=30)	High (n=33)
Measure	M	M	M	M	M	M	M	M
Internality	.69	1.00	60	.72	1.09	1.57	2.07	1.85
Externality	1 47	1.11	2.36	2.17	1.36	.77	1.90	1.18
Effort	28	.32	.28	.28	45	.80	.73	58
Task	1.06	.79	.88	.79	58	40	1.30	.58

Reasons

	Success				Failure			
	Expected		Unexpected		Expected		Unexpected	
	Low (n=30)	High (n=31)	Low (n=30)	High (n=25)	Low (n=34)	High (n=31)	Low (n=32)	High (n=26)
Measure	M	M	M	M	M	M	M	M
Internality	3.13	3.87	1.70	2 40	3.29	2.81	2.53	2.85
Externality	1.90	.71	2.87	2.40	1 91	2.06	2.41	2.46
Effort	1.00	.65	.93	.80	1.24	.87	56	42
Task	.83	.29	1.00	.80	.91	.94	1.06	1.12

Table 27 Means and Cells Sizes for Attribution Measures in the Percentage Assessment Measurement Condition

Questions

	Success				Failure			
	Expected		Unexpected		Expected		Unexpected	
	Low (n=29)	High (n=26)	Low (n=22)	High (n=28)	Low (n=31)	High (n=30)	Low (n=29)	High (n=30)
Measure	M	M	M	M	M	M	M	M
Internality	18.79	27.04	17 09	14.61	28.23	36 40	46 79	40.87
Externality	24.90	14.80	46.32	42.93	27.06	14.30	35.72	17.53
Effort	10.00	12.69	10.68	5 43	15.58	22.50	24.28	17.10
Task	19.66	9.23	13.41	18.71	8.71	7 33	26 79	7.87

Reasons

	Success				Failure			
	Expected		Unexpected		Expected		Unexpected	
	Low (n=29)	High (n=26)	Low (n=22)	High (n=28)	Low (n=31)	High (n=30)	Low (n=29)	High (n=30)
Measure	M	M	M	M	M	M	M	M
Internality	68.17	79.07	41.36	51.04	57.24	56.18	54.71	51 55
Externality	30.93	11.67	49.75	40 40	41.76	39.06	39.61	42.48
Effort	27 66	18.07	22.75	26.88	12.36	27.24	18.74	11 71
Task	13.38	5 17	19.86	15 12	17.76	17 39	15.60	19 94

GENERAL DISCUSSION

The discussion addresses these issues: the validity of Wong and Weiner's hypothesis, whether the results of Wong and Weiner (1981) and those of the present study suggest that self-serving attributions are an artifact of the use of structured measures, the similarity of frequency of response and percentage assessment data in Experiment 2, the differences in the task attributions between Wong and Weiner and Experiment 2, the differences in findings between Experiment 1 and Experiment 2, implications for future research, and implications for educational practice.

The Validity of Wong and Weiner's Hypothesis

While the findings of Experiment 2 suggest that Wong and Weiner's hypothesis provides but a partial explanation of the unusual results found in their study, the findings also suggest that subject questioning would be sufficient to cause the reverse bias in a "real-life" situation. Subject questioning yielded effort and internal attributions of failure only in the replication of Wong and Weiner's study in Experiment 2, while expectancy disconfirmation yielded external attributions of success and internal attributions of failure in the same conditions. This shows that both expectancy disconfirmation and subject questioning are necessary to yield results substantially similar to those found in Wong and Weiner. Nevertheless, it is doubtful that real-life situations often contain the specific kind of expectancy disconfirmation in which you receive a grade distinctly inconsistent with your "strength", or proven ability, in the subject. People more often receive grades that correspond to their expectations and ability. Also, real-life situations are certainly more ego-involving than even the high ego-involvement hypothetical outcomes of Experiment 2. In such "real-life" conditions subject questioning would yield external attributions of success and internal attributions of failure, because Experiment 2 showed that causal questioning yielded both internal attributions of failure and external attributions of success when involvement was high, and yielded both effort attributions of failure and task attributions of success when outcomes were expected, across involvement conditions. Thus, in a sense, Wong and Weiner's hypothesis was essentially a good explanation in search of appropriate data. If outcomes were generally expected and high in ego-involvement, causal questioning alone in their experiment would have yielded greater task and external attributions of success than of failure, and failure would yield greater effort and internal attributions of failure than of success.

Although Wong and Weiner's hypothesis would be valid in another situation, it must be noted why their hypothesis was inappropriate to their specific findings. There are two major reasons. Wong and Weiner erred partially by believing that because searching for solutions as a result of causal questioning was a good explanation of the effort attributions of failure found in their study - Experiment 2 does show that causal questioning yielded effort attributions of failure - that it was also a good explanation of internal attributions of failure, of which effort was a major component. In fact, according to Experiment 2, only expectancy disconfirmation yielded Wong and Weiner's findings of internal attributions of failure. This error demonstrates the kind of care researchers must take in drawing inferences about subjects' attributions. Wong and Weiner also erred because they eschewed the fact that their explanation, that asking causal questions results in a search for solutions of problems that may recur, does not account whatsoever for the fact that success subjects in their study made external, uncontrollable attributions. Indeed, because success is probably rarely seen as a "problem", their explanation was innappropriate to their success data <u>a priori</u>.

Are Self-serving Attributions an Artifact of Structured Measures?

The fact that causal questioning yields a pattern of attributions diametrically opposite to that of self-serving attributions typically yielded by structured measures, brings into question how people actually attribute in the absence of experimental prompting. The question is inevitable, because Wong and Weiner's form of subject questioning does not specifically prompt people to search for causes; causal search is mainly self-initiated, and so subjects are apparently reporting responses which indicate normal private causal perceptions These self-initiated attributional responses may be more indicative of normal causal perception than the responses made in structured measures, where subjects are "forced" to evaluate causes they may not normally consider, and cannot evaluate causes they may normally consider. These self-initiated causal questions are also perhaps more indicative of normal causal perception than most open-ended measures, where subjects are asked to provide causal explanations irregardless of whether they have yet developed explanations for the event Nevertheless, it is possible that Wong and Weiner's question is more reactive than it at first seems. Wong and Weiner's demand that subjects provide a minimum of five questions may effectively be a demand for specifically causal questions, because subjects are given only an outcome to respond to, and in the description of the outcome are answers to the five classic journalistic questions, save the one of "why". Subjects knew who was involved (themselves or a friend), what they received (an A or a failure), when they received the grade (after their mid-term exam), and where the event occurred (ostensibly in school). Most questions are answered save the questions which refer to why the event occurred (e g., "Was it the grading scheme?", "Was it the difficulty of the exam?"). Thus, for subjects to be asked to provide a minimum of five questions, given the outcome descriptions, inevitably means that they may be asking predominantly "why" questions. Subjects had to fill up the five blank spaces with mainly "why" questions, and so "why" questions that would not normally have been asked were reported. This point seems disproven by the fact that percentage assessment data in Experiment 2 showed that frequency of response was an indication of how important the questioned causes were to the subjects, but as the subsequent section on the similarities of frequency of response data and percentage data suggests, there may have been a form of forced similarity between the two types of measurement.

I think that an even more serious argument against the notion that subject questioning reflects normal causal perceptions is that people are not forced to believe what they are merely questioning, and so may refer to causes in their questions which are totally dissimilar to those that they would choose as satisfactory explanations of their outcomes. To list a factor as a cause may mean that the factor satisfies criteria of motivational needs and of plausibility. A questioned cause is one that has not yet necessarily met either or both of those criteria. Thus, it is possible that measures specifically demanding causal explanations still do reflect normal causal perception more than measures which ask subjects to provide questions. Further analyses of data collected in this study may help resolve the question of whether reported reasons or reported questions more closely resemble causal perception. After subjects listed reasons or raised questions, they were asked for their affect, expectancy, and anticipated behavior responses given the outcome Because attributions have been found to mediate affects and expectancy responses to academic outcomes, and achievement-related behaviors, the form of response, questions or reasons, which best predicts affect, expectancy and behavior is likely that which best represents normal causal perception

Similarity of Frequency of Response and Percentage Assessment Data in Experiment 2

The similarity of the frequency of response and percentage assessment data in the present experiment is surprising It was hypothesized that Wong and Weiner found significant success/failure differences because use of frequency of response coding overlooks the fact that a factor repeated several times over another does not mean that the subject sees the repeated factor as being several times more important It was believed that if subjects indicated their evaluation of the relative importance of factors through percentage assessments, it would be found that the often repeated factors such as effort and task would not appear as important as they do in the frequency of response conding This was not a factor in Wong and Weiner's results, however, success/failure differences in internality, externality and effort in the questions condition of Experiment 2 were the same across frequency of response and percentage assessment conditions

Nevertheless, it is possible that there was some degree of forced similarity between the frequency of response and percentage assessment measurements when subjects asked questions. Because subjects repeated certain factors, they may have felt bound to assign percentage figures which justified their repetition of responses. Interestingly, the similarity did not always occur in data showing a self-serving bias. Self-serving attributions of the measures of effort and task occurred in the frequency of response condition only. This suggests, to some extent, that frequency of response coding does inflate the occurrence of factors along a single dimension, success or failure, of outcome. Thus, it is still conceivable that forcing subjects to question a minimum number of five responses led to some factors, such as effort and task, being misleadingly repeated, and thus creating inordinate success/failure differences.

The Measure of Task in Experiment 2

Wong and Weiner's findings concerning the factors of effort, internality, and externality were repeated in the cells replicating their study. Wong and Weiner's findings concerning task did not recur, however. The failure of recurrence may be due to coder bias. Wong and Weiner's data was apparently coded by single judges, not paired judges as in Experiment 2, and a bias due to the beliefs of one judge may have occurred. The coding scheme in the present study was based closely upon a large number of sample codings provided by Wong, but the sample may still have not included enough samples of the codings of various judges to be representative. If the material was representative, however, it is probable that beliefs concerning the factor of task varied across the subject populations of the two studies Subjects in Wong and Weiner's study may have been more likely to attribute unexpected success to task because of the difficulty of courses in their program or university Exams may have usually been to difficult to pass without demonstrated ability, and for an "A" to occur would have meant an unusually easy exam.

The Differences between Experiment 1 and Experiment 2

For the most part, the findings of Experiment 1 suggested that Wong and Weiner's unusual data was rooted somehow in the fact that subjects asked questions, or that the frequency of coding used somehow misconstrued the significance of subjects' responses The structured measures of Experiment 1 yielded self-serving effects when Wong and Weiner's outcomes were used There was an exception in the Likert measures condition, however, effort and internality showed self-serving effects in the high ego-involvement condition only Nevertheless, no "counterdefensive" effects approximating those of Wong and Weiner were found Because the same outcomes as Wong and Weiner showed self-serving effects, when structured measures were used, the other factors differentiating Experiment 1 from Wong and Weiner (1981), subject questioning and frequency of response coding of open-ended measures, were probably at fault To an extent this was confirmed in Experiment 2, where subject questioning in

Wong and Weiner's outcome conditions yielded greater effort and internal attributions of failure than of success. Nevertheless, Experiment 2 also showed that Wong and Weiner's effects concerning externality and internality were also caused by expectancy disconfirmation. This was not predicted by Experiment 1, where there was no outcome by expectancy interaction on any measure. It is hypothesized that the differences occurred because there were a greater number of attributional categories in Experiment 2, some of which may have been sensitive to manipulations of expectancy. For instance, a large number of subjects in Experiment 2 attributed to the category of teacher, which refers to the way the course was taught as well as the way the exam was marked. They may have attributed unusual success to easy marking. Further analyses on the data of Experiment 2 will establish whether this is correct.

Implications for Future Research

Perhaps the most immediate implication of the findings of this study concerns the issue of self-serving attributions. Chapter I of this thesis showed that a great deal of research has been applied to understanding why people accept responsibility for success and deny blame for failure. Nevertheless, the findings of this study suggest that self-serving attributions are restricted to certain measurement conditions - when subjects ask questions about an outcome they seem to be unconcerned with attributing defensively. The question remains, however, whether "questions" or "reasons" better reflect actual causal perception. This will in part be accomplished by further analyses of the affect, expectancy, and behavioral responses in Experiments 1 and 2. As was mentioned earlier, if subjects' questions in Experiment 2 are more closely related to affect, expectancy and behavior, it is possible that people do not usually make self-serving attributions - attributions have been found to mediate such responses (e g , Weiner et al , 1978, 1979) If it is found that causal questioning is closely related to these responses, further studies in "real-life" situations, such as following an actual mid-term exam, will increase our knowledge and understanding of how people attribute for important achievement-related events

There is a possibility that Wong and Weiner's results may have been different if subjects were not forced to report a minimum of five responses As has been previously discussed, this procedure may have resulted in abnormal inflation of some causal factors, an effect that subjects' percentage assessments of their own responses in Experiment 2 may not have effectively controlled for In future research utilizing open-ended measures, pertaining to the issues of the present study, or of other issues, it would be expedient to consider the degree to which subjects may be inadvertently forced into repeating certain factors, irregardless of their actual causal perceptions. It would also be of interest to directly compare data in which subjects were asked to provide a minimum of five questions with data where no limit was set on the number of responses, the latter may show significantly fewer instances of the easily elaborated factors of effort and task. This may then show that Wong and Weiner's effects concerning the factors of internality and externality were largely rooted in the demand for a minimum of five responses

Implications for Educational Practice

It would be premature to make specific recommondations on the basis of the data presented here. The relative ability of the various measures to predict affect, expectancy and behavioral responses has yet to be assessed Nonetheless, there are some general considerations suggested by what has been found in this study

It is clear from the findings of this study, and from those of prior research (e.g., Elig & Frieze, 1979), that students' explanations of school performances are influenced by the way their explanations are elicited. Even in a verbal context, the findings of the present study would suggest that directly asking a student what caused her performance would result in a response substantially different from that if she were asked what questions she had concering her performance Feasibly, a student who is asked to provide reasons for her success may refer to internal factors such as ability and effort, whereas a student who is asked to provide questions may refer to external factors such as task and luck.' Furthermore, a different response may occur if the student understands that he or she is to provide a single explanation (e.g., What reason do you have for your performance?), or to provide a multiple explanation (e.g., What reasons do you have for your performance?).

Note that the effect of the phrasing of the question can be further qualified by the situation in which the question is asked Research such as Wortman, Costanzo and Witt (1973), and Schenker (1975) suggest that subjects will report "counterdefensive" attributions, that is, external attributions of success and internal attributions of failure, when they believe others are able to observe future performance Thus, if a student feels that his explanations will be subject to later scrutiny, he will be less likely to make self-serving attributions, and more likely to deny responsibility for success and accept blame for failure.

Further confounding problems in communication can feasibly occur between the questioner and the respondent. A professor may ask a student why he received a "B" on an exam, meaning why did the student do so well, and the student may understand the question as asking why he did so poorly, and answer accordingly Thus, the way the question is phrased, the situation in which it is phrased, and different assumptions between the questioner and the respondent may lead to breakdown in communication, impeding knowledge of the student's true understanding of the event, thereby further impeding appropriate aid, if necessary, to the student. Therefore, the teacher in the classroom, or any other whose responsibility is aid students in their academic performance, should take care when questioning students of a) the limitations their questions may put on responses; b) the advantages a student may perceive in answering the question one way or another; and c) the possibility that the student may misconstrue the intention behind the question.

The process of eliciting attributions, and subsequently accurately interpreting them, may seem overwhelmingly complex on the basis of the above considerations. But research has generally not paid much attention to the implications of the ways attributions are elicited, with increasing attention, sufficiently comprehensive understanding of the process may be gained.

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APPENDIX A

Study Materials:

Open-ended "Questions" Measures
Open-ended "Reasons" Measures
Open-ended Percentage Assessment Measures
Structured Percentage Assessment Measures
Likert Scales Measures
Affect, Expectancy, and Behavior Measures
Letter to Professors and Debriefing

Note: Some of the materials found in this section were reformatted slightly to conform with the margin size requirements of the Graduate Studies Office. Also, the materials replicating Wong and Weiner's outcome conditions are slightly altered versions of those used in Wong and Weiner (1981).

The following is a hypothetical course examination situation In this situation, what would you most likely ask yourself given the outcome? Make sure that you raise <u>at least five</u> questions

<u>Situation</u> Suppose you know you are very strong in a subject, but you failed on the mid-term test Given this test outcome, what questions would you ask yourself?

<u>Questions</u> 1 ______________________________

2 ______________________________

3 ______________________________

4 ______________________________

5 ______________________________

6 ______________________________

7 ______________________________

The following is a hypothetical course examination situation In this situation, what would you most likely ask yourself given the outcome? Make sure that you raise <u>at least five</u> questions

<u>Situation</u> Suppose you know you are very strong in a subject, but you failed on the first important course test, the mid-term exam Performance on this exam is a strong indicator of your success in the course because a large portion of the final exam covers the same material as the mid-term <u>Success in the subject is highly important to you</u> <u>You feel you must succeed</u>, both because achievement is highly valued by you, your family and peers, and because you know that high course performance in the subject <u>is essential</u> to your future educational goals and to working in your chosen field Given your <u>unexpected</u> failure on this <u>important</u> test, what questions would you ask yourself?

<u>Questions</u> 1 ______

2 ______

3 ______

4. ______

5. ______

6. ______

7. ______

The following is a hypothetical course examination situation. In this situation, what would you most likely ask yourself given the outcome? Make sure that you raise <u>at least five</u> questions

<u>Situation</u> Suppose you know you are very weak in a subject, but you received an A on the mid-term test Given this test outcome, what questions would you ask yourself?

<u>Questions</u> 1. ____________________

2 ____________________

3 ____________________

4 ____________________

5. ____________________

6. ____________________

7. ____________________

The following is a hypothetical course examination situation In this situation, what would you most likely ask yourself given the outcome? Make sure that your raise <u>at least five</u> questions.

<u>Situation</u> Suppose you know you are very weak in a subject, but you received an A on the first important course test, the mid-term exam. Performance on this exam is a strong indicator of your success in the course because a large portion of the final exam covers the same material as the mid-term <u>Success in the subject is highly important to you</u> <u>You feel you must succeed</u>, both because achievement is highly valued by you, your family and peers, and because you know that high course performance in the subject <u>is essential</u> to your future educational goals and to working in your chosen field. Given your <u>unexpected</u> success on this <u>important</u> test, what questions would you ask yourself?

<u>Questions</u> 1. ______________________________

2. ______________________________

3. ______________________________

4. ______________________________

5. ______________________________

6. ______________________________

7. ______________________________

1111

The following is a hypothetical course examination situation. In this situation, what would you most likely ask yourself given the outcome? Make sure that you raise at <u>at least five</u> questions.

<u>Situation</u>. Suppose you know you are very strong in a subject and you received an A on the mid-term test. Given this test outcome, what questions would you ask yourself?

<u>Questions</u>

1. ____________________

2. ____________________

3. ____________________

4. ____________________

5. ____________________

6. ____________________

7. ____________________

The following is a hypothetical course examination situation. In this situation, what would you most likely ask yourself given the outcome? Make sure that you raise at least five questions.

Situation. Suppose you know you are very strong in a subject and you received an A on the first important course test, the mid-term exam. Performance on this exam is a strong indicator of your success in the course because a large portion of the final exam covers the same material as the mid-term. Success in the subject is highly important to you. You feel you must succeed, both because achievement is highly valued by you, your family and peers, and because you know that high course performance in the subject is essential to your future educational goals and to working in your chosen field. Given your success on this important test, what questions would you ask yourself?

Situation 1. ______

2. ______

3. ______

4. ______

5. ______

6. ______

7. ______

The following is a hypothetical course examination situation. In this situation, what would you most likely ask yourself given the outcome? Make sure that you raise at at least five questions.

Situation. Suppose you know you are very weak in a subject and you failed on the mid-term test. Given this outcome, what questions would you ask yourself?

Questions. 1. ______________________________

2. ______________________________

3. ______________________________

4. ______________________________

5. ______________________________

6. ______________________________

7. ______________________________

The following is a hypothetical course examination situation. In this situation, what would you most likely ask yourself given the outcome? Make sure that you raise <u>at least five</u> questions.

<u>Situation</u>. Suppose you know you are very weak in a subject and you failed on the first important course test, the mid-term exam. Performance on this exam is a strong indicator of your success in the course because a large portion of the final exam covers the same material as the mid-term <u>Success in the subject is highly important to you</u>. <u>You feel you must succeed</u>, both because achievement is highly valued by you, your family and peers, and because you know that high course performance in the subject <u>is essential</u> to your future educational goals and to working in your chosen field. Given your failure on this <u>important</u> test, what questions would you ask yourself?

<u>Situation</u>. 1. ______________________________

2. ______________________________

3. ______________________________

4. ______________________________

5. ______________________________

6. ______________________________

7. ______________________________

2111

The following is a hypothetical course examination situation. In this situation, what reasons would you give for your test outcome? Make sure that you list <u>at least five</u> reasons.

<u>Situation</u>. Suppose you know you are very strong in a subject and you received an A on the mid-term test. What reasons would you give for this outcome?

<u>Reasons</u> 1. ____________________

2. ____________________

3. ____________________

4. ____________________

5. ____________________

6. ____________________

7. ____________________

The following is a hypothetical course examination situation. In this situation, what reasons would you give for your test outcome? Make sure that your list <u>at least five</u> reasons.

<u>Situation</u>. Suppose you know you are very strong in a subject and you received an A on the first important course test, the mid-term exam. Performance on this exam is a strong indicator of your success in the course because a large portion of the final exam covers the same material as the mid-term. <u>Success in the subject is highly important to you</u>. <u>You feel you must succeed</u>, both because achievement is highly valued by you, your family and peers and because you know that high course performance in the subject <u>is essential</u> to your future educational goals and to working in your chosen field. What reasons would you give for your success on this <u>important</u> test?

<u>Reasons</u> 1. ______________________________

2. ______________________________

3. ______________________________

4. ______________________________

5. ______________________________

6. ______________________________

7. ______________________________

The following is a hypothetical course examination situation. In this situation, what reasons would you give for your test outcome? Make sure that you list __at least five__ reasons.

__Situation__. Suppose you know you are very weak in a subject and you failed on the mid-term test. What reasons would you give for this outcome?

__Reasons__. 1. ______________________________

2. ______________________________

3. ______________________________

4. ______________________________

5. ______________________________

6. ______________________________

7. ______________________________

The following is a hypothetical course examination situation. In this situation, what reasons would you give for your test outcome? Make sure that you list __at least five__ reasons.

__Situation__. Suppose you know you are very weak in a subject and you failed on the first important course test, the mid-term exam. Performance on this exam is a strong indicator of your success in the course because a large portion of the final exam covers the same material as the mid-term. __Success in the subject is highly important to you__. __You feel you must succeed__, both because achievement is highly valued by you, your family and peers and because you know that high course performance in the subject __is essential__ to your future educational goals and to working in your chosen field. What reasons would you give for your failure on this __important__ test?

__Reasons__ 1. ______________________________

2. ______________________________

3. ______________________________

4. ______________________________

5. ______________________________

6. ______________________________

7. ______________________________

The following is a hypothetical course examination situation. In this situation, what reasons would you give for your test outcome? Make sure that you raise <u>at least five</u> reasons.

<u>Situation</u>. Suppose you know you are very strong in a subject, but you failed on the mid-term test. What reasons would you give for this outcome?

<u>Reasons</u>

1. ______________________________

2. ______________________________

3. ______________________________

4. ______________________________

5. ______________________________

6. ______________________________

7. ______________________________

The following is hypothetical course examination situation. In this situation, what reasons would you give for your test outcome? Make sure that you list <u>at least five</u> reasons.

<u>Situation</u>. Suppose you know you are very strong in a subject, but you failed on the first important course test, the mid-term exam. Performance on this exam is a strong indicator of your success in the course because a large portion of the final exam covers the same material as the mid-term. <u>Success in the subject is highly important to you</u>. <u>You feel you must succeed</u>, both because achievement is highly valued by you, your family and peers and because you know that high course performance in the subject <u>is essential</u> to your future educational goals and to working in your chosen field. What reasons would you give for your <u>unexpected</u> failure on this <u>important</u> test?

<u>Reasons</u> 1. ______________________

2. ______________________

3. ______________________

4. ______________________

5. ______________________

6. ______________________

7. ______________________

The following is a hypothetical course examination situation. In this situation, what reasons would you give for your test outcome? Make sure that you list __at least five__ reasons.

__Situation__. Suppose you know you are very weak in a subject, but you received an A on the mid-term test. What reasons would you give for this outcome?

__Reasons__. 1. ______

2. ______

3. ______

4. ______

5. ______

6. ______

7. ______

The following is a hypothetical course examination situation. In this situation, what reasons would you give for your test outcome? Make sure that you raise <u>at least five</u> reasons.

<u>Situation</u>. Suppose you know you are very weak in a subject, but you received an A on the first important course test, the mid-term exam. Performance on this exam is a strong indicator of your success in the course because a large portion of the final exam covers the same material as the mid-term. <u>Success in the subject is highly important to you</u>. <u>You feel you must succeed</u>, both because achievement is highly valued by you, your family and peers and because you know that high course performance in the subject <u>is essential</u> to your future educational goals and to working in your chosen field. What reasons would you give for your <u>unexpected</u> success on this <u>important</u> test?

<u>Reasons</u> 1. ____________________

2. ____________________

3. ____________________

4. ____________________

5. ____________________

6. ____________________

7. ____________________

Please copy onto the lines below all the questions you wrote on the previous page, keeping them in their original order. Write them in a shortened form if you wish. Do not list any new questions on this page. After you have copied all the questions, please indicate with a percentage figure how important you think the factor mentioned in each question was in determining your hypothetical test performance. If what is referred to in the question had no effect on performance, give the question a rating of 0%. For example, these sorts of questions, "How shall I prepare for the final?", " Why did I fail this exam?", and "How well will I do on the final?" should probably be rated zero because they make no references to factors that could have affected test performance. However, if what is questioned had an effect on performance, as in questions such as, "Was I lucky?", "Was the exam fair?", or "Did I try hard?", give the question a percentage rating. If the factor mentioned had a small influence on performance, give it a low percentage rating. If the factor had a large influence on performance, give it a high percentage rating. The total of all percentages must not exceed 100%.

Questions	%'s
1. ______	______
2. ______	______
3. ______	______
4. ______	______
5. ______	______
6. ______	______
7. ______	______
Total must not exceed:	100%

Please copy onto the lines below all the reasons you wrote on the previous page, keeping them in their original order. Write them in a shortened form if you wish. Do not write any new reasons on this page. After you have copied all the reasons, please indicate with a percentage figure how important you think each reason was in determining your performance on the test. If a reason had a small influence on performance, give it a low percentage rating. If the reason had a large influence on performance, give it a high percentage rating. The total of all percentages must not exceed 100%.

Reasons	%'s
1. ________________	____
2. ________________	____
3. ________________	____
4. ________________	____
5. ________________	____
6. ________________	____
7. ________________	____
Total must not exceed:	100%

The following is a hypothetical course examination situation. Rate with a percentage figure how important each of the listed factors was in determining your performance on this hypothetical test. If you feel a factor had no influence on performance, give it a rating of 0%. If a factor had a small influence on performance, give it a low percentage rating, whereas if it had a large influence on performance, give it a high percentage rating. The total of all percentage ratings must not exceed 100%.

Situation. Suppose you know you are very weak in a subject, but you received an A on the mid-term test. Given this test outcome, please rate how important you think each of the following factors was in determining your success on the test.

Factors	Percentage Ratings
Your Ability	______
Your effort	______
Ease of the Test	______
Good Luck	______
Total must not exceed:	100%

The following is a hypothetical course examination situation. Rate with a percentage figure how important each of the listed factors was in determining your performance on this hypothetical test. If you feel a factor had no influence on performance, give it a rating of 0%. If a factor had a small influence on performance, give it a low percentage rating, whereas if it had a large influence on performance, give it a high percentage rating. The total of all percentage ratings must not exceed 100%.

Situation. Suppose you know you are very weak in a subject and you failed on the mid-term test. Given this test outcome, please rate how important you think each of the following factors was in determining your failure on the test.

Factors	Percentage Ratings
Your Lack of Ability	____
Your Lack of Effort	____
Difficulty of the test	____
Bad Luck	____
Total must not exceed:	100%

The following is a hypothetical course examination situation. Rate with a percentage figure how important each of the listed factors was in determining your performance on this hypothetical test. If you feel a factor had no influence on performance, give it a rating of 0%. If a factor had a small influence on performance, give it a low percentage rating, whereas if it had large influence on performance, give it a high percentage rating. The total of all percentage ratings must not exceed 100%.

Situation Suppose you know you are very strong in a subject and you received an A on the mid-term test. Given this test outcome, please rate how important you think each of the following factors was in determining your success on the test.

Factors	Percentage Ratings
Your Ability	______
Your effort	______
Ease of the Test	______
Good Luck	______
Total must not exceed:	100%

The following is a hypothetical course examination situation. Rate with a percentage figure how important each of the listed factors was in determining your performance on this hypothetical test. If you feel a factor had no influence on performance, give it a rating of 0%. If a factor had a small influence on performance, give it a low percentage rating, whereas if had a large influence on performance, give it a high percentage rating. The total of all percentage ratings must not exceed 100%.

Situation: Suppose you know you are very strong in a subject, but you failed on the first important course test, the mid-term exam. Performance on this test is a strong indicator of your success in the course because a large portion of the final exam covers the same material as the mid-term. Success in this subject is highly important to you. You feel you must succeed, both because achievement is highly valued by you, your family and peers, and because you know that high course performance in the subject is essential to your future educational goals and to working in your chosen field. Please rate how important you think each of the following factors was in determining your unexpected failure on this important test.

Factors	Percentage Ratings
Your Lack of Ability	______
Your Lack of Effort	______
Difficulty of the test	______
Bad Luck	______
Total must not exceed:	100%

3122

The following is a hypothetical course examination situation. Rate with a percentage figure how important each of the listed factors was in determining your performance on this hypothetical test. If you feel a factor had no influence on performance, give it a rating of 0%. If a factor had a small influence on performance, give it a low percentage rating, whereas if it had a large influence on performance, give it a high percentage rating. The total of all percentage ratings must not exceed 100%.

Situation Suppose you know you are very weak in a subject, but you received an A on the first important course test, the mid-term exam. Performance on this test is a strong indicator of your success in the course because a large portion of the final exam covers the same material as the mid-term. Success in this subject is highly important to you. You feel you must succeed, both because achievement is highly valued by you, your family and peers, and because you know that high course performance in the subject is essential to your future educational goals and to working in your chosen field. Please rate how important you think each of the following factors was in determining your unexpected success on this important test.

Factors	Percentage Ratings
Your Ability	______
Your effort	______
Ease of the Test	______
Good Luck	______
Total must not exceed:	100%

The following is a hypothetical course examination situation. Rate with a percentage figure how important each of the listed factors was in determining your performance on this hypothetical test. If you feel a factor had no influence on performance, give it a rating of 0%. If a factor had a small influence on performance, give it a low percentage rating, whereas if it had a large influence on performance, give it a high percentage rating. The total of all percentage ratings must not exceed 100%.

Situation. Suppose you know you are very strong in a subject and you received an A on the first important course test, the mid-term exam. Performance on this test is a strong indicator of your success in the course because a large portion of the final exam covers the same material as the mid-term. Success in this subject is highly important to you. You feel you must succeed, both because achievement is highly valued by you, your family and peers, and because you know that high course performance in the subject is essential to your future educational goals and to working in your chosen field. Please rate how important you think each of the following factors was in determining your success on this important test.

Factors	Percentage Ratings
Your Ability	______
Your Effort	______
Ease of the Test	______
Good Luck	______
Total must not exceed:	100%

The following is a hypothetical course examination situation. Rate with a percentage figure how important each of the listed factors was in determining your performance on this hypothetical test. If you feel a factor had no influence on performance, give it a rating of 0%. If a factor had a small influence on performance, give it a low percentage rating, whereas if it had a large influence on performance, give it a high percentage rating. The total of all percentage ratings must not exceed 100%.

Situation. Suppose you know you are very weak in a subject and you failed on the first important course test, the mid-term exam. Performance on this test is a strong indicator of your success in the course because a large portion of the final exam covers the same material as the mid-term. Success in this subject is highly important to you. You feel you must succeed, both because achievement is highly valued by you, your family and peers, and because you know that high course performance in the subject is essential to your future educational goals and to working in your chosen field. Please rate how important you think each of the following factors was in determining your failure on this important test.

Factors	Percentage Ratings
Your Lack of Ability	____
Your Lack of Effort	____
Difficulty of the test	____
Bad Luck	____
Total must not exceed:	100%

3111

On the previous page, you indicated with percentage figures how important each of a series of factors was in determining your hypothetical test performance. Below is the same list of factors. This time, using the following rating scales, please rate how important each of the factors was in determining your hypothetical performance. Circle the number which best indicates the importance of each factor.

	Very Unimportant								Very Important
Your Ability	1	2	3	4	5	6	7	8	9
Your Effort	1	2	3	4	5	6	7	8	9
Ease of the Test	1	2	3	4	5	6	7	8	9
Good Luck	1	2	3	4	5	6	7	8	9

3121

On the previous page, you indicated with percentage figures how important each of a series of factors was in determining your hypothetical test performance. Below is the same list of factors. This time, using the following rating scales, please rate how important each of the factors was in determining your hypothetical performance. Circle the number which best indicates the importance of each factor.

	Very Unimportant								Very Important
Your Ability	1	2	3	4	5	6	7	8	9
Your Effort	1	2	3	4	5	6	7	8	9
Ease of the Test	1	2	3	4	5	6	7	8	9
Good Luck	1	2	3	4	5	6	7	8	9

3112

On the previous page, you indicated with percentage figures how important each of a series of factors was in determining your hypothetical test performance. Below is the same list of factors. This time, using the following rating scales, please rate how important each of the factors was in determining your hypothetical performance. Circle the number which best indicates the importance of each factor.

	Very Unimportant								Very Important
Your Ability	1	2	3	4	5	6	7	8	9
Your Effort	1	2	3	4	5	6	7	8	9
Ease of the Test	1	2	3	4	5	6	7	8	9
Good Luck	1	2	3	4	5	6	7	8	9

3122

On the previous page, you indicated with percentage figures how important each of a series of factors was in determining your hypothetical test performance. Below is the same list of factors. This time, using the following rating scales, please rate how important each of the factors was in determining your hypothetical performance. Circle the number which best indicates the importance of each factor.

	Very Unimportant								Very Important
Your Ability	1	2	3	4	5	6	7	8	9
Your Effort	1	2	3	4	5	6	7	8	9
Ease of the Test	1	2	3	4	5	6	7	8	9
Good Luck	1	2	3	4	5	6	7	8	9

3211

On the previous page, you indicated with percentage figures how important each of a series of factors was in determining your hypothetical test performance. Below is the same list of factors. This time, using the following rating scales, please rate how important each of the factors was in determining your hypothetical performance. Circle the number which best indicates the importance of each factor.

	Very Unimportant								Very Important
Your Lack of Ability	1	2	3	4	5	6	7	8	9
Your Lack of Effort	1	2	3	4	5	6	7	8	9
Difficulty of the Test	1	2	3	4	5	6	7	8	9
Bad Luck	1	2	3	4	5	6	7	8	9

On the previous page, you indicated with percentage figures how important each of a series of factors was in determining your hypothetical test performance. Below is the same list of factors. This time, using the following rating scales, please rate how important each of the factors was in determining your hypothetical performance. Circle the number which best indicates the importance of each factor.

	Very Unimportant								Very Important
Your Lack of Ability	1	2	3	4	5	6	7	8	9
Your Lack of Effort	1	2	3	4	5	6	7	8	9
Difficulty of the Test	1	2	3	4	5	6	7	8	9
Bad Luck	1	2	3	4	5	6	7	8	9

3212

On the previous page, you indicated with percentage figures how important each of a series of factors was in determining your hypothetical test performance. Below is the same list of factors. This time, using the following rating scales, please rate how important each of the factors was in determining your hypothetical performance. Circle the number which best indicates the importance of each factor.

	Very Unimportant								Very Important
Your Lack of Ability	1	2	3	4	5	6	7	8	9
Your Lack of Effort	1	2	3	4	5	6	7	8	9
Difficulty of the Test	1	2	3	4	5	6	7	8	9
Bad Luck	1	2	3	4	5	6	7	8	9

On the previous page, you indicated with percentage figures how important each of a series of factors was in determining your hypothetical test performance. Below is the same list of factors. This time, using the following rating scales, please rate how important each of the factors was in determining your hypothetical performance. Circle the number which best indicates the importance of each factor

	Very Unimportant								Very Important
Your Lack of Ability	1	2	3	4	5	6	7	8	9
Your Lack of Effort	1	2	3	4	5	6	7	8	9
Difficulty of the Test	1	2	3	4	5	6	7	8	9
Bad Luck	1	2	3	4	5	6	7	8	9

Remember: For the remaining items, respond directly on the answer sheet provided. Please do not write anything on the questionnaire.

The items below relate to the feelings and thoughts people have and the actions they perform after they have learn how well they have done on a test. For each question, circle the one response which best represents how you would feel, think or behave given your hypothetical test outcome.

To use the rating scales for items one to sixteen, circle 1 for a very strong negative feeling, 5 for a neutral feeling and 9 for a very strong positive feeling.

Given your hypothetical test outcome, would you feel

1)	Very Unpleasantly Surprised	1	2	3	4	5	6	7	8	9	Very Pleasantly Surprised
2)	Very Unrelaxed	1	2	3	4	5	6	7	8	9	Very Relaxed
3)	Very Unhappy	1	2	3	4	5	6	7	8	9	Very Happy
4)	Very Incompetent	1	2	3	4	5	6	7	8	9	Very Competent
5)	Very Tense	1	2	3	4	5	6	7	8	9	Very Calm
6)	Very Dissatisfied	1	2	3	4	5	6	7	8	9	Very Satisfied
7)	Very Disgusted	1	2	3	4	5	6	7	8	9	Very Delighted
8)	Very Ashamed	1	2	3	4	5	6	7	8	9	Very Proud
9)	Very Frustrated	1	2	3	4	5	6	7	8	9	Very Fulfilled
10)	Very Displeased	1	2	3	4	5	6	7	8	9	Very Pleased
11)	Very Inadequate	1	2	3	4	5	6	7	8	9	Very Adequate
12)	Very Bad	1	2	3	4	5	6	7	8	9	Very Good

13) Very Discontented 1 2 3 4 5 6 7 8 9 Very Contented

14) Very Upset 1 2 3 4 5 6 7 8 9 Very Composed

15) Very Unpleasantly Astonished 1 2 3 4 5 6 7 8 9 Very Pleasantly Astonished

16) Very Depressed 1 2 3 4 5 6 7 8 9 Very Elated

Given your hypothetical test outcome, how well would you expect to do in:

	Very Poorly								Very Well
17) Future exams in that subject	1	2	3	4	5	6	7	8	9
18) Future exams in other subjects	1	2	3	4	5	6	7	8	9

19) Given your hypothetical test outcome, how much help would you seek from your professor or from other students?

A great deal less than before — A great deal more than before

1 2 3 4 5 6 7 8 9

20) Given your hypothetical test outcome, how many classes would you attend?

A great deal less than before — A great deal more than before

1 2 3 4 5 6 7 8 9

21) Given your hypothetical test outcome, how many assignments would you complete?

A great deal less than before — A great deal more than before

1 2 3 4 5 6 7 8 9

22) Given your hypothetical test outcome, how much studying would you do?

A great deal less than before									A great deal more than before
1	2	3	4	5	6	7	8	9	

23) Given your hypothetical test outcome, how much would you use the library?

A great deal less than before									A great deal more than before
1	2	3	4	5	6	7	8	9	

The questions below relate to your understanding of the questions you have been asked to answer so far.

24) Rate the extent to which you <u>understood</u> your test outcome in the hypothetical situation was expected

Totally Unexpected 1 2 3 4 5 6 7 8 9 Totally Expected

25) Rate the extent to which you <u>understood</u> your outcome in the hypothetical situation to be successful.

Very Unsuccessful 1 2 3 4 5 6 7 8 9 Very Successful

26) Rate the extent to which you <u>understood</u> your test outcome in the hypothetical situation to be important.

Very Unimportant 1 2 3 4 5 6 7 8 9 Very Important

27) Rate the extent to which you feel you generally understood the questions and tasks you were asked to complete.

Understood Very Poorly 1 2 3 4 5 6 7 8 9 Understood Very Well

Student Background Questionnaire

28) Your age:

1) 18 or under
2) 19 to 20
3) 21 to 22
4) 23 to 24
5) 25 or over

29) Your sex:

1) Male
2) Female

30) What is your present level at university?

1) U1(First Year University)
2) U2(Second Year University)
3) U3(Third Year University)
4) Diploma, Graduate ,or other

31) Your Academic Major:

1) Fine Arts
2) Commerce and Administration
3) Engineering and Computer Science
4) Liberal Arts, Recreation and Education
5) Natural Sciences

32) Your pre-university grade average(high school or CEGEP)

1) 60-69
2) 70-79
3) 80-89
4) 90-100
5) Other or don't know

If you have not yet completed any university courses for a grade, answer question 33 by estimating what you expect your university average will be.

33) Your university average so far:

1) 49 or below(F)
2) 50-59(D)
3) 60-69(C)
4) 70-79(B)
5) 80 or higher(A)

34) What is your first language?

1) English
2) French
3) Italian
4) Greek
5) Other(e.g., Chinese, Arabic, etc.)

35) What is your country of birth?

1) Canada or USA
2) Italy
3) Greece
4) Other

36) How many years have you been a resident of Canada?

1) 0-2 years
2) 3-5 years
3) 6-10 years
4) 11-15 years
5) 16 or more years

Thank you for your participation. We welcome your comments and suggestions. Please write these on the back side of the answer sheet.

January 12, 1984

Dear Concordia Professor:

I am a graduate student enrolled in the Educational Studies programme at Concordia. As part of my Master's thesis, which is being supervised by Dr. Philip Abrami, I am investigating how students come to determine the causes of their successes and failures in university course examinations, and how these causal decisions influence subsequent achievement-related feelings, expectations, and behaviors. I am asking professors from a host of departments in the university to help me in this research by volunteering approximately one-half hour of classtime during a single class meeting sometime toward the beginnning of the winter semester. During this half-hour, students will be asked only to complete one of several different questionnaires, each of which requires them to make causal statements concerning hypothetical course examination outcomes. A description of the study is included with this letter.

This study requires a large and diverse number of subjects; I hope that you will support me by volunteering one or more of your classes. To do so, please complete the form at the bottom of this page and return it to me via campus mail. Otherwise, I will be contacting you within the next short while to see if you are able to donate classtime for this project. If you have any questions or comments, you can reach me at the phone number listed below.

Thank you for your cooperation.

Sincerely,

Paul Leroux, MA student and
Research Assistant for Dr. P. Abrami,
Education Department
Phone: 879-4034 Messages only: 4535

Educational Studies Questionnaire Survey

Students' personal causal perceptions of exam performances are called causal attributions by educational psychologists. The study of academic causal attributions is important because research has demonstrated that attributions are related to task persistance, seeking help from professors, future examination performance and attrition rate. We are specifically interested in a highly recurrent phenomenon in research on attributions for success and failure experiences - self-serving attributions.

Attributions are self-serving when students attribute success to internal factors, such as ability and effort, and attribute failure to external factors, such as task difficulty and luck This pattern of attributions is self-serving because attributions to internal factors for success increase feelings of pride and competence, whereas attributions to external factors for failure impede the development of feelings of shame and incompetence.

Attribution theorists are interested in self-serving attributions because the phenomenon is extremely resilient, having occurred in over 70% of studies of attributions for success and failure The implicit assumption in this interest is that self-serving attributions are representative of the way people typically conceive the causal nature of success and failure events.

Nevertheless, we question whether this highly recurrent phenomenon is typical of everyday causal perception or whether it is an artifact of the use of structured questionnaire measures by attribution researchers. Structured measures may both restrict the number and type of attributions subjects make and cue them into considering causal factors they might ignore without experimental prompting. Because subjects are not allowed to attribute the way they normally would, their causal perceptions may be misrepresented by these reactive measures.

Indeed, research has demonstrated that people consider causal factors excluded in conventional structured attribution measures. In addition, a recent study (Wong and Weiner, 1981) found that subjects who were indirectly asked to make open-ended attributional responses did not respond defensively Instead, subjects' responses followed a pattern directly opposite to that of the self-serving bias; they attributed success to external factors and failure to internal factors. Because Wong and Weiner's methodology did not directly ask subjects to explain an outcome, it is possible that these subjects attributed their success and failure as people ordinarily do We are conducting a modified version of Wong and Weiner's study to ascertain whether their findings occur outside of their restricted experimental conditions, in which subjects attributed for unimportant, unexpected outcomes only.

Note to Instructors:

It is important that students have no preconceived notion of this study when completing the questionnaire. Therefore, please do not describe the study in detail to them. Following the completion of the survey by the class, an oral and/or written debriefing will be provided by the research assistant. Thank You.

Attribution Study Debriefing

We are studying the causal attributions students make for the outcomes of their university exams. Causal attributions are the causes students ascribe to exam outcomes. For example, if you passed a test and said that you passed because you worked hard, you would have made a causal attribution; you attributed your performance to studying hard. Educational psychologists have been studying the attributions people make for success and failure outcomes because attributions have been found to be related to achievement-related behaviors. The attributions students make for their exam performances can predict how much they will study for future examinations, whether they will seek help from professors and even how likely it is for them to complete university.

Because attributions have been found to be related to such important behaviors, psychologists are interested in what causes people to choose one attribution over another. Because of this interest, a large number of experiments investigating the formation of attributions for success and failure have been conducted. In the majority of these experiments, researchers have found that people typically attribute success to internal factors, such as ability and effort, and attribute failure to external factors, such as task-difficulty and luck. Nevertheless, one notable study, Wong and Weiner(1981) found the opposite effect; in their study, subjects attributed success to external factors and failure to internal factors. We are attempting to find out why this effect occurred and whether it is more typical of the way people typically attribute their successes and failures.

It is possible the effect occurred because Wong and Weiner did not ask for attributions in the way researchers normally do. Researchers ususally ask subjects to indicate how important each of a series of causal factors(e.g., ability, effort, luck) were in determining exam performance. Wong and Weiner instead asked their subjects to report any questions they would have given an exam outcome. The causal factors mentioned in subjects' questions formed the basis of Wong and Weiner's attributional data. To test whether Wong and Weiner's unusual question was the reason for their atypical attributional data, we are asking subjects to attribute for the same hypothetical test outcomes used in Wong and Weiner's experiment, but are asking some subjects to provide questions, as did Wong and Weiner, while asking other subjects to rate the importance of various potential causes, as do most attributional researchers. Some subjects are also responding to modified versions of Wong and Weiner's hypothetical outcome conditions, so we can test whether Wong and Weiner's unusual results occurred because of the anomalous nature of these outcomes; in comparison to the outcomes in many attributional studies, these contained little information as to how important the test was, a factor known to affect attributional choice.

APPENDIX B

Materials for Wong and Weiner's (1981) Coding Scheme, including correspondence with Paul T. P. Wong.

Note: The materials found in this appendix, save for those found on pages 217 to 219, were written specifically for the purposes of this study and were not used in Wong and Weiner (1981).

Wong and Weiner's Coding Method

Coding Procedure

1.) Describe the situation, whether hypothetical or real, which will be used as the stimulus material.

2.) Immediately after the description provide seven lines (Numbered 1 to 7) and perhaps several additional lines without numbers. The numbered lines may be of some value in excouraging subjects to differentiate their cognitions. The unnumbered lines are intended for additional responses. From a number of studies, I have discovered that the provision of several numbered and unnumbered lines have the subtle effect of increasing the subject's spontaneous verbal output.

3.) I have also instructed my subjects to spend a minimum of time completing the open-ended questionnaire. If subjects are asked to respond to one situation, ten minutes should be sufficient. This minimum time requirement is to insure that subjects will give sufficient thought to the questions and take time to report their conditions. If subjects are free to leave, their verbal output is generally low and of poor quality.

4.) Having collected the completed questionnaires, the first step is to count the total number of cognitions provided by each subject. Sometimes one response may contain two distinct cognitions. For example, if the subject writes, "Is it because I didn't study enough, or is it because the test was too difficult" --this question is treated as two attributional questions because two different causes are considered.

5.) The second step is to record all the different responses and the frequency of these responses from a sample of your data. This preliminary tabulation will give you some idea as to what kinds of responses you obtained, and what kinds of coding seems appropriate.

6.) The third step is to code all responses. Several levels of coding are possible. For example, if we ask subjects to report whatever thoughts and questions than come to their mind, the first level of coding is to classify responses into "statements" and "questions". Please note that some responses, such as "I wonder why this should happen to me" are actually questions rather than statements (thoughts).

The second level of classification was to code the questions or statements in theoretically meaningful categories. For example, attribution, action, and assessment types of questions are theoretically meaningful, and there are subsets of secondary appraisal or stressful situations.

7.) The fourth step is to classify all attribution questions into different kinds of causal ascriptions. The strategy is to have as few categories as possible, but each category must contain conceptually homogeneous items. For example, such cognitions as "Did I study hard?", "Did I attend lectures regularly?", "Have I been slack?" are clearly related to effort.

8.) The actual classification depends not only on theoretical consideration, but also on the actual data. The initial classification scheme was guided by Step 2. However, once all the responses have been coded, you may find that some categories contain too few responses (typically less than 1%) to be meaningful. In this case, you may either seek to recombine certain categories into conceptually broader groupings, or lump some of the responses into the miscellaneous category (make sure that the miscellaneous category only contains a small percentage of all questions, preferably not more than 1%).

9.) Having completed your coding, the last step is to describe each classification, and provide several exammples for each category, and go over your classification scheme with the judges. Typically, your judges may question some of your codings, suggest some regroupings, and a final coding scheme is arrived at. Once you and your judges have finally decided on the classification, and the examples for each category, the judge and you can independantly to check on the reliability of the coding (sic). Since all judges have agreed on the meaning and examples of each category, inter-judge agreement is typically very high.

10.) Once the inter-judge reliability has been established, either you or your judges can complete the coding according to the final coding scheme.

<u>EXAMPLES OF EACH ATTRIBUTIONAL CATEGORY</u>

(1) <u>General</u> - Why did I fail? How did I get an A?

(2) <u>Ability</u> - Is he really smart? How did I underestimate my ability?

(3) <u>Effort</u> - Did he study a lot? Did he try very hard to do well?

(4) <u>Task difficulty</u> - Was the test fair? How did other students do on the exam?

(5) <u>Luck</u> - Did he get lucky? Was it fate?

(6) <u>Study Method</u> - Did he have good study habits? Were my notes well organized?

(7) Error - Did I misunderstand the questions? Did I study the wrong things?

(8) Motivation - Was he really interested in the subject?

(9) Attitude - Was I over-confident? Did he have a wrong attitude towards the course?

(10) Emotion - Was he too nervous? Was he upset by something?

(11) Physical condition - Was he tired? Was he ill?

(12) Cheating - Did he cheat? Did he know what was on the test?

(13) Help - Who helped him? Did he get extra help form someone?

(14) Teacher - Did the grader make a mistake? Was the teacher fair?

Introduction to Wong and Weiner's Coding Scheme

The Wong and Weiner (1981) coding procedure has been devised to categorize .open-ended cognitions made in response to a described situation, whether hypothetical or real (e.g., "Imagine you are strong in a subject, but you fail at the midterm exam", "Wy did you pass your final history exam?"). This coding procedure allows us to classify cognitions into several theoretically meaningful categories and then to further classify attribution-type cognitions into causal categories such as ability and effort. We can thus measure both how often attribution cognitions occur in relation to other types of cognitions and how often any particular attribution occurs in relation to other attributions.

There are no fixed coding categories in Wong and Weiner's procedure; the procedure describes only <u>how</u> to code cognitions, assuming the existence of categories developed by the researcher on the basis of both theoretical considerations and what is contained in the raw data The present experiment will require little development of coding categories, however, because it is essentially a replication of two experiments conducted in Wong and Weiner (1981). This, it uses categories developed by Wong and Weiner for the purpose of coding their own data. Note that these categories used by Wong and Weiner are not formally defined; they exist in example only. The examples are found tables I and II.

The Coding Procedure

Wong and Weiner's coding procedure can be broken into six steps.

<u>Step One</u>: Count the total number of cognitions provided by each subject. Sometimes, a response contains two seperate cognitions, as in the phrase "Is it because I didn't study enough or is it because the test was too difficult?" This question is treated as two attributional questions because two different causes are considered (there has to be two <u>different</u> types of causes) Enter the total nember of cognitions on the scoring sheet for that subject Later, when all cognitions for that subject are categorized, you can check whether the total of categorized cognitions tallies with your previous total.

<u>Step Two</u>: This step is suspended in the present study Here, one coder takes a sample of data, records all the different types of responses and the frequency of these responses This step allows the researcher some idea as what kind of responses have been obtained and what kinds of coding would be appropriate for the entire data set. Because the present study is a replication of Experiments 2

and 3 of Wong and Weiner (1981), we need only use the categories that they have already developed. Preliminary coding confirms this assumption

Step Three. Here, we code all responses If subjects are asked to report whatever thoughts and questions come to their mind, the first level of coding is to classify responses into "statements" or "questions". Note that responses such as "I wonder why this happened to me" are questions rather than statements If subjects are asked only to provide questions, this level of coding is ignored The second level of coding is to classify questions and statements into theoretically meaningful categories. The categories used in the present experiment, on the basis of Wong and Weiner (1981), are attribution, action, re-evaluation, and miscellaneous Attribution questions are "why" questions concerned with the possible causes of the outcome, action questions are concerned with the possible courses of action and generally have a future orientation, and re-evaluation questions are concerned with the reassessment of one's ability or aspiration Miscellaneous questions include any questions that cannot be classified into the prior three categories Examples of each of these categories are found on Table I On your scoring sheet, code action, re-evaluation and miscellaneous questions with the letters A, R and M respectively Attributions will be coded according to the number of the attribution category (see step four)

Step Four The fourth step is to classify all attributional responses into seperate causal categories The principle is to develop as few categories as possible, yet each category must contain conceptually homogeneous items Again, becuase this is a replication, we need not presently worry about the orthogonality of the causal categories we develop We shall be using categories already developed by Wong and Weiner (1981) This does not mean that you avoid reporting any problems you perceive with these categories, however! We are very concerned with any factors that may have influenced Wong and Weiner's results, and so your perceptions are more than welcome

Examples of the causal categories used to code attribution responses are found on Table II Study these before commencing any work On the coding sheet, code attribution responses according to the number of the causal category Thus, an effort attribution will be coded '3'. Next, indicate the frequency of each type of attribution

Step Five Once all responses have been coded, we may find that some categories contain too few responses (typically less than 1%) These may either be recombined into conceptually broader groupings or lumped into a miscellaneous, or uncodable, category A miscellaneous category should not contain more than 1% of cognitions, however.

<u>Step Six</u>. The final step in Wong and Weiner's coding procedure is to describe each classification and provide several examples of each category. Examples are already provided for us on tables I and II. Typically, however, judges question some codings and suggest some re-groupings before a final scheme is arrived at. Because we are conducting a replication, we shall strive to use the categories already developed by Wong and Weiner (1981). We may append this scheme, however, if we find a high number of attributions that did not occur in their data. If you find any attribution questions that do not fit into their fourteen categories, keep a separate record of these, indicating what type of attribution they were. Also do the same if you find any questions that fit into the miscellaneous category. Subjects in the present study <u>may</u> frequently ask a type of question not anticipated by Wong and Weiner's study.

<u>Learning Wong and Weiner's Coding Procedure</u>

Our present attempt to learn Wong and Weiner's coding procedure follows four steps.

<u>Step One</u>. Review the examples of each category found on Tables I and II.

<u>Step Two</u>. Study the provided sample of codings performed by Wong and Weiner in their study.

<u>Step Three</u>. Code the provided samples of Wong and Weiner data with original coding removed. After, compare your codings with the original codings (these are in my office). If you are having problems, go over step one and step two and attempt step three with a new set of responses with the coding removed (these will be provided).

<u>Step Four</u>. Code the twenty samples of pilot data provided. Review steps one, three, four and six of Wong and Weiner's procedure before doing this. It is suggested that you recheck your early codings once you are finished.

Table I

<u>Attribution</u> - Why did this happen? Did I study enough?

<u>Action</u> - What can I do to pass? Shall I get a tutor?

<u>Re-evaluation</u> Have I understood myself?

<u>Miscellaneous</u> - Why did Mozart write Don Giovanni? What grade did others get?

WONG AND WEINER CODING SCHEME-DEFINITIONS AND EXAMPLES

Category Codes: 7-5-~~84 update~~

22-Action
33-Re-evaluation
44-Miscellaneous
01-General
02-Ability
03-Effort
04-Task Difficulty
05-Luck
06-Study Method
07-Error
08-Motivation
09-Attitude
10-Emotion
11-Physical Condition
12-Cheating
13-Help
14-Teacher
15-Knowledge
16-Situation

Note Attributions rephrased in the same sentence or question and multiple attributions to the same cause in the same sentence or question are coded as one attribution. For example, "Was it because the test was too long or was it because it contained too many objective questions?" is coded as having one attribution only, in this case, Task(04).

CATEGORY DEFINITIONS

ACTION(22) questions are concerned with possible courses of personal action and generally have a future orientation. They are questions concerned with either specific courses of action(e.g., "Shall I get a tutor?") or with a search for a specific course of action(e.g., How can I continue to do this well?"). Action questions are concerned only with personal action, not the action of others, such as of friends or teacher

RE-EVALUATION(33) questions are concerned with re-assessment of one's ability or aspiration(e.g., "Why do I think I was weak in that subject?" "Should I think positive or negative on my skills?", "Am I deceiving myself about my potential?") Re-evaluation questions are also concerned with factors which impede or facilitate self-assessment of ability(e.g., "Do I have a poor self-image?", "Should I have a new attitude about my potential?") See Ability(2) for differentiation between re-evaluation and ability questions
MISCELLANEOUS(44) questions are any that cannot be

classified into the three categories of Action, Re-evaluation and Attribution(e g., "Why worry I got an A?", "Shall I be thankful?", "Does he deserve an A?").

ATTRIBUTION questions are "why" questions concerned with the possible causes of the outcome There are sixteen categories

GENERAL(01) questions are concerned with seeking explanations for an outcome but make no reference to specific causes(e g., "Why did I get an A?", "Why did I fail?") Also, any attribution which has a dimensional quality, but cannot be fitted into any one category(e g , "Was it due to me?") is coded as General A special case is found in the example of "Why did I put so little thought into the material ahead of time?"(In this case, the subject is not questioning the effect of the lack of thought, but generally asking why the lack came about If a subject consistently questions the ultimate causes of the effective causes of their outcome, however, code their questions in terms of the effective causes-in this case, the lack of thought)

ABILITY(2) questions are concerned with whether personal unintentional skill traits influenced the outcome(e g ,"Do I have instinctual powers that automatically point out the answer?", "How could my friend be so dumb?", Do I have a good memory?") Note that ability questions are not concerned with personality traits, such as stable motivation, confidence or emotion

It is difficult to descriminate between re-evaluation and ability in Wong and Weiner's scheme For instance, the questions "Is he really smart?" and "How did I underestimate my ability?" are given as examples of ability quiestions while the questions "Is he that smart really?" and "Did I underestimate myself?" are coded as re-evaluation qustions This problen arises because of the unexpected conditions in Wong and Weiner(1981). Subjects always performed inconsistently with "strength" in a subject Because "strength" is probably interpreted by most subjects as meaning ability, as soon as subjects considered ability, they were likely to consider whether the "strength"was true Thus, few ability attributions lack some sense of re-evaluation Nevertheless, ability attributions should involve no implied comparisons between previous beliefs and new hypotheses concerning ability Statements or questions such as "Am I really weak in that subject?", or "Why do I think I was weak in that subject?" are coded Re-evaluation(33) because they question the ability indicated in the hypothetical exam situation

EFFORT(03) questions are concerned with the influence of personal goal-oriented behavior operating before or during the test, such as doing home-work, studying and attending class, on the outcome of the test Effort questions are not concerned with the efforts of others, which are Help/Hindrance(13) or Teacher(14) attributions. Nor are they concerned with quality or type of preparation(e g , "Did he have good study habits?"), questions or statements that do so are Study Method(06) attributions Effort questions and statements are concerned only with whether the student prepared(e g "Did he try?") or how much the student prepared(e g , "Did he study a lot?", "Did he try very hard to do well?")

TASK(04) questions are concerned with the ease or difficulty of the course or the subject(e g , "Is this class a "Mick"?, "Is this subject hard at all?") as well as with the ease or difficulty of the test(e g , "Was the test worded badly?", "Was the test fair?") Task questions are not concerned with the teaching of the course or with the grading of the exam(e g , "Did the grader make a mistake?"), these are Teacher(14) attributions Task questions are also any concerned with seeking consensus as to how others performed(e g , "How did others do on the exam?")

LUCK(05) questions are concerned with whether the outcome reulted from the operation of chance, whether during preparation(e g , "Was the test material concentrated in the area in the area I studied?", "Did the exam test my knowledge?") or during the course of the exam itself Luck questions are concerned with non-specific operations of chance(e g , "Did he get lucky?") and with the operation of Fate(e g , "Was it fate?") Luck questions are also concerned with the influence of guessing in success(e g , "Did I guess a lot?")

STUDY METHOD(06) questions are concerned with whether the way in which preparation was conducted influenced test outcome(e g , "Did he have good study habits?", "Were my notes will organized," "Did I study a different way than usual?") Note that Study Method questions are not concerned with what material is studied, but with how material is studied

ERROR(07) questions are concerned with the error of the actor, whether during preparation or during the test(w g , "Did I study the wrong material?", " Was I careless in answering?") Error questions occur almost exclusively in response to failure Note that questions which ask whether failure occurred because of how the actor studied are Study Method questions, whereas questions which ask whether failure occurred because of what the actor studied are Error questions Note also that questions which ask whether failure occurred because the actor studied the wrong material on the basis of a necessarily arbitrary decision are Luck, not Error questions(e g , "Was the test material concentrated in the area I studied?"), Error questions refer to those actions which are simply inappropriate Note that the error of others are questioned in either Help/Hindrance(13) or Teacher(14) questions

MOTIVATION(08) questions are concerned with reasons for the preparation of the exam and the degree of importance attributed to the exam These questions deal with modifications in caring or not caring(e g , "Did he care?" and with determination and inspiration(e g , "Did I get sudden determination that helped me?", "Was Y suddenly inspired to study?")

ATTITUDE(09) questions are concerned with states of mental preparation and confidence(e g ,"Was I over-confident?", "Did he have the wrong attitude towards the course?", "Was he up for the test?")

EMOTION(10) questions are concerned with possible and specific states of emotion(e g ,"Did he have emotional problems?", "Has he been depressed?") Note that questions which nonspecifically ask how the actor felt are also coded as Emotion questions(e g , "How did I feel at the time of the test?") Emotion questions often refer to states of nervousness, relaxation and frustration

PHYSICAL CONDITION(11) questions are concerned with feelings of tiredness or illness, whether directly(e g ,"Was I too tired to do well?") or indirectly(e g , "Did I have enough sleep the night before?") Any questions concerned with physical preparation are coded as Physical Condition questions, such as "Was I prepared physically?" and "What did he have for breakfast?"

CHEATING(12) questions are concerned with cheating activities of the actor, occurring either during preparation for the test of during the taking of the test itself These questions typically occur in response to others' successes(e g , "Did he cheat?", "Did he know what was on the test?")

HELP/HINDRANCE(13) questions are concerned with the help or hindrance of others' previous to, or during, the test(e g , "Did Y find help in the subject?", "Who did Y study with?", "Did he get a tutor?") Help/Hindrance refers to personal causes which are typically active and controllable Others can include other students, parents, tutors, everyone who is not directly connected with the teaching or grading of the course, such as teachers and teachers' assistants

TEACHER(14) questions are concerned either with way the course is taught or with the way the test is marked(e g , "Did the grader make a mistake?, "Was the teacher fair?"). Questions concerning marking can ask whether grading was correct, easy, fair, inconsistent, or subject to personal bias

KNOWLEDGE(15) questions are concerned with the knowlege or understanding of subject material as well as knowing how to take the test("Do I have a good grasp of the material?", "Did I not understand?"). They can also be concerned with how the knowledge or understanding came about(e g , "Did he take the course before?") Note that questions such as "Did he actually know the material?" and "Do I truly understand?" are Knowledge questions not re-evaluation questions, because Re-evaluation questions are concerned with the trait of ability whereas these questions reflect states of knowledge and understanding, which vary over time

SITUATION(16) questions are concerned with help or hindrance of impersonal factors(e g , "Is X having problems in other areas?", "Is there problems in his family?", or, hypothetically, "Did he have too many test scheduled at the same time?") Situation attributions are generally are generally of mediate internality and intentionality They are also typically transitory, operating in the present or in the immediate past.

Category Codes

01-06-84 UPDATE

22-Action
33-Re-evaluation
44-Miscellaneous
01-General
02-Ability
03-Effort
04-Task Difficulty
05-Luck
06-Study Method
07-Error
08-Motivation
09-Attitude
10-Emotion
11-Physical Condition
12-Cheating
13-Help
14-Teacher
15-Knowledge
16-Situation

CATEGORY EXAMPLES

ACTION(22):
Shall I get a tutor? How can I continue to do this well? Perhaps my TA can help me? maintain this high achievement level throughout the final? How will I improve my self-esteem?

RE-EVALUATION(33):
Have I underestimated myself? Do I have a poor self-image? Should I have a new attitude about my potential? Why do I

think I was weak in that subject? Should I think positive or negative on my skills? I understood the material well.

MISCELLANEOUS(44)
Is this test really important in my life? Will it happen again on the final? Why worry I got an A? Does he deserve an A? Shall I be thankful? I must have understood the questions properly

GENERAL(01)
Why did I get an A? Why did I fail? Was success due to me? Why did I put so little thought into the material ahead of time?(In this case, the subject is not questioning the effect of the lack of thought, but generally asking why the lack came about If a subject consistently questions the ultimate causes of the effective causes of their outcome, code their questions in terms of the effective causes—in this case, the lack of thought.)

ABILITY(02)
Do I have instinctual powers that automatically point out the answer? How could my friend be so dumb? Do I have a good memory? Is this an indication of my strength in general or in all subjects? I am strong in this subject. Can I work harder?

EFFORT(03)
Did he study a lot? Did he try very hard to do well? Did he try? I did not try to ask for help.

TASK(04)
Is this class a "Mick"? Is this subject hard at all? Was the test worded badly? Was the test fair? How did others do on the exam? Did I have enough time to finish? Will the final be as hard as the midterm? The questions were irrelevant to the lectures Had plenty of time to go carefully over the questions Was the content examined covered in class?

LUCK(05)
Was the test material concentrated in the area I studied? Did he get lucky? Was it fate? Did I guess a lot? Did the exam test my knowledge? Did I guess wrong in picking that % of the material to study? I anticipated the questions.

STUDY METHOD(06)
Did he have good study habits? Were my notes well organized? Did I study a different way than usual? Did he study properly?

ERROR(07)
Did I misunderstand the questions? Did I study the wrong things? Was I careless in answering? Did I use the answer sheet incorrectly(H)

MOTIVATION(08):
Was he really interested in the subject? Did I get sudden determination that helped me? Do I care? Do I like the subject? Was Y suddenly inspired to study? Was he really interested in the subject? Was this an important test to X?(H)

ATTITUDE(09):
Was I over-confident? Did he have the wrong attitude towards the course? Did I come to school in a strong frame of mind? Was he mentally up for the test? Handling the pressure Ability to handle pressure of mid-term exams easily. Shy to ask many questions.

EMOTION(10):
Was he too nervous? Was he upset by something? Does he have emotional problems that interfered with his test? How did he feel this morning? Does X freeze up in test situations? Was I mentally disturbed during the test?

PHYSICAL CONDITION(11):
Was he tired? Was he ill? Did I have a headache the night before? Was he "hung-over" form the night before? Did I have enough sleep the night before? What did he have for breakfast? Was he physically prepared?

CHEATING(12):
Did he cheat? Was it because he cheated? Did he know what was on the test?

HELP(13):
Did Y find help in the subject? Who did Y study with? Did he get a tutor? Who helped him? Did he get extra help from someone? His frat brothers wouldn't let him study?(H)

TEACHER(14):
Did the grader make a mistake? Was the teacher fair? Were the marks placed on a bell curve?

KNOWLEDGE(15):
Do I have a good grasp of the material? Did I not understand? Did he take the course before? Did I actually know the material? Do I truly understand? Have I seen the material before?

SITUATION(16):
Was something the matter in his personal life? Is there problems in his family? What external influences was X subject to? Was X having problems? Is X having problems in other areas? Did he have too may tests scheduled at the same time?(H)

Re-evaluation Questions

1) Am I really as weak as I thought in the subject?
2) Is he that smart really?
3) Is he just underestimating his ability?
4) Did I know the subject better than I thought?
5) Was s/he as weak as I thought?
6) Does he really know the material?
7) Am I mentally retarded?
8) Who says he is strong in this subject?
9) Is he an "A" student?
10) Did I know more than I thought?
11) Why do I think I am weak in this are?
12) Did I understand better than I thought I did?
13) Am I smarter than I think?
14) Did I overestimate the difficulty of the class?
15) Is he smarter than he thinks?
16) Is the class easier than I think?
17) Was I really weak in the subject?
18) Is X really strong in that subject?
19) Do I understand the subject more than I thought?
20) Should I have more confidence in myself next time?
21) Am I really weak in the subject?
22) Does he really know the answers w/o pressure of the grade?
23) Am I really weak in that subject?
24) Do I know what I am weak in?
25) Is X actually good in the subject?
26) Is ~~Y~~ weak in that subject?
27) Did I underestimate myself?
28) Did I understand the subject matter more than I thought I did?
29) Was the test too hard?
30) Did he think he knew more than he really did?
31) Did tension .. interfere?
32) Did he understand more than he let on?
33) Am I deceiving myself about my potential?
34) Why do I think I am strong in this subject?
35) Do I have a poor self-image?
36) Should I have a new attitude about my potential?
37) Is Y really poor in this are?
38) Does X really just think he is poor?
39) Why do I think I am weak in a particular subject?
40) Should I think positive or negative on my skills?
41) Is this really my strongest subject?
42) Am I really weak in this subject?
43) Is he really good in this subject?
44) Is he dumber than I thought?
45) Is he smarter than I thought?
46) Does how a person thinks he is in a subject relate to how he really is?
47) Why do I think I am strong here?
48) Am I getting better or stronger here?
49) Is she getting better in that subject?
50) I think I am stronger in this subject than I once thought?
51) Is he as good as I thought?

52) Is it possible that I am not weak in the area?
53) Did I underestimate Y's ability?

Ability Questions

1) Is he smart really?
2) How did I underestimate my ability?
3) Do I have instinctual powers that automatically point out the answers?
4) How could my friend be so dumb?

TRENT UNIVERSITY PETERBOROUGH ONTARIO CANADA

K9J 7B8

Department of Psychology

1983 06 27

Dr. Paul Leroux
5241 Montclair
Montreal, PQ
H4J 1R2

Dear Paul:

Thank you for your letter. I am sending you some sample copies of the materials used in the Wong and Weiner paper, plus a copy of my coding procedure. The actual coding categories were reported in the Wong and Weiner paper.

Should you have any questions, please feel free to write me or call (705) 748-1570.

Sincerely,

Paul T.P. Wong, Ph.D.
Professor

PTPW:dp
Encl.

1983 09 4

Dr Paul T P Wong
Trent University
Department of Psychology

Dr Wong

Thank you very much for your letter and materials of June 27, 1983 (copy of letter enclosed). As of now, we have completed pilot testing of over 80 subjects in two universities (University of Manitoba and Concordia University) Preliminary coding of the Concordia data shows attributions differing from those in experiments 2 and 3 of Wong and Weiner (1981) Notably, we found no large differences in task and effort attributions across success and failure Additionally, we found a new category of attributions referring to the way in which the exam was marked Several possbile explanations wxist for these differing results First, only one person was used to actually code responses Thus, there was no control for coder bias Second, half of the subjects had a language other than english as their mother tongue; a strong cultural effect could have been operative Third, subjects were mainly commerce students who probably have exam experiences differing from those of students in arts and science disciplines I will keep you informed of results as more stringent coding is implemented

Experience with using your coding procedure prompts me to ask you to provide us with further information concerning its use Our problem lies in the attributional categories you used Our data required us to formulate one new category, but most of the questions we found were attributional questions which apparently fell into the categories you developed Nevertheless, we have problems, such as differentiating effort attributions from study method attributions, or deciding when an attribution fits into the category of emotion, or deciding when another fits into motivation Knowledge of how you defined these categories would help us in replicating your results Thus, receipt of any information you have concerning the categories would be appreciated In addition to the information, copies of half a dozen more of subjects' responses would further help us in understanding your attributional categories The several copies you have sent so far have proved helpful

We are studying how the outcome conditions and the non-reactive questions in your study resulted in the anomalous attributional data of Experiments 2 and 3. Thus, I would like you to confirm my interpretation of your statement of page 657

"The above attributional bias is in opposition to the well-known hedonic bias hypothesis, which posits that people internalize success but externalize failure. Perhaps defensive functioning predominates when one is publicly asked to an explanation of a task already completed, whereas adaptive functioning prevails when there is a search for problems that may recur."

Does the above quote mean that the self-serving bias possibly results from direct attributional questioning and that your data, which is in opposition to the bias, resulted because you avoided direct attributional questioning? That is, questioning which demands a causal explanation.

In relation to the effect of outcome conditions in experiments 2 and 3, did you tabluate the occurence of individual attributions in experiment 5? It would be helpful to know if the "real-life" conditions produced any such differences, helping to explain how much of an effect the question itself had on attributions.

Sorry for all the questions and requests. I have tried to think of everything possible so that I will not have to bother you again. As our data are analyzed, I will provide you with information as to what we have found in our experiments

Thanks again for your kind help,

Paul Leroux, Department of Educational Studies

TRENT UNIVERSITY PETERBOROUGH ONTARIO CANADA

K9J 7B8

Department of Psychology

1983 09 22

Mr. Paul Leroux
5241 Montclair
Montreal, PQ
H4J 1R2

Dear Paul:

I am now sending you another copy of the coding procedure and additional copies of subjects' responses. I would appreciate it if you would return these responses to me as soon as possible.

Here are my answers to your questions:

Regarding attributional categories, in hindsight I feel that we had too many categories in the Wong and Weiner paper. This would create a problem when the operant level of verbal responses is low. To help you clarify attributional questions, I have also included some examples for each category here. Please note that your new category on marking is the same as our "teacher" category. Any attrivution having to do with the way the course is taught or the test is marked is considered as belonging to the "teacher" category. You could combine effort and study method because it is quite difficult to differentiate between these two categories. We made a distinction because a student may study very hard by cramming just before the exam, but has a very unsystematic way of study. In this case, this student is high in effort, but poor in study method.

In our initial study, we had a Re-Evaluation category, which is parallel to Attribution, and Action categories. In hindsight, these Re-Evaluation questions should be treated as ability-related attribution questions.

Regarding defensive functioning versus adaptive functioning (p. 657), here is the correct interpretation. When people are asked to explain their outcomes, people tend to internalize success but externalize failure. One widely accepted notion is that this attributional bias is defensively motivated because

. . . 2/

people want to defend their self-esteem and look good. However, when people are asked to spontaneously generate questions about certain outcomes, their main concern is no longer self-defense but problem-solving. In other words, they want to find out internal and controllable causes of the problem, so that they can solve it and prevent its future occurrence. Internally oriented attributional search is adaptive because it increases the likelihood of one's success in solving the problem.

Experiment 5 was mainly concerned with the relative priority of attributional search. We did not ask for individual attributions.

Finally, greater internal orientation after failure occurred equally across self and others because there was no significant outcome x perspective interaction.

It has taken me a great deal of time to respond to your two letters. Hope that my answers are helpful to your research.

Sincerely,

Paul T.P. Wong, Ph.D.
Professor

PTPW:dp
Encl.

APPENDIX C

Materials for Elig and Frieze's Coding Scheme of Perceived Causality (CSPC), including procedure for adjusting percentage assessments.

Note: The materials contained in this appendix were adapted for the purposes of coding the responses found in the present study. For an exact and complete version of the original Coding Scheme of Perceived Causality, see Elig and Frieze (1975).

Introduction to the Coding Scheme of Perceived Causality (CSPC)

Preamble

The Coding Scheme of Perceived Causality (CSPC) (Elig & Frieze, 1975) was developed for the purpose of analyzing open-ended response data generated when subjects are asked to state why a particular event occurred (e.g., "Why did you fail the exam?"). Such data has shown that people use many causal categories in addition to the four categories of ability, effort, task-difficulty and luck suggested by Weiner et al (1971), such as mood and interest in succeeding (Frieze, 1973) The CSPC allows us to measure the occurrence of these additional attributional categories The CSPC is also useful because it allows us to categorize attributions according to the dimensional qualities of location (locus), stability and intentionality For our present purposes, however, we shall only be using the location category, which distinguishes causes as to whether they are internal or external to the attributor

The CSPC is a more complete and rigorous coding procedure than the Wong and Weiner (1981) coding scheme. It offers specific definitions of attributional categories as well as providing examples of each of the categories. It allows us to code each attribution not only in terms of its causal category, but also in terms of three causal dimensions. There are specific provisions for multiple responses of various type, for various grammatical structures, and for attributional statements which fall into more than one attributional category. Nevertheless, because our raw data contains responses other than attributional questions, and the CSPC contains only attributional coding categories, we shall borrow the action and re-evaluation categories developed by Wong and Weiner when coding according the CSPC (see Table 1 in the Wong and Weiner scheme for examples of questions fitting these categories.

Using the CSPC

Because the CSPC is a more complete and refined coding scheme than that of Wong and Weiner, there are fewer steps taken in coding. There is almost no need to develop new categories unless there are unusual factors influencing subjects' responses. One becomes familiar with the coding categories, special provisions and then codes the data. (Note to reader: The below page and appendix refernces are to the original version of the CSPC [Elig and Frieze, 1975].

Familiarization Study the definitions of the coding categories (pages 6 - 11) and the discussion of locality (pages 18 - 21) Then, review the examples of causal categories (Appendix 1, Section 2).

Coding In scoring the causal attributions (the code number of each causal category is found on table 6), score all attributions in the order given by the respondent. If the subject has two separate and different attributions in one sentence, consider them separately and in the order the respondent gives. If in one sentence or grammatical structure the subject repeats the same cause a number of times to elaborate or clarify it, treat it as one attributions and code it only once If the subject gives the same attributions in two different sentences or structures, consider them separately and code each one. If attributions are given in a complex sequence (that is, one attributions in the cause of the other), treat the sentence as one entity, ignore the "caused cause" and code the ultimate or indirect cause (that is, the cause of the direct cause of the outcome) For clarifying examples of each of these principles, see Appendix 2, Section 2

Uses of Codes for Uncodable or Uncertain Responses

If a response simply repeats the outcome, it is coded Simple Repeat of Outcome (08) for category and is coded uncodable (09) in location An example is "The student did well on the test" If a response is a flat contradiction of the stimulus condition, the category and dimensions are all coded uncodable (09). An example is "He usually tried hard" given as a response for failure If irrelevant material or material contradictory to the stimulus outcome is given in the same sentence with relevant material, the irrelevant material is not coded while the relevant material is coded An example is "He usually tried hard but was sick that day" given as an explanation of failure In this case, the first cause is ignored because it is irrelevant in regard to the causation of the outcome while the second cause is coded because it is relevant to the outcome

The location of an attributional statement is coded uncodable (09) in three cases only 1) when the response simple repeats the outcome and the category is coded (08); 2) when the response flatly contradicts the outcome offering a different outcome as the real outcome and category is coded (09), 3) when the response is irrelevant to the outcome and the category is coded (09) In cases where the response is ambiguous in regards to location, location is coded uncertain (02) An example is "I had a lot of other activities" Because it is unknown in this case whether if the student decided to get involved in these other activities or if he was forced into them, the response is ambiguous as to locality and is coded uncertain (2).

Special Cases of Ambiguous Responses

There are several special cases where the category code of uncodable (09) is not used for ambiguous responses These consist of ability-task interaction, personality interaction and ambiguity between mood and effort. An example of Ability-Task Interaction is "Innapropriate testing-too difficult". When, as in this case, it is unclear whether the task was too difficult for the actor (ability attribution), or for the whole class (task attribution), the location is coded as uncertain (2) and the category is Ability-Task Interaction (10). A similar case is "reading assignment is too difficult" An example of Personality Interactions is "Lack of mutual interests". In this case, the location is mutual (2) and the category is Personality Interactions (17). a similar case is "The teacher and I don't get along". An example of mood-effort ambiguity is "Talked too much or was too quiet". This implies both effort, or lack thereof, or good or bad mood. It is coded as internal (01) and the category is Mood, Fatigue, Situational Reactions (04).

A Final Note

Elig and Frieze state that it is imperative to be completely familiar with CSPC before beginning coding. Thus, make sure that you understand the causal categories, the definition of location, the provisions for multiple responses and the coding of uncodable, uncertain and ambiguous responses Review the examples that illuminate the above concepts It will be easier to code and more pleasant to code if you have done the groundwork first. Elig and Frieze also suggest that you recheck your early codings after you have gained confidence with scheme.

Elig and Frieze(1975) Attribution Coding Scheme

Causal Categories

01 Ability
02 Effort
03 Stable effort
04 Mood, fatigue, and situational reactions
05 Intrinsic motives
06 Personality
07 Person's physical appearance and other physical factors of the person
08 Simple repeat of outcome
09 Another answer or uncodable
10 Ability-Task interaction
11 Task difficulty
12 Other's help or hurt and effort
13 Permanent other's stable help or hurt and stable effort
14 Luck
15 Other's Motives
16 Other's personality
17 Personality interaction
18 Extrinsic Motives
19 Other ~~classes~~/activities

Dimensions

LOCATION involves the source of attributed causation, whether it is within the person(internal), outside of the of the person(external), or involves an interaction of the person and other people or situational factors(mutual).

Internal(1)
Mutual or Uncertain(2)
External(3)
Uncodable(9).

STABILITY refers to whether a cause will affect performance in the future(stable) or whether it will have no effect in the future(unstable).

Stable(1)
Uncertain(2)
Unstable(3)
Uncodable(9)

INTENTIONALITY: Intentional causes are those which the actor or others have the choice of employing according to their desires. Unintentional causes are those which cannot be controlled.

Unintentional(1)
Uncertain(2)
Mediate(3)
Intentional(4)
Uncodable(9)

Note. In coding for intentionality, code the act, not the outcome of the act. "I studied right" is coded similarly to "I studied wrong". An object(e.g., task) cannot have an intention.

22-March-84

Preparatory Notes.

1)Only attributions receive dimensional coding; action or re-evaluation statements are uncodable(9). Also, in coding for attributions, ignore the tense of the question or statement. Thus, a question such as "Will the next exam be so difficult?" is attributional, despite that the fact that it does not refer to the past exam outcome. For further examples, see the individual category examples.
2) (H) means the example is hypothetical.
3) Dimensional codes for each attribution category are to be considered as guidelines only. Each attribution statement must be separately evaluated.
4) Stability is time-related; it is not the same as generalizeability or spatial stability or spread of effect. Generalizability is ambiguous in the coding system(except for the interaction effects). See section on coding for stability.

ATTRIBUTION CATEGORIES

ABILITY(1) attributions refer to the competence or basic intelligence of the actor. The attributions must be global, functioning across many tasks.
EXAMPLES: The child is superior intellectually; good verbal repertoire;
CODING:
Internal(1)
Stable(1)
unintentional(1)

EFFORT(2) attributions refer to trying hard in a particular situation. They refer to most kinds of preparation, including "mental" and "physical" preparation. Effort attributions also refer to study method(e.g., how the actor studied, not what they studied). Effort(2)

attributions also refer to any lack of action and to inappropriateness/appropriateness of action.
EXAMPLES.
Didn't prepare for the assignment; tried hard to study for this test; Were my study methods effective; Did I study the right way?, He was mentally prepared; What can I do to discipline harder? Should I study so hard for the next exam? Where am I misplacing my time?
CODING.
Internal(1)
Unstable(3)
Intentional(4)

STABLE EFFORT(3) attributions refer to a consistent pattern of diligence or laziness
EXAMPLES.
Student always tried hard; he is lazy.
CODING.
Internal(1)
Stable(1)
Intentional(4)

MOOD, FATIGUE, SITUATIONAL REACTIONS(04) attributions refer to causes dependent upon the emotional state of the person, or to fatigue or illness and the situational factors unique to that person at a particular time. Note that attributions to mental and physical preparation are coded as effort(2) attributions. Mood, Fatigue, Situational attributions are transitory, being distinct from Personality(06) attributions

EXAMPLES (Category 04)
May have had other things occupying his thoughts; he didn't feel well, he was upset or angry about something; her frame of mind that day, reaction to something that happened that day. Was he feeling OK?; Was he tired?; Was he over-confident? CODING.
Internal(1)
Unstable(3)
Unintentional(1)

INTRINSIC MOTIVES(5) are motivators for behavior: a desire to do well, interest in the task, wishing to please others.
EXAMPLES
He is interested in doing well, student's pleasure in progress, may be uninterested in content; poor attitude towards assignment, likes what he is reading about; wants to please
CODING.
Internal(1)
Stable or Unstable(3), depending upon the underlying motive—
He likes school(H) would be coded as stable(1); He disliked the content of this exam(H) would be coded as unstable(3).
Mediate Intentionality(3)

<u>PERSONALITY</u>(06) refers to stable permanent dispositions or traits of the individual. Attributions to being a lucky person, when this is a permanent trait, are considered to be <u>Personality</u> attributions. Note, however, that attributions to diligence or laziness(e.g., being a hard worker) are <u>Effort</u>(2), or <u>stable effort</u>(3), not <u>Personality</u>, attributions.
EXAMPLES:
He is lucky(because it implies a stable disposition); no self-esteem; fear of failure.
CODING:
Internal(1)
Stable(1)
Unintentional(1)

<u>PERSON'S PHYSICAL APPEARANCE AND OTHER PHYSICAL FACTORS</u>(07) are permanent physical factors, not transitory like mood or fatigue.
EXAMPLES: Possibly the student has hearing trouble; he/she can't see very well.
CODING:
Internal(01)
Stable(01) or Unstable(03) depending upon the specific problem.
Unintentional(01)

<u>SIMPLE REPEAT OF OUTCOME</u>(08): Response is rewording of stimulus.
EXAMPLES:
I failed on the test(in the case of failure); Why did I get a good grade?
CODING:
Uncodable(9) on all three dimensions

<u>ANOTHER ANSWER, UNCODABLE OR CHEATING</u>(09): These are typically nebulous responses. Cheating is also coded as 09). However, unlike nebulous responses, which typically are uncodable on the three attribution dimensions, cheating receives dimensional coding.
EXAMPLES: (Category 09)
Did he cheat?(attributional) Have I ever seen the problems before?(non-attributional); Was it that important?

CODING(CHEATING):	CODING: (nebulous reponses)
Internal(1)	Uncodable(9)
Unstable(3)(typically)	Uncodable(9)
Intentional(4)	Uncodable(9)

<u>ABILITY-TASK INTERACTION</u>(10) is a function of the interaction of the actor's specific competence with the characteristics of an individual task.
EXAMPLES:
Does he know the material; Does he know the right way to study for that kind of task?; He was confused; Did I interpret the questions correctly?; Does Y know the right way to study for that kind of test?; too difficult for him;

didn't understand the material; Was I really weak in this subject?(unstable); Am I weak in this subject?(stable), Do I. know what I am weak in?(stable); Did I have enough time to complete the exam?; Will the next exam be so difficult?
CODING.
Mutual.(2)
Stable(01) or Unstable(03)
Unintentional(1)

TASK DIFFICULTY(11) is a function of the inherent characteristics of the task It depends upon the social norms for success and failure and also upon how others performed in the same situation.
EXAMPLES:
How did others do on this task?, Did the instructor test the right ideas?, Was the test fair?, Was it an easy test?, Was there enough time to complete the test? Were the marks placed on a bell curve?

CODING:
External(3)
Stable(1)(expecting same task in the future)
Unstable(3)(not expecting the same task in the future)
Unintentional(1)

OTHER'S SITUATIONAL EFFORT HELP/HINDRANCE(12) attributions refer to the deliberate effort of others They include method used to score examinations
EXAMPLES: He was poorly prepared by the teacher, poor presentation; poor directions, Did someone cheat X? Was X cheated by the instructor?(see luck for impersonal references to cheating), Shall I get a tutor? What method was used to score the exam?
CODING:
External(3)
Unstable(3)
Intentional(4)

OTHERS' STABLE EFFORT OR HELP/HURT(13)attributions refer to the permanent deliberate effort of others
EXAMPLES:
The teacher always helps the students, parents helping I wonder if the prof experienced a lot of failures previously?
CODING:
External(3)
Stable(01)
Intentional(4)

LUCK(14) refers to perceived randomness in events(e.g., study method questions where students guessed what to study). Luck also refers to personal error or others' error. Note that attributions to being a lucky person are Personality(06) attributions

EXAMPLES
Did I study the right material?; Did I get someone else's test?; Was the test material concentrated in the area I studied?", Could it be possible they miscored my test?, Was I given the wrong grade?; Was X cheated?(see Others' effort help/hindrance for personal references to cheating).
CODING.
External(3)(Internal(01) in the case of personal error)
Unstable(3)
Unintentional(1)
OTHER'S MOTIVES(15) attributions ascribe success or failure to the motivations of others
EXAMPLES
Teacher interested in having student succeed.
CODING
External(3)
Stable(01) or Unstable(03)
Mediate Intentionality(3)

OTHER'S PERSONALITY(16) attributions.
EXAMPLES
His teacher is a warm friendly person, the teacher is the type of person who puts students at ease.
CODING.
External(1)
Stable(1) or Unstable(3) depending upon future interactions with the stimulus person(s)
Unintentional(1)

PERSONALITY INTERACTIONS(17) are the interactions of the stimulus person's personality with the personalities of others
EXAMPLES Didn't get along with the teacher; thinking along same line as teacher; mutual interests
CODING
Mutual(2)
Stable(1) or Unstable(3) depending upon likelihood of future interaction
Unintentional(1)

EXTRINSIC MOTIVES(18) are external reinforcments such as rules and regulations of the system, and the demands made by others, such as parents or teachers These also include social norms for behavior and the nature of the task(i.e., when the task is cited as the motivator).
EXAMPLES
Parents threatened to cut money if I didn't start doing better, it was a required class and I had to get an A; teacher's rewards, interesting material
CODES
External(03)
Usually Unstable(03)
Unintentional(1)in the case of rules and regulations, Intentional(4)in the case of others' demands

OTHER CLASSES AND ACTIVITIES(19) attributions refer to activities such as a job, or other academic classes competing with the person's time, interest and effort The interference may be internally or externally imposed
EXAMPLES Is my job not allowing me to study enough?
CODING
Location typically uncertain(2)
Stable(O1) or Unstable(O3) depending upon whether the situation will continue in the future
Intentionality Uncertain(2) in most cases

USES OF CODES FOR UNCODABLE OR UNCERTAIN RESPONSES

(Use of categories Simple repeat of Outcome and Uncodable, also use of (9)location code)

If a response simply repeats the outcome, it is coded Simple repeat of Outcome(08) for category and is coded uncodable(09) for location An example is "The student did well on the test " If a response is a flat contradiction of the stimulus condition, the category and dimensions are all coded uncodable(09). An example is "He usually tried hard" given in response for failure If irrelevant material or material contradictory to the stimulus outcome is given in the same sentence with relevant materialm the irrelevant material is not coded while the relevant material is coded An example is "He usually tried hard but was sick that day" given as an explanation for failure In this case, the first cause is ignored because it is irrelevant in regard to the causation of the outcome while the second cause is coded because it is relevant to the outcome

The location of an attributional statement is coded uncodable(09) in three cases only 1) when the response simply repeats the outcome and the category is coded(08), 2) when the response flatly contradicts the outcome offering a different outcome as the real outcome and the category is coded(09), 3) when the response is irrelevant to the outcome and the category is coded (09) In cases there the response is ambiguous in regards to location, location is coded uncertain(02) An example is "I had a lot of other activities" Because it is unknown whether in this case if the student decided to get involved in these other activities or if he was forced into them, the response is ambiguous in locality and is thus coded uncertain(02)

SPECIAL CASES OF AMBIGUOUS RESPONSES

There are several special cases where the category code of uncodable(09) is not used for ambiguous responses These consist of ability-task interactions, personality interactions and ambiguity between mood and effort An example of Ability-Task Interaction is "Inappropriate testing-too difficult" When, as in this case, it is unclear whether the task was too difficult for the actor(ability attributions) or for the whole class(task attribution), the location is coded as uncertain(02) and the category is Ability-Task Interaction(10) A similar case is "reading assignment is too difficult". An example of Personality Interactions is "lack of mutual interests" In this case, the location is mutual(02) and the category is Personality Interactions(17) A similar case is "The teacher and I don't get along" An example of mood-effort ambiguity is "Talked too much or was too quiet". This implies that effort, or a lack thereof, or good or bad mood. It is coded as internal(01) and the category is Mood, Fatigue, Situational Reactions(04)

Coding In scoring causal attributions, score all attributions in the order given by the respondent. If the subject has two separate and different attributions in one sentence, consider them separately and in the order that they are given . If in one sentence or grammaatical structure the subject repeats the same cause a number of times to elaborate or clarify it, treat it as one attribution and code it only once If the subject gives the same attrubutions in two different sentences or structures, however, consider the attributions seperately and code each one If the attributions are given in a complex sequence(that is, one attribution is the cause of the other), treat the sentence as one entity, ignore the "caused cause" and code the ultimate or indirect cause(that is, the cause of the direct cause of the outcome). For clarifying examples of each of principles, see Appendix II of the original coding scheme

Typical dimensional coding of all attribution categories

Locus

Internal(1)

(1)Ability
(2)Effort
(3)Stable effort
(4)Mood,fatigue Situational Reactions
(5)Intrinsic motives, interest in task
(5)Intrinsic Motives,general interests and rewards
(7)Person's physical appearance and other factors
(09)Cheating

Mutual(2)

10)Ability-task interaction
(17)Personality Interaction
(17)Personality Interaction with permanent others

External(3)

Stable Element of task-difficulty
(11)UNstable element of task-difficulty
(12)Other's situational help, hurt and unstable effort
(13)Stable help or hurt and stable effort of permanent other(s)
(14)Luck
(15)Stable Motives of a permanent other(s)
(16)Other's personality
(18)Extrinsic Motives

Stability.

Stable(1)	Uncertain(2)	Unstable(3)
1)Ability 3)Stable effort 5)Intrinsic Motives; general interests and rewards 6)Personality 7)Person's physi- cal appearance & other factors 10)Ability-Task Interaction 11)Stable element of Task difficulty 13)Stable help or hurt and stable effort of permanent other(s) 15)Stable motives of of permanent others 17)Personality inter- action with permanent other(s)		2)Effort 4)Mood,fatigue, sit- uation reactions 5)Intrinsic motives interest in task 9)Another answer: cheating 10)Ability-task interaction 11)Unstable elements of task-difficulty 12)Others' situation help or hurt and un- stable effort 14)Luck 15)Motives of sit- uational others 16)Others' Personality 17)Personally Inter- action 18)Extrinsic Motives

Intentionality

Unintentional(1)	Mediate(3)
1)Ability 4)Mood,Fatigue situational reactions 6)Personality 7)Person's physical appearance and other factors 10)Ability-Task Interaction 11)Stable element of task difficulty 14)Luck 16)Others' personality 17)Personality interac- tion with permanent other(s) 18)Extrinsic Motives	5)Intrinsic Motives general interests and rewards 5)Intrinsic motives interest in task 15)Stable motives permanent other 15)Motives of situa- tional other(s)

Intentional(4)

2)Effort
3)Stable effort
12)Others'situational help or hurt and unstable effort
13)Stable help or hurt and stable effort of permanent other(s)
18)Extrinsic Motives
9)Another answer
cheating

CODING FOR STABILITY

Stable causes are causes which are not expected to vary over time and are relevent to the criterion while unstable causes fluctuate or are ir- relevent to the criterion. In cases where stability is uncertain, use the code for uncertain(2) When responses are without verbal or contextual clues indicating stability, code the stability dimension as uncertain(2)

Present and past imperfect tenses imply a continuing state that is relatively stable, e g , "He tries hard or He has been trying hard". Also consider a present perfect tense, e g ,"He has tried hard" to be a stable attribution A simple past tense, e g , "He tried hard" implies one action, past and finished, though increasingly it is being used in place of the imperfect tense In this coding scheme, in the absence of contextual or syntactical modifiers, code a simple past tense as an unstable attribution An example of a syntactical modifier is "He usually tried hard" The "usually" makes it a stable disposition

Procedure of adjusting percentage assessment data, for both the Wong and Weiner and the Elig and Frieze Coding Schemes

When subjects assigned percentages to their attributional responses, sometimes more than one attributional statement was included in the assessment. For instance, if a subject asked "Was the exam easy or was it luck?", the statement was typically assigned just one percentage figure. Other or the same subjects sometimes also listed a series of percentages that exceeded a total of 100%. For these subjects, the following rules were followed to adjust the data:

1) If the total of percentage ratings was less than or equal to 100%, no pro-rating was made

2) If the total of percentages exceeded 100%, then all ratings were pro-rated down so as to add up to 100%

3) If a response which contained two or more coded statements or questions was given one percentage rating by the subject, the rating was split, rounding up the difference to the nearest one on the prior response. For example, a double response which was rated 15% resulted a rating of 8% for the first coded response and a rating of 7% for the second coded response.

4) If 100% was given to each response, the the number 100 was divided by the number of responses, yielding an equal rating for each response If one of the ratings referred to two or more coded statements or questions, procedure #3 was implemented following the present procedure

APPENDIX D:

Review of Attribution Theory and Research

ATTRIBUTION THEORY AND RESEARCH-REVIEW

The purpose of this appendix is to give the reader an appreciation of the three broad assumptions involved in attribution theory and the degree to which they have been supported by research. The three assumptions are. 1) people make attributions for important instances of behavior, 2) attributions are systematically determined, and 3) attributions are related to subsequent behavior. Each of these assumptions is discussed separately, with each discussion followed by a review of empirical evidence relating to the assumption.

First Assumption-Attributions as Normal Behavior

The primary assumption attribution theorists make is that people make causal attributions for their own and others' behavior. Nevertheless, little research exists which directly supports the assumption that causal attributions occur naturally in various life situations. This lack of evidence exists partially because researchers have concentrated on investigating how people use information to make attributional decisions (Smith & Miller, 1983) and on determining what kinds of effects attributions have for subsequent behavior. The problem also exists because researchers consistently gather attributions with structured measures. Structured measures ask the subject to rate the influence of causal factors which have been pre-selected by the researcher. These measures thus give little indication of the average person's propensity to make causal attributions for events of various kinds, and of various levels of importance. One notable study (Wong and Weiner, 1981), however, demonstrates that people do search for causes in achievement-related situations even when they are not specifically asked to do so. It also demonstrates that salience of causal search is negatively related to success and expectedness of outcome.

Wong and Weiner (1981, Experiment 1) asked subjects to imagine that they expectedly or unexpectedly succeeded or failed on a midterm examination. After the description of each condition, subjects were asked what questions, if any, they would most likely ask themselves following the described outcome. Attribution questions comprised the largest proportion of all questions. That is, questions such as "Why did I fail?" or "Did the professor mark leniently?", which reflect a search for causes. That subjects asked such questions with such saliency demonstrates that the search for causes is typical following reception of outcome feedback in achievement contexts. Nevertheless, these results do not directly imply that similar attribution activity occurs in people's statements or questions following behavioral events such as interpersonal arguments or displays of compassion. Thus, research remains to be done before the typical occurence of attributions across various situations is demonstrated.

An interesting finding in Wong and Weiner's experiments is that subjects made more attribution questions in response to failure outcomes and unexpected outcomes than to success outcomes and expected outcomes, respectively The finding that attributions occur differentially across varying conditions of an event leads us to the second assumption of attribution theory, that both the salience and the type of attributions made for an event are systematically determined.

Second Assumption-Systematic Determination of Attributions

Introduction

Attribution theorists share the assumption that causal attributions are systematically determined Attribution theory and research assume *a priori* that a limited number of defineable factors substantially influence the search and selection of causal attributions in any given type of situation In addition, operation of these factors can be demonstrated sufficiently enough that we can predict people's attributions in particular circumstances. There is disagreement beyond this shared assumption of systematic determination, however The most notable split lies in the cognition-motivation debate (Tetlock & Levi, 1982), alluded to in the discussion of self-serving attributions Cognitive theorists argue that attributions result primarily from the operation of cognitive processes, such as veridical analyses of information, because people use attributions to understand and predict events. Motivation theorists, on the other hand, agree that attributions can result from the operation of such factors, but they argue that attributions also result from the operation of various motives such as motives to enhance and protect self-esteem (Bradley, 1978). Such beliefs are reasonable, as research (e.g., Weiner, Russell & Lerman, 1978; 1979) demonstrates that self-esteem-related affect, such as feelings of confidence, pride and guilt, is significantly associated with causal choice.

This paper discusses the cognitive and motivational theories of attribution determination seperately, and the research that supports them. Note that both of these two fields of investigation are heterogeneous; within each field exists further seperate "schools" of theory.

Cognitive Theories of Attributional Infernece

This section reviews cognitive theories of attributional inference; theories which specify that attributions result from the operation of various cognitive processes. Studies are reviewed which demonstrate that the processes specified by the various theories do not operate to the exclusion of each other, but intereact to yield attributions.

Forsyth (1980) and Tetlock and Levi (1982) note that the image of the naive perceiver as an intuitive scientist who seeks to identify the causes of behavior is intrinsic to the field of cognitive reserch. Interestingly, there is dual nature in the image of the scientist that has a corresponding split in cognitive theories of attributional inference. One-half consists of someone who makes simple to elaborate analyses of data to understand the causes of events, or to predict the re-occurence of events, or both. The second half consists of someone who interprets phenomena in terms of prior beliefs, gathered from earlier analyses, to perform these same functions of understanding and prediction. Events are explained by earlier acquired principles of causation unless they are so anomalous and salient that they demand a new understanding of their causal origins.

Cognitive theorists who view the individual as an analytical scientist investigate information-processing actions, such as recalling evidence (Tetlock & Levi, 1982) and evaluating the relative worth of various types of information (Kelley, 1967). Cognitive theorists who view the individual primarily as a scientist who interprets present data in terms of ~~prior~~ beliefs investigate how prior beliefs (or schemata) are structured and how they influence present perceptions. The paper discusses each of these two fields of theory separately, first the information-processing theories, and then the schemata theories. Discussion in each section focuses on important models in the theories and the research which concerns them. The two fields of cognitive theory are shown to be complementary; research demonstrates that neither type of cognitive process excludes the operation of the other. Rather, the two interact to yield attributions.

Information-Processing Theories

The severity of the image of the perceiver as analytical scientist varies across specific information-processing theories Some theories, such as covariation theory (Kelley, 1967), Bayes' theorem (Ajzen & Fishbein, 1975; Trope, 1974), and correspondent inference (Jones and & McGillis, 1976) see the person as a literal scientist, who uses informal versions of logical and statistical principles to form causal attributions (Tetlock & Levi, 1982) Other theorists (Nisbett & Ross, 1980; Taylor & Fiske, 1978) take the scientist image less severely, and conceive the person as someone who relies on the most salient information available in a situation and then settles for the first causal explanation consistent with that information (Tetlock & Levi, 1982).

Intuitively, it seems that the representativeness of each of these information-processing theories depends upon factors such as the importance of the event to be attributed for, the general nature of the event, and the amount of information available surrounding the event. It is likely that people undertake more exhaustive and more sophisticated causal analyses for outcomes when they feel that understanding of the causes of the outcome will help them control for crucial similar outcomes that may occur in the future. It is likely that people use different types of information-processing strategies across interpersonal and achievement situations, because these situations contain varying types of information Finally, it is likely that people use different information-processing stategies as levels of information available in a situation change, people probably do not use sophisticated analytical procedures when there is little data to compare or evaluate, or both Despite the reasonableness of the above speculations, however, Kelley and Michela (1980) note that there is no theory of attributional inference that specifies the conditions under which each information-processing model is most and least appropriate in explaining attributional formation There is also no theory which predicts how or when processes postulated in the various models may interact

It is outside of the scope of this paper to review each of the cognitive-information-processeing theories in detail Nevertheless, Kelley's (1967) covariation theory is reviewed here because 1) it is well researched, 2) a description of covariation theory gives a concrete example of how attributions can be systematically determined by information-processing; and 3) review of the research of covariation processes demonstrates how one cognitive theory alone does not fully explain attributional data; various cognitive processes probably intereact to yield the attributions found in covariation studies.

Kelley (1967) proposed that "The effect is attributed to that condition which is present when the effect is present and which is absent when the effect is absent" (p. 194). That is, people attribute causality to the factor with which the event is perceived to covary For example, a teacher attributes success in her classroom to pre-class preparation when she finds that the class runs well when preparation is increased and runs poorly when preparation is decreased Kelley additionally proposed that people use three specific kinds of information to infer causes 1) consistency information-the degree to which self-behavior has been consistent in similar past situations, 2) consensus information-the degree to which others behaved similarly in the same situation, and 3) distinctiveness information-the degree to which self-behavior is specific to a particular stimulus or situation Thus, in forming attributions for success and failure on a mathematics exam, for example, a person recollects how he or she performed in previous math exams, estimates how classmates performed on the exam, and estimates how much he or she has failed on exams of other subjects Finally, Kelley proposed that certain patterns of consensus, consistency and distinctiveness information would lead to specific attributions to the person, stimulus or circumstance For example, a witness to a traffic accident would attribute the cause of the accident either to the driver of the vehicle, the vehicle itself, or the traffic conditions in which the accident took place, on the basis of available consensus, consistency and distinctiveness information. To determine how patterns of consensus, consistency and distinctiveness information lead to attributions, McArthur

(1972) asked subjects to give seperate causal explanations for sixteen described behaviors (e g , "John laughs at the comedian") Following each behavioral description were three statements representing one of eight possible combinations of high versus low consensus, consistency and distinctiveness For example, in the consensus category, a subject was given either the statement "Almost everyone who hears the comedian laughs at him" (high consensus), or the statement, "Hardly anyone who hears the comedian laughs at him" (low consensus) Subjects were then asked to attribute the behavior of the actor to person, sitmulus or circumstance, or some combination of the three

Results showed that specific patterns of information yielded specific attributions Given the high consensus, high consistency and high distinctiveness pattern of information, (in which most others respond as the actor does and his or her response to the stimulus is consistent with and distintive from his or her previous responses to prior stimuli), subjects attributed to the stimulus. Given the low consensus, high consistency, low distinctiveness pattern (in which few others do what the actor does consistently and indiscriminately), subjects attributed to tbe person Finally, given the low consensus, low consistency, high distinctiveness pattern (in which the actor responds as few others do and he or she rarely respopds similarly to other stimuli), subjects attributed to the circumstance.

In addition to finding specific information pattern-attribution relationships, McArthur also discovered the three types of information accounted for different levels of variance in the attributional responses, consistency accounted for most of the variance and consensus accounted for least of the variance

To summarize, McArthur's study demonstrated that specific combinations of information yield specific attributions This finding shows that attributions occur discriminately, they are related systematically to specifiable factors The study also showed that certain kinds of information have more influence on attributional choice than others, consensus, consistency and distinctiveness information had varying levels of effect on attributions

Nevertheless, McArthur's study is limited by the fact that subjects were actually given specific amounts and types of information before thay made their attributions. Thus, it was demonstrated neither that people freely use consensus, consistency and distinctiveness information to make attributions, nor what people's preferences for these types of information are when choice is open. In addition, most investigations of Kelley's theory have followed McArthur's method, so support of theory is limited for the most part to one limited paradigm (Major, 1980).

Major (1980) conducted two experiments to discover whether search for and use of consensus, consistency and distinctiveness information occurs outside of experimental prompting In her first experiment, subjects were asked to attribute for the behavior of a prisoner who is eligible for parole and gets into a fight with a fellow prisoner In the second experiment, subjects were asked to attribute an advertising employee's response to his or her firm's advertising project for ABC soap. In both experiments consensus, consistency and distinctiveness information were manipulated In the second experiment, sex of actor and type of behavior (enthusiastic about project versus working hard on the project) were additionally manipulated. These experments differed from McArthur's experiment in that subjects were allowed to take as much or as little consensus, consistency and distinctiveness information as they wanted. In this way, it could be demonstrated whether people freely understand a situation in terms of consensus, consistency and distinctiveness information and which of these forms of information they feel to be less or more important

In the first experiment, subjects used one-third of all available information prior to making attributions. All subjects except one acquired information from all three categories Subjects acquired significantly more consistency and distinctiveness information than consensus information. Instances of consistency and distinctiveness acquisition did not differ significantly. In terms of temporal priority of acquisition, sixty-five percent of subjects chose consistency first, 20% chose distinctiveness first, and 15% chose consensus first.

The findings of Experiment 1 showed that subjects were uninterested in acquiring all the information available to them prior to making attributional decisions This finding suggests that other processes were operational, which governed how much information subjects used before making attributions The possibility is strengthened by the finding that subjects differentially preferred consensus, consistency and distinctiveness information, some factor or factors cued tham into preferring consistency and distictiveness over consensus

In Experiment 2, subjects were found to behave similarly to those in Experiment 1, but more pronouncedly Subjects used 25% less information in Experiment 2 than in Experiment 1. Twenty-three percent failed to acquire information from at least one of the three categories. Almost no subjects failed to acquire consistency information, but 14% failed to acquire distinctiveness information and 17% did not acquire consensus information. Subjects acquired significantly more consistency information than they did distinctiveness or consensus information Amount of acquisition between consensus and distinctiveness did not differ Temporal priority of information acquisition was the same as in Experiment 1. Subjects chose consistency first, distinctiveness second, and consensus third. Finally, subjects were found to acquire significantly more distinctiveness information when the behavior was an action than when it was an emotion.

The results of the second experiment reinforce the implication of the first, that certain processes influence people's use of consensus consistency and distinctiveness information such that they use a minimal amount of these types of information to form attributions Furthermore, these processes seem to operate differentially across situations because subjects acquired more distinctiveness information when the behavior was an action in Experiment 2 and acquired more information overall in Experiment 1 than in Experiment 2

Major notes that her findings are at least partially due to the redundancy of the information subjects were offered Nevertheless, the findings also suggest that processes other than those specified by Kelley (1967) operated in Major's experiments Although subjects sought and used consensus, consistency and distinctiveness information in Major's study, they used much less than all the information available to them and the also used varying amounts of it across situations. Thus, it is possible that the various dimensions of information-processing proposed by different theories interact with each other across situations Thus, in addition to Kelley and Michela's (1980) suggestion that a model is needed to ascertain under which conditions specific information-processing stategies operate, a model may also be required to specify how other cognitive processes interact with information-processing across situations.

Causal Schemata Theories of Attributional Inference

It was hypothesized that the results of Major (1980) were partially due to subjects using analytical strategies which allowed them to attribute with the minimal amount of information Another possible reason for Major's results is that subjects had prior beliefs concerning the causes of the kinds of situation that were described. Thus, they required very little additional information before making a causal verdict. This section reviews theories which examine the effects of prior beliefs on attributions Research of a key model is reviewed Finally, research is reviewed which shows that prior beliefs interact with information-processing to yield causal attributions

The image of man as scientist has a dual nature it includes someone who carefully analyzes events to ascertain their causes and possibility of reoccurence, as well as someone who uses beliefs accumulated from extensive experience to perform the same functions. Attribution theorists argue that naive perceivers have sets of earlier acquired beliefs analogous to those of the scientist, called causal schemata, which are used to determine the causes of most phenomena A schema is a description of how a person conceives two or more causes combine to produce an effect (Kelley & Michela, 1980). Typically, schemata have a strong influence on attributions for behavior and are slow to change in response to new evidence (Nisbett & Ross, 1980, Telock & Levi, 1982). Kelley and Michela (1980) distinguish four general types of causal schemata: prior beliefs and expectations about oneself, about other persons or groups, about probable behavior in social situations, and about probable causes of success and failure.

Several unresolved problems remain with the construct of causal schemata. First, advocates of the construct agree that there is no internally consistent theory of causal schemata (Tetlock & Levi, 1982). Second, no model yet specifies under which conditions causal schemata break away from influencing causal perceptions and begin to change according to new evidence. Extended research shows that change of causal schemata does occur, though rarely. For example, children stop believing in Santa Claus, and occasionally people radically change their political beliefs (Nisbett & Ross, 1980).

Similar to the section on information-processing models, this section cannot review all the causal schemata theories. It discusses a single model of causal schemata, proposed by Kelley (1971), to demonstrate what causal schemata are, and how they influence causal perception.

Kelley (1971) proposed a theory of causal schemata in which he specified two of the possible schemata that people use to make causal inferences. These are multiple sufficient and multiple necessary schemata. When an individual believes that either of two causes, cause A or cause B, is sufficient to produce an effect, this conception is called a multiple sufficient schema. When an individual believes that both A and B are necessary to produce an effect, this conception is called a multiple necessary schema

Kun and Weiner (1973) investigated the influence of multiple sufficient and multiple necessary schemata upon people's perceptions of causality They found that multiple sufficient schemata are used to explain common events, such as success on an easy task, and that multiple necessary schemata are used to explain uncommon events, such as success on a difficult task Kun and Weiner asked their subjects to imagine that they were high school teachers making judgments about the contributions of effort and ability to exam performance Subjects were given information about the difficulty of the exam, a hypothetical students's performance on the exam, and the state (high-low) of one of the causes of failure or success, ability or effort Task difficulty, exam performace, and state of cause were manipulated. The state of the one given cause was consistent with the outcome (high effort or high ability given success, low effort or low ability given failure) Subjects were asked whether the other personal cause, ability or effort, may have been an important determinant of the student's performance.

In the success condition, subjects used multiple sufficient schemata for success on easy tasks and multiple necessary schemata for success in the difficult exam condition. That is, subjects thought that only one cause, ability or effort, explained success on an easy exam, but believed that both ability and effort were needed to explain success on a difficult exam.

Data concerning failure were more complex. Subjects showed little inclination to use multiple necessary schdmata to interpret failure, tending to see only ability or effort as influencing failure across different difficulty conditions. Kun and Weiner cite several possible reason for this effect. Subjects may have become defensive about failure and refused to infer that internal factors such as low effort and low ability cause unsuccessful performances. Also, Kanouse and Hanson (1971) contends that negative instances convey more information than positive instances. A number of positive attributes are required to form a positive impression, while a single negative attribute can undermine a positive attitude. In accordance with Kanouse, Kun and Weiner argue that their data indicate that the absence of ability or effort, which are negative instances, are possibly perceived to explain most failures.

<u>Causal Schemata and Information-Processing Strategies</u>

Causal-schemata theories do not postulate processes whose operation necessarily exclude the operation of information processing; causal schemata and information-processing strategies have been found to combine to yield attributions (Kelley and Michela, 1980). For example, Golding and Rorer (1972) found that subjects' suppositions about the causes of specific types of behaviors led them to see nonexistent covariation in data and to overlook true covariation. Ajzen (1971, 1977) found that use of covariation data by subjects depended upon its fit with causal beliefs Kelley and Michela argue that such data suggest the need for more ideas which could explain how causal schemata and information-processing interact to form attributions

Motivational Theories of Causal Inference

Tetlock and Levi (1982) were able to differentiate four different motivation theories of attributional inference, which specify that attributions results from the need for self-esteem, the need for social approval, the need to believe in a "just world", and the need for effective control. The present section reviews two of these theories briefly, the need for self-esteem and the need for social approval. Note that Tetlock and Levi (1982) suggest that other reviewers of the attribution literature could easily justify a different number of types of "motivated bias" As discussed in Chapter 1, none of these theories is yet complete and systematically designed.

Self-esteem

The research pertaining to the self-esteem position is reviewed in Chapter 1 of this thesis. The reoccurence of internal attributions of success and external attributions of failure across studies has been ascribed to self-esteem motives (Bradley, 1978; Zuckerman, 1979). If these attributions are truly indicative of how people attribute, and the self-esteem hypothesis is applicable to them, it is then a crucial explanation in understanding the process by which attributions are normally chosen. Nevertheless, the present study suggests that "self-serving" attributions may be restricted to specific research paradigms. In addition, the review in Chapter 1 shows that internal attributions of success and external attributions of failure may be as easily explained by cognitive processes, as by motivational ones. The best understanding of the phenomenon of self-serving attributions may eventually be in a theory encompassing both cognitive and motivational processes, whereby self-esteem related motives cause subjects to attribute defensively, but to the extent that the self-serving attributions are plausible (Tetlock & Levi, 1982), when information such as prior beliefs about self-ability, and the performance of others in the task situation are considered.

Self-presentation

Self-presentational theories of attributions inference are concerned with attributions as a reported phenomenon. That is, people offer attributions responses not to indicate their causal perceptions, but to help control the social situation. For example, both Bradley (1978) and Tetlock and Levi (1982) note the studies of Schenker (1975), and Wortman, Costanzo, and Witt (1973) which found that people report greater "counterdefensive" attributions to others when the others are able to observe future performance. That is, they will make greater external attributions of success, and internal attributions of failure, the opposite bias of self-serving attributions. Tetlock and Levi note that theorists such as Miller (1978) believe that the presence of an audience affects only attributions reports, not actual causal perceptions. The principle may hold true for the findings of Wong and Weiner (1981), where subject questioning yielded external attributions of success and internal attributions of failure. Subjects may have attributed counterdefensively because they did not have to believe the causal attributions they were only questioning.

Third Assumption-Attributions and Affect, Expectancy, and Behavior Responses

Introduction

The third main assumption of attribution theory is that causal attributions influence various cognitive and affective processes, such as changes in future expectations, guilt, aggression, motivation, etc. (Jones et al., 1971; Weiner, 1976), that in turn, influence behavior. In an educational context, attributions to examination outcomes could influence processes related to achievement-related behaviors such as studying, doing homework assignments, and seeking help from professors. Note that attribution theory does not maintain that all behaviorally-linked responses to events are mediated by attributions (Jones et al., 1971). In the achievement domain, failure and success generate responses such as feelings of happiness and disappointment, respectively, that are not mediated by attributions (Weiner, Russell & Lerman, 1978; 1979).

Historically, researchers have mainly investigated the processes of changes in affect and changes in expectation of future performance. Affective responses influence future behavior though providing pleasant or unpleasant emotional associations with a situation. Expectancy responses influence future task-related behavior by indicating their worth—a behavior is more worthwhile if success is thought to be achievable.

This section reviews the theory and supporting research concerning attributions and their effects. It first reviews the theory and research concerning causal dimensions, which are the classifications attribution theorists use to predict the affect and expectancy responses of attributions. It then reviews research concerning the relationship of attribution-linked affect and expectancy to achievement behaviors and the relationship of attributions to various achievement behaviors, without consideration of the mediating processes of affect and expectancy changes.

Causal Dimensions

Causal Dimensions—Old and New

Causal dimensions are the classifications of causal factors theorists use to facilitate the prediction of attribution-related affect and expectancy. Theorists have developed causal dimensions because people perceive a large number of causes as providing sufficient explanations for achievement-related event outcomes, and it is expedient to use a taxonomy which simplifies understanding and prediction of affect and expectancy responses. Weiner, Frieze, Kukla, Reed, Rest, and Rosenbaum (1971) first developed a scheme which used causal dimensions for predicting affect and expectancy. The dimensions in the scheme, developed under the influence of locus of control theory (Crandall, Katkovsky, & Crandall, 1965; Rotter, 1966), were named locus of control and stability.

Locus of control refers to whether a cause is a personal trait or action (internal), or whether it is an environmental phenomenon (external). For example, an ascription to ability is internal while an ascription to bad luck is external. The second causal dimension, stability, refers to whether a cause remains variant or invariant over time; a variant cause is termed unstable, an invariant cause is termed stable. For example, an ascription to ability is stable, whereas an ascription to a headache is unstable.

Since Weiner et al. (1971), theorists have suggested changes to the two dimensional model. Weiner (1979) divides the locus of control dimension into the separate dimensions of locus and controllability, arguing that the personal quality of a cause has no necessary relationship with its controllability. For example, attributions to ability and effort are both internal, but effort is controllable by the attributor while ability is umcontrollable. It is discussed later how the creation of the separate dimension of controllability is potentially useful for research.

Frieze (1980) and Abramson, Seligman and Teasdale (1978) also suggest that the stability dimension be further qualified to refer only to the same situation over time. If an individual attributes a math examination performance to the stable cause of mathematics aptitude, that cause has no influence on performance in non-mathematics situations. To facilitate prediction of influence of a cause in various situations, the dimension of globality is used. This dimension classifies causes according to whether they operate in single or multiple contexts.

Causal Dimensions-Postulated Psychological Linkages

Weiner et al. (1971) developed the dimensional model for classifying attributions to facilitate prediction of attributional consequences. Since then, each dimension has been described as having its own predictive domain, or psychological linkage, as well as secondary linkages (Weiner, 1979).

Locus relates to the affective consequences of success and failure (Weiner et al., 1979). Specifically, Weiner et al believed that emotional responses were maximized with internal attributions and minimized with external attributions. Weiner (1979) notes, however, that there is not always a positive relationship between degree of internality and intensity of emotional response. He states that failure ascribed to others, such as the bias of a teacher, or hindrance from other students could generate great anger and hostility. In some cases, then, externality is positively related to intensity of emotional response. Because of this, Weiner (1979) states that locus is more correctly understood as relating to type of affect, not intensity of affect. For example, an internal attribution to ability for success may produce feelings of pride, whereas an external attribution to the help of others for success may produce feelings of gratitude.

Stability relates to the expectancy consequences of success and failure (Weiner et al., 1971). Weiner et al. believe stability interacts across success and failure in influencing expectations. Attribution to a stable cause in success yields positive expectations of performance, while attribution to a stable cause in failure yields negative expectations of performance.

Globality relates to depression and feelings of helplessness when global attributions are made in conjunction with stable attributions in failure situations (Abramson, Seligman & Teasdale, 1978). Perceptions of the causes of failure as both stable and global lead the person to deduce that there is no hope for future success.

Controllability of another's attributions relates to helping the person (Weiner, 1979). If an individual perceives another's failure as due to uncontrollable causes, he or she is more likely to aid that person than if they perceive the others' failure as due to controllable causes. Nevertheless, it is also plausible that perception of the controllability of the causes of one's own performance influences processes relating to future own performance. Indeed, perception of the controllability of causes has been found to mediate changes in affect and expectancy related to self-performance (Forsyth & McMillan, 1981).

Causal Dimension Linkages-Supporting Research

Locus and Affect Weiner (1979) stated that locus of attribution influences type of affective response. To test this hypothesis, Weiner, Russell and Lerman (1979) asked subjects to complete a questionnaire which contained twelve achievement conditions. Each condition consisted of an outcome (doing well or doing poorly) determined by one of six causes (ability, unstable effort, stable effort, personality, other people and luck). Subjects were asked to recall a time when they had experienced such a situation and the feelings they had incurred. To aid description of feelings, examples of six affects associated with success, six affects associated with failure, and one affect associated with both success and failure, were included with the instructions. Table 29 lists the discriminating affects for each causal attribution, across the conditions of success and failure. A discriminating affect is one that is reported significantly for one attribution relative to a composite of the other attributions (Weiner et al., 1979).

Table 29

Discriminating Affects as a Function of Outcome and Causal Attributions

ATTRIBUTION	SUCCESS	FAILURE
Ability	Competence	Incompetence
	Pride	Resignation
		Unhappiness
Unstable effort	Relief	Fear
	Satisfaction	
Stable effort	Contentment	Guilt
Personality	Pride	
Other	Gratitude	Anger
	Thankfulness	
	Excitement	
Luck	Surprise	Surprise
	Guilt	Sadness
	Relief	Stupidity

Note that similar attributions yielded different affective responses across success and failure. The above linkages are similar to those found previously in Weiner, Russell, and Lerman (1978), except that the Weiner et al. (1979) study shows a greater number of attribution-affect linkages.

Weiner et al. (1979) then collapsed the attributions found on Table 29 into the categories of internality and externality The results showed a systematic relationship between locus and affect.

Locus tended to interact across success and failure conditions to produce affective responses For example, internal attributions for success yield responses such as pride and competence, while external attributions for success yield the response of guilt and resignation.

The attribution-affect findings of Weiner et al. (1978, 1979) have been generally supported in another research paradigm. McFarland and Ross (1982) noted that the results of Weiner et al.'s studies were correlational and this did not establish a causal relationship between attributions and affect. They also noted that subjects had not experienced actual, ego-involving, outcomes. Therefore, McFarland and Ross performed a study in which both performance and attributions were manipulated so as to provide for inferential statistics. They also created an ego-involving outcome by asking subjects to complete a test which was said to indicate people's ability to make accurate, sensitive judgments about other people.

Findings were similar to those of Weiner et al. (1978, 1979). Affective responses related to self-esteem were influenced by attributions to success and failure. Contrary to the findings of Weiner et al., however, McFarland and Ross found that general positive and negative affective responses were related to attributions as well as to outcome.

McFarland and Ross suggest that several explorations be made into the attribution-affect model. First, a clear theoretical specification is needed concerning which affects are independant of attributions and which affects are dependant on attributions. Second, further understanding is needed as to how the sequence of cognitions and affect unfolds. Do outcome-related affects occur first, and attribution-related affects follow, coexisting with the former, or, are outcome-related affects replaced by attribution-related affects, or, alternatively, transformed by attributions into attribution-related affects.

Stability-Expectancy Weiner (1976) performed an experiment to determine whether people's expectations are a function of stability or of locus of attributions. Subjects were given 0, 1, 2, 3, 4 or 5 success trials at a block design task. Following the success trial(s), causal ascriptions and success expectancies were measured. For attributions, subjects were asked to mark four rating scales that were identical with respect to stability or locus. For example, subjects were asked "Did you succeed on this task because you are always good in these kinds of tasks or because you tried especially hard on this particular task?" In this question, the two causes are constant in locus, but differ in stability Results showed that stability was positively related to expectations of future performance. Stability shifts resulted in shifts in expectancy but locus shifts did not produce expectancy changes. In showing that stability, not locus, is related to expectancy, these findings refute locus of control theory (Rotter, 1966), which stipulates that expectancies are related to locus of control.

More recent field research (Kovenglioglu & Greenhaus, 1978; Covington & Omelich, 1979, Bernstein et al., 1979, Forsyth & McMillan, 1980) suggests that the stability-expectancy link is not consistently operative in achievement-related situations, however. Although Kovenklioglu and Greenhaus found expectation to be positively related to stable attributions, neither Covington and Omelich nor Berstein et al. found stable attributions to increase expectations. Finally, Forsyth and McMillan, who directly investigated the relationship of causal dimensions to expectations and affect also found no stability-expectancy link. In Forsyth and McMillan's study, subjects were students enrolled in an introductory psychology course. Following feedback from a major examination, subjects were asked to make attributional responses by indicating a) to what extent they thought the causes of their performance to be controllable; b) to what extent they thought the causes of their performance to be stable, and c) to what extent they thought their performance was caused by personal factors versus impersonal factors It was found that level of stability had no effect on attributions. That stability of causes may not an important classification of causal attributions is reinforced by Wong and Weiner (1981) who found that when individuals make unprompted causal searches they rarely judge possible causes as to their stability Evidently, people do not always use the stability of causes to predict performance This hypothesis is partially refuted by Wilson and Linville (1982) in the section on attributions and achievement behaviors

Control-Expectancy Several studies demonstrate that controllability of attributions is related to expectancy responses. Both Covington and Omelich, and Berstein et al. (1979) found effort to be the only attribution of ability, effort, task-difficulty and luck to be related to expectancy, Effort is the only only item of these that is controllable Note that effort is unstable. it can vary over time. Forsyth and McMillan (1980) observed directly that controllability was related to expectancy. Subjects who failed expressed that most negative expectations when they felt that their performance was due to uncontrollable, external factors, while subjects who succeeded experienced the most positive expectations when they felt that their performance was due to controllable, external factors.

At present, the respective role of stability and controllability in relation to expectancy is unclear. Studies exist which support the notion that both influence expectancy. It might be useful for future research to attempt to see whether one or the other predominates in particular situations in influencing expectancy. Nevertheless, research does sufficiently demonstrate that dimensions can be used to predict expectancy responses.

<u>Attribution-Related Affect and Behavior</u>

Weiner (1980) demonstrated that affective reactions to attributions individuals make for others' influence their tendency to help others. In Weiner's study, subjects read three scenarios describing an unfamiliar student approaching the subject and asking him or her for class notes for a prior class meeting. Each scenario differed in terms of the controllability of the cause as to why the student did not have his notes, in the first scenario, the cause was controllable, in the second, the cause was apparently uncontrollable, and in the third the cause was explicitly uncontrollable. The three scenarios were presented in random order.

Forty percent of the reactions to the person requesting aid when the reason for aid was controllable were negative affects, whereas negativity characterized only eleven percent and four percent of the responses when the event was apparently uncontrollable and explicitly controllable, respectively.

There was a strong reverse in the direction of positive affects of sympathy and concern, six percent of the responses to the controllable conditions were positive, while seventeen and thirty-five percent of the responses to the apparently uncontrollable and explicitly uncontrollable conditions were positive, respectively

A second investigation was then made in which participants were again given the same three scenarios. Following each scenario, participants rated the degree to which the cause was perceived as personally controllable, rated their feelings of pity and empathy, rated their feelings of anger and disgust, and rated their likelihood of helping the other person Thus, correlations between perceived control, affective reactions, and judgments of helping could be determined. It was found that high perceived control was linked with low sympathy, high anger and low-lending, low-perceived control was linked with high sympathy, low anger and high lending In addition, it was found that sympathy was positively correlated, and anger negatively correlated, with helping judgments. Partial correlations demonstrated that causal perception influenced helping judgments through the mediating influence of affect. When perceived control was partialled from the relations between affect and helping judgment correlations, correlations between sympathy and helping, and anger and helping, were reduced only slightly When sympathy was held constant, however, the correlation between control and lending was highly reduced Thus, affect associated with attributions is more directly associated with behavior than attributions themselves.

There are at least two important limitations to the above study. First, attribution and affect were not correlated with actual behavior; how much do the above findings would not apply to real-life actions? Second, the study did not examine whether affects related to attributions for self are in turn related to subsequent achievement-related behavior of the self. Research is needed to investigate the attribution-affect-real life action chain for the self in typical achievement situations Nevertheless, Weiner's research demonstrates that attributions can be related to behavior through the mediating influence of affect.

Attribution-Related Expectancy and Behavior

Few researchers have investigated the mediating influence of attribution-related processes in their study of the attribution-behavior link; this is clear as the present review found only one study which investigated the influence of attribution-related affect on behavior. A similar situation exists in the research of the relationship of attribution-related expectancy to behavior. Two studies, reviewed in earlier sections (i.e., Bernstein et al, 1979, Covington & Omelich, 1979), demonstrate the relationship of attribution-related expectancy to academic performance Covington and Omelich found that expectation related to effort attributions for a prior test were significantly related to performance on a second, subsequent test. Bernstein et al., in their study of attributions for four successive tests, found that expectations related to effort attributions for the second test were significantly related to performance on the third test. Nevertheless, though these relationships were found to be significant, they were the only such significant findings in either study. In Covington and Omelich, for example, neither ability, nor task-difficulty nor luck influenced performance-related expectancy. These findings suggest that people use only certain types of attributions to determine expectancy. They also possibly suggest that people are limited in expressing their levels of performance expectancy (Wilson & Tinville, 1982).

Attributions and Behavior

This section has reviewed evidence concerning the links between attributions and causal dimensions, and their respective affect and expectancy responses. It has also reviewed evidence concerning the relationship between attribution-related affect and expectancy, and behavior. It now reviews research which directly measures the influence of attributions on behavior. In the achievement field, attributions considered outside of their dimensional qualities, have been found to related to help-seeking behavior, task persistence, and general academic achievement.

Help-Seeking Behavior Students do well in school not merely because they try hard when writing their exams. School achievement is typically a multi-factorial phenomenon, resulting from the operation of a number of preparatory factors, such as seeking help. Ames and Lau (1982) found attributions to be related to help-seeking in the classroom.

Ames and Lau selected undergraduate students on the basis that their performances on an exam could be easily dichotomized into distinct levels of success and failure. The subjects were asked to respond to twenty-two statements concerning the responsibility of the factors of effort, ability, task-difficulty and luck for their exam performances. Subjects were then given information about review sessions. One-half of the subjects were told that the review sessions had proved helpful in the past in improving performance on subsequent exams. The other half of the subjects were told there would be review sessions and was given no information about their proved helpfulness. It was found that low performing students stated that they were more likely to seek, and more likely to benefit from, the help sessions than high performing students. Also, low-performing students in the helpfulness of review session condition who made help-relevant attributions (i.e., attributions which implicitly state that lack of effort was responsible for the failure and that nothing would have impeded success if more effort had been exerted) indicated greater expected benefit from the help sessions than similar subjects who made help-irrelevant attributions. Low-performing, helpfulness information students who made help-relevant attributions also expressed greater likelihood of attending help sessions than their counterparts who made help-irrelevant attributions. Finally, low-performing students in the helpfulness of review sessions condition who made help-relevant attributions expected greater benefit from the help sessions and greater likelihood of attendance on the average than the average of all other low-performing students. More important, however, attributions were also found to be related to actual behavior. Forty-one percent of all subjects attended the help sessions. Sixty-two percent of the low-performers who made help-relevant attributions attended the review sessions, significantly more than low-performers who made help-irrelevant attributions (43%). Also, low-performing students in the helpfulness of session condition attended more sessions than low-performing students in both the helpfulness and no information conditions who made help-irrelevant conditions. No behavioral difference was found between low performers in the helpfulness information and no information conditions who made help-relevant attributions. Finally, low performers in the helpfulness condition who made help-relevant attributions attended more help sessions on the average than the average of all other performing groups combined.

The findings of Ames and Lau show concrete evidence for the idea that attributions facilitate behaviors which are relevant to achievement. In this case, attributions were found to relate significantly with attendance of review sessions that could help students do better in their upcoming exams. Other long-term preparatory behaviors which facilitate achievement in school and studying and doing home work. Research exists which supports that these behaviors are also related to attributions but no other study exists which demonstrates concretely, as does Ames and Lau, the attribution-preparatory behavior link. Finally, the findings of Ames and Lau also suggest that teachers can improve student involvment in review sessions by stating that these sessions have proved useful in the past. That is, by emphasizing that the sessions constitute an important causal factor in the improvement of exam performance.

Task Persistance Ames and Lau (1982) found that a behavior important to achievement, help-seeking, is significantly related to attributions. Fowler and Peterson (1981) have found that another achievement-related behavior, task persistance, is also related to attributions.

Fowler and Peterson performed their experiment on twenty-eight fourth, fifth, and sixth grade students. Subjects were diagnosed as having learned helplessness. Learned helplessness was defined as believing that failure is outside of one's control, independant of personal effort (Dweck, 1975; Fowler & Peterson, 1981). All twenty-eight children were also confirmed as poor oral readers. The experiment consisted of a pretest, three training days, and a post-test.

In the pretest, children were asked to read sentences aloud, one at a time. After each sentence, subjects were asked if they wished to go on to the next sentence or stop. Number of sentences attempted established the baseline measure of persistance.

There were four conditions in the training procedure. In the first treatment condition, subjects were asked to read sentences within and beyond their graded word-reading level Following an easy sentence, subjects were told, "That was very good", and following a difficult sentence, subjects were told, "No, you didn't get that". The second condition was similar to the first, but contained different sequences of success and failure. In the first condition, subjects experienced isolated failure, in the second condition, subjects experienced consecutive failure. The third group received the same success/failure sequences as the second group, but following an easy sentence were told, "That was very good. That means you tried hard", and following a difficult sentence were told, "No, you didn't get that. That means you have to try harder".

In the last treatment group, subjects experienced the same success/failure sequences as groups two and three. Prior to the first day of trials, however, each subject in this condition listened to a recording of a same-sexed child saying, "I got that right. That means I tried hard", and then, "No, I didn't get that. That means I have to try harder". Subjects were told that these were very good things to say following success and failure, repectively, and were asked to practice saying them in their own words. Afterwards, when reading sentences, subjects were told, "That was good, Tell yourself what to say" after success trials and were told "No, you didn't get that: Tell yourself what to say" after failure trials. After three days of treatment, a posttest, similar to the pretest, was administered. The dependent measure was the number of sentences completed.

Data showed that subjects generally attempted more sentences on the posttest than on the pretest. Subjects who were given either of the two forms of attribution retraining showed significantly more persistance than those in the isolated failures/no attribution-retraining condition. Subjects in the repeated failures/no attribution retraining condition also did better than those in the isolated failures/no attribution retraining condition, but the difference was not significant.

Fowler and Peterson's findings suggest that the sequencing of success and failure has an effect on persistance. The findings also show that attribution retraining accompanying task success and failure outcomes has important effects on persistance. In this study, subjects who were given either one of effort attribution retraining along with successive failure experiences showed significantly more task persistance than subjects who were given no attribution retraining and isolated failure experiences.

Despite the findings of Fowler and Perterson, researchers must remain careful in assuming the demonstrated existence of an attribution-persistance link. Schunk (1982), in a study of attribution retraining on reading skills, found no persistance effects. Thus, more research is needed to determine the limits of attributions in influencing persistance.

Attributions and Long-Term Achievement Behaviors

So far, this paper has reviewed evidence demonstrating that attributions are related to achievement-related behaviors and to levels of achievement task performance. Evidence also exists that demonstrates that attributions have long-term effects on achievement. Wilson & Linville (1982) demonstrated that influencing people's causal perceptions affects long-term achievement-related behaviors, and long-term achievement performance, such as staying in college and improving grades over extended periods of time, respectively.

Wilson and Linville (1982) note that past experiments designed to test whether changing people's attribution styles results in increases of positive behavior have for the most part shown no effects. For example, use of attribution retraining to alleviate depression in Nisbett, Bordiga, Crandall and Reed (1976) did not change levels of depressive effects. Wilson and Linville note , however, that these studies typically attempt to change people's perception of the locus of causality. For example, insomniacs are encouraged to attribute their problem to external causes rather than internal causes, such as deep-seated neurosis, to alleviate levels of anxiety which could lead to further insomnia. The low results of such locus-centered studies suggested to Wilson and Linville that it would be more therapeutic to change the stability of people's causal attributions than to change the locus of their attributions. They assumed that people are more concerned with the possible reoccurence of their symptoms rather than with whether they are internal or external. This is in line with Weiner's (1979) postulation that stability, not locus, determines expectation of future behavior.

To test their stability hypothesis, Wilson and Linville selected forty subjects out of a pool of two hundred students. Subjects were selected because they were: 1) equal to or above the median in worrying about their academic performances; 2) their first semester GPA was less than or equal to 3.5; 3) they said that they had not done as well as they could have in courses in the first semester; and 4) they felt their intellectual level was not much higher than the average intecllectual level of their classmates. Subjects were assigned to one of two conditions, a with information condition and a without information condition. In the with information condition, subjects received data from an actual survey which showed that while many students have problems as freshmen, such as lower than expected grades and a low GPA, both situations improve significantly in upperclass years. These subjects were also shown videotapes of actual upperclassmen who gave veridical descriptions of their academic improvements from semester to semester. In the no information condition, subjects neither received survey data nor viewed any videotapes. One half of the subjects in both information conditions were then assigned to a reason analysis treatment, and the other half was assigned to a no-reason analysis treatment. In the reason-analysis condition, subjects were asked to list all the reasons why students improve their grades from freshmen to upperclass years and to indicate which of these reasons applied to them personally. In the no-reason analysis condition, subjects were asked to list all the reasons which they thought explained the declining divorce rate in some states. Subjects then responded to several dependent measures, measuring attitudes towards academic performance, expectation of future performance, mood, and long and short-term behavior.

It was found that the GPA and videotaped information influenced subjects' performance on GRE items, the percentage of students who left college and the levels of subjects' GPA. Reasons analysis, on the other hand, produced almost no effects, except on short-term mood responses. Subjects who received the GPA information and viewed the videotapes answered an average of 70% of the GRE items correctly, whereas the no information subjects completed 58% of the GRE items correctly, a significant difference. Of the twenty subjects who received information, one left college by the end of the sophomore year, while five of the no information subjects left college by that time, another significant difference Finally, of the subjects that remained in college after a year had passed, those who received information improved the GPA significantly more than those who received no information.

The results of Wilson and Linville's study are dramatic for a one-time manipulation, but the authors note that other studies, such as Hanusa and Weiss (1979) have also found large effects occur with one-time interventions used to help college students. Clearly, this study demonstrates the power of attributions in influencing short and long term behavaviors. It also demonstrates the potential in understanding attributions in terms of causal dimensions. In this study, manipulation of subjects' perceptions of the stability of the causes influencing their college performance greatly improved subjects' academic standing. Wilson and Linville's study found other data relevant to the present discussion of the influence of attributions on behavior. It was discussed earlier that attributions influence behavior through affecting mediating processes such as mood and expectancy. Many studies, however, do not attempt to understand the influence of attributions on behavior in terms of these processes; instead, they directly measure the influence of attributions on behavior. Wilson and Linville's study suggests that this is a viable method for ascertaining the effect of attributions on behavior. In their study, attributions were significantly associated with behavior, while post-attribution expectations displayed no relationship with behavior. Wilson and Linville suggest that this finding occurred because people's ability to report such internal states is limited and that to report expectancies they rely upon an explanatory system that is partially independant of behavior-mediating processes. Wilson and Liville note that Wilson et al. (1981) found that reports of new internal states (i.e., traits and attitudes) were more likely to be found when subjects were asked to deliberate about the reasons for their actions. Thus, they state that it is becoming clearer that conditions under which people change their behavior in accordance with attributional predictions are not those under which people will change self-reports of internal states. To the extent that this is true, researchers who find strong behavioral changes, but not changes in expectancy, should not conclude that attribution-mediated expectancy did not contribute to the behavioral changes. Changes in behavior and reports of changes in expectancy operate separately of each other even when expectancy changes are responsible for the changes in behavior.

SUMMARY

Attributions as Normal Behavior

Attribution theorists assume that the search and formation of causal attribution occurs in everyday life and is not restricted to unusual circumstances. Little evidence for the assumption exists, however, because the prevelant emphasis in attribution research in ascertaining the antecedents and effects of attributions has resulted in an almost exclusive use of measures which specifically prompt causal responses. One study, Wong and Weiner (1981), demonstrated, however, that people do search for causes in achievement-related situations, without experimental prompting. Subjects in the study were asked to imagine they had succeeded or failed on a mid-term test. They were then asked to report what questions, if any, they would ask themselves given the outcome. It was found that subjects made a high number of attributional questions. That is, questions which asked why the outcome of the test occurred. Thus, at least in the domain of achievement-related outcomes, it is apparent that the search for causes is normal.

Systematic Determination of Attributions

Attribution theorists believe that causal attributions are systematically determined. Nevertheless, cognitive theorists argue that attributions are determined by processes such as logical information-processing, whereas motivation theorists argue that attributions also arise from the operation of motives, such as motives to protect self-esteem and to believe in a just world. Further differences exist within both the cognitive and motivational schools of attribution theory. Information processing theories differ according to the severity of their conceptions of the layperson an an analytical scientist. In the cognitive school, some conceive the layperson as someone who settles for the first causal explanation consistent with the most salient information available in the situation, whereas others, such as Kelley's covariation theory, conceive the layperson more as a high-order scientist, who uses consistency, distinctiveness and consensus (CDC) information to infer causes. Research suggests that both kinds of processes are at work in lay perception. For example, Major (1980) found that people use CDC information to infer causality but also found that people do not use all the CDC information available in the situation before they make their causal verdicts. Major's subjects possibly felt that a minimal amount of CDC information was sufficient to establish a causal verdict.

Causal Schemata theory is concerned with the effect of prior beliefs upon causal inferences. A causal schema is a description of how a person conceives how two or more causes combine to create an effect. There are several general schemata, including beliefs about oneself, about others, about behavior in social situations and about the causes of success and failure. Schemata tend to resist change in accordance with new evidence. Models are needed which can predict when they will change according to new information. Kelley (1971) proposed a theory of multiple sufficient and multiple necessary causal schemata. Research demonstrates that multiple sufficient shemata are used to interpret common events and multiple necessary schemata are used to interpreet uncommon events. Nevertheless, multiple necessary shemata seem to be rarely used to interpret negative events. Finally, schemata interact with information-processing strategies to yield attributions; schemata have been found to influence the way people perceive and use new information. This interaction of causal schemata and information-processing may also explain why Major (1980) found subjects used different amounts of CDC information across different types of situations. Subjects's beliefs concerning cause and effect relationships may have differed across situation, possibly due to varying levels of familiarity, and thus subjects required different amounts of CDC information to establish a causal verdict.

Attributions and Behavior

Attribution theorists assume that achievement-related responses, such as affect and changes in expectancy, are mediated by attributions. Furthermore, they believe that prediction of specific attribution-mediated responses is facilitated by classifying attributions according to categories called causal dimensions. Finally, theorists believe that achievement-related behaviors, such as doing homework and staying in school, are influenced by attribution-related responses. Attribution researchers first used the dimensions of Locus of Control and Stability, postulated by Weiner et al. (1971), to classify attributions. Nevertheless, these dimensions were found insufficient, because locus of control confounded locus and controllability, and because stability can only predict expectancy of success in future similar situations. Thus, locus of control was separated into the seperate dimensions of locus and controllability and the dimension of Generalizeability was formulated to predict expectancy across various situations. Each of these dimensions has postulated psychological linkages; locus is related with type of affect, stability with expectancy of future success in similar situations, and generalizeability with feelings of helplessness and depression. Controllability of others' attributions was related to the likelihood of giving them help. Research has supported the validity of causal dimensions, although there is inconsistent evidence concerning stability and controllabiltiy. Early research, such as Weiner (1976) found that stability was related to expectancy whereas later research (e.g., Forsyth & McMillan, 1980) conducted in natural settings found controllability, not stability, to be related to expectancy. Although the dimensions postulated by theorists characterize how attributions are related to affect and expectancy, researchers nevertheless need to compare their validity with dimensions discovered in studies such as Falbo and Beck (1979), Wimer and Kelley (1981) and Smith et al. (1982), reviewed in Appendix E, which used open-ended measurement techniques to discover the dimensions naive pereceivers use to classigy causes. These new subject-generated dimensions may be used to modify the present theoretical dimensions, and to add new dimensions to the present taxonomy so as to provide even better prediction of responses such as affect and changes in expectancy.

Researchers have found relationships between attribution-mediated responses and behavior, such as task performance (Covington & Omelich, 1979). Much research supporting the attribution-behavior relationship, however, has investigated the relationship without measuring the mediating effects related to attributions, such as affect and changes in expectancy. Such studies have found significant relationships between attributions and seeking help, task persistance and staying in college.

APPENDIX E

Factors That Affect Choice of Attributions Measures

INTRODUCTION

Study of Elig and Frieze (1979) and Wong and Weiner (1981) demonstrates why researchers cannot select attribution measures without considering both the kinds of data they wish to obtain and the kinds of inferences they wish to make. We have seen that measures which differ in the way they demand attributions produce attributional data which vary substantially in how they suggest people understand the causal nature of events. This section reviews more closely the factors which determine the choice of attribution measures, including those of ease of implementation, nature of investigation, inter-measure correlation, reliability and validity, and types of attributions

Ease of Use

The greatest differences in ease of use between attribution measures exist between open-ended and structured measures. Elig and Frieze (1979) note that open-ended measures require training of coders and the extended process of coding responses. These steps are absent when structured measures are used. In addition, structured measures sometimes take more time for subjects to complete. For these reasons, structured measures are advantageous in situations of restricted time, funding and personnel.

Nature of Investigation

Nature of investigation influences choice of attribution measures, because some research questions require that subjects receive no cues concerning attributional behavior whereas other questions can be answered sufficiently when subjects are asked to consider specific causes. Wong and Weiner (1981, Experiments 2 and 3) is a good example of the research question requiring a relatively non-reactive measure. Wong and Weiner investigated the naturally occurring patterns of dimensional priority and salience in people's private causal searches To avoid undesirable experimental prompting, they used an open-ended measure which neither made references to, nor gave examples of, causal attributions. Another example is found in Wong and Weiner (1981; Experiment I), where a slightly different measures was used to ascertain whether people spontaneously search for causes of life events. In this experiment, subjects were given descriptions of hypothetical test outcomes, and were asked to report what questions, if any, they would ask themselves in response to the outcomes. Despite the non-reactive question, subjects showed a high degree of causal questioning. open-ended measures were the natural choice for Wong and Weiner's experiments, because they neither prompt subjects to evaluate causes they would not normally consider nor limit subjects to consider only the causes selected by the experimenter, as do most structured measures (Elig & Frieze, 1979).

Because of the non-reactive properties of open-ended measures, they are also useful when investigating a new situation Various historical and maturational factors specific to a situation can influence people to attribute in a way deviant from that found in previous research. Because open-ended measures should reflect only the causes people naturally consider, they are indispensable for the construction of more easily implemented structured measures (Elig and Frieze, 1979). Elig and Frieze add that open-ended measures can be used again in later stages of research as continuing validation of the structured measures given to subjects. It should be stressed that the use of open-ended measures to ascertain subjects' causal perceptions in situations unfamiliar to the researcher is important to attribution research; the factors conventionally incorporated into structured attribution measures are ability, effort, task-difficulty and luck, following the suggestion of Weiner et al. (1971), but studies (e.g., Elig & Frieze, 1979) which have used open-ended measures have shown that people to use other causal factors, such as mood and interest in the task, to explain their achievement outcomes. Wong and Weiner (1981) also showed that subjects also consider the way a test was graded. Thus, it is a potential weakness of studies conducted in unfamiliar situations if pilot-testing of the available subject pool with open-ended measures is neglected. Such studies may find greater relationships between attributions and their investigated antecedents and effects if preliminary tapping with open-ended measures is implemented.

The research question not only determines whether an open-ended or a structured measure is chosen, but also what specific kind of open-ended or structured measure is used. In open-ended measures, the research question influences the kind of question the subject responds to. For example, Experiment 1 of Wong and Weiner (1981) investigated whether people make spontaneous causal searches, whereas Experiments 2 and 3 of the same study investigated the heuristics which guide causal searches. Therefore, subjects in Experiment 1 were asked what questions, if any, they would ask themselves in response to an outcome, whereas subjects in Experiments 2 and 3 were asked to write a minimum of five questions in response to an outcome. The research question also influences the way open-ended responses are coded by the experimenter. If a researcher is interested in the relative frequency of various types of effort attributions (e.g., long-term effort, short-term effort, study method), he uses at least several categories to code effort attributions. If another researcher is interested only in the amount of effort attributions relative to other forms of attributions, she uses a more inclusive category referred to simply as effort.

In structured measures, the research question determines whether the researcher uses a measure which includes ipsative or independent judgments, the major distinction between structured measures (Elig & Frieze, 1979), and the number of causal factors included in the measure. A percentage assessment measure involves ipsative judgments whereas an independent unipolar measure involves independent judgments. In the ipsative percentage measure, as the score of one attribution rises, the score of other attributions fall, thus inducing negative correlations. The independent measure, in contrast, does not force negative correlations. Thus, ipsative measures give the more direct assessment of the relative importance of attributions, whereas independent ratings measures allow each attribution to be tested separately, providing for easier analysis (Elig & Frieze, 1979). Use of either ipsative or independent measures depends upon whether the researcher requires a clear indication of the relative importance of different causes.

Differences Between Open-ended and Structured Measures

The statistical differences between open-ended and structured attribution measures are clearer than those in choosing between different forms of structured measures. Elig and Frieze (1979) found that the open-ended measures in their study showed poorer intertest reliability and validity than the subsequently administered structured measures. Elig and Frieze attribute the psychometric inferiority of open-ended measures to three factors: 1) the added step of coding leads to lower reliability; 2) structured measures provide closer approximation to interval or ratio measurement; and 3) structured measures allow for degrees of attribution on various dimensions rather than the simple absence-presence of frequency of appearance measures typical of open-ended coding. In terms of the first factor listed by Elig and Frieze, subjects do not typically provide explanations of their attributional responses. Thus, subjects may make references to task-difficulty, but actually perceive outcome to be caused by their ability; they mean specifically that the task was too difficult for themselves, not for others. Some coding schemes such as Elig and Frieze (1975) make compensations for the ambiguity of many attributional statements, but all must generally assume the completeness of the causal statements that are provided by subjects in a restricted period of time. Coding schemes must also assume the reliability of subjects' grammar. In terms of the third point listed by Elig and Frieze, certain factors, such as effort and task-difficulty, are probably easier to report and elaborate upon than other factors, such as luck. This is because a subject can list several reasons why an exam is difficult (e.g., "It was too long", or "It had too many subjective questions") or list several ways in which they tried (e.g., "I didn't study long enough", or "I didn't do enough homework") but cannot list several reasons why they were lucky, because luck is inexplicable by nature of its definition (This elaboration hypothesis is supported by preliminary analysis of pilot data collected by Leroux, 1983) This hypothesis is especially applicable to a study such as Wong and Weiner (1981), in which subjects had to report a minimum of five questions. Because of the demand characteristics of the question, subjects were probably concerned as much with providing a sufficient number of answers as with accurately reporting their causal searches. Thus, ease of elaboration of prior responses would have been a criterion for choosing subsequently responses.

Test-retest Reliability

One study has measured the test-retest reliability of an attribution measure (Baglan, 1980). In Baglan, situations describing a person involved in a set of circumstances and a behavior engaged in that by that person were presented to 124 undergraduate students. Situations were described so that one set of behaviors was related to the actor's personal characteristics and one set was related to environmental circumstances. Independent judges agreed on the causality of behavior described in each situation. Subjects were asked to attribute the described behaviors, rating them each on a seven-point scale anchored from very internal to very external. Two weeks later, the same subjects were again asked to make attributions about the described behaviors. It was found that the measure had high stability over time (test-retest reliability = .88) On both occasions, the scale discriminated significantly between personally caused and environmentally caused behaviors. I have found no similar research published concerning other attribution measures.

Nature of Investigation-Testing Attribution Theory

Elig and Frieze (1979) suggest that open-ended measures are crucial in ascertaining the causal factors people use in previously uninvestigated settings. Open-ended attribution measures are also used to test whether the assumptions of attribution theory accurately describe lay causal perception. Recently, researchers have been using open-ended measures to ascertain how closely the causal dimensions used by attributions theorists to classify attributions approximate the way naive perceivers classify their own causal perceptions. It has been found that people seem to use causal dimensions unanticipated by research, as well as using some that are similar to those developed by theorists, with some differences. This section reviews several studies which have used open-ended measures, and have found discrepancies between theoretical assumptions and the categories people actually use.

Two assumptions which characterize attribution theory in achievement situations are: 1) people use the causal factors of ability, effort, task-difficulty and luck to understand achievement outcomes and; 2) these factors can be classified into the causal dimensions of Locus of Control and Stability. These assumptions, originally postulated by Weiner et al. (1971), respectively mean that people perceive achievement outcomes to be caused by the operation of ability, amount of effort exerted, how hard the task is and chance, and that these causes are either internal or external to the attributor, and are either variant over invariant over time (Appendix D fully discusses the concept of causal dimensions). Falbo and

Beck (1979) state that the imposition of these assumptions upon causal concepts used in everyday life is unfortunate, however, because one of the initial aim of attribution theory was to investigate how the average person understands causality (Heider, 1958). Falbo and Beck conducted an experiment, using open-ended measures, to investigate whether the four attributions postulated by Weiner et al (1971) are the most salient explanations that laypeople use to explain others' successes and failures. It also investigated whether the theoretical dimensions of Locus of Control and Stability approximated the causal dimensions conceptualized by laypeople.

Falbo and Beck had undergraduate subjects participate in an experiment entitled "Explaining Achievement Outcomes", in order to fulfill course requirements. Subjects were requested to "list words or phrases which are reasons why one of 12 agents; e.g., blue-collar workers, are successful or unsuccessful at getting their job done." Five of the agents used represented the main occupational titles found in <u>The Dictionary of Occupational Titles</u> (1965). Six of the remaining seven represented other job categories and the twelfth consisted of the noun "people". Each subject was presented with one of the twenty-four possible stimuli. Reported explanations were grouped according to the four causal categories of ability, effort, task-difficulty and luck. Reasons with meanings that could not be fitted into one of the four categories were placed in a fifth, miscellaneous category. All explanations were also grouped on the basis of identicalness of phrasing. For example, "lack of motivation" was grouped with "lack of motivation", but not with "unmotivated". To reduce the total number of explanations to a manageable number, only those explanations which occurred at least six times were included in the next step. Thirty-seven different explanations for success and forty-one different explanations for failure satisfied the frequency criterion. Students enrolled in an experimental psychology class were then asked to rate the importance of these explanations in terms of their importance as possible causes of success and failure. Next, members of a psychology honors class were individually asked to group the explanations on the basis of their similarity in meaning. For example, explanations such as "lack of motivation", "unmotivated" and "not enough motivation" were grouped together. Combining the causal importance data generated by the experimental psychology students, and the causal grouping data generated by the honors students, the thirty-seven and fourty-one explanations were reduced to twenty explanations for each outcome. Reduction resulted from combining similar explanations and eliminating explanations considered unimportant. These forty explanations represented nearly all of the meaning content of the most important explanations for success and failure. The explanations for success and failure then underwent separate multidimensional scaling analyses (MDS); subjects therefore provided not only the initial set of causal explanations, but also the organizational scheme of these explanations. A subset of the original sample was used in the MDS analyses Twenty-one undergraduates rated the similarity of the success explanations. A separate, equally sized group rated the similarity of the failure explanations. For all the similarity ratings, two-, three- and four-dimensional solutions were compared for success and failure explanations. The three-dimensional solutions were chosen because they provided the clearest representation of the data and accounted for more variance than the two-dimensional solutions and for only slightly less than the four-dimensional solutions.

It was found that the MDS analysis yielded three causal dimensions for success attributions and three causal dimensions for failure attributions. Neither set of dimensions approximates those postulated by Weiner et al. (1971). The three dimensions yielded for success were labelled Achievement Orientation, Vitality and Mastery. Attributions with highest stimulus weights on the Achievement Orientation dimension reflected, at the positive extreme, an orientation towards incentives and, at the negative extreme, skill. Attributions with the highest stimulus weights on the Vitality dimension reflected, at the positive extreme, energetic self-discipline and, at the negative extreme, positive causal effect. Attributions with the highest stimulus weights on the Mastery dimension reflected taking a confident leadership position, ranging from Calmness at the positive extreme, to Takes Responsibility and Leadership, at the negative extreme. The three dimensions yielded for failure were Insufficient Energy, Poor Work Attitude, and Lack Ability. In all three dimensions, attributions ranged from being internal at one extreme to being external at the other. The Insufficient Energy dimension reflected, at the positive extreme, the individual's insufficient energy and, at the negative extreme, over-demands of the task. Poor Work Attitude reflected, at the positive extreme, negative work attitudes located within the actor and, at the negative extreme, negative work attitudes engendered by the actor's relationship to the work situation. The dimension of Lack Ability reflected, at the positive extreme, an inability to perform located within the actor and, at the negative extreme, inability generated by the work environment.

In terms of causal attributions, it was found that the causal attributions yielded by Falbo and Beck showed little resemblance to those postulated by Weiner et al. (1971). It was found that only twenty-three percent of the 2,495 open-ended responses generated by Falbo and Beck's subjects, could be readily classified as ability, task-difficulty, effort or luck. Falbo and Beck state that this could be an artificially depressed figure, resulting from overly restrictive category systems. But they argue that if a category system is broad enough, almost anything can be fitted into it, leaving the system to be of questionable value.

The findings concerning both causal dimensions and causal factors in Falbo and Beck suggest that the postulations of Weiner et al. (1971) misrepresent lay causal perception. The causal dimensions yielded in Falbo and Beck showed no resemblance to locus of control and stability, and less than one-quarter of causal explanations fit into the four-factor causal scheme. Nevertheless, it is difficult to generalize these results to academic achievement situations. The data are a composite of explanations made for a variety of occupations, and perceptions of causes for success and failure may vary widely from occupation to occupation. Falbo and Beck themselves state that attributions in such an experiment vary according to the kinds of tasks subjects are asked to explain. The findings also lack generalizability as attributions to self-performance; the raw data consisted of explanations for others' success and failures, and studies which compare attributions for self with attributions for others often show significant differences (Zuckerman, 1979). Finally, there is probably a depressed reliability in the final data because the original subjects neither rated the importance of the causal explanations, nor grouped them according to their similarity in meaning; these functions were performed by others who had no access to the meanings these explanations had for the subjects.

The combined limitations of Falbo and Beck disallow strong inferences that Weiner et al.'s (1971) theoretical formulations misrepresent lay causal perception. Nevertheless, the fact that the causal factors and causal dimensions found in Falbo and Beck differed greatly from the categories postulated by Weiner et al. (1971) suggests that people do use other causal factors and dimensions. Evidence outside of Falbo and Beck supports this hypothesis. In terms of causal factors, studies such as Elig and Frieze (1979) and Wong and Weiner, (1981) using open-ended measures, have found people to use causal explanations such as mood, motivation and illness In terms of causal dimensions, two studies using open-ended formats (Wimer & Kelley, 1981, Smith, Miller & Uleman, 1982) show that naive perceivers use causal dimensions which differ in detail from those developed by theorists and use additional dimensions unanticipated by theorists.

Wimer and Kelley (1980) separated their subjects into two attribution conditions. One half of their subjects was asked to write causal attributions for events described by twelve stimulus sentences. The other half of their subjects was asked to read stimulus sentences, accompanied by given attributions Six stimulus sentence conditions also existed, created by manipulating type of event, contextual information surrounding the event, and ways of describing the same event Similar to the occupation manipulations in Falbo and Beck, the attribution and stimulus sentence manipulations were implemented for the purpose of generalizing findings to a variety of contexts.

Following reading or writing attributions for the event described by the stimulus sentences, subjects rated the attributed causes according to fourty-four rating scales. The scales were grouped according to six dimensional categories: temporal properties of the cause, location of the cause, whether the actor's conscious processes were involved, the manner in which the cause operates (i.e., whether it is imperative, facilitative or preventative in relations to other causes), and evaluative consequences of the cause (i.e., whether the cause leads to a positive or negative evaluation of the actor).

Analysis showed that subjects used five major dimensions to categorize causes. Some of these were unanticipated in earlier literature, and some were similar to dimensions already postulated by theorists. The first dimension used was Good vs. Bad. This dimension refers to whether the attributed cause leads to a positive or negative evaluation of the actor and to whether the cause makes good or bad things happen. The second dimension was Simple vs Complex. This dimension refers to whether a cause is part of a simple cause-effect link, or whether it is part of a complicated network of causality. For example, cause A makes only one thing happen(simple), while cause B makes many things happen (complex). Simple causes were seen by the subjects to be sufficient explanations of events, but complex causes were seen to have to interact with other causes to produce effects. The third dimension subjects used was the Person. Similar to locus of control, this dimension refers to whether the cause resides within, or outside of, the actor It differs from conventional understanding of internality and externality, however, because attributions to the person refer only to causes which lie psychologically within the person, such as personality traits A medical condition, such as a head cold, might not suffice as an attribution to the person, although it would be considered internal by most researchers. The fourth dimension subjects used was Enduring vs Transient This dimension refers to causes in a way similar to the stability dimension developed by Weiner et al (1971). Nevertheless, it was found that factors scoring on the enduring end of the dimension were external. Wimer and Kelley believe this affect occurs because subjects rated causes in terms of their impingement on the person during the action in question and not in terms of whether they were enduring in an absolute sense. The fifth, and final dimension subjects used was Motivation This dimension refers to conscious desires or motives Subjects scored causes high on this dimension when they indicated willful striving, such as studying for a test. Subjects scored factors low on this dimension either when a low level of motivation was present, or when the dimension was irrelevant to the cause, as in the case of chance.

Subjects also used other causal dimensions, though to a lesser extent. These included Other People, Necessary/Facilitative, Common vs. Unusual, Changeable vs. Unchangeable, and Weak vs. Strong. Wimer and Kelley note that use of a different set of scales could have resulted in a different priority of dimensions.

Similar to Falbo and Beck, Wimer and Kelley found that people use causal dimensions unanticipated by Weiner et al.'s model. The combined findings of the two studies demonstrates the need for further investigation of the number and types of causal dimensions people use. Dissimilar to Falbo and Beck, however, Wimer and Kelley found dimensions similar to those postulated by Weiner et al.: the Person and Enduring vs. Transient. Nevertheless, the findings that attributions to the person refer only to psychological traits and self-initiated decisions, and that people perceive only internal causes as enduring, suggest a need to better understand how people understand causal dimensions anticipated by theorists.

Another study which suggests that Weiner et al.'s causal dimensions misrepresent the dimensions used by laypeople is Smith, Miller and Uleman (1982). Analogous to Wimer and Kelley, Smith et al. found that people conceive internality and externality differently from Weiner et al. (1971). Smith et al. asked subjects attributes for descriptions of one friendly and one unfriendly action taken by oneself and a friend. Three measures were used. The first, an open-ended measure, asked subjects why the subject and their friend would behave in this way. Subjects were allowed to respond as they wished. The second measure, a difference measure, asked subjects to attribute for their own and the other's behavior according to two definitions of situational and dispositional causality. Each definition was accompanied by a 9-point rating scale. The third measure, a bipolar measure, asked subjects to attribute to the same definitions of dispositional and situational causality, but was accompanied by a scale, with ends labeled "wholly situational causes" and wholly dispositional causes". Measures were counter-balanced.

Results showed that while attributions on the difference and bipolar measures correlated significantly with each other, the attributions on the open-ended measure correlated with neither of the two structured measures. Smith et al. conjectured that these differences occurred because experimental subjects conceive situational and dispositional causality differently from theorists. They proposed that when researchers score responses on open-ended measures, they score them differently from the way the subjects themselves would, even though both are working with the same definitions of causality. Therefore, they undertook a second experiment to discern how experimental subjects differentiate the two concepts of causality. In this experiment, Smith et al. found that their subjects did not understand dispositional attributions as containing all the causes that exist within the actor, such as effort, mood and fatigue, but only those which were acts freely chosen by the actor. Similarly, subjects did not understand situational causes to contain all the causes that lie outside of the actor, but only those for which choice and responsibility were limited. Thus, in the first experiment, subjects probably checked the dispositional ends of the structured classes to signify freely chosen acts and checked the situational ends of the scales to signify acts for which the person had very little choice.

To verify their hypothesis, Smith et al. recoded the attributions from the open-ended measure in Experiment 1 according to the definitions of causality gleaned from subjects in Experiment 2. They created a coding scheme for the open-ended data, using three nominal categories: internal acts (i.e. acts chosen deliberately because they were enjoyable, or allowed some desirable effect), external acts (i.e., acts resulting from coercive aspects of the situation, or causes which were unintentional, such as mood of the actor) and unclear attributions (i.e., where it was uncertain whether acts were internally or externally caused). The new coding scheme was virtually orthogonal to the original open-ended scheme. Coding according to the new scheme resulted in open-ended attributions correlating strongly with scores on the bipolar scales and significantly with scores on the difference scale Miller et al.'s findings demonstrate that open-ended attributions coded according to subjects' understanding of causal dimensions can more closely approximate attributions coded according to theorists' understanding of causal dimensions. The findings also suggest that researchers make more use of open-ended measures to reformulate the dimensions postulated by Weiner et al. (1971); similar to Wimer and Kelley (1981), who found that subjects defined internality as denoting only psychological traits and self-initiated decisions, Smith et al. found that their subjects defined internality as relating only to freely chosen acts.

Attribution Measures: Inter-Measure Correlation and Measure Reliability and Validity

Considerations of ease of use and nature of investigation influence the researcher's choice of attribution measure. Nevertheless, this choice must also always be based upon considerations of measure reliability and validity and of the extent to which measures correlate with each other. Research has demonstrated both that different types of attribution measures sometimes do not correlate highly with each other and that they vary in terms of their reliability and validity. Baglan (1980) stated that research on attribution processes shows a large variety of scales are used to measure attributions. He further stated that none of this research presented evidence that attribution scales are valid. This is untrue, because research published before Baglan (e.g., Spink, 1978; Elig & Frieze, 1979) demonstrates the intermethod correlation, intertest reliability and validity, and convergent validity of some attribution measures. It is true, however, that relatively little research investigating the statistical properties of attribution measures had been published up to that time. It is also true that little research investigating the reliability and validity of attribution measures has been conducted since then.

Differences Between Structured Measures

As demonstrated by Elig and Frieze (1979) and suggested by Wong and Weiner (1981), open-ended and structured measures yield differing attributional responses. Reasearch (e.g., Spink, 1978; Elig & Frieze, 1979) is inconsistent in finding differences between independent ratings and ipsative percentage structural measures, however. In Spink (1978), an independent scales measure and an ipsative percentage measure were administered in a within-subjects design to 322 high school basketball players following regular season games. Measures were not counterbalanced. Both measures contained the five causal items of ability, task-difficulty, effort, luck and officiating. Pearson-product moment correlations showed substantial agreement between the two measures (.762 for task-difficulty, .792 for officiating, .714 for effort, .696 for luck and .688 for ability ($p < .001$)). In Elig and Frieze (1979) (procedure reviewed in Chapter 2), subjects were also administered independent ratings and percentage assessment measures in a within subjects design.

Elig and Frieze differed from Spink, however; subjects were introductory psychology college students, the event was an anagram task, and measures were counterbalanced. Although Elig and Frieze did not perform inter-measure correlations, results yielded strong differences between attributions yielded by the independent ratings and percentage assessment measures There were few similarities between attributions yielded by the two measures Unlike the data in Spink, the data in Elig and Frieze show that hypotheses concerning the occurrence of particular attributions can be supported by one measure, but not by the other It is difficult to isolate the reason for the differences between the two studies Order effects in Spink may be ruled out, because Elig and Frieze found no consistent order effects between the counterbalanced conditions of their study. It is possible however, that high school students seek more consistency in their causal reports than college students. The differences may also have occurred because Elig and Frieze informed subjects that they start each measure afresh whereas Spink did not. Clearly, more research which compares independent ratings and percentage assessment measures would assist in clarifying the apparent inconsistency between Spink and Elig and Frieze. For the present, it is advisable that researchers remain careful in comparing the results of studies which use independent judgments with the results of studies which use ipsative judgments.

Elig and Frieze found additional differences between independent and percentage measures. The two measures differed in terms of face validity; unlike the independent ratings method, subjects disliked the percentage method, saying that the percentages were hard to compute and that the method did not best reflect what they felt were the reasons for their performance on the task. The scale and percentage measures also differed in terms of convergent validity, the scale method provided "generally better" support for the theoretical relationships between attributions and affect and expectancy responses (data has been requested, but has not been received). Because of higher face validity and higher convergent validity Elig and Frieze suggest that independent scale methods are a generally superior method with which to measure attributions.