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Variables Affecting Causal Attributions at
the Intermediate Level.

by

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A thesis
presented to the University of Ottawa,
School of Graduate Studies and Research,
as partial fulfillment of the requirements
for the degree of Master of
Arts.

Ottawa, Ontario, 1987

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ISBN 0-315-40723-9



UNIVERSITÉ D'OTTAWA
UNIVERSITY OF OTTAWA



ACKNOWLEDGEMENTS

This study was partially conducted under the supervision of Professor Henry Coady, Ph.D., of the Faculty of Education, University of Ottawa.

The author is greatly indebted to Professors Jean-Paul Dionne, Ph.D. and Marvin Boss, Ph.D., of the Faculty of Education, University of Ottawa for their assistance in the conceptualization and analysis of the data.

Warm appreciation is also extended to Mr. Yvon Labossiere and the staff of Bishop MacDonell Senior Elementary School, Cornwall, whose cooperation made this study possible.

And lastly, to the children who participated in the study, deepest gratitude and thanks.

VITAE

Philip Moorman was born November 9, 1956, and has been educated in Ottawa, Ontario. He received his Bachelor of Arts degree in Social Sciences from the University of Ottawa, Ontario in 1980.

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INTRODUCTION

Rotter's social learning theory (1954) is the conceptual framework within which the present research was envisaged. Rotter, in his social learning theory (SLT), stated that the prediction of complex social behavior may be achieved by considering the interaction of expectancy of reinforcement, reinforcement value and the psychological situation. Rotter has noted that most of the research in this area has focused on individual differences in expectancy and has tended to neglect the impact of various situational variables.

The concept of locus of control grew out of the assumptions of several researchers, including Rotter (1966), that there might exist a strong tendency among some individuals to demonstrate a consistent expectancy regarding reinforcement. This tendency was observed to occur irrespective of experimental manipulation as it had been found that many people consistently perceived situations to be contingent upon either internal or external factors. Numerous studies have been conducted over the past two decades using the locus of control construct to predict individual differences in a wide variety of situations.

Researchers on children's locus of control have examined numerous variables including sex, age and grade level, as well as their mediating effect upon locus of control.

One area of research that has received relatively little attention is the interrelationship between locus of control and the causal attributions made by subjects regarding an experienced reinforcement. Studies on this topic have been almost entirely restricted to adult populations and the findings have been quite inconsistent. After an

examination of the research on locus of control with children, it became apparent that pass/fail experience and gender could be viewed as contributing to the prediction of causal attributions. Based on this speculation, a procedure was designed to provide insight into this interesting question.

A review of the literature on locus of control and causal attribution appears in chapter one. This is followed by a description of the sample, experimental design and procedures used to conduct the study in the second chapter. In the third chapter presentation and interpretation of the results is followed by conclusions and suggestions for future research.

CHAPTER ONE: REVIEW OF THE LITERATURE

The purpose of this study is to examine the relationship between the personality construct of locus of control and the causal attributions of elementary school children, within the theoretical framework of Social Learning Theory. This chapter will review Rotter's Social Learning Theory, the development and measurement of the locus of control construct, relevant research on locus of control and studies attempting to extend the construct into the area of causal attributions. A brief theoretical rationale for the study ends this chapter.

ROTTER'S SOCIAL LEARNING THEORY

Social Learning Theory (SLT) has been developed over the past three decades by Julian Rotter in collaboration with his students and colleagues. Rotter (1954) provides a detailed account of his theory which was developed in an attempt to explain and predict human behavior in relatively complex social situations. It has been considered by some theorists as an attempt to integrate two diverse but significant trends in North American psychology - the "reinforcement" theories on the one hand and the "cognitive" or "field" theories on the other (Rotter, Chance & Phares, 1972).

Rotter (1954) attempts to explain personality in terms of the interaction between individuals and their meaningful environment; thus, it is his position that, to understand human behavior, a systematic description of the person's environment is essential before useful predictions can be made. Rotter states that to focus solely on internal determinants of behavior would result in either highly generalized predictions or inaccurate ones. From this point of view, SLT is a molar theory of personality taking into consideration subjective and motivational aspects of the individual and the impact of one's meaningful environment.

Within SLT, personality is viewed as a set of potentials for responding to particular kinds of social situations (Rotter & Hochreich, 1975); as such, the principal focus is on learned or modifiable behaviors which may change with experience. This position does not rule out the possibility that meaningful segments of behavior may not be described from a learning perspective; however, it is Rotter's position that the most useful approach to take in dealing with human social behavior is a learning one (Rotter, Chance & Phares, 1972).

Rotter (1954) views behavior as any response to a stimulus that can be observed and measured directly or indirectly. He states that behavior generally has a directional aspect which is inferred from the effect of the reinforcing conditions. It is the directional nature of behavior that accounts for selective responses to cues and which is the motivational focus of SLT. As well, Rotter, Chance and Phares (1972) state that behavior occurs within an environmental context which may have reinforcing consequences for the individuals.

Based on these premises, SLT is concerned with how choices are made by individuals from an infinite variety of potential behaviors available to them. In an attempt to predict behavior, four variables have been posited as having possible effects: (1) behavior potential, (2) expectancy, (3) reinforcement value and (4) the psychological situations.

Behavior potential refers to the potential for any given behavior to occur in a particular situation as calculated in relation to any reinforcement (Rotter & Hochreich, 1975). Each behavior in a set of behaviors may have a given potential for an individual; thus, one can speak of one behavior as being more or less likely to occur as compared to another behavior.

Expectancy of reinforcement is defined by Rotter as "the probability held by the individual that a particular reinforcement will occur as a function of a specific behavior on his part in a specific situation" cited in: Rotter, Chance and Phares (1972, p.12). It should be emphasized that expectancy is a subjective probability held by an individual; it is determined not just by one's objective past history of reinforcement but is also determined by expectancies generalized from other related, behavior-reinforcement sequences. According to the theory, expectancies are subjective in nature; that is, they reflect a person's feelings about the probability of being reinforced and may not coincide with a realistic probability of being reinforced. Rotter stresses that, in the prediction of behavior, it is not the situation which is important, but rather the way in which an individual perceives that situation.

Reinforcement value refers to the degree of preference for any reinforcement to occur if the possibility of each reinforcement occurring were equal. Individuals differ in the degree to which they value various reinforcements; thus, people will differ in their preference for pursuing a particular goal (Rotter, Chance & Phares, 1972). Although within a given context any behavior is possible, that which has been positively reinforced by a valued reinforcement is more likely to occur.

Since Rotter's SLT is a molar approach to personality, there is stress on behavior within the context of a particular psychological situation. This psychological situation consists of environmental stimuli, both internal and external to the individual, which affect behavior.

Rotter hypothesizes a specific relationship among these four factors which may be stated as: the potential for a behavior to occur in a situation in relation to a reinforcement is a function of the expectancy of occurrence of the reinforcement following behavior and the value of the reinforcement. This statement is obviously limited in as much as it deals with whether or not a specific behavior is likely to occur in a particular situation. To date, research in SLT has focused mainly on the expectancy of reinforcement variable; reinforcement value and situational variables have been examined primarily in their relationship to the expectancy variable.

Researchers have shown that expectancies develop over time with the accumulation of sets of related behavior-reinforcement sequences. They are determined not only by one's objective past history of reinforcements in similar situations but also from expectancies generalized from other, less similar, behavior-reinforcement sequences from one's past. Viewed from this perspective, expectancies are subjective in nature as they cannot be calculated on the basis of a relatively simple formula which takes into account only the person's objective history of reinforcement with a particular reinforcement. These generalizations may or may not be similar to the situation from which the current expectancy has developed (Rotter, Chance & Phares, 1972).

Expectancies are defined as either general or situation-specific in nature; a generalized expectancy is a subjective probability regarding reinforcement which may be applied to a large number of similar situations, whereas situation-specific expectancies may be applied to very limited behavior-reinforcement sequences. In general, when faced with a novel situation an individual will utilize generalized expectancy in the consideration of appropriate behavioral choices. The consequences of utilizing generalized expectancies in novel situations are evident in experimental research when subjects are presented a novel task. Although each group member may be exposed to identical reinforcement schedules during the experiment, variance in the responses to the task suggests that no two subjects

enter the experiment with distinct expectancies. In contrast, when presented with a familiar setting the individual generally will apply situation-specific expectancies. Generally, the more specific experience the individual has in a particular situation, the less influence generalized expectancies will have, and conversely, the less experience one has the more generalized expectancies will influence behavior.

Within SLT Rotter has stated that behavior is a function of both expectancy and reinforcement value. It may be assumed then that changes in behavior may be achieved through changes in either of these variables. However, in the case of adults, it is often difficult to change reinforcement values, especially when dealing with major need values. Consequently, researchers have concentrated on changing expectancies in order to bring about behavioral changes.

Rotter, Chance and Phares (1972) have hypothesized that there are two general variables that operate to affect the size of expectancy changes. The first is described as the surprise value of an occurrence. An unexpected occurrence has a greater effect on expectancy change than does an expected one. For example, students who consistently receive low grades and then receive an "A" may drastically change their expectancy regarding their academic ability. The occurrence of an "A" grade may be of such a nature that it may induce recategorization of the behavior-reinforcement experience in terms of one's expectancy.

The second general variable affecting the size of the expectancy change is the number of previous experiences the subject has had in the situation. The size of expectancy change is a function of how consistent earlier experiences are with the most recent experience. If one has had several consistent experiences in a given situation and recent experience is inconsistent with past experience, then the recent experience may have little effect on one's expectancy.

Some researchers, working within an SLT framework, have investigated specific circumstances under which expectancies would be induced to change (Mischel, 1958; Watt, 1965) while others (Rotter, Fitzgerald & Joyce, 1954) have explored the relationship between skill-chance instructions and expectancy changes. This research is based on the belief that within an experimental situation the nature of expectancies for future behavior-reinforcement sequences is dependent upon whether the subjects perceive reinforcements to be a function of their own behavior (skill) or whether it is based on chance. In most situations, perception of whether reinforcement is a function of skill or chance is manipulated by the experimenters through explicit instructions.

Rotter (1966) suggested that the way in which people attribute the reinforcements they receive to internal or external factors may determine behavioral outcomes in a variety of situations; however, a particular event perceived by some people as rewarding may be perceived differently by others and result in drastically different reactions to the situation. One determinant of the reaction of persons to an event is the degree to which they perceive rewards or reinforcements to be contingent upon their own behavior or attitudes versus the degree to which they feel that reinforcements are a function of luck, chance or powerful others. The effect of a reinforcement following behavior is mediated by one's perception of the causal relationship between one's behavior and subsequent reinforcements. When a reinforcement or event is interpreted by the subject as being contingent upon luck, chance or the control of powerful others, a belief in external locus of control is being demonstrated. If persons believe that the event is a function of their own behavior or attitude, they are said to believe in internal locus of control.

Within Rotter's SLT, two particular methodologies for the investigation of one's locus of control have been utilized by researchers. The first is a situation-specific approach which places the subject in situations where internality or externality of the encounter is set, such as with the use of explicit instructions. As a result, the subject is

led to believe that success in the situation is either chance (external) or skill (internal) determined. The second method involves locus of control as a personality variable of generalized expectancy. A subject's orientation is determined by means of a locus of control scale, and then, individual differences on a task or learning situation are measured.

Phares (1957) examined how an individual's perception of a situation determines his/her expectancy that a particular behavior will be reinforced. Skill and chance instructions were used to alter the subjects' perceptions of the task, thereby altering their expectancies for success and failure. It was found that with skill instructions, subjects perceived reinforcements to be related to their ability; however, with chance instructions, subjects perceived reinforcements as not being within their control.

James and Rotter (1958), in an effort to build on the Phares (1957) study, wanted to determine if resistance to extinction followed the established learning principle that partially reinforced conditions are more resistant to extinction than continuously reinforced conditions. They reasoned that, under chance instructions, subjects would perceive the task as experimenter controlled and reinforcements as a matter of luck. Subjects given skill instructions, on the other hand, were expected to perceive the task and reinforcement as under their own control. They would supposedly interpret a negative change in reinforcement as a sudden decrease of skill and would increase their effort; perceived control of reinforcement would, in effect, mediate their performance. The results supported the predicted extinction order. Individual differences within the subjects, however, led the authors to speculate that some factor other than skill and chance instructions was involved.

Holden and Rotter (1962) partially replicated the James and Rotter (1958) study. Of significance was their successful attempt to include behavioral measures of extinction and the use of ambiguous instructions. It was found that under ambiguous instructions, the male subjects responded as they did under chance conditions and women subjects

responded as they did under skill conditions. No explanation for sex differences was given by the authors. Feather (1967), however, suggests that in ambiguous situations, a person's generalized expectancy about control might play a more important role in determining how to attribute responsibility for the event. Phares (1976) stated that in a situation defined with ambiguous instructions perceived locus of control as a problem-solving generalized expectancy can best be demonstrated. When presented with an ambiguous situation regarding the connection between reinforcement and the subject's skill or chance, subjects tend to react in their own characteristic fashion — as an "internal" or "external" person.

Early researchers attempted to empirically validate the locus of control construct by operationalizing internal and external locus of control through skill and chance instructions. James and Rotter (1958), however, felt that skill and chance instructions did not account for the total variance in the behavior of their subjects. They believed that, regardless of instructions, certain individuals brought with them a belief in internal or external locus of control that was so strong that it had a mediating effect on all behavior.

Rotter (1966) elaborated the concept of generalized expectancy to include the concept of perceived control of reinforcement or locus of control (LOC), based on whether or not persons see a connection between their own behavior and subsequent reinforcements. When reinforcement is perceived to be under one's own control, a belief in internal locus of control is demonstrated. When a reinforcement is perceived to be contingent upon luck, chance, fate or the control of others, a belief in external locus of control is being demonstrated. Rotter stated that, depending upon their history of reinforcement, individuals would differ in the degree to which they felt reinforcements were controlled by their actions. As well, the idiosyncratic manner in which people make attributions to internal or external factors can be accurately measured and is predictive of behavior in a variety of circumstances (Rotter, 1966).

Rotter hypothesized that as infants develop and acquire experiences, they differentiate events which are causally related to their actions and those which are not. As specific expectancies increase in number over time, generalized expectancies begin to develop for series or classes of related situations; that is, a child will develop generalized expectancies for a whole group of situations from a large number of situation-specific expectancies. Rotter has stated that these generalized expectancies for a class of related events have functional properties in that they assist the individual in choosing appropriate behavior in present situations. As a result generalized expectancy "makes up one of the important classes of variables in personality description" (Rotter, 1966, p.2).

Since the late 1950's, there has been a considerable amount of research conducted on the locus of control construct. Rotter's (1966) publication of a reliable scale for the measurement of the LOC construct, along with accompanying validating data, has provided the impetus for this proliferation. Researchers have, in turn, found predictable differences in the behaviors of individuals above and below the median of the scale and have identified correlations with behavioral criteria providing significant evidence for the construct validity of the theory (Rotter, 1966; Throop & MacDonald, 1977; Palumbo, 1981; Joe, 1971).

One area that has received considerable attention is the relationship of LOC to a variety of educational variables. Reimanis (1970) and Phares (1976) have suggested that internal LOC is a necessary condition for the development of an attitude conducive to the pursuit of success in a school setting. They argue that when children believe in internal control, they would tend to strive to do those things that bring about rewards and minimize punishments; thus, in a school setting, one would expect the internally oriented students to show higher achievement. Intellectual Achievement Responsibility Scale (IAR) believe that the outcomes they receive are a function of their own behavior. To the external students, who perceive little or no relationship between their own behavior and subsequent outcomes, achievement has less meaning (Reimanis, 1973).

A relationship between LOC and academic performance has been consistently recorded in the literature. Phares (1976) indicates that grades in classroom situations are significantly higher for internals than for externals. Studies by Celluna (1963) and Buck and Austin (1970) support the finding that internally oriented students score higher on achievement tests than do externally oriented students. A majority of the studies report fairly consistent but modest correlations (range .47 to .50) between questionnaire scores on LOC scales and scores on one or more achievement measures (Reimanis, 1973). Messer (1972) has noted, as have other researchers, that LOC as measured by the Intellectual Achievement Responsibility Scale (IAR) predicts better for school grades than do standardized measures of school achievement. Modest correlations reported by some researchers (Bar-Tal, Kfir, Bar-Zohar & Chen, 1980) are believed to be due to the mediating influence of variables such as sex, age, characteristics of the particular LOC scale and the type of achievement measure used. In addition, researchers have suggested that not all students would indicate a similar degree of reinforcement value for academic achievement (Rotter, Chance & Phares, 1972). This is consistent with Social Learning Theory which states that the value a person attributes to a given reinforcement may alter the prediction of behavior. Thus, regardless of one's LOC orientation, if a student places a very low reinforcement value on high academic achievement, no relationship would be expected.

- Several researchers have studied the relationship between reinforcements and the taking of responsibility for the particular reinforcement. Phares (1976) reviewed several studies in which researchers investigated the degree to which subjects see individuals other than themselves to be responsible for the outcomes they experience. Phares and Wilson (1972) required subjects to provide four ratings of the degree of responsibility that should be attributed to individuals involved in auto accidents that varied in terms of severity of outcome and the ambiguity inherent in the accident description. The results indicated that internally oriented subjects attributed more responsibility to the drivers than did externals.

In a similar study, Phares and Lamiell (1975) asked internals and externals to read brief case histories of a welfare recipient, a Korean War veteran and an ex-convict. Each case varied in the degree of self-responsibility for the individual's present situation. Each subject then rated each case in terms of worthiness to receive help, financial assistance, understanding and sympathy. In general, internals indicated that they would provide significantly less in the way of help, sympathy and money than did externals. These findings are consistent with the Phares and Wilson (1972) study in suggesting that internals not only see themselves but also others as being responsible for their own circumstances.

The validity of LOC as a personality construct that is predictive of complex social behavior has been demonstrated over the past two decades. Numerous LOC scales have been developed to measure individuals' generalized and situation-specific orientation and have provided significant evidence for the construct validity of LOC. Research within the field of education has shown for example LOC orientation to be significantly correlated to academic achievement and the overall-pursuit of academic success.

ATTRIBUTION OF PERSONAL RESPONSIBILITY AND LOCUS OF CONTROL

In the past two decades, there have been numerous attempts to extend locus of control theory by investigating differential causal attributions among those who believe in internal and external control. This is seen as an effort to link two related areas of investigation: the relationships between LOC and reinforcements, and, the causal attributions utilized by an individual. Attribution of responsibility is closely related to LOC, the latter being a personality variable that, by definition, deals with stable

tendencies to attribute control or causality for future events to either personal or extrapersonal factors. An example of one view of the LOC-causal attribution relationship is given by Phares (1976). He states that if one accepts that an external LOC may serve a defensive function by taking responsibility away from the individual, then it seems logical to suppose that the relationship between failure and the attribution of responsibility for that failure is mediated in part by one's locus of control orientation.

Causal attributions are those factors identified by an individual which are perceived to be responsible for a particular experience or outcome. According to Phares (1976), the manner in which people account for their successes and failures will, in turn, play a significant role in their achievement motivation and subsequent behavior. The realistic employment of both internal and external attributions of causality is necessary if the individual is to continue in his striving for mastery and excellence. An internal belief system regarding the causal nature of the event should lead to reaction of pride following success and a variety of negative emotions following failure. In both situations, if the setting is skill determined, the emotional reaction to attributing outcomes internally may have a positive effect upon the individual and his/her subsequent achievement behavior. Internal attributions and the resulting emotional reaction are likely to enhance motivation to strive for success and to avoid failure experiences and the associated negative feelings. The belief system of individuals who consistently endorse external causal attributions, such as luck or powerful others, may result in quite different consequences. This belief system would not theoretically lead to either of the emotional responses experienced by the individuals who make internal attributions since they would attribute their outcomes or reinforcements to external factors. The subsequent emotional reaction to success and failure would be, according to Phares (1976), considerably less in intensity. As a result, there would be little basis for the subsequent pursuit of excellence if an individual neither accepted responsibility for nor experienced an intense emotional reaction to success and failure.

There have been conflicting research results (Lefcourt, Hogg, Struthers & Holmes, 1975) indicating that individuals who make external attributions do indeed react to failure experiences. Contrary to Phares' belief, Lefcourt (1975) found that externals experience more discomfort with failure than internals because the effects are suffered in a state of helplessness.

Studies have been conducted to investigate the process by which people determine the causes of their own and other people's successes and failures (Weiner, 1972; Weiner, 1974). These studies typically involve a variety of academic achievement tasks which are described in minimal detail. The instructions may be skill, chance or ambiguous in nature. Success or failure on the task may be either experimentally manipulated or the subjects are asked to imagine their own or another's success or failure. The subjects are then required to state the cause of the outcome through ratings on various causal attribution scales provided by the experimenters.

The causal categories available to subjects have been typically selected by the experimenters on theoretical grounds or on the basis of personal intuition (Frieze, 1976). Researchers have determined that the categories most frequently used are: ability, effort, luck, and task difficulty (Weiner, Frieze, Kukla, Reed, Rest & Rosenbaum, 1971). Additionally, Frieze (1976) attempted to assess which causal attributions would be selected by subjects if they were given an open-format type causal attribution questionnaire. He concluded that the four attributions originally noted by Weiner, Frieze, Kukla, Reed, Rest and Rosenbaum (1971) "accounted for the large majority of causal attributions made in both studies, especially for the school achievement situation" (Frieze, 1976, p. 304). In a similar study Cauley and Murray (1982) asked second and third grade students to identify the causes they would attribute to an academic-type success/failure experience. They identified ability, effort, luck and task difficulty as the major factors.

Research on the relationship between locus of control orientation and causal attribution style has indicated some consistency. Phares, Wilson and Klyver (1971) stated that internally oriented subjects attribute less blame to external factors for their failures than do externally oriented subjects. In a further study involving both success and failure, Davis and Davis (1972) demonstrated that internals show a greater tendency to accept responsibility for their behavior than do externals.

Krovetz (1974) found that subjects form attributions for causality that are completely congruent with their LOC orientation as measured by the Rotter I-E scale. He found that regardless of success or failure experience, subjects with an internal orientation made internal attributions and externally oriented subjects made external attributions. This conclusion was supported by Gilmore and Reid (1979) whose data were consistent with the previous study. Their results support the hypothesis that internally and externally oriented subjects interpret the outcomes of "self-relevant" events in a manner consistent with their LOC orientation. Furthermore, Phares and Wilson (1972) indicated that internals see not only themselves but also others as being responsible for their own reinforcements, although these authors did not distinguish between success and failure experiences.

Gilmore and Minton (1974) found internally oriented individuals would attribute responsibility for success to internal factors and failure to external factors. The authors interpreted their results as support for a balance or self-serving model. The assumption was that internals, with their greater sense of personal ability or mastery, maintained this view of themselves by accepting responsibility for success but rejecting responsibility for their failure. Thus, their causal attributional style would be consistent with their sense of ability; these findings were replicated by Garrett and Minton (1975). Later Frieze and Snyder (1982) examined the belief structure of elementary school children with regard to their success and failure in school settings. These authors concluded that children do not

tend to use the same type of causal explanations across all situations; rather, the causal belief structure of the subjects was situation specific. In other words, the study indicates that " the same group of children may use very different causal explanations for success and failure " (Frieze & Snyder, 1980, p. 194).

In a review of the literature, Lao and Wuensch (1979) found that while most theorists perceive that causal attributions are influenced by situational variables, they have viewed perception of causality as a relatively permanent factor. They state that many researchers are "focusing on differences among individuals in the tendency to attribute to internal or external factors independent of situational variables " (Lao & Wuensch, 1979, p. 200). These authors believe that situational variables play an important role and may modify the behavior of any personality type. In this regard, they investigated the interactive consequences of personality (LOC) and situation (success and failure) in the formation of causal attributions. The results supported their hypothesis that there is a significant interactive effect in causal attributions. Neither LOC nor feedback (success and failure) alone predicted the subjects' attribution; however, the interaction of the two variables supported their expectations. Lao and Wuensch, using the IAR scale to measure LOC, studied only internally oriented subjects and did not study externally oriented subjects. It is believed by this author that externals as well as internals need to be considered when investigating the relationship between LOC and causal attributions.

These results would seem to be consistent with a major aspect of Social Learning Theory in which Rotter states that both situation-specific factors and dispositional elements are considered to be influential in the determination of social behavior (Phares, 1976). Thus, rather than arguing whether situation or personality is involved, Rotter argues that it is more appropriate to examine the relative contribution of both factors (Phares, 1976).

Another research area that has attracted much attention is the role of sex differences in causal attributions. Overall, there has been a lack of consistent results.

One study led some researchers to conclude that women tend to attribute both success and failure to external factors solely (Frieze, Fisher, McHugh, Hamusa & Valle, 1978). This conclusion may have been incorrect as indicated by a study by Simon and Feather (1973) who found that when women succeed, they make attributions similar to men and stressed internal rather than external explanations. Women who fail, however, were more likely than male subjects to attribute failure to bad luck or test difficulty which are external factors. In other words, women externalize their failures more than men, but both sexes tend to internalize their successes. Sweeny (1982) found a similar attributional pattern among female subjects. His conclusion supported the hypothesis that an "ego-defensive bias" was functioning within the female population.

A number of researchers have found that males make more egotistical attributions for success and failure than do females (Rosenfield & Stephan, 1978). Feather and Simon (1973) found that, on an anagram task, males tended to make more internal attributions for success and external attributions for failure than did females. Levine, Reis, Turner and Turner (1976) found a similar pattern for the attributions of college-age male and female students who completed a competitive anagram task. McHugh, Fisher and Frieze (1975) replicated the pattern on a competitive figure matching task, as did Stephan, Rosenfield and Stephan (1976) on a competitive mathematical game.

Researchers, reviewing this literature, have identified two major factors, one cognitive and one motivational, which may account for the tendency for males to make more egotistical or self-serving attributions than females (Rosenfield & Stephan, 1978). The cognitive factor appears to be how well the subject expects to do on the task. In three previously mentioned studies it was reported that females had lower expectancies for success than males (Feather & Simon, 1973; McHugh, Fisher & Frieze, 1975; Stephan,

Rosenfield & Stephan, 1976). The lower expectancies for success of females may account for their tendency to make less egotistical attributions because they do not feel that they have the ability necessary for success, and as a result make less internal attributions for their failures.

The motivational factor that may account for the sex differences is the degree of ego-involvement. The tasks used in these studies have involved either competition (Levine, Turner & Turner, 1976; McHugh, Fisher & Frieze, 1975; Stephan, Rosenfield & Stephan, 1976), intelligence (Feather & Simon, 1973; Levine, Turner & Turner 1976; Nicholls, 1975), or geometric ability (Nicholls, 1975). The traits associated with success on these tasks are all considered to be part of the masculine stereotype (Broverman, Vogel, Broverman, Clarkson & Rosenkrantz, 1972). It would be expected that males would be more ego-involved in the outcomes of tasks involving "masculine" traits than would females. As a result, males generally should be more motivated to make internal attributions for success, to take credit for success and deny blame for failure by making external attributions. As a follow-up to this study Rosenfield and Stephan (1978) involved both a masculine task and a feminine task in their study. The results indicated that males expected to do better on masculine tasks than on feminine tasks, while females expected to do better on feminine ones. In addition, males were more ego-involved in the masculine tasks than in the feminine ones, while females were more ego-involved in the feminine ones. The final results indicated that on the masculine tasks, males attributed their successes more internally and failures more externally than did females. The opposite pattern of results was found for males when they were tested on feminine tasks and thus demonstrates that attribution for success and failure is situation dependent.

SUMMARY OF THE THEORETICAL RATIONALE

With Rotter's (1966) elaboration of the LOC concept to include the concept of perceived personal control of reinforcements and the development of an I-E scale, LOC has been established as a valid predictor of human social behavior. Locus of control orientation has been shown to reflect an individual's perception of the causal connection between a particular reinforcement and a person's specific behavior. With regard to predicting behavior, LOC or expectancy has been shown not to be an isolated variable. Rotter states that social behavior is a function of the interaction between expectancy of reinforcement, the reinforcement value and the psychological situation. Although Social Learning Theory may seem complex in that all three factors are to be considered, Rotter believes that such complexity is preferable to relying on a single variable (Phares, 1976).

Causal attributions address another aspect of the behavior-reinforcement relationship than locus of control orientation. LOC is reflective of an individual's perception of the contingency between behavior and reinforcements in future events. In contrast causal attributions are the factors or variables an individual identifies as responsible for an past outcome or reinforcement. It has been suggested (Phares, 1976) that if individuals believe that reinforcements are contingent upon their own behavior, then they will accept responsibility for their reinforcements once these have occurred. It would follow then that internally oriented individuals will attribute their success and failure outcomes to internal factors such as level of ability and/or effort. Externally oriented individuals, on the other hand, will attribute their outcomes to external factors such as luck, and/or task difficulty. Investigators such as Lefcourt (1979) and Gilmore and Reid (1979) have designed studies to determine the relationship between causal attribution pattern and LOC orientation. Their results offer support for the hypothesis

that internally and externally oriented individuals do interpret the outcomes of self-relevant events in a manner consistent with their LOC orientation.

Research conducted by Lao and Wuensch (1979) and Frieze and Simon (1980) has indicated that the LOC - causal attribution phenomenon is not as simple as believed. They believe, as is postulated within SLT, that the situation plays a potent role in causal attributions and can modify the behavior of the subjects. To test this hypothesis, these researchers introduced a success/fail variable into their studies. Their data indicate that there is a significant interaction between personality (LOC) and situation (success/ fail) in the definition of causal attributions.

Finally, with regard to the causal attributions of male and female subjects, the literature would indicate that there are indeed differences. Initial studies by Feather and Simon (1973); Levine, Turner and Turner (1976); McHugh, Fisher and Frieze (1975); and later by Rosenfield and Stephan (1978), strongly indicate that there are sex differences related to attribution for success and failure in achievement tasks. The results indicate that the differences may result from differences in the degree of ego-involvement and expectancy of success on stereotyped masculine and feminine tasks among males and females. A review of the literature identifies a lack of a consistent pattern in causal attributions of male and female subjects; however, there is general agreement among researchers that sex maybe a mediating variable in the LOC - causal attribution relationship within academic-achievement type tasks.

Based upon the above discussion, the relationship among locus of control, sex and pass/fail experience, in the prediction of causal attributions of elementary school children was identified as an area needing investigation. In order to meet this need the following hypothesis was proposed:

locus of control, sex and pass/fail experience are
 predictor variables for the causal attributions of elementary
 school children in an intellectual-academic task.

CHAPTER TWO: EXPERIMENTAL DESIGN

In this chapter the sample, a description of the independent and dependent variables, the experimental measures and procedures, and the statistical design are presented.

THE SAMPLE

A total of one hundred and sixty-nine children (ninety-two females and seventy-seven males) from grades seven and eight participated in the study (see Table 1). The sample was obtained from a single urban senior elementary school in the Eastern Ontario. Only those students enrolled in non-specialized education programs were selected for testing and only students who returned a permission slip signed by their parent or guardian were included in the study (see Appendix E).

Table 1

Frequency of Subjects by Grade, Age and Sex, N= 169.

| Grade | Age | Males | Females |
|-------|-----|-------|---------|
| 7 | 12 | 13 | 14 |
| | 13 | 16 | 27 |
| | 14 | 2 | 2 |
| | 15 | 1 | 0 |
| 8 | 13 | 23 | 27 |
| | 14 | 17 | 20 |
| | 15 | 5 | 2 |

DESCRIPTION OF THE INDEPENDENT VARIABLES.

The independent variables studied within this research included LOC, SEX and PASS/FAIL experience.

Due to the nature of the present study, the Intellectual Achievement Responsibility Questionnaire (Crandall, Katkovsky & Crandall; 1965), (see Appendix A), was chosen since it was constructed to measure locus of control in an intellectual-academic setting. This scale is composed of two subscales; one is designed to measure locus of control towards success experiences (I+), and the second is designed to measure one's orientation towards failure experiences (I-). Taken together these subscales produce the I total score. In this study only I+ and I- were used.

PASS/FAIL experience was provided by means of a randomly assigned test result on an anagram test. The anagram test was completed by all subjects (see Procedure).

Locus of Control Variables.

With the initial work of Phares (1956), James (1957) and Rotter (1957), a growing belief was formed that LOC existed as a personality construct rather than just as a situation-specific or generalized expectancy. Consequently, this belief prompted researchers to develop scales designed to measure individual differences in generalized expectancy for internal and external control in various situations.

Since Rotter's original I-E scale, there have been numerous other instruments developed to measure internality and externality among different populations and in specific rather than general situations. The Intellectual Achievement Responsibility

Questionnaire (IAR) was developed by Crandall, Katkovsky and Crandall (1965) and is frequently used with children (Phares, 1976). The IAR has several unique features, including the fact that the authors chose to measure locus of control solely in intellectual-academic settings. The IAR contains 34 forced-choice items designed to measure the readiness of students to attribute future academic outcomes to internal or external factors; additionally, the IAR assesses the child's locus of control in terms of positive as well as negative outcomes. As a result, the IAR yields three separate sub-scales; belief of internality towards both success and failure (I total scores), the student's belief in internal factors for success (I+) and belief in internal factors for failure (I-).

Crandall, Katkovsky and Crandall (1965), using a sample consisting of 923 elementary and high school students, have provided data regarding the IAR. In general, distributions were skewed in the direction of internality for all age groups and for both sexes. Test-retest correlations over a two-month period were .69 for I total, .66 for I+ and .74 for I- for students in grades 3 to 5. Ninth grade children produced similar correlations (.65, .47, and .69) respectively. Split-half reliabilities were .54 (I+) and .57 (I-) for grades 3 to 5 and for High School children, the correlations were .60 for both I+ and I-. The authors have indicated the correlations between I+ and I- are generally low (.11 to .43 for grades 3 to 12). Part of the independence of the subscales is believed by the authors to be attributable to the general heterogeneity of the items on the two subscales. The low correlations may mean that assuming responsibility for successful intellectual-academic experiences may be different from assuming responsibility for failure experiences. In addition, the low correlations between the two subscales have prompted the authors to question the use of I total scores. Since this score (I total) combines self-responsibility for success and failure, it may mask important differences between the I+ and I- subjects. Finally, correlations between the IAR subscores and the Crowne-Marlowe measure of social desirability led to the conclusion that social desirability accounts for

relatively little of the variance in IAR scores (Phares, 1976). The correlation of I+ with I-, as noted above ranges from .11 to .43 (Crandall, Katkovsky & Crandall, 1965). This questionnaire may be divided into two short form scales for grades 3 to 5 and grades 6 to 12. The short form for grades 6 to 12 is composed of 10 I+ and 10 I- items. It is a paper and pencil, forced-choice measure which is answered by placing a circle around either answer "a" or answer "b".

The Pass/Fail Variable.

Simulation of an academic achievement test was achieved with the use of an anagram test (see appendix B) thus providing a Pass/Fail experience. The anagram test consists of thirty-two scrambled English words that ranged in length from four to eight letters. The anagram test was developed from a pool of 282 anagrams (Brown, 1975) used in experimentation with sophomore level university students. Only those anagrams that were correctly decoded by 80% or more of the university subjects were selected for use with the population described above. It is believed that these anagrams were of an appropriate difficulty level for the subjects.

In a review of the literature, Zuckerman (1977) has identified numerous researchers who have studied the causal attributions over a wide range of subjects. Of the 41 studies reviewed from 1969 to 1977, 22 studies used some form of anagram test as a task that subjects were asked to complete before making their attributions. The subjects were from a wide range of educational levels, including children from grades 6 and 10.

The anagram test was chosen for two main reasons aside from the simplicity and ease of use. Firstly, the test is, upon close examination, analogous to the types of tests

used in academic settings. That is, they are cognitively demanding, require decoding skills, and the abilities to attend, to concentrate and to listen to instructions. The test is believed to be sufficiently demanding in order to motivate most subjects to participate, but not too long or difficult to frustrate and/or bore. Secondly, the writing of an anagram test is a novel experience for subjects; thus, they would presumably not be able to form a reliable judgement regarding their performance level owing to the lack of a standard with which to rate their performance. This would deter subjects from developing a sense of their level of ability on the test prior to receiving their test results, and thus, would not bias their acceptance of the test results.

For these reasons, acceptance of a "pass" or "fail" result on the anagram test by the subjects seems more plausible than with other academic achievement tests such as a math or language test.

Instructions for the anagram test were "ambiguous" in nature. Neither skill nor chance was indicated as being involved in the successful completion of the anagram test. Subjects in the present study were told that a "pass" would indicate that they had solved as many or more than the average for their age and grade level; a "fail" indicated that they had solved fewer than the average for their age and grade level. Subjects, within the five-minute time period allotted, were asked to write out the correct words on the blanks beside the scrambled word. Pass and fail was assigned on a random basis, the exact procedure is described below within the "Procedure" section.

DESCRIPTION OF THE DEPENDENT VARIABLES

The independent variables studied within this research include Ability, Luck, Effort and Test Difficulty. These particular variables were selected because they have been identified as those factors used in a large majority of causal attribution research (Frieze, 1976; Cauley & Murraray, 1982).

The Causal Attribution Scale (see Appendix C) was used to measure the four dependent variables; the causal attributions made by students after completion of anagram test. These scale consisted of four Likert items each measuring one factor; a) ability, b) effort, c) luck, and d) test difficulty. Subjects were required to indicate on a seven-point rating scale the degree to which each factor was responsible for the outcome of the academic achievement test. A response of "1" by a subject indicated that he/she perceived the responsibility of the particular causal attribution for his/her test result to be "very low". A response of "7" indicated that the subject perceived that the responsibility of a particular causal attribution for his/her test result was "very high".

PROCEDURE

Subjects were removed, one class at a time, from their regular classes and led to the testing room. All testing was conducted in a single, quiet room situated within the school, and set aside specifically for the study. An entire class was requested for testing at one time; however, only those who returned a signed permission slip (see Appendix D) participated in the testing. Subjects were tested in groups ranging from 15 to 50 in number. They were initially greeted by the experimenter and a monitor then given a seat and a test package which consisted of the IAR, the anagram test, a causal attribution scale and the appropriate instructions for each task. Test packages were comprized of all three measures. This was done to ensure that each student completed all measures and that there was no misidentification of on the various measures.

The experimental procedure consisted of three phases in addition to the initial introduction and checking that all subjects had returned a signed permission slip to their homeroom teachers.

Phase one consisted of the administering of the locus of control scale (IAR) and the anagram test. The instructions for the IAR were read orally and then subjects were given time to complete the scale. Next the anagram test instructions were read aloud by the experimenter to the subjects and questions were addressed. Throughout the experiment, any questions not related to the specific task were deferred to a later, more appropriate time. Subjects were permitted to complete the scale at their own speed. When subjects finished they sat quietly by themselves. Once all of the subjects had finished the IAR, a period of five minutes was allotted for work on the anagram test. A timer was used to measure the five minutes and subjects were asked to stop working after the allotted time.

In phase two, the subjects returned to their regular school routine. The completed anagram tests were then divided by sex and LOC into four groups. Internal and external LOC was defined by means of the median split technique. Scores ranged from 0 to 20, the median for this sample was a score of 12.9, therefore, internals had scores of 13 or more and externals had scores of 0 to 12. Through random selection each of the four groups was then again divided into two: those who received a "pass" and those who received a "fail" on the anagram test. Subjects received a "pass" or "fail" test result was assigned completely at random; the test result was not related to ability, intelligence, or any other factor. The amount of time allotted for phase two was calculated by multiplying the size of the group by a period of time felt necessary to correct one anagram test (approximately three minutes). This was done in order to establish credibility with the subjects that each test, was, in fact, being evaluated.

In phase three, subjects returned to the testing room to receive their test results; pass or fail was marked on their anagram test paper. Instructions for the causal attribution scale were read aloud by the experimenter and subjects were questioned to ascertain their understanding of the instructions and the scales. Subjects were then given as much time as needed to complete the causal attribution scale, however, they were encouraged to work at a fairly steady speed.

Upon completion of the data collection for the entire sample, a letter (see Appendix E) was given to the subjects for their parents or guardians debriefing them about the experiment. As well, those subjects who requested an oral debriefing after the testing received one.

STATISTICAL DESIGN

Statistical analyses used in this study was a canonical correlation analysis. A secondary analysis was conducted by three four-way analysis of variance to test for interaction between the manipulated variable (pass/fail) and each of the other three independent variables. The four independent variables investigated in this study were: locus of control as measured by the IAR (I+ and I-), sex, and pass/fail experience on the anagram test. The dependent variables; ability, luck, effort and test difficulty, were measured by the Causal Attribution Scale.

CHAPTER THREE: PRESENTATION AND DISCUSSION OF THE RESULTS.

Within this chapter, the results of the experiment are presented and discussed with special emphasis being placed on the data relating to the hypothesis stated in the first chapter.

The independent variables were: I+, I-, sex, and pass/fail experience on the achievement test; the dependent variables include those factors measured by the Causal Attribution Scale: ability, luck, effort and test difficulty.

Table 2 contains the correlation matrix of the variables used in the analysis. The matrix indicates that I+ and PASS/FAIL are significantly correlated to three of the dependent variables; ABILITY, LUCK and EFFORT at the .05 level. It should be noted that the two subscales I+ and I- on the Intellectual Achievement Responsibility Scale (IAR) were used separately rather than combined in the form of I total. The hypothesized interrelationship between the independent and dependent sets of variables was analyzed by a canonical correlation procedure. The preliminary results of the canonical correlation analysis are presented in Table 3 and indicate that the first two pairs of canonical variates are moderately correlated; $r = .45$ and $r = .27$. There is however significant interdependence for only the first pair of canonical variates at the .05 level of statistical significance.

Table 2

Pearson Correlation Matrix for the complete set of variables,
(n= 169).

| | SEX | B | C | D | E | F | G |
|--------------|-------|-------|------|------|-------|------|------|
| B- IPOS | -.02 | | | | | | |
| C- INEG | .03 | .24* | | | | | |
| D- PASS/FAIL | -.001 | .03 | .07 | | | | |
| E- ABILITY | -.11 | .18* | .04 | .34* | | | |
| F- LUCK | .06 | -.16* | .08 | .17* | -.16* | | |
| G- EFFORT | -.14* | .18* | -.03 | .18* | .39* | -.15 | |
| H- TEST | .03 | -.03 | .06 | -.12 | -.06 | .09 | -.04 |

DIFFICULTY

* significance at the .05 level

Table 3

Canonical Correlation Analysis for the complete data set, (N= 169)

| | Canonical Correlation | Canonical R-square | Likelihood Ratio | F | df | p-prob. |
|----|--------------------------|-----------------------|---------------------|------|-------------|---------|
| 1. | .45 | .21 | .73 | 3.35 | (16, 492.5) | .001 |
| 2. | .27 | .07 | .92 | 1.55 | (9, 394.4) | .13 |
| 3. | .08 | .01 | .99 | .28 | (4, 326.0) | .89 |
| 4. | .03 | .00 | 1.00 | .18 | (1, 164.0) | .67 |

The linear combinations, using the standardized canonical coefficients for the first independent (W) and the first dependent variates (V) are, respectively:

$$W = -.24 (\text{SEX}) + .29 (\text{I+}) + .03 (\text{I-}) \\ + 0.94 (\text{PASS/FAIL})$$

$$V = .79 (\text{ABILITY}) + .40 (\text{LUCK}) + .30 (\text{EFFORT}) \\ - .27 (\text{TEST DIFFICULTY})$$

W= Independent canonical variate

V= Dependent canonical variate

The coefficients for each variable indicate the relative degree of importance of the variables within the particular canonical variate once the original variables have been standardized. Within the independent canonical variate, PASS/FAIL was considerably more important than SEX, I+, or I-; however, I+ is a more important predictor of the dependent variables than were SEX and I-. Within the dependent canonical variate, ABILITY was more important than the other dependent variables LUCK, EFFORT and TEST DIFFICULTY.

The structure matrix (see Table 4) for the two sets of variables indicates the correlation of the original variables with the opposite canonical variates. Only the PASS/FAIL variable was moderately correlated ($r = .42$) with the dependent variate (V). SEX, I+ and I- were only minimally correlated at $r = -.11$, $r = .14$ and $r = .04$, respectively with the dependent variate (V).

Table 4

Correlations for the two sets of variables and the first canonical linear combinations, (N= 169).

| Variable | Canonical variate | Correlation Coefficient |
|-----------------|-------------------|-------------------------|
| W | V | .45 |
| SEX | V | -.11 |
| PASS/FAIL | V | .42 |
| IPOS | V | .14 |
| INEG | V | .04 |
| ABILITY | W | .39 |
| LUCK | W | .09 |
| EFFORT | W | .25 |
| TEST DIFFICULTY | W | -.13 |

W: independent canonical variate

V: dependent canonical variate

Further examination of the results indicates that the relationship between the PASS/FAIL variable and the dependent canonical variate, V, ($r = .42$) accounts for almost all of the total correlation ($r = .45$) between the first pair of canonical variates. The results also indicate that the relationship between the dependent variable ABILITY and the independent canonical variate, W, ($r = 0.39$) accounts for most of the total relationship between the two canonical variates, V and W. Since the PASS/FAIL and ABILITY variables account for most of the correlation, they are considered to be the most important variables within their respective linear combination.

Research on causal attributions, as noted above, has shown that sex, pass/fail experience and LOC may have a mediating effect upon a subject's attribution pattern. The preliminary data from the present study suggests that there may indeed be a similar interaction between independent variables. Table 5 contains the mean scores on the four dependent variables for the various subgroups. Possible interaction between independent variables was suspected when these mean values were reviewed. For the Pass experience male subject's mean score (2.15) on the LUCK variable was lower than females (3.67), however, for the FAIL experience the opposite pattern was found; females scored lower (2.93) than males (3.22). The difference between these scores led the author to suspect that there may be a SEX - PASS/FAIL interaction. Another pattern of interest was with the I+ subgroup. For the PASS experience internal and external I+ subjects had similar means (3.78, 3.72). However for the FAIL experience external I+ subjects had a considerably higher mean score (3.61) than the internal I+ subjects (2.68). Again interaction between independent variables (I+ and PASS/FAIL) may be possible. To detect whether these interactions were significant or not a four-way analysis of variance was completed for each of the dependent variables. None of the interactions were significant. The largest F value was 2.49 ($df = 1, 161$) with a tail probability of .12. Thus the interaction between PASS/FAIL and other independent variables as stated in previous studies was not observed with this sample.

Table 5

Means for ABILITY, LUCK, EFFORT and TEST DIFFICULTY to assess interaction of PASS/FAIL with I+, I- and SEX, N= 169.

| Dependent Variables | | I+ | | I- | | SEX | |
|---------------------|------|----------|----------|----------|----------|------|--------|
| | | Internal | External | Internal | External | Male | Female |
| ABILITY | Pass | 4.54 | 5.23 | 5.37 | 5.42 | 5.03 | 5.69 |
| | Fail | 4.53 | 3.94 | 4.13 | 4.40 | 4.28 | 4.30 |
| LUCK | Pass | 3.78 | 3.72 | 4.00 | 3.49 | 2.15 | 3.67 |
| | Fail | 2.68 | 3.61 | 2.90 | 3.17 | 3.22 | 2.93 |
| EFFORT | Pass | 6.02 | 5.42 | 5.67 | 5.79 | 5.30 | 6.08 |
| | Fail | 5.45 | 4.88 | 5.06 | 5.31 | 5.22 | 5.20 |
| TEST DIFFICULTY | Pass | 3.48 | 3.65 | 3.70 | 3.42 | 3.58 | 3.55 |
| | Fail | 3.94 | 4.06 | 4.00 | 3.98 | 4.03 | 3.91 |

The hypothesis stated above was only partially supported by the statistical analysis. It has been observed within the present study that the subject's causal attribution patterns were significantly related to a pass/fail experience but not to I+, I- or SEX. Thus the predicted interdependence between the independent and dependent sets of variables was not confirmed since only pass/fail experience was a major predictor of the causal attributions of the subjects. Thus, the hypothesis has not been fully supported.

The above findings may be interpreted within Rotter's theoretical structure by examining the critical factors used in the prediction of social behavior: expectancy, reinforcement value and situational variables. Within Rotter's Social Learning Theory it is stated that for an accurate prediction of social behavior the interaction between these three variables must be considered. Each particular behavior-reinforcement sequence is unique; thus, the relative contribution that may be attributed to individual variables in the prediction of behavior is situationally dependent. For instance if in a specific behavior-reinforcement sequence the relative importance of one factor to an individual were inordinately high then the relative importance of the remaining factors as predictors of the dependent variables may be reduced substantially. From a SLT perspective, it may be inferred from the present findings that the pass/fail experience may have had such a substantial impact upon the subjects' causal attributions that the influence of locus of control and sex was reduced to a marginal amount. Also worth noting is the fact that the subjects were tested at the end of the academic year. It is possible that they may have been more concerned with passing and failing at this time of the year than at other times. If the degree to which they were concerned with test results of all types was inordinately high, then the influence of their characteristic LOC orientation and gender may have been drastically reduced. This may have occurred to such an extent that only the PASS/FAIL variable was identified as significantly contributing to the prediction of the subjects' causal attributions.

The data provide support for the previously stated importance and statistical significance of the situational variable "PASS/FAIL". These findings are congruent with research which provides evidence for the importance of a pass/fail experience both from the SLT perspective and current causal attribution research. Previous studies (Bar-Tal & Daron, 1979; Bradley, 1979) have indicated that a significant degree of variance in causal attributions may be accounted for by situational variables. Other researchers (Lao & Wuensch, 1979) have produced data which has indicated a personality-situation interaction that specifically involves pass/fail experiences. Although this interaction was not found in the present study the importance of the PASS/FAIL experience was exhibited.

The results of the data analysis indicated that LOC was not a major predictor variable for the causal attributions of elementary school children on an intellectual-academic task. Two tentative reasons for this lack of significance may be drawn from the research literature. The first may be related to the fact that the identification of external versus internal orientation for this study was achieved by means of a median split. This technique was chosen because of the lack of extreme externally oriented subjects within the sample. Previous researchers (Penk, 1969; Crandall, Katkovsky & Crandall, 1965) have investigated the relationship between LOC and age. Although there is relatively little data, very young children tend to be externally oriented and become more internal with age. Crandall, Katkovsky & Crandall (1965) noted a trend for I-E scores to be relatively external at the grade three level with internality increasing to a maximum average value at the eighth and tenth grades. There is however, little research regarding the degree of variation in children's I-E scores and what effect age might have on I-E score variability. What then is an average degree of variability within a sample of this kind? Whether the present sample had a greater or lesser degree of variability is not known. The results of this study indicate that the sample was relatively homogeneous in its LOC orientation; the range of scores was from 6 to 19, with a standard deviation of 2.88 and

mean of 13.46. The sample was also found to be slightly skewed (coefficient of skewness = -.39) towards an external LOC orientation. The mean score (13.46), however, indicated slightly more internality than means (11.60 to 12.09) reported by Carndall, Katkovsky and Carndall (1965) for an elementary grade level sample. This lack of extremely external subjects may have been a factor contributing to the nonsignificant contribution of LOC, in that the difference between internals and externals was not substantial enough.

A possible explanation for the lack of sex differences may be the nature of the anagram test and subject's level of expectancy for success. Success on tasks used in previous studies involved either competition (Levine, Turner & Turner, 1976; McHugh, Fisher & Frieze, 1975; Stephan, Rosenfield & Stephan, 1975), intelligence (Feather & Simon, 1973; Levine, Turner & Turner, 1976; Nicholls, 1975), or geometric ability (Nicholls, 1975). These types of activities are considered by theorists to be associated with masculine traits (Broverman, Vogel, Broverman, Clarkson & Rosenkrantz, 1972). It is quite possible that success on the anagram test was perceived to be neutral, i.e. free of gender stereotypes by this particular group of students. If this were the situation, male and female subjects would be "equalized" on expectancy for success and ego-involvement, and as a result sex differences would not be expected.

The non-significant findings for the variable SEX may also be interpreted within the work of Rosenfield and Stephan (1978). Their investigation into the relation between gender and causal attributions indicated that sex differences are a result of variations in subjects' degree of ego-involvement in, and expectation for, success on a particular task. Viewed within this context, the present results would suggest that subjects of both sexes may have had the same level of ego-involvement as well as expectancy for success (as discussed above) thus resulting in a lack of sex differences in their causal attributions. It may be inferred from this rationale that as a result of the current socialization patterns, young boys and girls do not receive conflicting messages as to the desirability or

appropriateness of achievement or the lack of it in academic tasks. As a result, male and female students' degree of acceptance of responsibility for test results on academic-achievement tasks may be the same. If the traits associated with success in academic activities are no longer considered by our youth as predominately part of the masculine stereotype, then level of ego-involvement and expectancy for success may not necessarily be mediated by one's gender.

An additional factor may involve the anagram test instructions. As stated in the review of the literature, research (Feather, 1967) has shown that when experimental tests are conducted under ambiguous instructions an individual's behavior may be determined to a larger extent by his or her characteristic LOC orientation than in a skill or chance situation. If the instructions were ignored or misinterpreted by the subjects, then the expected neutral influence of the ambiguous instructions upon the subjects' LOC orientation would not be expected. A possible uniform misinterpretation by the subjects may have led to the perception that success on the anagram test was a function of either skill or chance. The resulting causal attribution pattern of the subjects would not be mediated by their characteristic LOC orientation; rather it would be a function of the uniformly misinterpreted instructions.

CHAPTER FOUR: SUMMARY AND CONCLUSIONS.

The present study was designed to investigate the interrelationship between the causal attributions of elementary school children and the independent variables ; pass/fail experience, sex, and locus of control (I+,I-).

In the first chapter the major theoretical variables of Rotter's Social Learning Theory were reviewed, as well as studies relating to individual differences among people with an internal and external locus of control orientation. Within the review of literature, the necessity for the consideration of expectancy, reinforcement value, and in particular, psychological/situational variables in the study of any complex social behavior was stressed. Research studies regarding the interrelationship between locus of control and causal attributions was presented. From the theoretical perspective of SLT and the findings of several researchers, it became apparent that it was necessary to include both the situational and sex variable in the study of the interrelationship between LOC - causal attribution . The theoretical rationale was summarized and the hypothesis was stated in the final section of the chapter.

In the second chapter the sample, a description of the independent and dependent variables, and the corresponding measures, the statistical design, and the experimental procedure were presented.

The hypothesis, which proposed that locus of control, sex and pass/fail experience taken together were predictors of the causal attribution patterns of elementary school children, was only partially supported. Pass/fail experience was the major predictor

variable of the causal attributions of the subjects; more specifically, pass/fail experience could be considered as a predictor in the scores for the ability, luck and effort factors but not for test difficulty factor. These findings add to the general inconsistency of research findings in the area of gender, locus of control and causal attributions, and point to the need for further investigation.

Several questions are raised by the present findings. If I-E orientation were defined differently would locus of control be a significant factor? Were the ambiguous instructions for the anagram test perceived by the subjects as ambiguous? Would the strong influence of a pass/fail experience be diluted by an extended period of time between discovering the test results and doing the Causal Attribution Scale? Do male and female subjects have the same level of expectancy for success and ego-involvement for an anagram test?

Future researchers utilizing a similar population may consider defining internal and external locus of control by an alternate method such as using an extreme group paradigm. Removal of subjects that are within one standard deviation from the mean from the experimental sample may be a more appropriate means of defining internality and externality provided that there is adequate variability among the I-E scores.

Future researchers who use ambiguous instructions in order to encourage subjects to utilize their characteristic locus of control orientation should test their subjects to investigate if they perceive these instructions to be ambiguous in nature.

Another suggestion would be for researchers to administer the Causal Attribution Scale at regular time intervals after the achievement test has been completed. This may determine whether the impact of a pass/fail experience diminishes over time, is stable and permanent, or whether its effect increases with time. Difficulty with carry over effect (or learning effect) must be considered if a researcher were to investigate this issue.

Regarding the impact of gender, previous research has suggested that differential causal attributions between the sexes on an academic-type task require a perception on the

part of the subjects that success is associated with either stereotypic masculine or feminine traits. Although the anagram test has been repeatedly used (Zuckerman, 1977) to simulate an academic achievement test, it may be advisable to conduct an investigation in this area. The techniques identified by Broverman and his associates (1972) would help evaluate an anagram test as to whether success is perceived to be associated with those traits considered to be part of the masculine or feminine stereotype. In conjunction with this evaluation of the anagram test, it is suggested that future researchers specifically measure the subject's level of ego-involvement and expectancy for success on the achievement task. The findings of these two inquiries would provide a more complete framework from which to interpret a gender-related investigation in causal attributions. By addressing these questions researchers could help to further explicate the interrelationship between these variables.

Finally, an additional area for future research might be the further refinement of causal attribution scales. The scales used in the present study and in most other studies are relatively simple in nature, since they use only one item per factor to assess the degree of responsibility attributed to a particular causal agent. Future research might consider the development of a more sophisticated scale or use a semi-structured interview in addition to the causal attribution scale to establish a higher level of validity in the measurement of subjects' causal attributions.

The results of this study suggest that there are important issues that should be considered by school personnel and school policy makers. The data indicate that the pass/fail experience has a significant effect upon student's acceptance of responsibility for test results regardless of locus of control orientation or sex influence. As stated by Phares (1976), the manner in which people account for their successes and failures will play a significant role in achievement motivation and subsequent behavior. The utilization of external causal attribution factors would not theoretically lead to the subsequent pursuit of

academic excellence. If our goal as educators is to encourage the pursuit of academic excellence it seems apparent that students must be encouraged to accept responsibility for their academic outcomes. This study, as well as previous research, has demonstrated that the pass/fail experience has a mediating effect upon student's causal attributions. The challenge for teachers must be to provide an environment in which students will accept responsibility for their academic test results irrespective of a pass or fail experience. In an effort to encourage the acceptance of responsibility for one's test results and to facilitate the pursuit of academic excellence, it is highly questionable whether the current practice of encouraging students to think in terms of passing or failing will help in the achievement of these goals.

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Appendix A

INTELLECTUAL ACHIEVEMENT RESPONSIBILITY
QUESTIONNAIRE

Name: _____ Grade: _____
Age: _____ Sex: _____

This questionnaire describes a number of common experiences most of you have in your daily lives. These statements are presented one at a time, and following each are two possible answers. Read the description of the experience carefully, and then look at the two answers. Choose the one that most often describes what happens to you. Put a circle around the "A" or "B" in front of that answer. Be sure to answer each question according to how you really feel.

If, at any time, you are uncertain about the meaning of a question, raise your hand and a person will come and explain it to you.

1. When you do well on a test at school, is it more likely to be
 - a. because you studied for it, or

b. because the test was especially easy?

2. When you have trouble understanding something in school, is it usually

a. because the teacher didn't explain it clearly, or

b. because you didn't listen carefully?

3. Suppose your parents say you are doing well in school. Is it likely to happen

a. because your school work is good, or

b. because they are in a good mood?

4. Suppose you did better than usual in a subject at school. Would it probably happen

a. because you tried harder, or

b. because someone helped you?

5. If you solve a puzzle quickly, is it
- a. because it wasn't a very hard puzzle, or
 - b. because you worked on it carefully?
6. Suppose you study to become a teacher, scientist, or doctor and you fail. Do you think this would happen
- a. because you didn't work hard enough, or
 - b. because you needed some help, and other people didn't give it to you ?
7. When you learn something quickly in school, is it usually
- a. because you paid close attention, or
 - b. because the teacher explained it clearly?
8. When you find it hard to work arithmetic or math problems at school, is it

- a. because you didn't study well enough before you tried them, or
 - b. because the teacher gave problems that were too hard?
9. When you forget something you heard in class, is it
- a. because the teacher didn't explain it very well, or
 - b. because you didn't try very hard to remember?
10. When you don't do well on a test at school, is it
- a. because the test was especially hard, or
 - b. because you didn't study for it?
11. When you win at a game of cards or checkers, does it happen
- a. because you play really well, or

b. because the other person doesn't play well?

12. If people think you're bright or clever, is it

a. because they happen to like you, or

b. because you usually act that way?

13. Suppose you don't do as well as usual in a subject at school. Would this probably happen

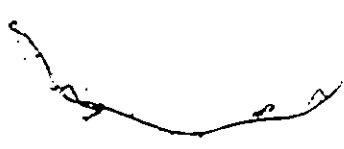
a. because you weren't as careful as usual, or

b. because somebody bothered you and kept you from working?

14. Suppose your parents say you aren't doing well in your school work. Is this likely to happen more

a. because your work isn't very good, or

- b. because they are feeling cranky?
15. Suppose you are showing a friend how to play a game and he has trouble with it. Would that happen
- a. because he wasn't able to understand how to play, or
- b. because you couldn't explain it well?
16. When you find it easy to work arithmetic or math problems at school, is it usually
- a. because the teacher gave you especially easy problems, or
- b. because you studied your book well before you tried them?
17. When you remember something you heard in class, is it usually
- a. because you tried hard to remember, or
- b. because the teacher explained it well?

18. If you can't work a puzzle, is it more likely to happen
- a. because you are not especially good at working puzzles, or
 - b. because the instructions weren't written clearly enough?
19. If your parents tell you that you are bright or clever, is it more likely
- a. because they are feeling good, or
 - b. because of something you did?
20. Suppose you're not sure about the answer to a question your teacher asks you and the answer you give turns out to be wrong. Is it likely to happen
- a. because she was more particular than usual, or
 - b. because you answered too quickly?
- 

Appendix B
ANAGRAM TEST

The purpose of this test is to see how you will do in solving the scrambled letters on the next page. The number of scrambled letters you solve will be compared to other students of your age and grade level. After you have finished you will receive either a "pass" or a "fail". A pass means that you have solved as many or more than the average for your age and grade level. A fail means that you have solved fewer than the average for your age and grade level.

Each set of scrambled letters will form an English word. Beside each set of scrambled letters you will find a space. In this space write what you think is the correct English word. Write only one answer for each set of scrambled letters.

For example you may find: AIRCH _____

The correct word, once you have unscrambled the letters, is:

AIRCH chair

When the instructor tells you, turn the page over and begin the test. Do as many sets of scrambled letters as you can in the time provided.

UNSCRAMBLE THESE WORDS

YABB _____

TEŃC _____

AEGM _____

BAYB _____

AEHT _____

EIBJ _____

EAMG _____

TAHP _____

DOLS _____

MAEG _____

EAHT _____

NBATO _____

ACHBE _____

TAEH _____

ULTFA _____

UNTJA _____

BORLA _____

LODS _____

LMODE _____

NTRAI _____

AINTR _____

RBDGEI _____

LYAMIIF _____

ERARMF _____

KGHTNI _____

EPSONR _____

SONGTR _____

TYWENT _____

MBERERME _____

OOWMORRT _____

EERMEBRM _____

EMRREBME _____

Appendix C

CAUSAL ATTRIBUTION SCALE 1

Instructions:

The purpose of this activity is to measure how much you feel certain things are RESPONSIBLE for your test results. Here is how it works:

If you feel that, for example, the weather is responsible to a "very high" degree for your test results, then you should place a circle like this:

| | | | | | | | |
|---------|---|------|---|---------|---|---|------|
| WEATHER | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | very | | average | | | very |
| | | low | | | | | high |

If you feel that the weather is responsible to a "very low" degree for your test results, then you should place a circle like this:

| | | | | | | | |
|---------|------|---|---------|---|---|---|------|
| WEATHER | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | very | | average | | | | very |
| | low | | | | | | high |

If you feel that the weather is not responsible to a "very high" degree and is not responsible to a "very low" degree, rather you feel it is responsible to a degree in between these two extremes then you would circle a 2, 3, 4, 5, or 6.

***** IMPORTANT:**

- 1) Place only one circle on each scale,
- 2) Be sure you mark a circle on every scale, do not forget any.

When the instructor tells you, turn the page over and begin. Read carefully. Work at a fairly steady speed and do not worry or puzzle over the answer you have made. There is no right or wrong answer; I just want to know about your "feelings".

A

Estimate the degree to which each word written in capital letters below is responsible for your test results on the scrambled word test you just completed.

| | | | | | | | |
|--------------|---|---|------|---|---------|---|------|
| YOUR ABILITY | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | very | | | | very |
| | | | low | | average | | high |

| | | | | | | | |
|------|---|---|------|---|---------|---|------|
| LUCK | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | very | | | | very |
| | | | low | | average | | high |

| | | | | | | | |
|-------------|---|---|------|---|---------|---|------|
| YOUR EFFORT | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | very | | | | very |
| | | | low | | average | | high |

| | | | | | | | |
|-----------------|---|---|------|---|---------|---|------|
| TEST DIFFICULTY | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | very | | | | very |
| | | | low | | average | | high |

UNIVERSITY OF OTTAWA
PERMISSION SLIP FROM SCHOOL AND PROJECT DIRECTOR

CANADA

June 3, 1985

Dear Parents or Guardians:

Your child's class is being invited to become a part of research study that is being conducted in conjunction with the school. This study will investigate how children react to tests in school. Your child's performance in this study will not affect his/her academic marks in any way and all results will be kept strictly anonymous and confidential. The study will take approximately 50 minutes of class time.

During this time, a questionnaire will be administered which will help determine some of the children's attitudes about school. Following this questionnaire, the children will be asked to unscramble some scrambled English words. A final questionnaire will help determine to what extent the children feel responsible for their test results.

If you consent, please sign the permission slip below and have your child return it to the teacher.

Thank you for your cooperation.

Sincerely yours,

Philip Moorman

Henry Coagy

Research Directors

My child has has not my permission to participate in the study.

Appendix E

DEBRIEFING LETTER

Dear Parent or Guardian;

I would like to thank you for your cooperation with the research project by allowing your child to partake in the testing.

Now that all of the testing has been completed, I would like to take this opportunity to explain what we were doing. First of all each child did a test to measure their feelings about how their successes and failures in school happen. For example; 'If a child does better than usual in a subject at school, would it be due to , a) the fact that they tried harder, or, b) because someone helped them.'

Secondly, the children did a scrambled word game in which the letters of English words were mixed up, and, the children were required to unscramble them.

On the second day the children, by way of a rating scale, indicated why they felt they either passed or failed on the scrambled word game.

I feel that it is important, now that all the testing is finished, that I let you know that your child's test result (their pass or fail) was not determined by their ability or amount of effort. In fact it is impossible to either pass or fail at this game. We used the pass-fail format in order to measure individual differences among the children with regards to the identification of the factors that they feel are responsible for success and failure in academic situations. Again, be assured, your child's test results do not reflect how good or bad they are in academic subjects.

You and your child have been a great help to the research project and I thank you. If you have any further questions regarding the project or the results please contact me.

Sincerely Yours,



Philip Moorman

(819-684-8695)