ATTRIBUTION CAUSES AND DIMENSIONS OF UNIVERSITY UNDERGRADUATE STUDENTS TO PERFORMANCE OUTCOME

by

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ABSTRACT

This study was conducted to determine if there were any significant differences between upper and lower level university undergraduate students (N=144) in causal attributions and dimensions to performance outcomes. No significant differences were found between upper (n=99) and lower level (n=45) students and causal attributions or dimensions. However, modest differences were noted in the extent to which students indicated the causes influenced their outcome on a nine-point scale. In accordance with the attribution literature, significant differences were found between performance outcome and causal attributions and dimensions. Results were discussed in relation to the attribution literature. The percentage of unsuccessful students who attributed their outcome primarily to ability was noted, and related to the research literature dealing with attribution intervention programs. The results of this study are limited to undergraduate students attending summer session at the University of Victoria.

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CHAPTER I

Introduction

Psychologists as well as educators seek to understand, predict and improve achievement related behaviors. In recent years major new insights have resulted from applying the concepts of attribution theory which is a cognitive approach to understanding behavior.

Based on the nature of causal inferences (attributions) and the relationship of those inferences to behavior, Weiner (1972) formulated an attribution-based model to explain achievement-related thoughts and actions. He proposed that an individual's beliefs about the causes of success and failure may be an important factor in understanding and predicting achievement-related behavior. For example, students who perceived lack of ability as the cause of their failures would tend to expect repeated failures in achievement tasks because ability is believed to be a stable characteristic. As a result, these students may avoid achievement activities, failing to reach their full potential or become inhibited in their motivation to try harder in the future. Other research has supported

this hypothesis (Andrews & Debus, 1978; Forsyth, 1980; Kun & Weiner, 1973).

Following Heider (1958), Weiner postulated that there are four perceived causes (causal attributions) of success and failure most often selected in achievement-related outcomes: ability, effort, task difficulty, and luck (Weiner, 1972). Subsequent researchers have validated this hypothesis (Bar-Tal & Frieze, 1976; Elig & Frieze, 1979; Frieze, 1976; Frieze & Weiner, 1971; Kukla, 1972; McMahan, 1972; Meyer, 1980; Russell & McAuley, 1986; Weiner, 1976, 1979, 1985). Weiner (1972) initially classified the causes of success and failure on two dimensions, locus of causality (internal or external) and stability (fixed or variable) and maintained that the two causal dimensions respectively influence affective reactions to success and failure and expectancy of success. Later, Weiner (1979) advanced his model to a three-dimensional taxonomy of causal attributions adding controllability as the third dimension. Weiner's work generated considerable research, most of which has supported his model (Andrews & Debus, 1978; Forsyth & McMillan, 1981; Russell & McAuley, 1986).

Evidence suggests that the pattern of forming causal attributions may vary in different groups and that the tendency to form causal attributions is learned (Bar-Tal, 1978). Cultural-based learning can influence causal attributions (Weiner, 1976). For example, Friend & Neale (1972) found that white fifth-grade children perceived ability and effort as more important causes of their performance outcome than task and luck, however the reverse was found among black children in the study. Maturational differences have also been reported (Weiner, 1976; Weiner & Peter, 1973). Younger children tend to confuse different causes such as ability and effort, but by age 12-13 years attributions are more similar to those of adults (Wigfield, 1988). Other studies have contended that personality characteristics such as self-concept and need for achievement influence attributional tendencies (Ames, 1978; Kukla, 1972; Weiner, 1972).

Researchers have demonstrated that attributional intervention programs designed to change the perceived causes of success and failure have been successful in improving achievement-related behavior. The main findings of these studies indicated that persistence behavior is enhanced when attributions for failure are

changed to lack of effort from low ability (Andrews & Debus, 1978; Dweck, 1975) and from stable to unstable dimensions (Wilson & Linville, 1982, 1985). A major flaw in these studies with the exception of Andrews & Debus (1978) has been that the initial attributions and causal dimensions of the subjects were assumed, and not assessed by these researchers. A survey of subjects' attributional schemata then is important prior to the development of an attribution re-training procedure.

Attributional researchers in academic situations have chosen college students, among others, as subjects for their research (e.g. Bar-Tal & Frieze, 1976; Elig & Frieze, 1979; Forsyth & McMillan, 1981; Frieze, 1976; Kukla, 1972; Peterson & Barrett, 1987; Russell & McAuley, 1986; Wilson & Linville, 1982, 1985). Kun & Weiner (1973) noted in their study investigating necessary versus sufficient causal schemata for success and failure, "college students are an especially good population for the present investigation, for achievement performances are frequent and salient occurrences in their lives. Thus, students are likely to have well-articulated causal schema for success and failure" (p. 202). Typically, the subjects in these studies have been students enrolled in introductory

classes, and therefore the results are limited to that particular group of a college population. There is a need then to extend attributional research with a college population to include upper level students.

In summary, Weiner (1972) developed an attributional model based on the assumption that beliefs about the causes of success and failure are important factors in understanding achievement-related behavior. The four most often perceived causes of achievement outcomes are ability, effort, task difficulty, and luck. These causal factors can be classified on three dimensions, locus of causality, stability, and controllability. Some researchers have found group differences as well as individual differences in forming causal attributions and dimensions. Other researchers have manipulated perceived causal attributions and dimensions of individuals to improve their achievement-related behavior. While results of attribution re-training procedures have been successful, in some studies, subjects' initial attributions have been assumed rather than assessed. Typically, freshmen have been chosen as subjects in attribution research conducted at the

college level and there is a need to extend this to include upper level undergraduate students.

The purpose of the present study was to assess causal attributions and dimensions of upper and lower level university undergraduate students to success and failure performance outcomes, and to determine if there were differences between the four groups

CHAPTER II

Review of the Related Literature

The literature reviewed for this study has been organized around two basic assumptions of Weiner's theory which relate to two general concepts. One is the nature of causal attributions, which Weiner (1972) proposed are complex sources of information about outcomes. Second is the relationship between causal inferences and achievement-related behavior (Weiner, 1979). Weiner's attribution model deals with the information people use in making causal inferences, and the effects of those inferences on achievement-related behavior.

Antecedent Factors.

Weiner (1972) proposed that a number of antecedent factors influence the selection of causal attributions. Specific information is considered a main antecedent cue and consists of information such as past history, social norms, patterns of performance, and time spent on task. Frieze (1976) conducted a study to assess the type of information people request when asked to judge why a particular event has occurred. College students were asked to respond to a variety of hypothetical academic and non-academic situations in the form of an

open-ended question. For example, subjects were asked to "list any information which would help them better know why an event occurred" (p. 295), an academic event for example was "you have just failed an exam"(p. 295). A non-academic event was "you won the game" (p. 295). This researcher found that more specific information relating to the nature of the task was most sought, followed by past history and prior performance of the person in the situation. Consensus information as well as information regarding any incentives the person may have had for doing well in the situation were also requested by a substantial number of subjects. The results also indicated that subjects requested more information following a failure outcome than after a success outcome. Meyer (1980) in a similar study reported results consistent with the previous study.

Another important source of information for causal ascription is an individual's causal schema (Kelley, 1973; Kun & Weiner, 1973; Weiner, 1976;). Causal schema refers to the beliefs that an individual holds about the relationship between an observed event and the cause of that event (Kelley, 1973). For example, a schema often elicited by a typical success is the belief that success is produced by either ability or

effort. Each cause by itself is sufficient to yield success; therefore this belief is referred to as a sufficient causal schema. When an individual believes that success depends on both ability and effort, this is referred to as a necessary causal schema. Kun & Weiner (1973) found that when performance outcomes are consistent with the expected outcome,(success at easy tasks and failure at difficult tasks), attributions are made only to one cause; when performance outcomes are inconsistent with the expected outcome (success at difficult tasks and failure at easy tasks) then attributions tend to be made to multiple causes. These results confirmed a previous finding by McMahan (1972).

Finally, among many other determinants of causal inferences are individual differences. The need for achievement has been shown to have a considerable influence on causal ascription (Kukla, 1972; Russell & McAuley, 1986; Weiner, 1972, 1976,; Weiner & Kukla, 1970). For example, Weiner and Kukla (1970) and Kukla (1972) reported that individuals high in achievement need relative to those low in achievement need attribute success to high ability and effort, and that low achievement need subjects expected only ability to influence success or failure.

Causal Factors.

Based on the work of Heider (1958), Weiner (1972) postulated that individuals attribute the causes of success and failure to ability, effort, task difficulty, and luck. Several studies using various measures have verified that these factors are indeed used most often by individuals to explain achievement outcomes (Bar-Tal & Frieze, 1976; Elig & Frieze, 1979; Frieze, 1976; Kukla, 1972; McMahan, 1972; Meyer, 1980; Weiner, 1976,1979,1985). For example, Frieze (1976) employed open-ended questionnaires to assess what causes college students used to explain success or failure in two achievement tasks. The results indicated that the four causal factors postulated by Weiner (1972) accounted for the large majority of causal attributions used by the subjects. In a later study, Elig & Frieze (1976) collected causal attributions from college students on five different measuring instruments that included open-ended as well as structured formats. The purpose of their study was to assess the reliability and validity of the measures used. Results reported by these researchers indicate that the open-ended response measures (e.g. "why do you think you succeeded/failed on this task?" p.625),

had poorer intertest validity and reliability than structured response measures (e.g. "please indicate how important you think each of the following factors was in determining your success or failure on the anagram task?" (p. 625).

Causal Dimensions

In describing the nature of attributions relevant to educational settings, Weiner (1979) proposed a three-dimensional taxonomy of causal attributions. The first dimension, locus of causality, was originally introduced by Heider (1958) who proposed that the attributions people chose as explanations of an event are either due to factors that originate within the person or are the result of environmental factors. For example, ability and effort would be seen as internal factors and task difficulty and luck as environmental factors. Weiner, Russell, and Lerman (1978, 1979) and more recently Russell & McAuley (1986), found that the locus of causality is closely related to affective reactions that follow test feedback. The importance of affective reactions is that they function as the motor for subsequent behavior.

The major difficulty with the one-dimensional analysis was that it did not account for subsequent

effects. For example, following the attributions of lack of ability and lack of effort, both of which are internal, different expectancies for future outcomes result. A poor grade attributed to lack of ability can be expected to occur again, while a poor grade attributed to lack of effort may not be expected to occur again since the student can change the amount of effort expended (McMahan, 1973; Weiner, 1976).

A second dimension, stability, refers to the endurance of the particular attribution. For example, effort and luck are transient and therefore unstable, while ability is relatively permanent or stable. Research has shown that the stability of causes should be considered when describing attributions (Frieze & Weiner, 1971; Weiner, 1982,1985; Wilson Linville, 1982, 1985). In addition, research has indicated that although positive increases in expectations were not related to the locus of causality, stability influences cognitive changes in expectancy following success or failure (Bar-Tal, 1978; Weiner, 1976, 1979, 1985; Wilson & Linville, 1982, 1985).

Later, Weiner (1979, 1980) proposed the third causal dimension of controllability. This dimension refers to the presence or absence of volitional control

(Weiner, 1982). Controllability accounts for the logical distinction between such causes as mood and effort, both internal/unstable causes but effort is considered more controllable than mood. Another example is effort and luck which are both unstable, however only effort is controllable. Controllability influences affective reaction to success and failure outcomes but in a different way from the influence of causal dimension. For example, success attributed to a controllable factor such as effort generates feelings of competence, while attribution to an uncontrollable factor such as help from others leads to feelings of gratitude. An unsuccessful outcome attributed to a controllable factor such as lack of effort leads to feelings of guilt, whereas attribution to an uncontrollable factor such as teacher's mood generates feelings of anger. Strong support for the construct validity of Weiner's model was found by Meyer (1980). This researcher employed a three-mode factor analysis to assess student's causes for their performance on a university entrance examination. The results indicated three factors which corresponded to the locus of causality, stability, and controllability dimensions as proposed by Weiner.

Influence of Attributional Causes and Dimensions.

Causal attributions and dimensions influence expectancy of success as well as affective reactions to success and failure, which in turn influence achievement-related behavior (Bar-Tal, 1978; Forsyth & McMillan, 1983; McMahan, 1972; Meyer, 1980; Russell & McAuley, 1986; Weiner, 1976, 1979, 1985; Weiner, Nierenberg, & Goldstein, 1976; Weiner, Russell & Lerman, 1979).

McMahan (1980) investigated the relationship between causal attributions and expectancy of success. This researcher hypothesized that there would be a positive relationship between stable attributions (ability and task difficulty) and future expectancy following success, and a negative relationship following failure; attributions to unstable factors (effort and luck) would be unrelated, or show a negative relationship following success and a positive relationship following failure. Subjects were assessed in an actual achievement situation where they were required to solve a number of anagrams. Prior to each trial, subjects were asked to rate their confidence in reaching a successful outcome. Subsequent to receiving performance outcome following the trial, subjects were

asked to make attributions for their success or failure outcomes from the four causal attributions. Results confirmed the hypotheses and were consistent with those of Weiner, Nierenberg, & Goldstein (1976).

The primary link for the stability dimension is the magnitude of change in expectation for success and failure. According to Weiner (1985), outcomes that are perceived to be caused by stable attributes will be expected to be repeated in the future with a greater degree of certainty than those ascribed to unstable causes.

Russell & McAulay (1986) investigated causal attributions, causal dimensions, and affective reactions to success and failure outcomes, using a simulation-respondent format. The Causal Dimension Scale (CDS) formulated by Russell (1982) was used to assess the attributional causes and dimensions of the subjects. Results were consistent with other findings (Weiner, 1979, 1985), and indicated ability and effort attributions were found to elicit feelings of competence while attributions of luck for success elicited lower feelings of confidence. In addition, the locus of causality dimension was found to be most influential. In a second study reported in the same

article, these researchers conducted the same investigation but in the context of an actual achievement outcome. The results of this study were contrary to the findings in study one, and therefore were inconsistent with Weiner (1979, 1985). For example, none of the attributions for success were significant predictors of affective reactions.

A study was conducted by Forsyth & McMillan (1983), to test Weiner's three-dimensional model. Subjects in this study were college freshmen who had received the results of their mid-term examination. Results indicated that more positive affective reactions were recorded by students who attributed success to internal factors or failure to external factors, and who attributed their outcomes to controllable dimensions. The findings are consistent with Weiner (1979) who postulated that locus of causality as well as controllability dimensions influence affective reactions.

Educational Applications

A major assumption of Weiner's model is that causal attributions about success and failure experiences have important consequences for expectancy outcomes, affective reactions, which in turn influence behavior. Based on this assumption, attempts have been made to change maladaptive attributions to performance outcomes. For example, Dweck (1975) chose children from elementary schools who exhibited learned helplessness and in training sessions used verbal feedback to teach the children to attribute failure outcomes to lack of effort. Results indicated an improvement in the children's' performance when they attributed their failure to insufficient effort. A major problem with this study however, is the fact that the children's' attributions were not assessed prior to the intervention suggesting that this researcher assumed that the children attributed their failure outcome to ability (Andrews & Debus, 1978).

A later study conducted by Andrews & Debus (1978) found that there was a positive correlation between persistence behavior and attributions of failure to lack of effort. Subjects were sixth-grade students who on a previous task had not attributed failure to lack

of effort. The intervention program consisted of social and token reinforcement techniques for making effort attributions in situations of success and failure. Results showed that re-attribution to effort resulted in children exhibiting more persistence behavior to task.

More recently, Wilson & Linville (1982, 1985) devised an attributional intervention to improve the academic performance of college freshmen. Subjects were freshmen students who expressed concern about their academic performance. The intervention technique consisted of giving students information suggesting that the causes of their performance problems were unstable. Wilson & Linville state, "An effort was made to change subjects' attributions for their problems from stable to unstable causes" (p. 367). For example, information indicating that, in general, college students improve their grades after their freshmen year, suggested that their poor performance could be temporary. Results indicated that students who received the information compared to those who did not performed significantly better on a sample test, and had a significantly greater increase in grade-point average (GPA) one year after the study. These researchers

interpreted their results as "nothing less than dramatic" and concluded that the results were due to the change in students' attributions from stable to unstable causes (p. 374). A major flaw in this study is the fact that students' attributions were not assessed prior or subsequent to the intervention procedure. This lack of empirical evidence to support the conclusions that students' attributions had been changed from stable to unstable causes, and that students' improved performance was due to attributional changes questions the validity of this study.

In summary, evidence has been presented to suggest strong support for Weiner's attribution model, and the two assumptions that causal attributions are complex sources of information about outcomes, and that causal attributions and dimensions influence subsequent behavior. The information provided by Weiner's attribution model has been utilized in changing students' maladaptive attributions and subsequently improving their achievement performance. This application of attribution theory suggests the possibility of developing programs to maximize the academic performance of students by encouraging

appropriate self-attributions in the classrooms.

Rationale for the Present Study

A substantial amount of attributional research has shown that beliefs about the causes of success or failure in achievement tasks have implications for students' academic performance. A recent study by Peterson and Barrett (1987) investigated the relationship between university freshmens' explanatory style and academic performance. Students' explanatory style was assessed prior to their first classes, using hypothetical situations and manipulating the outcomes to include positive and negative results. The results of this study indicated that freshmen students who explained unsuccessful outcomes with internal, stable causes were more likely to receive low grades in their first year compared to those students who used external unstable causes to explain unsuccessful outcomes.

Maladaptive attributions have been the focus of attribution re-training programs in academic settings among others. As indicated previously, encouraging results have been reported by researchers involved in this area despite some methodological problems. A major problem has been the fact that some researchers have

assumed or inferred students' initial attributional schemata (Dweck, 1975; Wilson & Linville, 1982, 1985).

While results of these studies seemed to verify these researchers' assumptions, two important questions are raised. First, is there a generality of attributional schemata? For example, do students in general attribute successful outcomes to internal causes and unsuccessful outcomes to external causes? Second, are new attributional schemata developed over time as a result of experience? There is a paucity of literature indicating how prevalent maladaptive attributions are among college students, such as when unsuccessful outcomes are attributed to internal factors, or if there is a "typical" attribution style. Clearly these questions must be investigated.

Since university students frequently receive information regarding performance outcomes, and are perceived to have "well articulated causal schema for success and failure" (Kun & Weiner, 1973, p. 202), it was deemed appropriate to survey this population to see if an attributional pattern was evident. In addition, since freshmen students have generally been the subjects in previous studies using a college population, there is a need to include upper level

students, who have more academic experience and to compare their causal attributions and dimensions to performance outcomes, with those of lower level students.

The present study was exploratory in nature, and the purpose was to assess and describe causal attributions and dimensions of lower as well as upper level undergraduate university students, and to determine if there were any differences.

Definition of Terms and Variables

Independent Variables.

The independent variables were university experience (lower or upper level) and performance outcomes (success or failure).

Lower level students were defined as students who reported having attended university for two years or less. Upper level students were defined as students who reported having attended university for more than two years.

Successful outcome was defined as students who circled five or above on the scale estimating how well they thought they had done on the test (see Appendix 1). Failure outcome was defined as students who circled less than five on the scale.

Dependent Variables.

The seven dependent variables were the four causal attributions (ability, effort, task difficulty, luck) and the three causal dimensions (locus of causality, stability, and controllability).

Statement of Hypotheses

Based on the evidence that antecedent factors such as past history and patterns of performance, as well as causal schema influence causal attributions and dimensions (Frieze, 1976; Kelley, 1973; Kun & Weiner, 1973; Meyer, 1980; Weiner, 1972, 1976), it seemed reasonable to anticipate a difference between upper and lower level students. The null hypotheses were stated instead of the alternative hypotheses because the research literature did not provide a clear indication of the direction of change that might be anticipated. The following hypotheses were postulated:

(1) There are no significant differences in Causal Attributions between Upper and Lower Level students.

(2) There are no significant differences in Causal Dimensions between Upper and Lower Level students

(3) There are no significant differences in Causal Attributions between Successful and Unsuccessful students.

(4) There are no significant difference in Causal Dimensions between Successful and Unsuccessful students.

(5) There is no interaction effect between University Experience and Performance Outcome on Causal Attributions.

(6) There is no interaction effect between University Experience and Performance Outcome on Causal Dimensions.

CHAPTER III

Method

Subjects

Subjects were 41 male and 103 female (N=144) undergraduate students who attended classes during summer session at the University of Victoria, and consented to participate in the study. Subjects' age ranged from 18-68 years (M=27), and university experience ranged from 1-9 years (M=3.6).

Instrumentation.

A two page questionnaire was used to assess students' causal attributions. Page one consisted of demographic information as well as the following questions.

(1) How many years have you attended university? This question was included to ascertain how much university experience the student had.

(2) Has your grade point average (GPA) increased, remained the same, or decreased since your first semester of your first year at university? This question assessed the students past performance which is a main antecedent of causal attributions.

(3) Please indicate the letter grade you received on the test?

(4) How well do you feel you did you do on the test? Students were asked to respond on a nine point scale ranging from very poorly at the bottom end to very well at the top end.

(5) To what extent do you think that your score on the test was caused by one or more of the following? This question assessed the students' causal attributions. The four causes, ability, effort, task difficulty, and luck were presented. The student was asked to select one or more cause, and then to indicate on a nine point scale what extent that particular cause was thought to contribute to their test result. The scale method was chosen based on the finding of Elig and Frieze (1979), that rating scale measures have "moderately good inter-method correlations with percentage methods" (p. 633). In addition, these researchers concluded that the scale method had good face validity, and did not force intercorrelations among attributions.

Students' causal dimensions were assessed by the Causal Dimension Scale (CDS) (Russell, 1982). Russell (1982) reported adequate levels of internal consistency for the sub-scales measuring each dimension, with coefficient alphas ranging from .73 to .87. Validity

for the measure was indicated by finding that the sub-scales differentiated between causal attributions that theoretically formed the end-points of the causal dimensions (Russell, 1982). A factor analysis also confirmed the three-factor structure of the scale, with factors clearly corresponding to the three causal dimensions. Recent research has supported the construct validity of the CDS (Mc McAuley, Russell, & Gross, 1983; Russell, 1985).

Procedure

During the first week of classes, the researcher met with the course instructors and determined when the mid-term exam would take place. Permission was obtained from the course instructor to visit the class on the first day following the time when students would have their mid-term results.

On the agreed day, the researcher introduced herself to the students in the class and explained that the purpose of the visit was to invite them to voluntarily participate in a study. Students were informed that the purpose of the study was to assess their perception of the test result they had recently received in that class. The researcher emphasized that participation was completely voluntary, and would in no

way effect their grade in that course. Students were also assured of complete confidentiality concerning the information supplied.

The researcher distributed the material to students who indicated that they would like to participate, and asked that they complete the consent form. Students were then asked to complete the two page questionnaire.

Following collection of the data, subjects were grouped according to the number of years they had attended university (Question 1 on questionnaire). Subjects who indicated that they had attended university for two years or less were classified as lower level students. Students who indicated that they had attended university for more than two years were classified as upper level students. Subjects were then further classified according to performance outcome designated successful or unsuccessful according to their self-rating on question four of the questionnaire. Students who circled five or above were classified as successful, and subjects who circled less than five were classified as unsuccessful students. Four groups were thus formed and labelled:

Group 1: Upper Level Successful (N=77).

Group 2: Lower Level Successful (N=33).

Group 3: Upper Level Unsuccessful (N=22).

Group 4: Lower Level Unsuccessful (N=12).

The hypotheses were tested using the .05 level of significance.

Assumptions and Limitations

It was assumed, for this study that the causal attributions and dimensions of undergraduate students could be assessed by the instruments selected.

Limitations

1. The subjects in this study were students attending summer session classes and may have different university experience from students attending regular sessions in fall and winter, therefore the findings of this study are limited to undergraduate students who attended summer session.
2. Subjects volunteered to participate in the study and were not randomly selected, therefore they do not represent the total population of students attending summer session.
3. The number of subjects in the four subgroups was unequal and might have influenced the results.

CHAPTER IV

Results

Means and standard deviations were calculated for each of the seven dependent variables for the entire sample (144 subjects) as shown in Table 1. A histogram for each dependent variable for the entire sample was plotted. Examination of these histograms indicated that the dependent variable stability was approximately normally distributed , while the dependent variables: ability, effort, task difficulty, locus of causality and controllability had negatively skewed distributions, and luck had a positively skewed distribution.

Table 2 shows the intercorrelations among the dependent variables. Many of these correlation coefficients were significant as indicated by the significance of Bartlett's test of sphericity ($p<.01$), leading to the conclusion that multivariate statistics were appropriate to use.

Differences Among groups based on Causal Attributions and Dimensions.

As indicated previously, the sample was grouped according to experience (upper and lower level), each of which was then subgrouped according to outcome

Table 1.

Means and Standard Deviations of 144 Subjects for Causal Attributions and Dimensions.

Dependant Variables	Mean	Standard Deviation
Causal Attributions		
Ability	6.17	1.93
Effort	6.31	2.06
Task Difficulty	5.88	2.07
Luck	2.78	2.24
Causal Dimensions		
Locus of Causality	19.31	4.68
Stability	13.41	6.15
Controllability	19.83	4.59

Table 2

Correlations among Dependant Variables

(Causal Attributions and Dimensions)

Based on the Total Sample of 144

Variable	1	2	3	4	5	6	7
1.Ab	-	.27**	.17	-.07	.19	.40	-.02
2.Ef		-	.19	-.11	.30**	.28**	.23*
3.TD			-	.14	-.03	.14	-.07
4.Lu				-	-.06	.05	-.13
5.Lo					-	.34**	.35**
6.St						-	.14
7.Co							-

Note: one-tailed Significance: *p<.01 **p<.001

Abbreviations: Ability (Ab)

Effort (Ef)

Task Difficulty (TD)

Luck (Lu)

Locus of Causality (Lo)

Stability (St)

Controllability (Co)

(successful and unsuccessful), for a total of four subgroups. Tables 3 and 4 show the means and standard deviations for each subgroup on causal attributions, and causal dimensions respectively.

Cochran's and Bartlett-Box Tests were used to assess the quality of the data within each subgroup. Cochran's univariate homogeneity of variance test was not significant ($p<.05$) for the dependent variables, indicating that the assumption of univariate homogeneity of variance was not violated. Bartlett-Box M, the multivariate test of homogeneity of dispersion matrices was not significant ($p<.05$) therefore this assumption was not violated either.

A multivariate analysis (MANOVA) was performed and Wilks' Lambda was chosen as the multivariate criterion because of its power and robustness (Norusis, 1985). Wilks' Lambda is transformed into a statistic that has approximately an F distribution. The rejection of the null hypothesis is based on whether this F is significant or not. If it is significant, then the null hypothesis is rejected and the univariate F for each of the dependent variables may be examined to determine where the differences occur. If F is not significant, then the null hypothesis cannot be rejected and no

Table 3

Means and Standard Deviations

for Causal Attribution Group Scores

Group Experience X Outcome	n	Causal Attribution			
		Ability	Effort	Task-Diff	Luck
Upper Level					
Successful	77				
M		6.42	6.65	5.91	2.81
SD		1.69	1.81	2.06	2.32
Lower Level					
Successful	33				
M		7.03	7.18	6.39	2.19
SD		1.33	1.49	1.77	2.11
Upper Level					
Unsuccessful	22				
M		4.73	4.68	5.18	2.96
SD		1.88	2.12	2.56	2.24
Lower Level					
Unsuccessful	12				
M		4.83	4.75	5.50	1.91
SD		2.82	2.56	1.68	2.11

Note. The higher the score, the greater the attribution

Table 4

Means and Standard Deviations

for Causal Dimension Group Scores

Group Experience X Outcome	n	Causal Dimension		
		Locus	Stability	Controllability
Upper Level				
Successful	77			
M		19.91	13.95	20.91
SD		4.28	5.93	3.88
Lower Level				
Successful	33			
M		20.42	15.88	19.49
SD		4.66	5.87	5.08
Upper Level				
Unsuccessful	22			
M		16.32	9.32	18.91
SD		3.99	4.40	4.45
Lower Level				
Unsuccessful	12			
M		17.83	10.67	15.58
SD		6.12	7.08	5.25

Note. Higher scores indicate that the cause is perceived as internal, stable and controllable

examination of the univariate F for the individual variables is indicated (Norusis, 1985).

The 2(University experience) X 2(Performance outcome) Manova resulted in a nonsignificant Wilks' Lambda for the interaction term experience by outcome and causal attributions [$F(4,137)=.70$, $p,<01$], or causal dimensions [$F(3,138)=.78$, $p<.01$], therefore hypotheses five and six were not rejected. No significant main effect between experience and causal attributions [$F(4,137)=.70$, $p<.01$], or Causal Dimensions [$F(3,138)=.78, p<.01$] was found, therefore hypotheses one and two were not rejected.

A significant main effect was found between performance outcome and causal attributions [$F(4,137)=14.71, p<.01$] and causal dimensions [$F(3,138)=8.84, p<.01$], consequently hypothesis three and four were rejected and a univariate F for each of the dependent variables was examined to determine where the differences occurred.

Causal Attributions

Significant differences were found between performance outcome and causal attributions: ability $F(1,140)=28.16$, $p<.001$, and effort $F(1,140)=32.30$, $p<.001$.

The post-hoc Scheffe Multiple Comparison of Group Means Test was employed to determine any significant differences when the means of the four groups were compared on a paired basis. Significant differences were found between upper level successful and unsuccessful students on ability $t(97)=4.03, p<.001$, and effort $t(97)=4.32, p<.001$. Significant differences were also found between lower level successful and unsuccessful students on ability $t(43)=3.55, p<.001$, and effort $t(43)=3.95, p<.001$. No significant differences were found for the variables task difficulty or luck.

Causal Dimensions

Significant differences were found between performance outcome and all three causal dimensions locus of causality $F(1,140)=10.82, p<.01$, stability $F(1,140)=16.13, p<.001$, and controllability $F(1,140)=10.62, p<.001$.

The post- hoc Schaffe Multiple Comparison of Group Means was employed to determine any differences when the means of the four groups were compared on a paired basis. Significant differences were found between upper level successful and unsuccessful students on all three causal dimensions: locus of causality

t(97)=3.52,p<.001, stability t(97)=3.40,p<.001, and controllability t(97)=2.06,p<.05. Significant differences were also found between lower level successful and unsuccessful students on two of the three causal dimensions stability t(43)=2.49, p<.05, and controllability t(43)=2.26, p<.05. These results are shown in Table 5.

Table 5

Differences among Upper and Lower Level Students to Performance Outcome on Causal Attributions and Dimensions as Resulted from a 2 x 2 Manova

Exp x Outcome (NS)	Experience (NS)	Outcome (S)
		Ability
		Effort
		Locus of Causality
		Stability
		Controllability

S = Significant NS = Non Significant.

S & NS based on Wilks significance level, Alpha = .01.

Variables listed have significant univariate F ($p<.01$)

CHAPTER V

Discussion

The nonsignificance for the interaction term experience by outcome indicated that there were no significant differences in causal attributions or dimensions among upper and lower level undergraduate students to performance outcomes. To the authors knowledge, there was no previous literature with which to compare this finding, and therefore was exploratory in nature.

For the main effect of experience, no significant differences were found between upper and lower level undergraduate students and causal attributions or dimensions to performance outcomes. However, an interesting trend was observed when the means were plotted for each subgroup on causal attributions as shown in Figure 1, and causal dimensions as shown in Figure 2, and some modest differences were noted.

Causal Attributions.

Lower level successful students indicated on the nine-point scale that causal attributes of ability (M=7.03), effort (M=7.18), and task difficulty (M=6.39), contributed to their outcome to a greater extent than did upper level successful students

Figure 1: **Causal attributions**

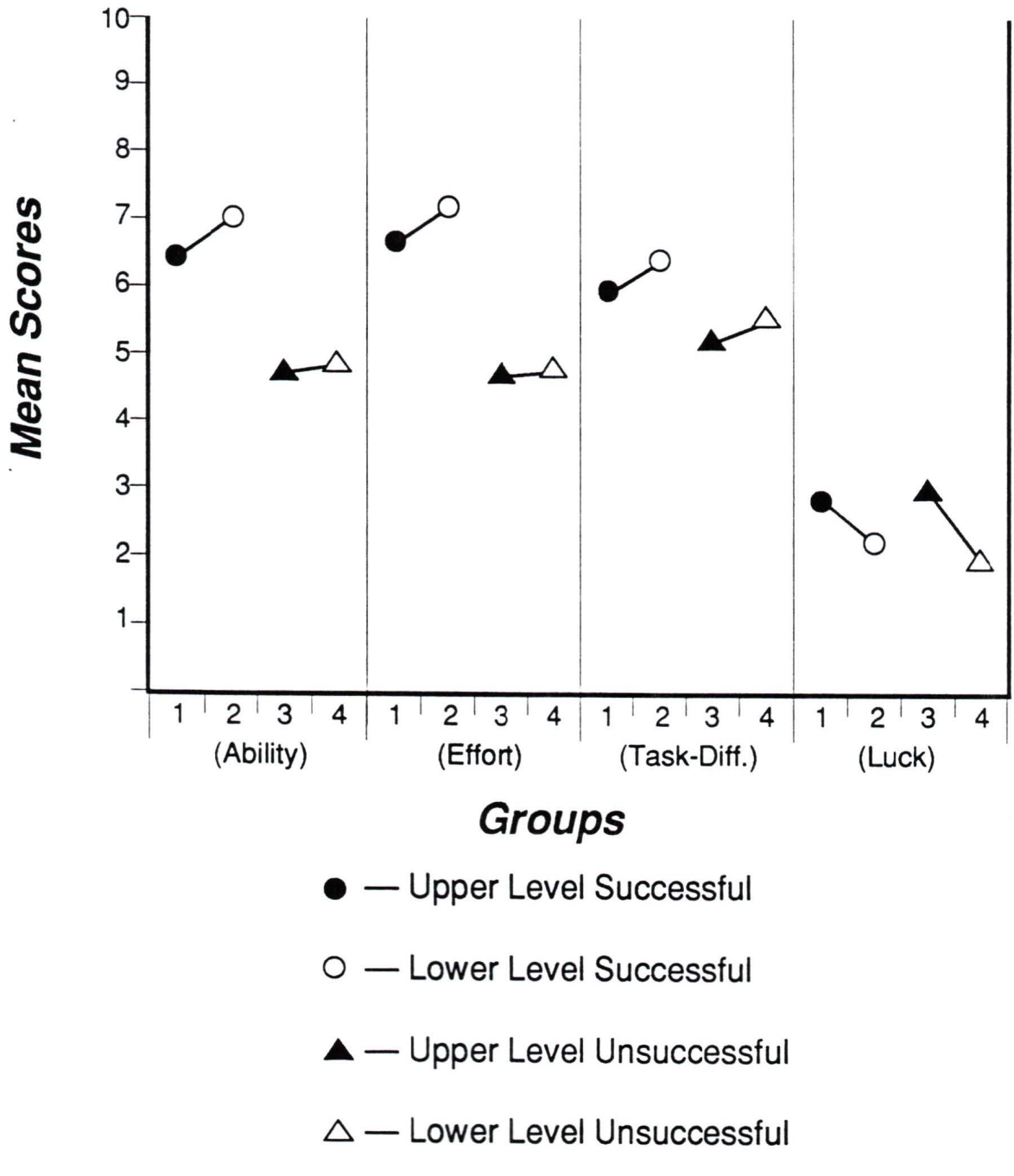
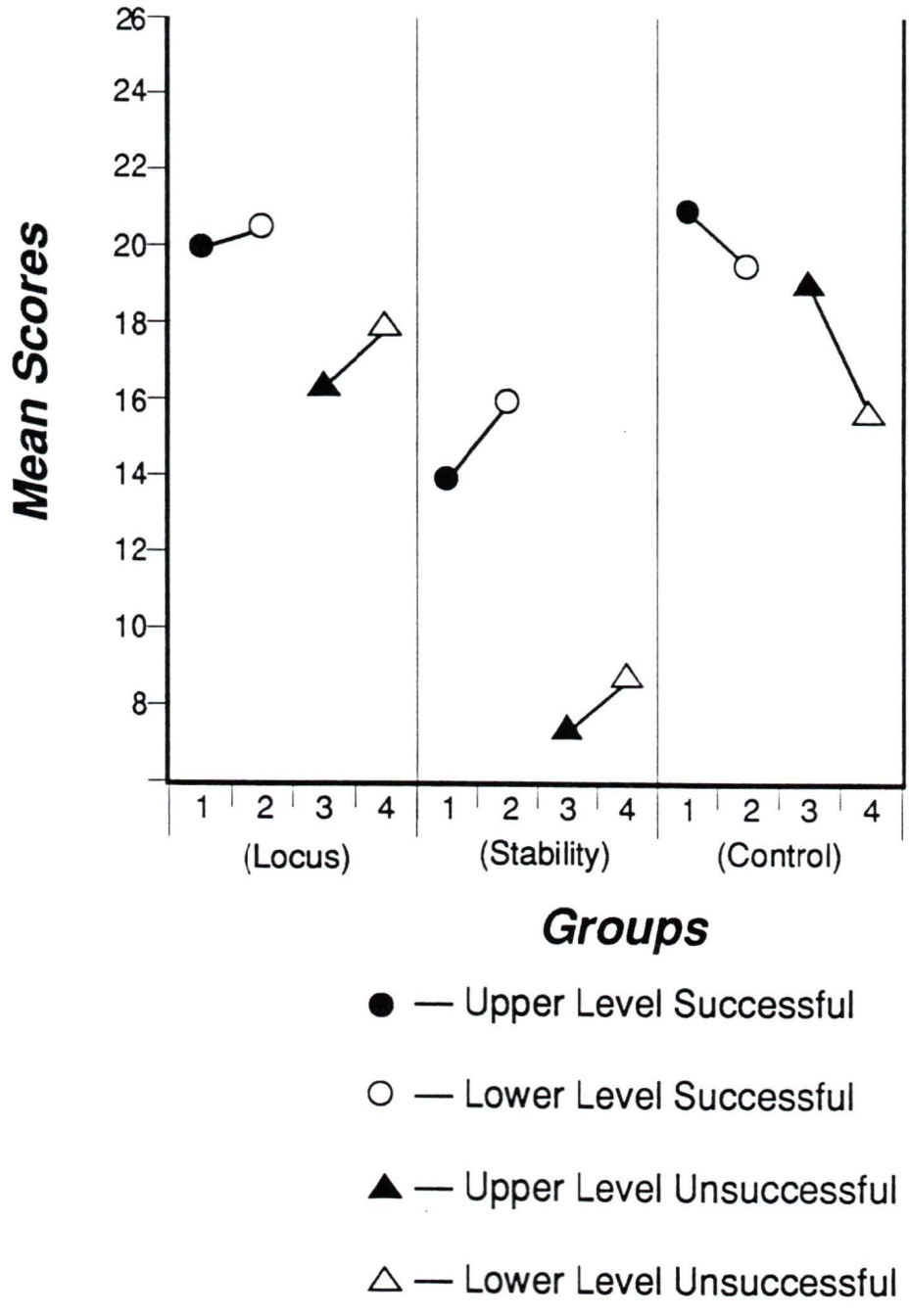


Figure 2: **Causal dimensions**



who indicated on the nine-point scale: ability (M=6.42), effort (M=6.65), and task difficulty (M=5.91) as shown in Table 3.

A similar trend was observed between lower and upper level unsuccessful students for the attributes ability, effort, and task difficulty although the differences were somewhat smaller. An interesting exception was, that on the attribute luck, lower level successful and unsuccessful students indicated that luck contributed less to their outcome than did upper level successful and unsuccessful students. This finding is important in that it would seem to indicate that lower level successful and unsuccessful students do not attribute their outcome to external unstable factors as much as upper level students do, and this may influence their expectation of success and achievement-related behavior (Peterson & Barrett, 1987; McMahan, 1980; Weiner, 1985). There seemed to be an apparent trend for lower level students to score higher on the nine-point scale on attributions of ability, effort, and task difficulty in successful and unsuccessful outcomes, and lower on the attribution of luck in unsuccessful and successful outcomes, than upper level students. This finding may be viewed as a

modest difference between upper and lower level students in terms of the extent to which they attribute a certain cause to performance outcome.

In addition this difference may account for the positively skewed distribution of the dependent variables ability, effort, and task difficult, as well as the negatively skewed distribution of the variable luck.

Weiner (1972) suggested that past history, patterns of performance, and time spent on task are some of the antecedent factors which may influence the selection of causal attributions. This was validated by subsequent researchers (Frieze, 1976; Meyer, 1980). The effect of these antecedent factors may also influence the extent to which students perceive the cause to influence their outcome as well as in selection of the cause.

Causal Dimensions

A similar trend was observed between upper and lower level students and causal dimensions. Lower level successful students indicated on the nine-point scale that the causes they selected were more internal, (M=20.42), and more stable,(M=15.88) than upper level students who indicated locus of causality (M=19.91),

and stability (M=13.95). An exception in this case was on the causal dimension of controllability. Lower level successful students indicated less control with respect to the causes they had selected, controllability (M=14.49) than upper level students (M=20.91). Again a similar pattern was observed between lower and upper level unsuccessful students with respect to causal dimensions as shown in Table 4.

The fact that no statistically significant differences were found between experience and causal attribution or dimensions to performance outcome in this study must be noted. However, the tendency for lower level students to indicate on a nine-point scale a greater or lesser amount of causal attributions and dimensions than upper level students, in a somewhat consistent pattern is an interesting finding of this study.

For the main effect of outcome, a significant difference was found between successful and unsuccessful students and causal attributions and dimensions. A univariate F-test for each of the causal attributions and dimensions was examined to determine where the differences occurred.

Differences in Causal Attributions

Significant differences were found between performance outcome and two of the four causal attributions, ability and effort. Since experience was found to have a nonsignificant effect, it was assumed that the differences would be within the upper and lower level groups. The post-hoc Schaffe Multiple Comparison of Group Means confirmed this assumption.

Significant differences were found between successful and unsuccessful upper level students on the causal attributions of ability and effort. As was expected, successful students attributed their outcome to ability and effort significantly more than did unsuccessful students, and this is consistent with the literature. In general, people tend to attribute success more to internal factors such as ability and effort, and unsuccessful outcomes to external factors such as task difficulty and luck (Bar-Tal & Frieze, 1976; Frieze, 1973; Frieze & Weiner, 1971). Significant differences were also found between successful and unsuccessful lower level students on causal attributions to ability and effort, and were consistent with the above. Unsuccessful students indicated that task difficulty was the cause that contributed most to their outcome.

Differences in Causal Dimensions

Significant differences were found between performance outcome and all three causal dimensions: locus of causality, stability, and controllability. The post-hoc Schaffe Multiple Comparison of Group Means was used to compare the four group means on a paired basis. Significant differences were found between successful and unsuccessful upper level students on all three dimensions. However, significant differences were found on only two causal dimensions, stability, and controllability in lower level successful and unsuccessful students.

Successful upper level students indicated that the causes of their outcome were significantly more internal, stable, and controllable than unsuccessful students. Since upper level successful students attributed their outcome mainly to ability and effort, it was expected that these students would generally indicate that these causes were internal, stable and controllable. This finding is supported in the literature. For example, Heider, (1985) indicated that the causal factors ability and effort are seen as internal factors. Ability is seen as a stable attribution (Weiner, 1972) and since these upper level

successful students indicated ability was a major factor in their performance outcome, this general finding is supported. Effort was given the highest rating as the cause of these students successful outcome, and therefore is seen as more controllable (Weiner, 1979, 1985).

In comparison, unsuccessful upper level students rated task difficulty as contributing most to their unsuccessful outcome. This cause is seen as external, (Heider, 1958; Weiner, 1972), and therefore would account for the significant difference in locus of causality. While task difficulty is also generally considered to be a stable factor (Weiner, 1972), other researchers have classified it as unstable. For example, Valle and Frieze (1976) showed task difficulty to be unstable when this concept was used to assign sales territory, and could be shifted for any salesperson. Later Weiner (1979), and Russell (1982) noted that while the meaning of a causal attribution maybe clear, the causal dimension may vary greatly from person to person. This reasoning can be applied to the fact that unsuccessful upper level students rated their causes less controllable.

Significant differences were found between successful and unsuccessful lower level students but only on two of the three causal dimensions. No significant difference was found in locus of causality, despite the fact that there were significant differences in causal attributions, similar to upper level students. The significant differences found in causal dimensions stability and controllability are consistent with the findings above for upper level successful and unsuccessful students.

Causal Schemata and Achievement Outcomes

Subjects were asked in question five of the questionnaire to indicate on a nine-point scale, the extent their score on the test was caused by one or more of the four causal attributions. Of the total number of subjects (144), 131 students or 91% indicated that the cause was due to some extent to all four causes.

In general, both upper and lower level successful outcome students, indicated effort as being the cause that contributed most to their outcome, M=6.65 and M=7.18 respectively, followed very closely by ability M=6.42 and M=7.03 respectively. For both upper and lower level unsuccessful students, task difficulty was

indicated as being the cause that contributed the most to their outcome. These findings for both successful and unsuccessful performance outcomes are consistent with the literature (Kun & Weiner, 1973; McMahan, 1972).

In the literature dealing with maladaptive attributions and re-training programs, a major problem was the fact that some researchers assumed that unsuccessful students tended to attribute their outcome to lack of ability (Dweck, 1975), or to some stable cause (Wilson & Linville, 1982,1985). There was no indication however, of how prevalent this tendency was among subjects in any study. The question was raised in this study regarding the causal attributions of unsuccessful students, and how prevalent maladaptive attributions might be among unsuccessful students.

In this study there were 34 unsuccessful students, or 24% of the total number of subjects in the study (N=144). Of the 34 unsuccessful students, 7 or 21% were found to have attributed their outcome primarily to ability. Further examination of the data indicated that of the seven, three were from the lower level unsuccessful group (n=12), or 25% of that group. Consequently, four of the seven were from the upper

level unsuccessful group (n=22), or 32% of that group. These findings would seem to support the assumptions of previous researchers (Dweck, 1975; Wilson & Linville, 1982,1985) that unsuccessful students tend to attribute their outcomes to internal, stable factors. It is clear however, that the majority of unsuccessful students in this study indicated that task difficulty was the primary cause for their outcome and perceived it to be unstable.

Summary

The statistical results of this investigation indicated that there were no significant differences in causal attributions and dimensions between upper and lower level undergraduate students to performance outcomes. However, a modest difference was noted between upper and lower level students with regard to the extent to which a cause was attributed to performance outcomes. Lower level successful students tended to consistently indicate higher levels on the nine-point scale for attributions of ability, effort, and task difficulty, than did upper level successful students. A similar trend was observed between unsuccessful upper and lower level students, though the differences were smaller. An interesting exception was that upper level successful and unsuccessful students indicated that luck contributed to their outcome to a greater extent than did lower level successful and unsuccessful students. This finding seemed to suggest that there was a slight tendency for lower level unsuccessful students to attribute their outcome to internal causes.

A similar pattern was observed with respect to causal dimensions. Lower level successful students

indicated higher levels of internal locus of causality and stability in relation to the causes of their outcome, than did upper level successful students. In addition a similar pattern was evident for unsuccessful upper and lower level students. An exception in this case was found with respect to the dimension controllability. Lower level students in both successful and unsuccessful situations had a slight tendency to perceive the causes of their outcome to be less controllable than upper level students.

Significant differences were found between performance outcome and the causal attributions ability and effort. Since experience was found to have no significant effect, the differences were found to be within the upper level and lower level groups. Attributional researchers have found that, in general people tend to attribute successful outcomes to internal factors such as ability and effort, and unsuccessful outcomes to external factors such as luck and task difficulty (Bar-Tal & Frieze, 1976; Frieze & Weiner, 1971; Heider, 1958; Weiner, 1976, 1985). The significant differences between successful and unsuccessful students in causal attributions found in

this study were viewed as being consistent with these researchers.

Significant differences were also found between upper level successful and unsuccessful students with respect to causal dimensions. Consistent with the finding that upper level successful students attributed their outcome mainly to ability and effort, they also indicated that the causes were more internal, stable and controllable than unsuccessful students. Again this finding was seen to be in agreement with the research literature (Weiner, 1979,1985).

Significant differences were also found between successful and unsuccessful lower students. A notable difference was that no significant difference was found between successful and unsuccessful lower level student on locus of causality.

Researchers have shown that when students can be encouraged to change their attributions for unsuccessful outcomes from ability to effort, or from a stable to an unstable cause, there is an increase in a achievement behavior such as persistence (Andrews & Debus, 1978; Dweck, 1985; Wilson & Linville, 1982,1985). Examination of the data for unsuccessful students in this study indicated that 21% attributed

their outcome primarily to ability. This information was sought because there is a paucity of literature assessing the prevalence of maladaptive attributions among students.

Conclusions

The results of this study did not support the hypotheses that there would be significant differences in causal attributions and dimensions between upper and lower level undergraduate students to performance outcomes. However, some modest differences were apparent in terms of the extent to which students perceived the causal attributions to influence their performance outcomes. In addition some modest trends were observed in differences of causal dimensions.

Consistent with the attribution literature, significant differences were found between causal attributions and dimensions and performance outcome. These differences were significant for attributions to ability and effort , and no significant differences were found between task difficulty and luck. The significant differences between outcome and causal dimensions applied to all three variables. Previous researchers have found that causal attributions and dimensions for successful outcomes tend to be clearer

than those of unsuccessful outcomes. This tendency was also evident in the results of this study, and supports the assumption that causal inferences are complex sources of information about outcomes (Weiner, 1972).

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APPENDIX A

Beth Dryden,
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Hi,

I am a graduate student in Education at the University of Victoria.

My area of interest is achievement motivation, and I am interested in your perception of the result you have just obtained on your test or paper. Would you please help me by completing the following questionnaire.

Completion of the questionnaire is completely voluntary, and will in no way effect your grade in this course. The information you supply in the questionnaire is for research purposes only and please be assured that complete confidentiality will be maintained.

Yours Sincerely,

Beth Dryden.

****

I_____,hereby agree to participate in the study by completing the questionnaire attached. I understand that participation is voluntary and that the information supplied by me will be held in strictest confidence.

Signed:_____

Date:_____

APPENDIX B

STUDENT #:_____ AGE:____

MALE:____ FEMALE:____

1.How many years have you attended university?

1 2 3 4 5 6 7

2.Has your Grade Point Average (GPA)
Increased____ Remained the same____ Decreased____
since your first semester of your first year at university?

3.Please indicate the letter grade you received on the test/paper?

A+ A A- B+ B B- C+ C C- D F

4.How well do you think <u>you</u> did on the test/paper? (Please circle one number on scale below).

Very Poorly — Very Well

1 2 3 4 5 6 7 8 9

5.To what extent do you think that your score on the test/paper was caused by <u>one or more</u> of the following?

ABILITY: LOW MED HIGH

1 2 3 4 5 6 7 8 9

EFFORT: LOW MED HIGH

1 2 3 4 5 6 7 8 9

TASK DIFFICULTY: LOW MED HIGH

1 2 3 4 5 6 7 8 9

LUCK: LOW MED HIGH

1 2 3 4 5 6 7 8 9

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