

An Examination of Weiner's
Attribution Theory of Emotion
and Achievement Motivation
in a Classroom Context.

by

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B.A. (Hons), Simon Fraser University, 1987

THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF ARTS
in the Faculty
of
Education

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SIMON FRASER UNIVERSITY

November 1994

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**An Examination of Weiner's Attribution Theory of Emotion
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Abstract

Two studies investigated Weiner's theory of attribution and emotion in a classroom context with a school-aged population. Relationships between self-efficacy, attributions, and affect were examined. In the first study, 84 grade three students judged self-efficacy for solving mathematical subtraction problems, completed a 25-item mathematical subtraction skill test, rated their level of response to four attributions, and indicated their degree of emotional reactions across four affective dimensions. In the second study, 66 grade eight remedial math students completed the same materials, and rated their degree of emotional reactions across eighteen affective dimensions.

Results offered support for some of Weiner's theoretical propositions. Attributions to ability and effort were positively associated with performance outcome, and to positive and self-esteem enhancing affective reactions. Attributions to stable causes were found to be associated with emotions related to positive expectancies. Attributions to low ability and low effort displayed negative associations to negative affect, decreased expectancy of success, and displayed a positive relationship to test scores.

A number of predictions remained unsupported and several findings in opposition to current attributional theory emerged. There was no evidence supporting a low ability or

low effort linkage to the emotions of shame or guilt. In general, the concept of attribution-independent emotions was unsupported.

Finally, relationships between self-efficacy, affect, and attributions were investigated. Implications of these findings are discussed, and developmental differences noted. Recommendations for future research are presented.

ACKNOWLEDGMENTS

I wish to acknowledge my Senior Supervisor, Dr. Jack Martin, for his mentorship, knowledge, support, and kindness throughout the years. His dedication to the students and the discipline of instructional psychology provided an exemplary example of scholarship and humanism on which I hope to base my academic and professional life.

I also wish to thank the second member of my committee, Dr. Tom O'Shea, for his conceptual feedback. He has demonstrated an academic and philosophical rigour for which I have the deepest respect.

I extend my gratitude to Dr. John Walsh for his time and effort in the initial preparation of this thesis. I would also like to acknowledge the school districts of Vancouver and Burnaby for their support in conducting this research. A special thanks to the teachers and students involved in this study.

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CHAPTER I
INTRODUCTION TO THE STUDY

Overview

The purpose of this research is to examine Weiner's theory of attribution and emotion in a classroom context. Relationships between self-efficacy, attributions, and affect will also be investigated. These studies are a partial replication and expansion of Schunk's (1982, 1983, 1984, 1986,) research on self-efficacy and attributions of school aged children. These studies differ from Schunk's work, however, in that the primary focus of this research is on the relationships between attributions, self-efficacy, and the affective states elicited by these judgments. Weiner (1986) states that his attributional theory of achievement motivation and emotion needs further elaboration, refinement, and empirical testing. To date, approximately a dozen studies have been published in this area (c.f. Brown & Weiner, 1984; Covington & Omelich, 1985; Nichols, 1976; Sohn, 1977; Weiner, Russell, & Lerman, 1979). However, the relationship between self-efficacy and affective states has not been investigated directly. Therefore, it is the purpose of this research to examine the foregoing theoretical relationships within a school setting. This thesis considers attribution theory as posited by Weiner (1979, 1986), self-efficacy theory as postulated by Bandura (1986) and Schunk (1983, 1984), and

reviews empirical research within these domains. Finally, the results of two separate studies with students of different ages are presented.

Background to the Study

A central task of educational research is to understand the processes that determine how individuals respond to and evaluate their experiences in schools and classrooms. Since the late 1950s a strong cognitively-oriented approach has been taken to research on this topic. For example, in Festinger's (1954) social comparison model, he proposes that when objective standards of comparison are lacking, individuals evaluate their experiences by comparing their skills, beliefs, and attitudes to those of other people. In the same general tradition, relative deprivation theorists (c.f. Crosby 1976; 1982) posit that an individual's satisfaction with outcomes is a joint function of the objective qualities of these outcomes, and a comparison to the outcomes achieved by relevant others. Similarly, equity theorists (cf. Adams, 1965) argue that we judge the fairness of our own outcomes by comparing them to the outcomes of others who expended the same resources as we in obtaining those outcomes.

One other longstanding and influential cognitive approach to the area of evaluative processing is attribution theory. Briefly, attribution theory is concerned with individuals' perceptions of the causes of outcomes, and the consequences

elicited by these perceptions (c.f. Heider, 1958; Kelly, 1967; Weiner, 1979). Although discrepancies may exist between various attributional theorists, there is agreement on two principle assumptions. First, people are motivated to understand the causes of events in their lives, and second, causal perceptions affect behavior and emotion (Brown & Weiner, 1984; Weiner, 1986).

During the past decade, Weiner's early (1979), or later (1986) taxonomic model of perceived causality has been an anchor for attribution research in education. Most researchers investigating achievement attributions have utilized Weiner's system. In this system, effort, ability, task difficulty, and luck are organized along three causal dimensions: a) locus, b) stability, and c) controllability. These dimensions vary on bipolar continua ranging in degree from internal-external, stable-unstable, and controllable-uncontrollable (Weiner, 1986). Of the four causal ascriptions, ability and effort are viewed as internal causes because they are perceived as aspects of the person rather than of the situation. Conversely, luck and task difficulty are external. In the dimension of stability, ability is viewed as stable, whereas effort and luck are unstable. Finally, causes such as effort are considered to be controllable, whereas ability, luck, and task difficulty are uncontrollable (Little, 1985; Weiner, 1979, 1986; Zaleski, 1988).

Affective Reactions to Attributions

In Weiner's (1985, 1986) complete attribution theory, he argues that (a) emotions have positive or negative qualities of a given intensity, (b) they are frequently preceded by an appraisal of an outcome, and (c) these emotions often elicit a variety of actions. He also recognizes that there are two basic sources of affective reactions to objective outcomes. The first type is referred to as outcome dependent-attribution independent, whereby emotions are generated immediately upon a given outcome but precede the formation of any attribution. Conversely, the second type of affective reactions, attribution-dependent, are elicited directly from causal thoughts. In sum, Weiner reasons that emotional states are derived from two sources: (a) primacy type reactions to objective outcomes, whereby the event is characterized as being either a success or failure, good or bad; and (b) causal perceptions. Attribution-dependent affects are a direct consequence of causal thinking processes, whereas outcome dependent-attribution independent states are a result of more immediate reactions to a given occurrence. With these latter type of emotional reactions, less cognitive processing is involved in the absence of causal thought (Weiner, 1986).

Weiner (1986) describes four main causal ascriptions and their subsequent linkages to affective reactions. The specific affect(s) experienced depends on both the objective outcome,

success or failure, and on the attribution itself.

Attribution-dependent emotions include guilt, shame, pride, humiliation, anger, regret, happiness, thankfulness, gratitude, surprise, and so forth. Positive affects are considered generally to be more likely to increase motivation, whereas negative emotions are more likely to decrease motivation (Weiner, 1986).

Performance Expectancy

According to Weiner (1986) attributions alone do not influence future behaviors. Rather, attributions elicit affective responses and expectancies of future performance, which, in turn, determine future behavioral patterns such as task persistence or effort. Attributionally derived expectancies function as subjective estimates of future performance. These expectancies contribute to beliefs concerning future success or failure which may influence subsequent behaviors (c.f. Dweck, 1984; Schunk 1981, 1983, 1985, 1986; Weiner, 1986). Perhaps an educational example may clarify these principles in a classroom context. Consider the following illustration:

Robert receives a failing grade on a science test. He attributes his failure to lack of ability. Although Robert studied quite hard, he failed, and as a consequence believes that regardless of the amount of effort expended, he is not capable of mastering these materials. Robert's belief concerning his future performance in this domain is one of imminent failure.

According to Weiner's (1986) model, Robert is

attributing his academic failure to lack of ability, an internal, stable, and uncontrollable cause. Because it is a stable perception, Robert is likely to believe that his ability for science will not change. Considering the high degree of effort expended while studying, his failing grade only reinforces his belief that he has little ability at science. According to Weiner (1986), this attributional pattern would lead to the experience of negative emotions such as shame, humiliation, and frustration. These emotions are a result of a failure outcome attributed to lack of ability. Cognitive behavioral consequences would be decreased expectations for future performance, and reduced task persistence and effort.

Self-efficacy and attributions. Perhaps one of the most studied variables related to performance expectancy is self-efficacy. Historically, the theory of self-efficacy was conceived and developed by Albert Bandura during the 1970s and 1980s (Bandura, 1977, 1982, 1986). Briefly, this theory is concerned with "peoples' judgments of their capabilities to organize and execute the courses of action required to attain designated types of performances" (1986, p. 391). According to Bandura (1986), self-efficacy has been shown to be a powerful predictor of various types of behavior. Of particular importance to educational research is Bandura's argument that the type, level, persistence, and effort of behavior will

depend on an individual's level of self-efficacy. Presumably, individuals who possess low levels of self-efficacy for a given task will either avoid the task or apply minimal effort toward its completion. Conversely, individuals with a high sense of self-efficacy are more likely to work harder and persist longer than those who doubt their abilities (Schunk, 1984).

It can be argued that the relationship between self-efficacy and attributions is reciprocal. That is, causal thinking may influence one's level of self-efficacy, and self-efficacy may influence one's attributions. In essence, self-efficacy reflects one's level of confidence concerning the ability to accomplish a given task. The completion, incompleteness, success, or failure of specific task performances can be related to attributions that either directly or indirectly reflect task specific confidence. For example, research indicates that attributing successful performance to one's ability increase self-efficacy, whereas attributing failing performance to one's ability decrease self-efficacy (Schunk, 1985, 1986, 1989). In general, attributing one's successful performance to effort expended has been found to be less robust for increasing self-efficacy than attributing success to ability (Schunk, 1981, 1983, 1985, 1986). However, when failure is experienced, attributions to effort increase expectancy for success, whereas attributions to ability decrease performance expectancies and subsequent

motivational and behavioral outcomes (Schunk, 1985; Weiner, 1986). Finally, attributions to external and uncontrollable causes, such as luck, have not been found to be efficacious (Schunk, 1984).

Research indicates that outcomes that are congruent with one's expectancies will likely be attributed to previously derived attributional evaluations (Schunk, 1985; Weiner, 1986). In the case of non-congruence, or expectancy violation, other attributions may become more salient and an expectancy shift may occur. In order to clarify these principles, consider the following illustration:

Terry has relatively high self-efficacy for solving subtraction problems in mathematics. On a recent subtraction test he scored 23 out of 25. In the past, Terry attributed his academic mathematics performance to high ability. The scores he has received in the past have been in the A range thereby providing Terry with consistent self-efficacy information.

In the above example, the score Terry obtained on his most recent test was congruent with his degree of self-efficacy for solving mathematics problems at this level. These results reaffirmed his previous attributional patterns of contributing his success to high ability. Thus, no expectancy or attributional shifts emerged as a consequence of the congruence between his expected performance and the obtained outcome.

Now consider the following vignette:

Deidra enrolled in her first university mathematics course. She was highly efficacious because she had always received A's in mathematics during high school. Deidra believes that the university course she will be taking is very similar to other courses she has taken and believes that she will perform very well. After attending several lectures and labs, Deidra's self-efficacy remained high. However, her score on her mid-term examination was a C, the lowest grade she had ever received.

In this example, Deidra attributed her test score to lack of ability and test difficulty. Although the test was harder than what she anticipated, she now believes that she doesn't have the capacity to score above a C in her university mathematics course. Thus, Deidra's degree of self-efficacy has decreased. A lack of congruence between her positive expectations and the objective outcome from her mid-term examination altered her previous attributional patterns and diminished her sense of self-efficacy. An expectancy shift in a negative direction has occurred as a consequence of non-congruence between self-efficacy and the actual performance outcome, and her causal ascription to low ability.

Research Purposes

If causal ascriptions influence emotions, expectancies of future performance, and achievement related behaviors, then the challenge to researchers is fivefold: (a) to better understand the processes that determine students' judgments and reactions to both success and failure experiences; (b) to increase achievement enhancing, and decrease achievement impeding responses to academic outcomes; (c) to facilitate

effective teacher-student feedback; (d) to further the awareness of students' needs and concerns with the aim of assisting students in reaching their full academic potentials; and (e) to further the development of attributional retraining programs that are designed as interventions to alter maladaptive attributional patterns.

This thesis attempts to answer two related questions:

- (1) Is there empirical support for Weiner's (1986) attributional theory of achievement motivation and emotion?
- (2) What is the relationship between attributions, self-efficacy, expectancies, and the affective states elicited from these judgments?

In order to provide greater theoretical clarity, hypotheses directly related to the predicted relationships between the variables of concern will be stated at the end of the literature review in the following chapter. That chapter begins with a review of the literature on attribution theory in academic contexts. Chapter 3 then describes the methodology employed in two separate investigations, the procedures, composition of the samples, the variables being examined, and the statistical design. Chapter 4 presents the results of these investigations as they relate to the questions and hypotheses posed. Finally, Chapter 5 discusses the main conclusions from these investigations and relates these outcomes to broader theoretical issues in attribution theory and education.

CHAPTER TWO
REVIEW OF RELEVANT LITERATURE

Causal Attributions

The tendency for human beings to make causal ascriptions has become a well documented phenomenon in psychology. For example, attributions have been examined in such diverse areas as depression (Brewin, 1985; Mikulincer, 1988), Patrick, 1986; child abuse (Storm, 1985), and unemployment (Bowman, 1984). Most attributional research, however, has been conducted in the area of achievement motivation (c.f. Schunk, 1981, 1983, 1985; Little, 1985; Zaleski, 1988). In an academic settings, the attributions students make attempt to answer such questions as, "Why did I perform so poorly on this test?" or "Why did John score so much higher than I?" Moreover, causal attributions provide the answers to such questions. These answers can be examined within the context of Weiner's attributional framework. In particular, subsequent motivational, affective, and behavioral outcomes associated with specific attributional patterns can be understood better.

Although Weiner (1985) describes the desire to engage in a search for potential explanations as a naturally occurring phenomenon, documentation of spontaneous attributional activity is sparse. Empirical research suggests that attributions are more likely to occur when outcomes are either important, negative, or unexpected (see Weiner, 1985 for a

review). In achievement contexts, when one or more of the above criteria are met, students tend to make attributions to one of four specific causes: (a) ability, (b) effort, (c) task difficulty, or (d) luck (Weiner, 1986).

It has been argued that Weiner's four attributions are limiting in that they fail to take into account complexities and variations in the causal reasoning of students in regular classroom settings (cf. Frieze & Snyder, 1980). A review of relevant literature indicated, however, that these four causal ascriptions actually were reported most frequently by students as causes for their academic performances (Weiner, 1986). In the eight studies reviewed, ability and effort were by far the most common explanations for success or failure. The majority of additional causes were situation specific and often classified in reports as miscellaneous. Weiner (1986) acknowledges that the potential cause of achievement related outcomes is infinite (e.g., personality, charismatic style, cheating, and so forth). Nevertheless, for most purposes, the four causal ascriptions utilized in Weiner's system seem to represent a wide and common range of human causal thinking in academic environments.

Causal Dimensions

Locus of causality. Central to Weiner's (1986) attributional model of achievement motivation are three core causal dimensions: (a) locus, (b) stability, and (c)

controllability. The first dimension, locus of causality was originally identified by Fritz Heider in 1958. Heider hypothesized that the result of an action was dependent upon two conditions: (a) factors within the person, and (b) factors within the environment. Based on Heider's earlier conceptualizations, Rotter (1966) introduced the notion of an internal-external locus of control. In Weiner's (1986) model, locus of causality draws extensively from Rotter's paradigm. That is, individuals who adhere to an external locus of causality interpret their behavior as being caused by external events, whereas individuals with an internal locus of causality perceive their performance outcomes as reflective of attributes that lie within themselves. For example, when experiencing failure, individuals with an external locus of causality attribute poor results to sources outside themselves, such as bad luck, teacher bias, or an unfair examination. Conversely, individuals with an internal locus of causality may attribute a failure outcome to internal attributes such as lack of ability or effort.

Causal stability. The second dimension, stability, reflects the degree of constancy inherent in a given cause. As Heider (1958) previously noted, internal causes, such as aptitude, are perceived as constant or unchanging, whereas effort and mood are variable, changing across situations and contexts. External causes, such as a university grading system, are considered constant, whereas luck is variable or

unstable. The stability dimension distinguishes causes on the basis of time and constancy, thereby influencing students' future performance expectations. Presumably, stable factors such as ability are more predictive of future performance than unstable attributions such as effort (Weiner, 1986).

Causal controllability. Controllability, the third causal dimension, was introduced by Weiner in 1979 to add greater distinction to causes identified as internal or external and stable or unstable. The basic notion here is that causal ascriptions can be identified as being comprised of the same dimension of internal/external and stable/unstable yet differ greatly. For example, effort, mood, and fatigue are internal and unstable causes. However, effort is under one's direct volitional control, whereas mood and fatigue are not. In achievement contexts, effort provides one example of an internal, unstable, controllable cause. Conversely, ability is internal, stable, and uncontrollable (Weiner, 1986). Similar to stability, controllability is strongly related to perceptions of self-efficacy and future performance. Failure attributed to a controllable cause such as effort is more likely to enhance confidence than failure attributed to an uncontrollable attribution such as ability (Schunk, 1988).

To summarize the main components of Weiner's (1986) attributional theory of achievement motivation, the following table is provided. Referring to Table 1, Weiner's four main

attributions and their respective causal dimensions are as follows: (a) ability (internal, stable, uncontrollable), (b) effort (internal, unstable, controllable), (c) task ease (external, stable, uncontrollable), and (d) luck (external, unstable, uncontrollable).

Table 1

Classification of Attributions and Causal Dimensions

	Ability	Effort	Task Ease	Luck
Internal				
	XXX	XXX		
External			XXX	XXX
	XXX		XXX	
Stable				
		XXX		XXX
Unstable				
		XXX		
Controllable				
	XXX		XXX	XXX
Uncontrollable				
	XXX		XXX	XXX

Attribution-Linked Affects

As mentioned earlier, Weiner (1986) postulates that an emotional process becomes initiated as an immediate reaction to a performance event that is characterized as being either a success or failure, good or bad. If the outcome is negative, important, or unexpected, attributional thought is elicited to help determine the cause(s) for the outcome experienced. These

attributions, in turn, elicit differentiated affective responses that are part of the larger affective reaction to the event. Thus, emotions are generated following an event such as academic success or failure. These occurrences are evaluated and then elicit general outcome-related affects, positive or negative emotions. If an attribution is sought, further differentiated affects derived from the postulated cause and its general properties are experienced (Weiner, 1986).

Affect and locus of causality. Weiner (1980, 1982, 1985, 1986) makes very specific predictions regarding the relationship between causal dimensions in attributions and emotions. One hypothesis is that perceived locus of causality influences self-esteem or self-worth. Successful outcomes attributed to external causes such as luck or task ease are said to result in less self-esteem or pride than success ascribed to internal factors such as ability or effort (Weiner, 1986, 1991). Similarly, failure attributed to the self results in lower self-esteem than failure attributed to external sources. Thus, attributing failure to lack of ability lowers self-esteem more than failure attributed to bad luck.

In a test of these hypotheses, Weiner, Russell, and Lerman (1978, 1979) provided undergraduate psychology students with scenarios of causal attributions for success or failure outcomes. Subjects rated the intensity of emotions that they

thought they would experience under these situations. In addition, subjects were asked to (a) recall a critical incident in their lives when they succeeded or failed at an exam because of a specified cause, and (b) to indicate the three most dominant emotions experienced at that time. Responses were combined and categorized as indicative of either internal or external locus of causality. The results indicated that for success, internal ascriptions such as ability and effort elicited emotions related to self-esteem, such as pride, confidence, competence, and satisfaction. As predicted, results for failure outcomes and internal ascriptions were linked with feelings of incompetence and other non-enhancing, self denigrating emotions.

In a similar study, Graham, Doubleday, and Guarino (1984) examined the relationship between perceived locus, controllability, and emotions in three age groups, 6, 9, and 11 year olds. One part of this study required subjects to recall an instance in their lives when they felt proud. Causes were categorized as internal, external, or intermediate. Results indicated that pride was strongly associated with an internal locus of causality. However, this trend was less evident with individuals aged 6 and 9, compared with those aged 11.

Affect and causal stability. Weiner (1986) reasons that "any emotion involving anticipations of goal attainment or nonattainment will likely be influenced by perceptions of

causal stability" (p.154). Moreover, his position is based on the relationship between stable ascriptions and expectancies of future performance. As such, Weiner posits that for successful outcomes and causally stable attributions, hope is likely to occur. Ability constitutes one such case. However, failure attributed to ability is likely to generate feelings of fear and hopelessness (Weiner, 1986). Interestingly, these expectancy-related affects are predicted to occur regardless of the locus of the the causal ascription. Thus, a failure outcome attributed to low ability and an internal locus, or to test difficulty and an external locus, presumably results in the same emotional reactions, feelings of hopelessness or despair (Weiner and Litman-Adizes, 1980; Weiner, 1986).

In a test of the stability-expectancy linkage, Betancourt and Weiner (1982) found that attributions made to stable factors, such as ability, led to a greater magnitude of change in expectancy than did attributions made to unstable factors. Specifically, failure attributed to lack of ability or task difficulty induced a greater decrease in expectancy of success than did failure attributed to effort or luck. Similarly, success attributed to ability or task ease resulted in greater expectancy of success than did success attributed to unstable causes. In addition, when subjects anticipated that the conditions causing success or failure would remain stable, their expectations were that they would generally obtain the

same results if a similar task were attempted.

Further support for the stability-expectancy linkage came from Pratt (1988). In brief, beginning 1st year college students indicated their (a) level of high school performance, (b) attributions concerning high school success, (c) expectancy of success after one term in college, and d) predicted effort in college. Results indicated that ability was the most frequent attribution, followed respectively by effort, task ease, and luck. Perceived expectancy of success in college correlated highest with attributions of ability, a stable cause, and lowest with attributions of luck, an unstable cause. In sum, the stability of a cause appears to influence strongly individuals' expectancies of future performance.

Affect and controllability. A third hypothesis is that the dimension of controllability elicits a diverse number of social emotions (e.g., anger, pity, gratitude, guilt, shame, and other related affects) (Weiner, 1986). Again, the emotion experienced depends on the objective outcome and the general properties of the accompanying attributional pattern. For example, research indicates that failure attributed to a controllable cause may elicit anger, whereas negative outcomes associated with uncontrollable causes likely generate pity (Weiner, 1986). Further, the experience of guilt has been related to a failure outcome attributed to a controllable cause such as effort (Weiner, Graham, and Chandler, 1982).

Finally, an uncontrollable cause such as ability presumably elicits shame when associated with failure outcomes (Weiner, 1984, 1986).

In a test of these relationships, Weiner, Graham, and Chandler (1982) asked 35 male and female psychology undergraduates to recall a critical incident in their lives when the emotions of pity, anger, and guilt, were experienced. Two situations involving each of these affects were recorded by each subject. After writing about their experiences, subjects were asked to state the perceived cause of each event. Results indicated that pity was strongly associated with uncontrollable and stable causes, irrespective of locus. Conversely, both anger and guilt were strongly associated with controllable causes. Further analyses revealed, however, that anger was strongly associated with an external source, whereas guilt was associated with an internal source, a factor attributed to the self. Based on these data, Weiner et al. concluded that the distinction between self-blame and blaming of external sources determines whether the affective reaction is guilt or anger. Finally, for outcomes associated with an external locus of causality, the distinction between controllable and uncontrollable causes appears to determine whether one experiences anger or pity, respectively.

In a subsequent study, Weiner and Handel (1985) examined age differences in emotional reactions to the

dimension of causal controllability. Briefly, children aged 5-12 were read eight scenarios describing the declined request of a same-sexed classmate to go out and play. Conditions consisted of four controllable, and four uncontrollable causes. Childrens' affective responses were assessed. Results clearly indicated that children across all age groups associated more anger with controllable causes (e.g., deciding to play with another friend) versus uncontrollable causes e.g., becoming ill). In their conclusion, Weiner and Handel noted the developmental generality and importance of causal controllability in the determination of attributionally derived affective states.

Once again referring to the Graham et al. (1984) study, the relationship between perceived controllability and affect was investigated in three age groups, 6, 9, and 11 year olds. Subjects were asked to remember a time when they had experienced feelings of pity, anger, and guilt. They were instructed to (a) identify the main cause, and (b) to indicate on a 9-point likert scale the degree of controllability ranging from the extreme points of 1, "couldn't help it" to 9, "made it happen." Results indicated that all age groups strongly associated anger with controllable outcomes, and pity with uncontrollable outcomes. However, a developmental trend emerged demonstrating that in contrast to children aged 9 and 11, children aged 6 could not systematically link feelings of guilt to controllable causes.

The Complete Attribution-Affective Relationship

In Weiner and Kukla's (1970) classic study of the relationship between attributions and emotions, undergraduate psychology students were asked to make predictions regarding the experience of either pride or shame based on four outcomes: (a) success due to high ability and low effort, (b) success due to low ability and high effort, (c) failure due to high ability and low effort, and (d) failure due to low ability and high effort. Subjects were also instructed to assume the role of the teacher and to indicate under which outcome conditions they would reward or punish the students. Results indicated that effort rather than ability attributions elicited stronger affective reactions. These findings were consistent for both success and failure outcomes. That is, ratings of pride were highest when success was attributed to high effort and ratings of shame were highest when failure was attributed to low effort. Subjects also rewarded high effort more than low effort for success, and punished low effort for failure more than high effort. In view of these findings, Weiner and Kukla concluded that ascriptions of ability are less robust as determinants of affective responses compared to attributions of effort.

In a study by Nicholls (1975), 96 grade four students were asked to rate their level of pleasure following the completion of an angle matching task. Attributions were

assessed for successful outcomes only. The results indicated a positive correlation between pleasure and ability ascriptions ($r = .32$), a modest correlation between pleasure and effort ($r = .15$), and a negative correlation between pleasure and task ease ($r = -.41$). Counter to Weiner and Kukla's (1970) findings, Nicholls concluded that for successful outcomes, attributions to ability rather than effort are stronger determinants of affective responses. It is important to note, however, that the studies being compared differed in both age of subjects and tasks.

To adjust for these differences, Nicholls (1976) replicated Weiner and Kukla's (1970) original study and introduced the independent variables of task performance and attributional preference. In this study, 148 psychology undergraduates rated their beliefs regarding the degree of pride for success or shame for failure they would experience in hypothetical outcomes related to their own courses. Subjects' preferences were assessed for being perceived as being either high ability and low effort, or high effort and low ability. Results indicated that students had a stronger preference to be perceived as having high ability and expending low effort for both success and failure outcomes. As well, for success, the high effort and low ability condition yielded a higher association to pride compared to the high ability and low effort condition. For failure, shame was strongly associated with low effort and high ability. In sum,

these results supported Weiner and Kukla's (1970) earlier findings that attributions to effort are stronger determinants of affective reactions than are attributions to ability.

In a similar study, Sohn (1977) had psychology undergraduates take part in three closely related investigations that examined (a) attributional preferences, (b) feelings of happiness, and (c) pride and shame for success and failure outcomes. In the first experiment, 85 subjects were read a brief scenario describing a success outcome in which an A was received for a course grade. Subjects were asked to choose between four different attributional percentage outcomes: (a) 80% effort and 20% ability, (b) 60 % effort and 40% ability, (c) 40% effort and 60 % ability, and 20% effort and 80% ability. The results indicated that the most frequent response was 60% effort and 40% ability, The mean response was 50.4% reflection of effort and 49.6% reflection of ability. Counter to Nicholls (1976) findings, Sohn concluded that students did not demonstrate a preference to be seen by others as succeeding because of high ability and low effort expended. Based on these data, Sohn also inferred that attributions of ability and effort expended are equally likely to be responsible for eliciting the positive emotions that may occur as a result of receiving an A grade.

In the second experiment, 106 psychology students were asked to choose between the same four attributional

alternatives used in experiment 1, but to indicate which of these outcomes would arouse in them the greatest emotional reaction. The conditions consisted of both success and failure outcomes and the emotions of pride, shame, happiness, and unhappiness. The results revealed that attributions of ability were as predictive of feelings of happiness and unhappiness as were attributions to effort expended. However, consistent with Weiner and Kukla's (1970) findings, low effort for failure, and high effort for success, were more predictive of shame and pride than attributions to ability.

In the third experiment, 124 students followed the same procedures used in experiment 2 with the exception that they had to assume their ability level to be either high or low. The results were consistent with those of experiment 2 irrespective of the subjects' assumed level of ability. In sum, Sohn concluded that when a global positive emotion, such as happiness, is under consideration, attributions of ability are as productive of affect as are attributions of effort. As well, in some instances, attributions to one's ability rather than to effort expended elicit greater affective reactions. For example, failure attributed to lack of ability yielded greater unhappiness compared to failure attributed to lack of effort. Finally, in support of Weiner and Kukla's (1970) study, attributions to effort generated more pride and shame than did attributions to one's ability.

Further support for the equal impact of attributions of

ability and effort on generating global emotions such as happiness and frustration came from Weiner (1979). In this experiment, 79 male and female undergraduate psychology students were presented with a questionnaire reflecting twelve achievement conditions. These conditions consisted of either a successful or failure outcome determined by one of six causes: (a) ability, (b) stable effort, (c) unstable effort, (d) personality, (e) luck, and (f) others. The results indicated that for successful outcomes, pleasure, happiness, and satisfaction were the most frequently reported emotions across all six attributional conditions. For failure outcomes, frustration, unhappiness, and being upset were the most common emotions reported. Based on these data, Weiner et al. referred to these global types of affective reactions as outcome dependent-attribution independent emotions because they were reported as being equally experienced across a variety of attributional conditions. For example, happiness, was reported following a successful occurrence, irrespective of whether that outcome was caused by task ease, low effort, high ability, hard work, and so forth. These researchers concluded that these emotional reactions occur primarily as a result of an immediate reaction to an outcome rather than as a direct consequence of attributional thought.

Other results reflecting the relationship between causes and feelings, attribution-dependent emotions, indicated that

success attributed to effort expended was more associated with feelings of pride than were attributions to ability. Under conditions of failure, however, attributions to effort were associated with feelings of guilt and fear. Surprisingly, subjects did not list shame as one of their most intense reactions to failure. Moreover, this result was inconsistent with previous findings by Weiner and Kukla (1970), Nicholls (1976), and Sohn (1977), whereby shame emerged as a salient emotional reaction to failure attributed to low effort.

In direct opposition to Weiner, Covington and Omelich (1979a) argued that "failure despite great effort is compelling evidence of low ability and therefore should maximize shame" (p.688). The assumption guiding this position is based on the notion that individuals strive to maintain a self-concept of high ability to preserve their self worth. In an investigation of these hypotheses, 360 psychology undergraduates were asked to rate their affective reactions to several hypothetical exam failing experiences in the presence or absence of ego protecting excuses. Outcome conditions included: (a) failure due to low effort, (b) high effort resulting in failure, (c) failure due to low effort as a direct consequence of an illness, and (d) failure due to studying incorrect materials despite a high level of effort expended. Subjects were asked to rate their affective reactions of personal dissatisfaction and public shame to these outcomes. Additional instructions were given to assume

the role of a teacher, and to indicate the degree to which they would give negative feedback or punishment to the students in the four failure outcome conditions. Lastly, students ranked the four outcomes from least to most preferred.

The results indicated that the low and high effort non-excuse conditions yielded the least and greatest amount of personal dissatisfaction and shame, respectively. Subjects were more likely to punish severely students who demonstrated low effort in comparison to students who tried hard. Subjects also preferred to be seen as failing due to low effort in absence of an excuse despite the fact that this condition was the one in which highest ratings of punishment occurred. Finally, failure by high effort in the absence of an excuse was the least favorable outcome. Clearly, these results supported Covington and Omelich's hypothesis that failing experiences attributed to high effort expended results in greater shame compared to any other attributional pattern. As well, these data were consistent with their previous work on self worth theory, whereby students were found to preserve their self-esteem by attributing failing experiences to a low amount of effort expended. Indeed, the findings in this study are at variance with Weiner and Kukla (1970), Nicholl (1976), and Sohn (1977), whereby low effort resulted in the greatest association with shame.

In a subsequent study, Covington and Omelich (1979b) followed the exact same procedures as in the previous experiment, but under conditions of success rather than of failure. Results indicated that attributions to effort expended yielded higher correlations to pride and satisfaction than did attributions to ability. Overall, the affective reactions of satisfaction were stronger than those of pride. In sum, the results of this study supported the position that under conditions of success, attributions to effort are stronger determinants of affective reactions than are attributions to one's ability.

Thus far, the results of most studies reported have been conflicting. In view of this fact, Brown and Weiner (1984) conducted a series of experiments to provide greater clarity concerning the relationships between attributions and the affective states of happiness, pride, shame, and guilt. Of these six studies, two are particularly relevant here. In the second experiment, 148 undergraduate psychology students rated their reactions of shame and unhappiness for failure, and pride and happiness for success, to sixteen hypothetical exam experiences. The vignettes varied in (a) attributions to either high ability combined with low effort, or (b) low ability combined with high effort. The pride and shame data indicated that these emotions were clearly more associated with attributions of effort expended compared to attributions of ability. Consistent with Weiner and Kukla (1970), Nicholls

(1976), and Sohn (1977), ratings of shame were highest when attributed to low effort expended. The happiness-unhappiness results were less clear. As predicted, unhappiness was not influenced by causal attributions, thus providing support for Weiner's (1979) outcome dependent-attribution independent hypothesis. However, inconsistent with this position, happiness was strongly related to ascriptions of high effort expended.

The fifth experiment directly addressed the high effort versus low effort controversy regarding the affect of shame. Brown and Weiner posited that the differences in results between Covington and Omelich (1979a) and other studies may have been a consequence of public versus private knowledge of performance. As such, individuals may experience feelings of embarrassment and/or humiliation rather than shame in a public context. Failure known only to one's self, however, may result in feelings of shame and other related affects such remorse and guilt.

In a test of these hypotheses, 116 subjects were assigned to one of three conditions: (a) public shame, (b) private shame, or (c) undifferentiated shame. Subjects were provided with a list of 10 emotions and asked to indicate how similar these emotions were to the emotion of the condition they were assigned. These 10 affects were classified into 4 categories: (a) guilt, (guilt, regret, remorse), (b) humiliation,

(disgrace, embarrassment, and humiliation), (c) competence (inadequacy and incompetence), and (d) outcome dependent-attribution independent (displeasure and unhappiness).

Finally, subjects were asked to what extent they would experience these 10 emotions as a consequence of lack of ability or lack of effort.

The similarity ratings yielded significant positive correlations within the guilt-related and humiliation-related conditions, .31 and .34, respectively. The mean correlation between the guilt and humiliation cluster, however, was .00. Based on this outcome, Brown and Weiner concluded that guilt and humiliation are two distinct affective responses in academic settings. Further analyses revealed that humiliation was most similar to public shame, and guilt most similar to private shame. For failure outcomes, ratings of guilt were higher when attributed to lack of effort, whereas ratings of humiliation were higher when attributed to lack of ability. Finally, as predicted, the outcome dependent-attributional independent affects of unhappiness and displeasure did not significantly vary as a function of the attribution to failure.

Overall, the results of this study suggest that there is a strong pattern of association between public shame, humiliation, and lack of ability. Another pattern appears to be between private shame, guilt, and lack of effort. Brown and Weiner concluded that "when Covington and Omelich (1979a)

specified public shame as the affective reaction to be rated, they were tapping into an emotion associated with humiliation and low ability" (p.154). As well, the shame data from Weiner and Kukla (1970), Nicholls (1976), and Sohn (1977) may have been more likely to implicate guilt, which has been shown to be strongly associated with lack of effort.

Covington and Omelich (1985) further investigated the public versus private shame distinction following failure experiences. In brief, 1026 psychology undergraduates read scenarios which varied in (a) success or failure outcomes, and (b) ratings of ability, high or low. Measures of the dependent variables included the emotions of humiliation, shame, and guilt. Initial data analyses revealed a general trend demonstrating that failure experiences attributed to low effort expended yielded the strongest association with guilt. As well, attributions to low ability bore the strongest relationship with humiliation. Consistent with Brown and Weiner's (1984) findings, shame was found to be a more global emotional state which could be further reduced to more specific, differentiated affects. For example, in the case of public shame and ability linked attributions, humiliation appeared as the highest rated emotion experienced. For private shame, however, guilt related affects emerged as bearing the strongest relationship to effort linked attributions. Covington and Omelich concluded that "ability and effort

cognitions play different roles as causes of achievement affect depending on which components of shame are investigated, either humiliation or guilt" (p.456). These results decreased the ambiguity surrounding effort expenditure as being either an inhibitor or instigator of shame. Finally, the public versus private shame controversy in relation to attributions to ability and effort appeared resolved.

Unresolved issues. Despite partial resolutions of some of the conflicting results reported during fifteen years of attributional research, other issues remain unresolved. One such issue is that most attributional research employs hypothetical outcome scenarios rather than real life experiences (McMillian & Forsyth, 1983). Addressing this issue, Russell and McAuley (1986) investigated attribution-affect relations in both hypothetical and actual achievement related contexts. In experiment 1, the first attempt to replicate the Weiner (1979) study was undertaken. Moreover, the results were consistent with the previous findings reported by Weiner and his colleagues: (a) attributions to ability bear the strongest relationship to feelings of confidence, pride, and competence under conditions of success, and to feelings of incompetence and resignation under conditions of failure; (b) attributions to low effort expended result in feelings of guilt, shame and fear for failure; (c) attributions to external sources elicit feelings of gratitude and thankfulness for success, and anger and fury for failure;

and (d) that for success, attributions of effort are stronger determinants of affective responses than are attributions to ability, (means of 5.38 and 4.74, respectively).

In contrast to Study I, the second study was conducted in the context of an actual achievement outcome, a psychology midterm examination. Prior to beginning the exam, subjects' expectations were assessed by indicating (a) what grade they expected to receive, and (b) how many questions they expected to answer correctly. The following week, the scored exams were returned to the students. Attributional and affective information was assessed using the same materials from Study I.

Results indicated that none of the attributions for success were significant predictors of affective reactions. Further, only the task difficulty attribution was related to affective reactions following failure. Specifically, feelings of anger were highest when attributed to the test being too difficult. Additional analyses revealed that in sharp contrast to previous attributional research, the joint effects of causal attributions and causal dimensions on affective reactions were very small. Thus, Weiner's predictions pertaining to causal stability, locus, controllability, and their anticipated affective relationships were not supported. Russell and McAuley concluded that causal attributions may be less important determinants of affective responses in actual

versus hypothetical achievement settings. Finally, statistical factors such as ceiling effects and limited ranges were entertained as other possible explanations for these results.

In direct response to this study, Chandler, Seibel, and Spies (1990) ascertained that differences between subjective definitions of success and failure may have accounted for the results of Russell and McAuley. It was argued that success and failure are psychological states rather than absolute outcomes. Thus, the independent variable of perceived success/failure was added to this investigation. Briefly, 251 psychology and sociology undergraduates were administered 3 multiple choice examinations in fulfillment of regular course requirements. After returning the scored examinations, subjects indicated (a) which of 19 affects they experienced after seeing their performance score, and (b) to what extent their performance was influenced by 9 attributions: mood, bias, knowledge, ability, usual effort, help from others, luck, test difficulty, and test effort.

A factor analysis identified five factors in these data. Factor 1, internality, was strongly associated with feelings of self worth (e.g., competence, confidence, pride, etc.). Factor 2 related to externality with strong associations to anger, internality with associations to shame, and outcome independent affects such as sadness, and disappointment. Factor 3 related to unexpected goal attainment and externality with associations to gratefulness, thankfulness, surprise, and

relief. Factor 4, internal and controllable, was strongly associated with the affects of guilt and regret, and related to private shame variables, as noted by Brown and Weiner (1984). Finally, factor 5 was comprised of emotions associated with helplessness such as futility, incompetence, and frustration. Overall, these data supported more recent attributional findings by Brown and Weiner (1984), Covington and Omelich (1985), Weiner (1986), Weiner et al. (1979), and Zaleski (1988).

When examining actual versus perceived success, however, differences emerged. First, for relationships between affect, and the dimension of internality, actual or objective success provided more support for Weiner's theoretical relationships than did perceived success. Second, affectivity for perceived success was much stronger compared to actual success. As hypothesized, this result suggests that perceived success plays a very important role in determining the affective responses to attributional patterns. Contrary to Russell and McAuley (1986), Chandler et al. concluded that "casual attributions may be important determinants of affective reactions in actual achievement settings if one disentangles the perceived from the actual success/failure component" (p.975).

A second criticism of attributional research is that most investigations have been conducted with college populations

(cf. Sears, 1986). College students as compared to other populations differ greatly on many dimensions, thus resulting in a sample with limited generalizability to the population as a whole (Sears, 1986). Addressing this issue, Graham and Weiner (1991) conducted two investigations of attributional judgments and their affective reactions in 370 subjects ranging between 5 and 95 years of age. Subjects were divided into six age groups: (a) young children, (b) older children, (c) college students, (d) middle aged, (e) seniors, and (f) elderly. In the first experiment, subjects read two scenarios designed to elicit either pity or anger. The story themes varied in the controllability of a negative outcome. In the first scenario, subjects were asked to imagine being injured by a person falling forward because he was either, (a) fooling around (controllable), or (b) had a cast on his leg and lost his balance (uncontrollable). In the second scenario, subjects were asked to imagine that a neighbor promised to look after their plants while they were away but failed to do so because (a) the neighbor became ill (uncontrollable) or (b) because the neighbor became busy with friends and forgot (controllable). Subjects rated the degree of controllability in each story, the degree of pity or anger experienced towards the protagonist, and the likelihood that they would help the person. Please note that scenarios and rating scales were adjusted to increase concreteness for the childrens' age group conditions.

As hypothesized, the results indicated that outcomes attributed to uncontrollable causes elicited greater ratings of pity compared to those attributed to controllable causes. As well, subjects indicated a greater willingness to help when the outcome was perceived to be due to uncontrollable causes. Further, feelings of anger were highest when the outcome was attributed to a controllable cause. Moreover, these data are consistent with previous attributional research by Weiner et al (1982), Weiner and Handel (1985), and Weiner (1986).

When examining developmental trends, however, a number of differences emerged. First, college students (19-21) and middle aged adults (35-45) perceived the causes as more controllable compared to very young children aged 5-6, and the senior and elderly populations aged 60-74, and 75-95, respectively. Secondly, in contrast to to the other age groups, the young children group reported relatively intense feelings of pity in the controllable condition. Otherwise, the intensity of pity increased with age. Finally, a trend analysis revealed that feelings of anger decreased steadily across the lifespan, and intent to help increased.

In the second experiment, 424 subjects between the ages of 5 and 92 rated their feelings of pride in relation to a hypothetical successful outcome. Scenarios varied in locus, internal or external, to four pride eliciting themes: (a) winning a spelling contest due to effort or an easy question,

(b) successfully repairing an object due to effort or instructions from another person, (c) searching for a lost object and finding it due to effort or having someone else find it, and (d) winning a competitive contest due to effort or because the competition was easy. Subjects rated the locus of the cause and how much they would reward themselves for each outcome.

Results were that subjects reported they would experience more pride for success due to internal causes than for external causes. As well, self-reward ratings were highest when success was attributed to internal causes. Interestingly, few age differences emerged. One exception was that young children rewarded themselves most and the elderly populations least. Finally, a trend analysis indicated a steady decline in pride across the lifespan.

In sum, Graham and Weiner concluded that "there is a great consistency across the lifespan in attributional principles relating emotion to causal thought and action" (p.272). The affective reactions of anger and pity and their respective relationships to the dimension of controllability do not appear to be largely influenced by developmental differences. However, the pride and locus data were less strong in all age groups compared to the anger and pity results.

Summary. To date, the majority of research examining the attribution-affect relationship has been conducted in

hypothetical rather than actual situations. Of the 18 studies reviewed, only two employed actual student performance conditions. Interestingly, the results of these studies were conflicting in that only one supported Weiner's (1986) attributional theory. Of the remaining studies reviewed, a number of issues emerged. First, earlier research by Weiner and Kukla (1970) suggested that attributions to effort were more robust than attributions to ability in eliciting affective reactions. However, Nicholls (1975, 1976) and Sohn (1977) reported just the opposite! In addressing this controversy, Weiner et al. (1979) found that attributions to ability and effort were both equally as likely to elicit outcome dependent-attribution independent affects such as happiness for success, and sadness for failure.

A second issue was related to the low effort-shame versus low effort-guilt associations. Studies by Brown and Weiner (1984) and Covington and Omelich (1984, 1985) partially resolved this debate in that guilt and humiliation were found to be more specified affects derived from the general emotion of shame. Otherwise, the majority of research reviewed supported, at least for the most part, Weiner's (1986) attributional model of achievement motivation and emotion.

Self-efficacy and Attributions

Schunk (1983) argues that "attributions constitute an important source of efficacy information and influence

performance primarily through their intervening effects on efficacy information" (p.848). Put another way, attributions constitute a type of efficacy appraisal information which primarily influences individuals' perceptions of ability. In turn, these judgments presumably influence future expectancies, task persistence, and choice of activities. As such, for successful outcomes, attributions to high ability should promote self-efficacy. In a test of this position, Schunk (1983) provided 3 types of attributional feedback to 44 grade 3 subjects: (a) ability feedback, (b) effort feedback, and (c) ability plus effort feedback. A control condition was also included in which no feedback was given. Self-efficacy and math skill were assessed at both pretests and posttests. Results indicated that the ability alone condition yielded the highest ratings of self-efficacy, 80.9, followed respectively by effort alone, 60.40, ability plus effort, 60.00, and the control condition, 43.3. These data support the hypothesis that attributions to ability under conditions of success promote perceptions of self-efficacy.

Similarly, Schunk (1984a) investigated how the sequence of attributional feedback influences motivation, attributions, self-efficacy, and skill performance. In this experiment, 40 grade 3 students deficient in math skills (a) viewed 25 pairs of math subtraction problems and rated their level of self-efficacy to solve these problems, (b) wrote a 25-item math skill test, and (c) entered a 5 day, one hour per day, math

practice and training program. During training, subjects received either a sequence of (a) ability-ability feedback, (b) ability-effort feedback, (c) effort-ability feedback, or (d) effort-effort feedback. Following the training procedures, four attributions were assessed: (a) ability, (b) effort, (c) task difficulty, and (d) luck. Finally, post training ratings of self-efficacy and math skill were assessed. No performance feedback was given during the experiment.

Results revealed that the ability-ability and ability-effort conditions yielded the highest efficacy judgments, followed by the effort-effort and effort-ability conditions, means of 87.8, 87.6, 72.4, and 65.3, respectively. As well, children who received the ability-ability and ability-effort feedback placed a greater emphasis on attributions to ability as the cause for success, compared to the effort-effort and effort-ability conditions. Similarly, posttest skill scores were higher in the ability-ability and ability-effort conditions, compared to the effort feedback conditions, means of 19.3, 17.4, 12.3, and 12.6, respectively. Schunk concluded that under conditions of success, attributions to ability rather than to effort promote greater self-efficacy.

Research Hypotheses

Study I

Previous research indicates that young children between the ages of 6 and 9 have difficulty recognizing the difference

between attributions to ability and attributions to effort (cf. Nicholls 1978, 1979). Overall, young children have been found to emphasize the role of effort for both failure and success (c.f. Frieze & Snyder 1980; Medway & Venino, 1982; Schunk, 1989). Further, a large body of research indicates that young children are only capable of making reliable distinctions between a limited number of basic emotions such as happiness, and sadness (c.f. Graham et al. 1984; Graham & Weiner, 1991). Moreover, these affective states are considered by Weiner (1986) to be outcome dependent-attribution independent emotions. That is, these are emotions that occur as a consequence of failure or success in the absence of attributional activity. Thus, Study I which employs grade three students as subjects, as compared to Study II which employs grade eight students, is far more limiting in the breadth with which Weiner's complete theory of attributions, motivation, and emotions can be examined. Nonetheless, a sample of this age can provide evidence for Weiner's position that cognitively derived affective states are elicited from two main sources: outcome dependent-attribution independent, and attributionally derived affects. In order to test this hypothesis, two outcome dependent-attribution independent emotions (sadness and happiness), and two attribution-dependent emotions (anger and hope) were assessed. A sample of young children also allows for the investigation of

developmental issues in attribution theory. According to the literature reviewed and Weiner's (1986) model of attributions, motivation, and emotions, the following relationships were predicted in the first study.

Success Outcome

1. Attributions to high ability and effort will display a positive association to positive affect, increase expectancy for success, and display a positive relationship to test scores.
2. Attributions to task ease will display a positive relationship to happiness, increase expectancy of success, and display a positive relationship to test scores.
3. Attributions to good luck will display a positive association to positive affect, increase expectancy of success, and display a positive relationship to test scores.
4. Self-efficacy will display a positive association with positive affects and test scores.
5. The outcome dependent-attribution independent emotion of happiness will display the same positive relationship with attributions of ability, effort, task ease, and luck.

Failure Outcomes

1. Attributions to low ability will display a negative association to negative affect, decrease expectancy of success, and display a positive relationship to test scores.
2. Attributions to low effort will display a negative

association to negative affect, increase decrease expectancy of success, and display a negative relationship to test scores.

3. Attributions to task difficulty will display a positive relationship to anger, decrease expectancy for success, and display a negative relationship to test scores.

4. Attributions to bad luck will display a positive association to negative affect, decrease expectancy for success, and display a negative relationship to test scores.

5. Self-efficacy will display a positive association to negative affect and to test scores.

6. The outcome dependent-attribution independent emotion of sadness will display the same negative relationship with attributions of ability, effort, task ease, and luck.

Study II.

In this experiment, 18 emotions were selected as dependent measures: anger, happiness, regret, hope, frustration, satisfaction, pride, disappointment self-blame, self-doubt, luck, joy, shame, guilt, surprise, relief, confidence, thankfulness, and gratefulness. Based on the literature reviewed and Weiner's (1986) model, the same hypotheses generated in Study I are predicted in addition to the following relationships:

Successful Outcomes

1. Attributions to high ability and high effort will display a

positive association with self-esteem enhancing affects such as pride, confidence, and satisfaction.

2. Attributions to task ease will display a positive relationship with positive emotions, increase expectancy for success, and display a positive relationship to test scores.

3. The outcome dependent-attribution independent emotion of happiness and satisfaction will display the same relationship with attributions of ability, effort, luck and task ease.

Failure Outcomes

1. Attributions to low effort will display a negative relationship with guilt and other negative affects.

2. Attributions to low ability will display a positive relationship with shame and other negative affects.

CHAPTER THREE

METHODS AND PROCEDURES

Study 1

Participants and Settings

The sample consisted of 84 grade three elementary school students from four classrooms in four separate schools located in the same school district. Participants were predominantly from white, middle class families, and attended schools in a suburb of Vancouver, a large Canadian city. Ages ranged from eight to nine years old with a mean age of 8.36. Of the 84 participants, 41 were girls and 43 were boys. In total, three students did not agree to participate in the study. All four classroom teachers were women.

Schools and classes were not selected randomly. Rather, schools were contacted and asked if they would be willing to participate in the study. Of 14 schools contacted, four agreed to participate.

Measures

Self-efficacy. Self-efficacy for solving subtraction problems was assessed using Schunk's (1986) materials (see Appendix A). Participating students were provided with five sheets of paper, consisting of five scales on each sheet, for a total of 25 scales in all. Each efficacy scale ranged in 10 unit intervals from *not sure* (10), through intermediate values

(40-60), to really sure (100). Efficacy ratings were based on exposure to 25 pairs of math problems. The two problems constituting each pair were similar to one another in form and operation. Self-efficacy scores were summed across all 25 judgments and averaged.

Subtraction skill test. Subtraction skill was assessed using Schunk's (1986) materials (see Appendix B). The skills test was comprised of 25 items requiring subtraction operations ranging from no regrouping, regrouping once, regrouping from a one, regrouping twice, regrouping caused by a zero, and regrouping across zeros. The measure of skill was the number of problems that participants solved correctly.

Attributions. Schunk's (1986) attributional materials were comprised of four scales shown on a single sheet of paper (see Appendix C). Each scale ranged in intervals of 10 from *not at all* (0), *somewhat* (40-60), to *a whole lot* (100). The four scales were labeled *worked hard* (effort), *easy problems* (task ease), *good at it* (ability), and *lucky* (luck). Previous research by Schunk (1981, 1982, 1983, 1986) indicated that a structured unidimensional scale, rather than an unstructured ipsative scale, facilitated a greater understanding of the meaning of the scales with children in this age range (c.f. Diener & Dweck, 1978).

Affect. A large body of research indicates that children under the age of nine are only capable of making reliable distinctions between three basic emotions: happiness, sadness,

and anger (c.f. Graham et al. 1984; Graham and Weiner, 1991; Weiner, 1986)). The inclusion of a fourth affect, hopefulness, was based on experimental considerations with respect to my desire to examine the relationship between self-efficacy and attributions. Specifically, hopefulness may provide an additional index of future expectancy directly related to one's confidence that one can solve subtraction problems. The four emotions assessed in this study were represented on scales similar in direction and value to the other materials. The scales range from (0) *not at all*, (40-60) *somewhat*, to *very much* (100).

Procedures

Participants were initially assigned two digit identification numbers to ensure anonymity. They were informed that any information, including test results, would remain confidential.

Participants then were provided with the self-efficacy materials. In order to assist the students in learning both the meaning and direction of the scales, three examples were provided. Participants were asked to judge how successful they would be if jumping three progressively longer distances. This procedure allowed the children to learn the meaning of the scales's direction and the different numerical values.

Following this exercise, participants were shown 25 pairs of math problems for the duration of two seconds each. This

limited exposure allowed for reflection on the difficulty of these problems, but was not sufficient to calculate solutions. The two problems comprising each pair were similar to one another in level of difficulty, form, and operation. After every third exposure, the experimenter stated "How certain are you that you could solve these problems? If you were to solve these problems on a test, how certain are you that you would be correct?" After each problem was shown, the children judged their own capacity to solve the problems by circling an efficacy value. They were advised to respond on the basis of how they really felt. Participants were also reminded that immediately following this exercise, they would be writing a test very similar in form to the problems they were rating. Self-efficacy scores for each participant were summed across all 25 judgments and averaged.

Immediately following the efficacy assessment, the tester administered the math skill test. Participants were instructed to examine each problem and to hand in the materials when they finished solving the problems. A time limit of 50 minutes was necessary to accommodate class schedules. However, pilot testing indicated that most children could easily complete these materials within that time range. Because of the large class size, students were reminded that they would likely finish the test at different times. They were informed that differences in time of test completion were normal, and that it was important not to race through the materials. Rather,

they were to try to solve as many problems correctly as possible. Participants were further instructed that after completing the test materials, they were to return to their seats, to be as quiet as possible, and to read a book or work on other class materials.

The following day the scored subtraction skills test booklets were returned by identification number to the participants. Students were informed that their scores were out of a possible 25 points. After allowing five minutes for the children to examine their tests, the booklets were collected, and the attributional assessment materials were administered.

Following Schunk's (1986) procedures, the tester explained that the attributional sheet showed four things that can help students work and solve problems. Examples were also provided of how hypothetical children might mark the attributional scales. To provide greater clarity about both the meaning and direction of the scales, the tester made the following statements. "I received my score on the math subtraction test because I was good at it, agree or disagree. If you strongly agree you would rate the scale high; if you only agree somewhat you would rate the scale lower, and if you disagree a lot, you rate the scale even lower." These kinds of statements were made for each attribution. Subjects were also asked to think about how much they thought each factor helped

them to solve the problems on the test. Subjects recorded their ratings privately.

Immediately following the attributional ratings, participants' affective responses to their performance scores on the subtraction skill test were assessed. The tester provided examples of each emotion before each participant privately recorded his or her rating. In order to provide participants with a better understanding of hopefulness, the tester stated, "if you were to write a similar or harder test, how much do you feel that you could improve, or get a higher score, if you wanted to do so, compared to the score you received on the test you just wrote?"

Study II

Participants and Settings

The sample consisted of 66 grade eight remedial mathematics students from four classrooms in two schools located in Vancouver, Canada. Participants were identified as having only primary school level mathematics skills. Mathematics subtraction materials were shown to the teachers, who indicated that most students would experience difficulty in problem solution. Participants were predominantly from white, middle to lower middle class families, and attended schools in Vancouver, Canada. Ages ranged from 13 to 15 years of age with a mean age of 13.90. Of these 66 participants, 32 were girls and 34 were boys. In total, five students did not

agree to participate in the study. The four classroom teachers were male.

Schools and classes were not selected randomly. Rather, the Vancouver School Board contacted the principals of schools that offered remedial mathematics eight. Of the five schools contacted, two agreed to participate in the study.

Measures

Self-efficacy. Self-efficacy materials were the same as those used in Study I with the exception that the first 10 problem pairs were eliminated in order to increase overall perceptions of problem difficulty. Efficacy ratings were based on exposure to 15 pairs of math problems. Self-efficacy scores for each participant were summed across all 15 judgments and averaged.

Subtraction skill test. The materials used in this study were the same as those in Study I with the exception that the first 10 problems were eliminated. The skills test comprised 15 items requiring subtraction operations ranging from regrouping once, regrouping from a one, regrouping twice, regrouping caused by a zero, and regrouping across zeros. The measure of skill was the number of problems solved correctly.

Attributions. This study utilized the exact same attributional materials used in Study I.

Affect. In total, 18 affects were selected to examine the relationships between attributions, self-efficacy, and

emotion. The selection of emotions was based on Weiner's (1986) model of attribution, affect, and motivation, and research by Chandler, Seibel, and Spies (1990). Three outcome dependent/attributional independent emotions were selected: frustration, happiness, and sadness. The remaining 15 emotions were outcome independent/attributional dependent affects. These affects were: anger, guilt, regret, hopefulness, pride, shame, confidence, gratefulness, satisfaction, disappointment, self-blame, surprise, thankfulness, joy, and relief.

Procedures

Aside from the foregoing differences in instrumentation, this study employed the exact same procedures as followed in Study I.

CHAPTER 4

RESULTS

Study 1Overview

The purpose of Study 1 was to examine the attributional affective relationships predicted by Weiner's (1986) theory of achievement motivation and emotion within an elementary school-aged sample. Relationships between self-efficacy, attributions, and affect were also examined. In total, 84 third grade students across four classrooms indicated their (a) perceptions of self-efficacy to solve mathematical subtraction problems, (b) completed a 25-item mathematical subtraction skill test, (c) rated their attributions of ability, effort, task ease, and luck, and (d) indicated their degree of emotional reaction across four selected affective responses. The four emotions consisted of two outcome dependent/attribution independent affects, happiness and sadness; and two outcome independent/attributional dependent affects, hope, and anger.

Means and standard deviations for all measures are presented in Tables, 1, 2, and 3.

Table 1

Means and Standard Deviations for the Variables of Self-
efficacy and Subtraction Skill (Combined Group N = 84).

	Self-efficacy	Subtraction Skill
<u>M</u>	1698.26	9.96
<u>S.D.</u>	571.48	8.39

Note. Self efficacy scores range from 0 (lowest) to 2500 (highest).
Subtraction skill scores range from 0 (lowest) to 25 (highest).

Table 2

Means and Standard Deviations for the Four Attributions
(Combined Group N = 84).

	Ability	Effort	Luck	Task Ease
<u>M</u>	50.59	64.88	41.78	40.95
<u>S.D.</u>	35.00	31.75	36.01	32.53

Note. Scale scores range from 0 (lowest) to 100 (highest).

Table 3Means and Standard Deviations for the Four Affects(Combined Group N = 84).

	Anger	Happiness	Sadness	Hope
<u>M</u>	35.12	47.86	33.16	59.32
<u>S.D.</u>	39.93	38.65	39.92	34.72

Note. Scales scores range from 0 (lowest) to 100 (highest).

Following the calculation of descriptive statistics, Pearson product-moment correlational analyses were conducted on all data. An alpha level of .01 was selected as an indicator of statistically reliable levels of correlation. The results of these analyses are presented in Tables 4 through 8.

Self-efficacy. According to the literature reviewed, there is sufficient evidence to assert that self-efficacy is a powerful predictor of future performance and behavior (Bandura, 1986; Schunk, 1986). One hypothesis generated for this study was that self-efficacy should bear a positive relationship to subtraction skill. This hypothesis was supported by a significant positive correlation ($r = .33$; $p < .01$) between these two variables. Consistent with Bandura and Schunk's (1986) theory, this result indicates that higher ratings of self-efficacy were associated with higher subtraction test scores, suggesting that self-efficacy functioned as a predictor of future performance for this group of children.

Although the relationship between self-efficacy and affect has not been previously investigated, it was predicted that self-efficacy should bear a positive relationship to positive emotions. As seen in Table 4, this hypothesis was not supported. No other statistically significant findings emerged here with the exception of sadness which correlated negatively with self-efficacy ($r = -.29$; $p < .01$). This result suggests

Table 4

Correlations Between Self-efficacy and the Four Affects
(Combined Group N = 84).

	Self-efficacy
anger	-.05
happiness	.25
sadness	-.29**
hope	.21

Note. ** $p < .01$

that as ratings of self-efficacy decreased, feelings of sadness increased.

Subtraction skill. It was predicted that subtraction skill, as assessed by a 25-item subtraction test, should bear a positive relationship with attributions to ability, effort, and task ease. As seen in Table 5, these predictions were supported with significant positive correlations between subtraction skill and each of these attributions ($r = .76$, $r = .41$, and $r = .34$, $p < .01$, respectively). While all these correlations are positive and statistically significant, their relative sizes suggest that for performance outcomes, young children may have a tendency to make slightly stronger attributions of ability compared with attributions to effort. To test this hypothesis, Williams' modification of the Hotelling test, a test of statistical significance between two correlations, was conducted (Keppel, 1988). Results indicated that a significant difference was present between correlations of performance scores and attributions to ability, and correlations of performance scores and attributions to effort, ($t = 4.73$; $p < .01$). This result supports the position that grade three children may tend to make stronger attributions to ability compared to attributions to effort. This finding differs from those reported by Schunk (1981, 1984b), where young children were found to have difficulty differentiating between attributions to ability and effort.

Table 5

Correlations Between Subtraction Skill and the Four Attributions
(Combined Group N = 84).

	Subtraction skill
ability	.76**
effort	.41**
task ease	.34**
luck	.30**

Note. ** $p < .01$

As seen in Table 6, sadness and anger scores were correlated significantly and negatively with subtraction scores (r 's of $-.65$ and $-.53$, respectively, $p < .01$), whereas scores for happiness and hope were correlated significantly and positively with subtraction scores (r 's of $.68$ and $.40$, respectively, $p < .01$). These results suggest that students may experience or associate greater positive emotions with higher subtraction scores. Conversely, negative emotions may be understandably associated with lower subtraction scores.

Finally, the positive correlation between subtraction skill and attributions to luck ($r = .30$; $p < .01$), suggests that young children may associate performance outcome with good luck.

Attributions and affect. As seen in Table 7, and consistent with the correlational predictions, attributions to ability bore a positive relationship with feelings of happiness and hope, (r 's of $.55$ and $.48$, respectively, $p < .01$), and a negative relationship with sadness and anger, (r 's of $-.56$ and $-.50$, respectively, $p < .01$). Attributions to effort displayed a similar pattern, in that effort bore a positive relationship to hope and happiness, (r 's of $.40$ and $.30$, respectively, $p < .01$), and a negative relationship to sadness and anger (r 's of $-.32$ and $-.34$, respectively, $p < .01$). These results suggest that as attributions to ability and effort increase, feelings of happiness and hope increase,

Table 6

Correlations Between Subtraction Skill and the Four Affects
(Combined Group N = 84).

<u>Subtraction skill</u>	
anger	-.53**
happiness	.68**
sadness	-.65**
hope	.40**

Note. ** $p < .01$

Table 7

Correlations Between the Four Attributions and Four Affects.

	<u>Anger</u>	<u>Happiness</u>	<u>Sadness</u>	<u>Hope</u>
ability	-.50**	.55**	-.56**	.48**
effort	-.34**	.30**	-.32**	.40**
task ease	-.30**	.34**	-.24	.21
luck	-.07	.23	-.18	.18

Note. ** $p < .01$

and feelings of anger and sadness decrease.

As predicted, attributions to task ease correlated negatively with anger ($r = -.30$; $p < .01$), and positively with happiness ($r = .34$; $p < .01$). It is important to note that lower scores on the task ease scale denote increased task difficulty. As such, these results suggest that as children's perceptions of task ease increase, feelings of anger and sadness decrease, and feelings of happiness increase. Finally, no significant results emerged between attributions to luck and the four emotions.

To test for significant differences between intensity of emotional reactions and attributions to ability and effort, Williams' modification of the Hotelling test was conducted. Results indicated significant differences emerged between the correlations of attributions to ability and the emotions of happiness, sadness, and anger, and the correlations to effort and the emotions of happiness, sadness, and anger (t 's of 2.67, 2.41, and 2.19, respectively, $p < .05$). These analyses clearly indicate that attributions to ability correlated more strongly with measures of affect than did attributions to effort. These results were consistent irrespective of classification of the as either attribution-dependent or attribution-independent. To investigate these and other hypotheses further, subtraction skill scores were split into failure and success outcomes.

Failure Experience

When reviewing both the range and frequencies of scores, it was decided to define failure operationally as a score of 12 or under, i.e., below 50%. Means and standard deviations for all variables are presented in Tables 8 to 10. Findings related to the analyses for failure are presented in Tables 11 to 14.

It was hypothesized that the attribution-independent emotion of sadness would display either the same or similar correlations with the four attributions. As seen in Table 11, this hypothesis failed to be supported in that no significant correlations emerged on these analyses.

A number of unpredicted statistically significant correlations also emerged. Attributions to ability and effort correlated positively with the emotion of hopefulness, (r 's of .39, $p < .01$). These results suggest that as attributions to ability and effort increase, associations to hopefulness also increase. The ability data are in direct opposition to previous research, wherein failure attributed to an internal, stable, and uncontrollable cause elicited feelings of negative expectancies such as fear, dread, and hopelessness. The effort data, however, support past research and more current attributional theory, in that failure attributed to an internal, unstable, and controllable cause has been associated with emotions related to positive expectancies such as hopefulness.

Table 8

Means and Standard Deviations for the Variables of Self-
efficacy and Subtraction Skill (Failure Sub-group N = 50).

	Self-efficacy	Subtraction Skill
<u>M</u>	1581.58	3.76
<u>S.D.</u>	575.76	3.89

Note. Self efficacy scores range from 0 (lowest) to 2500.

Subtraction skill scores range from 0 (lowest) to 25.

Table 9

Means and Standard Deviations for the Four Attributions
(Failure Sub-group N = 50).

	Ability	Effort	Luck	Task Ease
<u>M</u>	29.60	54.20	33.60	29.40
<u>S.D.</u>	27.07	31.43	33.30	29.58

Note. Scale scores range from 0 (lowest) to 100 (highest).

Table 10Means and Standard Deviations for the Four Affects(Failure Sub-group N = 50).

	Anger	Happiness	Sadness	Hope
<u>M</u>	51.48	27.70	51.83	48.75
<u>S.D.</u>	42.20	32.82	42.21	35.76

Note. Scale scores range from 0 (lowest) to 100 (highest).Table 11Correlations Between The Four Attributions and Affect(Failure Subgroup N = 50).

	Anger	Happiness	Sadness	Hope
ability	-.21	.17	-.26	.38**
effort	-.30	.28	-.20	.38**
task ease	-.17	.03	-.06	.10
luck	-.02	.27	-.06	.13

Note. ** $p < .01$

A significant negative correlation emerged between subtraction skill and sadness, ($r = -.50$, $p < .01$). This outcome indicates that as subtraction skill scores became lower, sadness scores increased. This pattern occurred in the previously reported analyses that did not differentiate between failure or success. No other significant findings emerged between subtraction skill and the remaining three emotions.

It was predicted that self-efficacy would display a positive relationship to subtraction skill, thereby suggesting that the former would be a predictor of the latter (in this case failure). This hypothesis failed to be supported, and thus the results of this study stand in direct opposition to Bandura (1986) and Schunk's (1986) assertion that self-efficacy functions as a reliable and powerful predictor of future performance.

Success Experience

Success was operationally defined as scores above 50% on the math subtraction skills test. Various frequency distributions and correlational analyses were derived using higher cut-off points. These analyses tended not to differ from the analyses conducted at the 50% cut, nor did they add further theoretical or empirical support to the hypotheses generated for this study. As such, scores of 13 and above were selected for all analyses reported in this section. Means and

standard deviations for all variables are presented in Tables 12 to 14.

It was hypothesized that the attribution-independent emotion of happiness would display the same positive correlational relationships to the four attributions, whereas sadness would bear the same negative correlational relationships to the four attributions. As seen in Table 15, these hypotheses were not supported. Rather, these attributions differed in both magnitude and direction of their relationships with these affects. Consistent with previously reported analyses that examined both failure and a combined analysis of success and failure, there is little support for the relationships articulated by Weiner (1986) or Nicholls (1984) with involving attributional-independent, outcome dependent emotions.

When examining the relationships between the four attributions and the four emotions, no statistically significant findings emerged with the exception that attributions to ability yielded significant negative correlations with anger and sadness (r 's of $-.40$ and $-.60$, respectively, $p < .01$). These results suggest that under conditions of success, as attributions to ability increased, feelings of anger and sadness decreased.

Another hypothesis was that self-efficacy would display a positive relationship with subtraction skill, and with positive emotional reactions, i.e., happiness and hopefulness.

Table 12

Means and Standard Deviations for the Variables of Self-
efficacy and Subtraction Skill (Success Sub-group N = 34).

	Self-efficacy	Subtraction Skill
<u>M</u>	1869.85	19.08
<u>S.D.</u>	527.50	3.24

Note. Self efficacy scores range from 0 (lowest) to 2500.

Subtraction skill scores range from 0 (lowest) to 25.

Table 13

Means and Standard Deviations for the Four Attributions
(Success Sub-group N = 34).

	Ability	Effort	Luck	Task Ease
<u>M</u>	81.47	80.58	53.82	57.05
<u>S.D.</u>	20.02	25.33	36.92	29.90

Note. Scale scores range from 0 (lowest) to 100 (highest).

Table 14Means and Standard Deviations for the Four Affects(Success Sub-group N = 34).

	Anger	Happiness	Sadness	Hope
<u>M</u>	12.50	76.32	7.35	74.26
<u>S.D.</u>	21.75	26.60	12.86	27.30

Note. Scale scores range from 0 (lowest) to 100 (highest).Table 15Correlations Between the Four Attributions and Affect(Success Sub-group N = 34).

	Anger	Happiness	Sadness	Hope
ability	-.40**	.22	-.60**	.20
effort	-.23	-.34	.27	.07
task ease	-.08	.17	.17	.04
luck	.20	-.18	.02	.02

Note. ** $p < .01$

These predictions were not supported. It appears as though self-efficacy did not function as a predictor of success, or as a strong determinant of emotional responses. These points will be addressed further in the general discussion in Chapter 5 of this thesis.

Finally, self-efficacy correlated significantly and negatively with sadness, ($r = -.29$, $p < .01$), suggesting that higher ratings of self-efficacy were associated with lower sadness scores.

Study II

Overview

The purpose of Study II was to examine the attributional affective relationships predicted by Weiner's (1986) theory of achievement motivation and emotion with a sample of remedial mathematics students in junior secondary school. In order to expand the scope of this research, the grade eight sample was selected to (a) investigate developmental differences in attributional patterns, and (b) to examine in greater depth Weiner's (1986) attributional-affective linkages.

Relationships between self-efficacy, attributions, and affect were also examined. In total, 66 eighth grade students in four classrooms indicated their (a) perceptions of self-efficacy to solve math subtraction problems, (b) completed a 15-item math subtraction skill test, (c) rated their attributions to ability, effort, task ease, and luck, and (d) indicated their degree of emotional reactions across 18 affects. These 18 emotions consisted of three attribution-independent affects (frustration, happiness, and sadness), and 13 attributional-dependent affects (anger, guilt, regret, hopefulness, pride, shame, guilt, confidence, gratefulness, satisfaction, disappointment, self-blame, surprise, and relief).

Means and standard deviations for all measures are presented in Tables, 16, 17, and 18.

Table 16

Means and Standard Deviations for the Variables of Self-
efficacy and Subtraction Skill (Combined Group N = 66).

	Self-efficacy	Subtraction Skill
<u>M</u>	1015.90	9.18
<u>S.D.</u>	381.55	4.32

Note. Self efficacy scores rangee from 0 (lowest) to 1500.
Subtraction skill scores range from 0 (lowest) to 15.

Table 17

Means and Standard Deviations for the Four Attributions
(N = 66).

	Ability	Effort	Luck	Task Ease
<u>M</u>	56.06	58.03	32.04	53.56
<u>S.D.</u>	28.05	26.90	26.06	24.92

Note. Scale scores range from 0 (lowest) to 100 (highest).

Table 18Means and Standard Deviations for the Eighteen Affects(N = 66).

	<u>M</u>	<u>S.D.</u>
Anger	33.03	36.41
Happiness	48.10	41.06
Regret	31.06	31.87
Hopefulness	36.81	32.01
Frustration	29.69	33.78
Satisfaction	47.81	37.69
Proud	48.18	38.82
Disappointment	32.87	37.57
Self-blame	28.03	33.29
Self-doubt	25.15	28.46
Joy	41.51	38.36
Shame	28.63	35.77
Guilt	23.38	31.58
Surprise	57.38	34.87
Relief	32.00	34.05
Confidence	47.30	36.00
Thankful	40.30	36.74
Grateful	43.07	38.44

Note. Scale scores range from 0 (lowest) to 100 (highest).

Following the calculation of descriptive statistics, Pearson product-moment correlational analyses were conducted on all data. An alpha level of .01 was selected as an indication of statistical significance for all analyses. The results of these analyses are presented in Tables 19 to 26.

Self-efficacy. It was hypothesized that self-efficacy should bear a positive relationship to subtraction skill. This hypothesis was supported by a significant positive correlation ($r = .39$; $p < .01$) between these two variables. Consistent with the results of Study I, higher ratings of self-efficacy were associated with higher subtraction test scores, suggesting that self-efficacy functioned as a predictor of future performance for this group of students.

Although the relationship between self-efficacy and affect has not been previously investigated, it was predicted that self-efficacy should bear a positive relationship to positive affects such as happiness, joy, confidence, pride, satisfaction and hopefulness. As seen in Table 19, this hypothesis failed to be supported in that no statistically significant findings emerged between these variables.

Another hypothesis was that negative affects, such as anger, regret, shame, frustration, and so forth, would correlate negatively with self-efficacy. Again, no statistically significant correlations emerged between these variables suggesting that self-efficacy is not a strong determinant of

Table 19Correlations Between Self-efficacy and the Eighteen Affects.

Affects	Correlations
Happiness	.19
Hopefulness	.01
Satisfaction	.30
Proud	.29
Joy	.27
Confidence	.29
Anger	-.12
Regret	-.17
Frustration	-.04
Disappointment	-.14
Self-blame	-.01
Self-doubt	.06
Shame	-.08
Guilt	.00
Surprise	.00
Relief	.00
Thankful	.08
Grateful	.12

Note. ** $p < .01$

affective experience.

Subtraction skill. It was predicted that subtraction skill, as assessed by a 15-item subtraction test, should bear a positive relationship with attributions to ability, effort, and task ease, respectively. As seen in Table 20, these predictions were supported with significant positive correlations between subtraction skill and each of these attributions ($r = .75$, $r = .66$, and $r = .48$, $p < .01$, respectively). The results suggest that for performance outcomes, grade eight remedial math students may have a tendency to make slightly stronger attributions to ability and effort compared to attributions to task ease. To test this hypothesis, Williams' modification of the Hotelling test was conducted. Results indicated that no statistically significant difference emerged between correlations to performance scores and attributions of ability and effort ($t = .75$, $p > .05$). A test of statistical significance between correlations to performance scores and attributions to effort and task ease also failed to attain statistical significance ($t = 1.80$; $p > .05$). A statistically significant result emerged, however, between correlations to performance scores and attributions to ability and task ease ($t = 4.30$; $p < .01$). This outcome suggests that the students in this study tended to make stronger connections to attributions to ability compared to

Table 20Correlations Between Subtraction Skill and the Four
Attributions (N = 66).

	Subtraction skill
ability	.75**
effort	.66**
task ease	.48**
luck	.22

Note. ** $p < .01$

attributions to task ease. Overall, these results differ from those in Study I where grade three children appeared to (a) strongly attribute performance outcome to ability, and (b) to associate good performance outcome with good luck.

Another general hypotheses was that subtraction skill would correlate positively to positive affects, and negatively to negative affects. As seen in Table 21, these hypotheses were supported. Firstly, satisfaction, pride, confidence, joy, happiness, and hope, were correlated significantly and positively with subtraction scores (r 's of .81, .81, .80, .73, .70. and .39, respectively, $p < .01$). Conversely, regret, disappointment, frustration, anger, guilt, self-blame, shame, and self-doubt were correlated significantly and negatively with subtraction scores (r 's of -.62, -.52, -.51, -.47, -.45, -.44. -.42, -.30, respectively, $p < .01$). Consistent with Study I, these results suggest that students may experience or associate greater positive emotions with higher subtraction scores, and negative emotions with lower subtraction scores. Of considerable importance here is that the actual performance outcome scores produced the strongest correlations to almost all other variables. Thus, affective reactions, self-efficacy, and attributions appear to be far more dependent upon actual rather than perceived outcomes. As well, one's performance score appears to set the tone and intensity for all other judgments and perceptions.

Table 21

Correlations Between Subtraction skill and the Eighteen Affects (N = 66).

Affects	Correlations
Happiness	.70**
Hopefulness	.39**
Satisfaction	.81**
Proud	.81**
Joy	.73**
Confidence	.80**
Anger	-.47**
Regret	-.62**
Frustration	-.51**
Disappointment	-.52**
Self-blame	-.44**
Self-doubt	-.30**
Shame	-.42**
Guilt	-.45**
Surprise	.04
Relief	.48**
Thankful	.45**
Grateful	.46**

Note. ** $p < .01$

Finally, significant positive correlations emerged between subtraction skill and the affects of thankfulness and gratefulness (r 's of .46 and .48, respectively, $p < .01$). These results suggest that remedial grade eight math students may be inclined to associate success or passing with externally based affects. The emotion of relief also correlated significantly and positively with subtraction skill (r .48; $p < .01$.) adding additional support to this trend. In this case, it may be that a history of poor performance elicits such reactions to successful outcomes.

Attributions and affect. As seen in Table 22, and consistent with the correlational predictions, attributions to ability bore a positive relationship with the positive affects of confidence, pride, joy, happiness, satisfaction, and hopefulness (r 's of .73, .67, .62, .59, .59, and .42, respectively, $p < .01$.) Conversely, attributions to ability displayed a negative relationship with the negative affects of regret, disappointment, guilt, frustration, self-blame, and anger, (r 's of - .50, -.42, -.39, -.39, -.37, -.34, respectively, ($p < .01$)). These results suggest that as attributions to high ability increase, positive emotions also increase, and negative emotions decrease.

A number of unpredicted statistically significant positive correlations also occurred between attributions to ability and the affects of thankfulness, gratefulness, and

Table 22

Correlations Between the Four Attributions and the Eighteen Affects (N = 66).

Affects	Ability	Effort	Task Ease	Luck
Happiness	.59**	.48**	.34**	.20
Hopefulness	.42**	.19	.30	.32
Satisfaction	.59**	.54**	.41**	.16
Proud	.67**	.55**	.37**	.29
Joy	.62**	.52**	.42**	.19
Confidence	.73**	.56**	.47**	.16
Anger	-.34**	-.34**	-.11	-.16
Regret	-.50**	-.42**	-.25	-.15
Frustration	-.39**	-.37**	-.18	-.15
Disappointment	-.42**	-.43**	-.16	-.18
Self-blame	-.37**	-.42**	-.13	-.22
Self-doubt	-.22	-.36**	-.06	-.02
Shame	-.33**	-.40**	-.10	-.12
Guilt	-.39**	-.52**	-.12	-.08
Surprise	.11	-.02	.11	-.01
Relief	.33**	.15	.24	.19
Thankful	.43**	.31	.24	.29
Grateful	.41**	.23	.27	.23

Note. ** $p < .01$

relief (r 's of .43, .41, and .33, respectively, $p < .01$). These results suggest that as attributions to ability increase, feelings of thankfulness, gratefulness, and relief also increase. These affects have previously been found to be related to the causal dimensions of uncontrollability and an external locus (cf. Weiner 1989). Moreover, these affects have been associated with attributions to low ability, good luck, and task ease. The results of this study, however, clearly indicate an opposite pattern. That is, attributions to higher ability elicited stronger associations to affects that are external in causal orientation.

Attributions to effort yielded a pattern of results similar to those of attributions to ability. Briefly, effort bore a positive relationship to confidence, pride, satisfaction, joy, and happiness (r 's of .56, .55, .54, .52, and .48, respectively, $p < .01$), and a negative relationship to guilt, disappointment, self-blame, regret, shame, frustration, and anger (r 's of -.52, -.43, -.42, -.42, -.40, -.37, and -.34, respectively, $p < .01$). These correlations suggest that as attributions to high effort increase, positive affects increase, whereas negative affects decrease.

When testing for statistically significant differences between correlations of emotions and attributions to ability and effort, analyses from Williams' modification of the Hotelling test showed that correlations to attributions to

ability and effort only attained significance for the emotion of confidence ($t = 2.22$, $p < .05$). This finding is consistent with previous attributional research in that success attributed to ability has been found to be more efficacious compared to attributions to effort (Schunk, 1986).

To summarize the ability-affect and effort-affect attribution results, attributions to ability attained statistical significance to the emotions of hopefulness, relief, thankfulness, and gratefulness, whereas attributions to effort did not. Attributions to ability were also found to elicit a greater intensity of confidence compared with attributions to effort. Otherwise, both of these attributions yielded a similar degree of emotional reaction to happiness, satisfaction, pride, joy, anger, regret, frustration, disappointment, self-blame, shame, and guilt.

Attributions to luck failed to produce any significant correlations at the .01 level. For the attribution of task ease, however, a number a significant positive correlations were observed. Specifically, attributions to task ease correlated significantly and positively with confidence, joy, satisfaction, pride, happiness, and hopefulness (r 's of .47, .42, .41, .37, .34, and .30, respectively, $p < .01$). These results suggest that as perceptions of task easiness increase, ratings of positive affects also increase.

Finally, consistent with the results of Study 1, there is little support for the relationships articulated by Weiner

(1986) or Nicholls (1985) with respect to the anticipated attributional-independent, outcome dependent emotions. However, results from Study II will subsequently be partitioned into both success and failure groups in order to investigate these hypotheses further.

Failure Experience

When reviewing both the range and frequencies of scores, it was decided to define failure operationally as a score of eight or under, i.e., below 55%. Scores below 55% produced almost the exact same results as scores below 50%, and a split at this score allowed for a more equal distribution of subjects between the failure and success subgroups, 32 and 34, respectively. Means and standard deviations for all variables are presented in Tables 23 to 25.

Self-efficacy. It was hypothesized that self-efficacy should bear a positive relationship to subtraction skill. This hypothesis was supported ($r = .51$; $p < .01$). Consistent with the results of Study 1, this positive correlation suggests that under conditions of failure, self-efficacy functioned as a predictor of future performance for this group of remedial math eight students. It was also hypothesized that self efficacy would bear a positive relationship to positive affects, and a negative relationship to negative affects. As seen in Table 26, this hypothesis failed to be supported in that no significant correlations emerged between self-efficacy

and any of the emotions assessed in this study.

Subtraction skill. It was predicted that subtraction skill would bear a positive relationship with attributions to ability, effort, and task ease, respectively. As seen in Table 27, these predictions failed to be supported in that no significant findings between these variables.

Attribution and affect. One hypothesis was that under conditions of failure, attributions to low ability would bear a negative relationship to shame and other negative affects. As seen in Table 28, this hypothesis was unsupported in that no significant findings emerged between these variables. These results are inconsistent with findings by Weiner and Kukla (1970), Nicholls (1976), Sohn (1977), Brown and Weiner (1984), and Covington and Omelich (1985), wherein shame or guilt was found to be associated with failure attributed to low ability.

It was also hypothesized that attributions to low effort would demonstrate a negative relationship to guilt, and other negative affects. Similar to the ability data, no statistically significant results emerged. This result also fails to support previous research findings by Brown and Weiner's (1984) and Covington and Omelich's (1985), where guilt was found to be the primary emotion experienced when failure was attributed to lack of effort.

To further investigate the ability and effort guilt linkages, another analysis was conducted using scores of three

Table 23

Means and Standard Deviations for the Variables of Self-
efficacy and Subtraction Skill (Failure Sub-group N = 28).

	Self-efficacy	Subtraction Skill
<u>M</u>	954.80	5.52
<u>S.D.</u>	370.21	2.58

Note. Self efficacy scores range from 0 (lowest) to 1500.
Subtraction skill scores range from 0 (lowest) to 15.

Table 24

Means and Standard Deviations for the Four Attributions
(Failure Sub-group N = 28).

	Ability	Effort	Luck	Task Ease
<u>M</u>	37.60	42.00	32.00	42.80
<u>S.D.</u>	18.54	23.09	24.49	18.37

Note. Scale scores range from 0 (lowest) to 100 (highest).

Table 25.

Means and Standard Deviations for the Eighteen Affects
(Failure Subgroup N = 28).

	<u>M</u>	<u>S.D.</u>
Anger	51.20	34.19
Happiness	16.40	24.47
Regret	50.40	26.69
Hopefulness	21.60	21.34
Frustration	52.40	34.55
Satisfaction	15.60	21.81
Proud	16.00	19.79
Disappointment	53.20	40.89
Self-blame	45.20	33.05
Self-doubt	37.60	32.56
Joy	14.00	16.07
Shame	46.00	39.05
Guilt	38.00	34.15
Surprise	56.00	36.51
Relief	14.80	20.23
Confidence	17.20	19.47
Thankful	22.40	26.50
Grateful	24.00	28.43

Note. Scales scores range from 0 (lowest) to 100 (highest).

Table 26Correlations Between Self-efficacy and the Eighteen Affects(N = 28).

Affects	Correlations
Happiness	-.05
Hopefulness	-.19
Satisfaction	.18
Proud	.05
Joy	.06
Confidence	.23
Anger	.19
Regret	.21
Frustration	.24
Disappointment	-.08
Self-blame	.36
Self-doubt	.34
Shame	.08
Guilt	-.10
Surprise	.04
Relief	.22
Thankful	-.10
Grateful	-.20

-.12

Note. ** $p < .01$

Table 27

Correlations Between Subtraction Skill and the Four Attributions
(Failure Subgroup N = 28).

	Subtraction skill
ability	.41
effort	.32
task ease	.30
luck	.31

Note. ** $p < .01$

Table 28

Correlations Between the Four Attributions and the Eighteen Affects (Failure Sub-group N = 28).

Affects	Ability	Effort	Task Ease	Luck
Happiness	-.20	-.27	-.05	.16
Hopefulness	-.04	-.10	.12	.34
Satisfaction	.05	.09	.17	.03
Proud	.01	-.20	-.08	.47
Joy	.19	-.01	.26	.53**
Confidence	.22	.03	.37	.45
Anger	.30	.32	.46	.03
Regret	.20	.29	.33	-.03
Frustration	.19	.09	.32	.17
Disappointment	.06	-.01	.20	.00
Self-blame	.28	.22	.33	.00
Self-doubt	.19	.15	.21	.14
Shame	.05	-.01	.11	-.03
Guilt	-.32	-.37	-.15	-.02
Surprise	.13	.08	.20	-.17
Relief	-.07	-.30	.14	-.02
Thankful	-.06	-.12	-.02	.21
Grateful	-.20	-.24	-.12	.23

Note. ** $p < .01$

and under, (below 20%). No statistically significant correlations emerged between these affects and their respective attributional linkages.

Returning now to the previous data analyses using subtraction skill scores of eight and under, it was predicted that ascriptions to task difficulty would give rise to negative affect. This hypothesis failed to be supported. No statistically significant correlations emerged between subtraction skill and the negative emotions assessed in this study.

Finally, attributions to good luck correlated significantly and positively with Joy ($r = .53$; $p < .01$), suggesting that as attributions to good luck increased, feelings of Joy also increased.

Success Experience

Success was operationally defined as scores of 66% and above on the subtraction skill test. Various frequency distributions and correlational analyses were conducted using higher and slightly lower cut-off points. These analyses differed slightly from the analyses conducted at 66%, but did not add theoretical or empirical support to the hypotheses generated for this study. Further, when reducing the cut off point to scores of 55% and above, only four additional subjects were added to the success group. Based upon the aforementioned distributional and statistical considerations,

scores of 10 and above (66%) were selected for all analyses reported in this section. Means and standard deviations for all variables are presented in Tables 29 to 31.

Self-efficacy. It was hypothesized that self-efficacy should bear a positive relationship to subtraction skill. This hypothesis was not supported ($r = .13$; $p > .05$). Inconsistent with the results of Study 1, and the combined results of Study II (both success and failure), this result suggests that for success, self-efficacy did not function as a predictor of future performance for remedial math eight students.

It was also hypothesized that for success, self efficacy would bear a positive relationship to positive affects, and a negative relationship to negative affects. As seen in Table 32, these hypotheses were not supported. No statistically significant correlations emerged between self-efficacy and any of the 18 emotions assessed in this study.

Subtraction skill. It was predicted that subtraction skill should bear a positive relationship with attributions to ability and effort. As seen in Table 33, a significant positive correlation emerged between subtraction skill and attributions to effort ($r = .61$; $p < .01$). This finding suggests that as subtraction scores increased, students' ratings of attributions to effort also increased. A nonsignificant correlation emerged between subtraction skill and attributions to ability. As such, these data indicate that students were more likely to attribute success to effort

Table 29

Means and Standard Deviations for the Variables of Self-
efficacy and Subtraction Skill (Success sub-group N = 34).

	Self-efficacy	Subtraction Skill
<u>M</u>	1118.52	12.58
<u>S.D.</u>	355.58	1.97

Note. Self efficacy scores range from 0 to 1500.

Subtraction skill scores range from 0 to 15.

Table 30

Means and Standard Deviations for the Four Attributions (N =
34).

	Ability	Effort	Luck	Task Ease
<u>M</u>	73.82	72.05	33.52	63.38
<u>S.D.</u>	22.43	21.71	28.05	25.90

Note. Scale scores range from 0 (lowest) to 100 (highest).

Table 31

Means and Standard Deviations for the Eighteen Affects
(Success Sub-group N = 34).

	<u>M</u>	<u>S.D.</u>
Anger	17.35	28.10
Happiness	74.85	33.26
Regret	12.05	19.66
Hopefulness	48.82	34.18
Frustration	13.23	22.39
Satisfaction	76.25	25.24
Pride	76.47	26.61
Disappointment	15.58	24.14
Self-blame	13.52	26.50
Self-doubt	15.88	22.97
Lucky	28.08	33.97
Joy	63.52	37.89
Shame	14.41	27.54
Guilt	12.35	26.17
Surprise	58.23	35.37
Relief	45.00	37.43
Confidence	72.64	26.89
Thankful	53.52	37.81
Grateful	57.94	39.75

Note. Scale scores range from 0 (lowest) to 100 (highest).

compared to ability, task ease, or luck. These results differ from Study I, wherein grade three children appeared to (a) attribute performance outcome to ability, and (b) to associate good performance outcome with good luck.

Similar to the combined results of Study II (both success and failure), subtraction skill also correlated positively with positive affects, and negatively with negative affects. As seen in Table 34, joy, pride, confidence, satisfaction, and happiness, were correlated significantly and positively with subtraction scores (r 's of .67, .62, .61, .57, and .54, respectively, $p < .01$). Conversely, disappointment, self-doubt, regret, self-blame, anger, and guilt correlated significantly and negatively with subtraction scores (r 's of -.60, -.55, -.52, -.46, -.45, and -.31, respectively, $p < .01$). Consistent with Study I, these results suggest that students likely experience or associate greater positive emotions with higher subtraction scores, and negative emotions with lower subtraction scores. Of considerable importance here is that the actual performance outcome scores produced the strongest correlations with almost all other variables. Thus, one's performance score may influence both the tone and intensity for all other judgments, perceptions, and emotional reactions.

Finally, significant positive correlations emerged between subtraction skill and the affects of thankfulness and

Table 32

Correlations Between Self-efficacy and the Eighteen Affects
(Success Sub-group N = 34).

Affects	Correlations
Happiness	.01
Hopefulness	-.06
Satisfaction	.12
Proud	.24
Joy	.12
Confidence	.18
Anger	.04
Regret	.08
Frustration	.05
Disappointment	.06
Self-blame	-.02
Self-doubt	.01
Shame	-.03
Guilt	.08
Surprise	.06
Relief	-.15
Thankful	.00
Grateful	.17

-.12

Note. ** $p < .01$

Table 33Correlations Between Subtraction Skill and the Four
Attributions.

Subtraction skill	
ability	.39
effort	.61**
task ease	.12
luck	.15

Note. ** $p < .01$

Table 34

Correlations Between Subtraction skill and the Eighteen Affects (Success Sub-group N = 34).

Affects	Correlations
Happiness	.54**
Hopefulness	.16
Satisfaction	.57**
Proud	.62**
Joy	.67**
Confidence	.61**
Anger	-.45**
Regret	-.52**
Frustration	-.40
Disappointment	-.60**
Self-blame	-.46**
Self-doubt	-.55**
Shame	-.45**
Guilt	-.31
Surprise	.04
Relief	.23
Thankful	.32
Grateful	.34

Note. ** $p < .01$

gratefulness (r 's of .45 and .48, respectively, $p < .01$).

Consistent with the results of the Study II Combined Group, these data suggest that remedial math eight students may be inclined to associate external attributional type affects with successful outcomes. This issue will be discussed further in the following chapter.

Attribution and affect. As seen in Table 35, attributions to ability bore a positive relationship with the positive emotion of confidence ($r = .57$; $p < .01$). These results suggest that as attributions to ability increase, feelings of confidence also increase. This finding is consistent with the success sub-group data of Study I, the combined group of Study II, and Schunk's (1986) research, wherein attributions to ability were found to be efficacious under conditions of success when compared to attributions to effort.

It was also predicted that under conditions of success, attributions to ability would correlate negatively with negative affective experience. This hypothesis failed to be supported in that no statistically significant results emerged between these variables.

Attributions to effort yielded significant negative correlations with the negative affects of self-blame, self-doubt, shame, disappointment, and guilt (r 's of $-.63$, $-.67$, $-.63$, $-.57$, $-.56$, respectively, $p < .01$). These results suggest that as attributions to effort expended increase, feelings of

Table 35Correlations Between the Four Attributions and the Eighteen Affects (Success Sub-group N = 34).

Affects	Ability	Effort	Task Ease	Luck
Happiness	.34	.32	.03	.16
Hopefulness	.27	-.08	.14	.26
Satisfaction	.10	.37	.01	.21
Proud	.38	.43	.07	.26
Joy	.38	.35	.20	.04
Confidence	.57**	.42	.24	.03
Anger	-.04	-.43	-.11	-.12
Regret	-.14	-.33	.03	-.04
Frustration	-.22	-.33	-.01	-.04
Disappointment	-.18	-.57**	-.01	-.29
Self-blame	-.21	-.63**	-.01	-.31
Self-doubt	-.16	-.67**	-.03	-.14
Shame	-.11	-.63**	-.10	-.16
Guilt	-.12	-.56**	-.15	-.11
Surprise	.20	-.17	.11	-.13
Relief	.06	-.08	.12	.22
Thankful	.27	.13	.06	.29
Grateful	.27	.13	.18	.18

Note. ** $p < .01$

decrease. Put another way, as attributions to effort expended decrease, experience these negative affects increases.

When examining the relationships articulated by Weiner (1986) with respect to the anticipated attributional-independent outcome dependent emotions, little evidence emerged to support these hypotheses. Under conditions of success, it was predicted that happiness would yield the same or similar value positive correlations with attributions to ability, effort luck, and task ease. No statistically significant findings emerged here or in Study I.

CHAPTER FIVE

DISCUSSION AND IMPLICATIONS

Overview

In this final chapter, the results of Studies I and II will be reviewed and summarized in relation to the hypotheses presented in the first and second chapters. General observations and conclusions within and across both studies will be discussed in relation to previous research findings and Weiner's (1986) attributional theory of achievement motivation and emotion. Criticisms and limitations of the present studies will also be presented. Finally, implications for future research will be drawn.

Study I

Summary of Results

Self-efficacy. Self-efficacy functioned as a predictor of future performance in that the combined group displayed a low to moderate, statistically significant correlation between self-efficacy and subtraction scores. The lack of statistically significant results from the success and failure sub-groups, however, suggests that the predictive power of self-efficacy for mathematical achievement in this sample of grade three children was less than that demonstrated in much previous research. For example, in a series of attributional feedback studies, Schunk (1982, 1983, 1984, 1986) reported

moderate to highly positive correlations between self-efficacy and subtraction scores (r' of .73, .51, .61, and .70, respectively). It is important to note that these results are post-test correlations; that is, the data on which these correlations are based were collected following the implementation of attributional feedback. Results most comparable to Study I would have been pretest correlations not reported in these studies.

In an experiment where the pretest correlations were published, Schunk and Gunn (1982) found that a low and non statistically significant positive correlation ($r = .16$) emerged between subtraction performance scores and self-efficacy. This finding is more consistent with the success and failure sub-group data from Study I. Certainly, the loss of power that occurred as a consequence of splitting the combined sample ($N = 84$) into two subgroups (success $N = 34$ and failure $N = 50$) reduced the statistical power of these correlations. Recall, however, that the combined group data yielded a positive correlation of only .33. Although this correlation attained statistical significance and was higher than the Schunk and Gunn (1982) pre-test correlation of .16, it remains far below the highly positive, post-test correlations that emerged after the administration of attributional feedback in the Schunk and Gunn (1982) study ($r = .69$), and the posttest correlations reported elsewhere by Schunk (1982, 1983, 1984,

1986).

When considering the results of the foregoing studies, it appears as though attributional feedback was instrumental in the development of greater congruency between self-efficacy and performance outcome. Young children may have a tendency either to over or underestimate their actual abilities to solve tasks, especially in the absence of feedback and/or task specific training. It is likely that congruency, (i.e., accuracy between prediction and outcome), is acquired through experience. When considering the somewhat limited experience of grade three children, it is not surprising that a low degree of congruency may exist between prediction and performance scores, especially when predictions are based on self-efficacy judgments alone.

In Study I, examination of the relationships between self-efficacy and the four emotions studied showed that self-efficacy was only minimally associated with affective experience. Of these four emotions, only sadness entered into statistical significance relationships. This outcome was observed across the combined group and the success sub-group. These data suggest that for the grade three children in this study, self-efficacy was not a strong determinant of affective experience.

One possible explanation of these results is that a low level of congruency between self-efficacy and performance outcome may have either (a) altered the direction of the

predicted relationships, or (b) depressed values of the affective associations under investigation. In the former case, the emotions experienced may have been opposite to the expected reactions. For example, if success was predicted and the outcome was failure, sadness rather than happiness may be experienced. The second possibility is that the emotions most likely to be experienced, (ie., happiness for success), may have become less intense as a result of the partial violation of expectations. For example, if the actual level of success achieved was less than what was expected, happiness may be experienced, but to a lesser degree than had the outcome been as successful as initially predicted. Although the alternative explanations provided here deserve further consideration, it is important to recognize the possibility that self-efficacy is not a strong determinant of affective experience.

Finally, it was hypothesized that self-efficacy would display a positive relationship with attributions to ability. In direct opposition to this hypothesis, the success sub-group displayed a negative, non-significant correlation between these two variables ($r = -.20$). Schunk (1983, 1984, 1986) reported that under conditions of success, attributions to ability were more efficacious compared to attributions to effort, task ease, or luck. Clearly, the results from Study I fail to support these findings. Again, these results may suggest that students in the success sub-group overestimated

their abilities to solve subtraction problems. A better fit between self-efficacy and performance outcome may have elicited a moderate to high positive relationship between attributions to ability and self-efficacy, results consistent with Schunk's findings.

Attributions. The combined group analyses indicated that students demonstrated a strong tendency to make attributions to ability compared to attributions to effort, luck, or task ease. These results fail to support previous findings by Schunk (1981, 1984), whereby young children were found to have difficulty differentiating between attributions to ability and effort. Given that the children in this study were approximately the same age as those in Schunk's research, a developmental rationale may not suffice here.

A possible explanation for this unexpected finding may be that the recent rise in scholastic competition among students has created a strong focus on ability (Carr, 1993). Admission standards for entrance to universities, colleges, trade schools, and professional programs have become increasingly stringent. As a consequence, both parents and teachers may be providing young children with messages reflecting the importance of ability rather than effort.

One consequence of attributing performance outcomes to ability, an internal, stable, and uncontrollable cause, is that future performance expectations are not likely to change. Under conditions of success, attributions that focus primarily

on one's ability may not impede academic progress. Under conditions of failure, however, such attributional patterns may decrease task persistence and motivation. Repeated experiences of failure may then come to be seen as part of an inevitable string of failures resulting from a cause that is unchangeable and uncontrollable. However, by attributing performance outcomes to an internal, unstable, and controllable cause such as effort, task persistence and motivation may increase. Simply put, a belief that trying harder may improve performance or possibly enhance future success is far more conducive to academic persistence than a belief that performance cannot improve due to a limitation in ability.

An unexpected finding was that a positive relationship emerged between subtraction scores and attributions to luck. This result suggests that young children may tend to associate good luck with achievement outcomes. When success is attributed to an external, unstable, and uncontrollable cause, perceptions of confidence or self-efficacy are not likely to be enhanced.

When considering the connections young children likely make between performance outcomes and attributions to ability and luck, it may be useful for educators to provide students with more effort attributional feedback. Such feedback may function as a vaccine against learned helplessness, a

condition whereby one believes that failure is inevitable regardless of the level of effort expended. By developing more functional and adaptive attributional patterns at a young age, students may develop greater task persistence and achievement motivation over time when challenged academically.

Attributions and affect. When examining the overall relationships between attributions and affect, the combined group analyses indicated that ascriptions to ability correlated more strongly with the four emotions than did attributions to effort. These results fail to support previous findings by Brown and Weiner (1984), Covington and Omelich (1979), Nicholls (1976), Sohn (1977), Weiner (1979, 1986), and Weiner and Kukla (1970), where attributions to effort were found to be associated with equally or greater affective reactions than attributions to ability. Specifically, ascriptions to low ability were associated with feelings of anger and sadness (r 's of $-.50$, $-.56$, respectively) more so than attributions to low effort expended (r 's of $-.34$, $-.30$, respectively). Attributions to high ability displayed stronger associations to happiness ($r = .55$) than did attributions to high effort ($r = .30$). Overall, these results suggest that for the emotions of happiness, sadness, and anger, young children may experience greater affective reactions when attributing outcomes to their abilities compared to the effort they expend. When interpreting these results, it is important to note the limited number of emotions assessed in this study,

and the age of the participants.

An independent analysis of the success and failure sub-groups failed to support Weiner's (1986) concept of attribution-independent emotions. Presumably, these emotions are global in nature and occur in the absence of attributional activity: happiness under conditions of success, and sadness under conditions of failure. Results from the success sub-group showed non-significant positive and negative correlations between happiness and the four attributions. Thus, there was little support for Weiner's notion of attribution-independent emotions in Study I.

Finally, Weiner (1986) postulated that ascriptions to a stable cause, such as ability, generate emotions related to positive expectancies under conditions of success, and negative expectancies under conditions of failure. Analyses on data from the combined group and failure sub-group supported this hypothesis in that attributions to ability displayed positive associations with hopefulness. Under conditions of success, as attributions to higher ability increased, feelings of hopefulness also increased. Under conditions of failure, however, feelings of hope diminished with attributions to lower ability. These findings support the causal-stability expectancy linkage articulated by Weiner (1986, 1989).

Study II

Summary of Results

Self-efficacy. Results from the combined group and failure sub-group alone supported the hypothesis that self-efficacy functions as a reasonable predictor of future performance (r 's of .39 and .51, respectively). No statistically significant results emerged from the success sub-group, suggesting that for this group of remedial math eight students, self-efficacy was not a strong predictor of mathematical success. As a natural consequence of splitting the sample into two sub-groups (success, $N = 32$, failure, $N = 34$), a loss of statistical power occurred. Nevertheless, the failure sub-group still displayed a moderately positive and statistically significant correlation between subtraction scores and self-efficacy, whereas the success sub-group did not.

In Studies I and II, the success sub-group correlations between self-efficacy and subtraction skill were not statistically significant. For the grade three sample, it was argued that a high degree of incongruency resulting from inexperience may have accounted for this outcome. With the remedial subtraction eight students, however, this explanation seems less viable. Perhaps as a consequence of repeated failure experiences, the remedial math eight students may have become less than optimistic about their subtraction abilities.

Although the subtraction problems used in this study were clearly within the ability range of the success sub-group, highly capable students may have tended to underestimate their potential to solve such problems. The low and non-statistically significant positive correlation between self-efficacy and confidence suggests such a possibility ($r = .17$).

In view of these findings, it may be useful for educators to provide students with materials that foster individual experiences of success. More specifically, individualized educational plans paired with attributional feedback to both effort and ability may increase self-efficacy and academic motivation. Success not only breeds success, but is necessary for the development of self-esteem and confidence. Successful experiences attributed mostly to one's efforts, and perhaps also to one's abilities may contribute to conditions under which greater academic and personal potential can be achieved.

When examining the relationships between self-efficacy and the 18 emotions, no statistically significant findings emerged. The same result also occurred in Study I, suggesting that self-efficacy is not a strong determinant of emotion reactions. It may be that actual objective performance outcomes are far more potent in eliciting affective reactions than mere expectations like self-efficacy. Previous research suggests that expectancies contribute to the elicitation of emotional responses (cf. Miller & Kahneman, 1985). However,

expectancies may play a more indirect role in setting the type, tone, and intensity of the emotional reaction to the objective outcome.

Importantly, subtraction skill scores and the 18 emotions examined in Study II were strongly correlated. Results were in the predicted direction, positive for positive emotions, and negative for negative emotions: ranging from .73 to .81, and from -.43 to -.62. Study 1 yielded a similar pattern of results: ranging from .40 to .68, and from -.40 to -.53. Moreover, these were the types of results expected of relationships between self-efficacy and affective responses. As such, evidence from both Studies I and II suggests that an objective outcome is far more influential in eliciting affective reactions than an expectancy, such as self-efficacy. Put another way, emotional reactions appear to be far more dependent upon actual than perceived outcomes.

Finally, results from the combined group showed that self-efficacy displayed a positive relationship with attributions to ability. This result is consistent with Schunk's (1983, 1984, 1986) research, where attributions to ability were found to be more efficacious (under conditions of success) compared to attributions to effort, task ease, or luck. Interestingly, results from Study I were in direct opposition to these findings. When comparing the results of these studies, it appears as though young children have a less developed sense of predictive self-estimation and

attributional understanding than grade eight students.

Attributions. The combined group analyses indicated that the participants demonstrated a tendency to make attributions to ability compared to attributions to task ease or luck. Interestingly, the success sub-group made the strongest associations to attributions to effort ($r = .62$). The emphasis this sub-group placed on the role of effort in success is consistent with previous research. That is, attributing outcomes to effort expended, an unstable and controllable cause, is more likely to promote academic development than attributing outcomes to ability, a stable and uncontrollable cause, (cf. Weiner, 1986, 1988).

Considering the history of failure experienced by the Grade eight students in Study II, it is interesting that the highest performance group differed from the others in terms of the emphasis placed on the role of effort in success. Individuals may try to expend greater effort to achieve better academic performance. Altering one's level of ability to increase performance outcomes is a much more difficult, if not impossible task. The results of Studies I and II clearly suggest the importance of emphasizing the role of effort in achievement.

Attributions and affect. Similar to the results of Study I, attributions to high ability were associated with feelings of hopefulness ($r = .42$) and confidence ($r = .73$), whereas

attributions to low ability were associated with feelings of hopelessness. These results support previous findings by Betancourt and Weiner (1982), Pratt (1988), and Weiner (1986), where attributions to a stable cause, such as ability, were associated with positive expectancies under conditions of success, and negative expectancies under conditions of failure. Success attributed to ability is likely to elicit emotions conducive to positive expectancies because of the stable nature of this ascription. For example, if I succeed because I am good at a task, I am likely to succeed again because my level of ability remains constant. For the same reason, if I fail because I am not good at a task, I am likely to fail again. Commonly, individuals feel optimistic and hopeful when considering future performance outcomes when past success experiences are attributed to high ability. Conversely, hopelessness or dread may be experienced when previous failure experiences are attributed to low ability. Indeed, the primary concern here is the uncertain motivational impact of attributing failing experiences to a stable cause such as ability. The potential importance and value of emphasizing the role of effort (an unstable cause) in achievement contexts cannot be understated.

The combined group analyses in Study II indicated that attributions to ability correlated more strongly with the positive emotions of confidence and hopefulness than did attributions to effort. Otherwise, attributions to ability and

effort displayed similar relationships to the emotions of happiness, satisfaction, pride, joy, anger, regret, frustration, disappointment, self-blame, shame, and guilt. In a nutshell, when success or failure experiences are not arbitrarily defined, attributions to ability tend to elicit stronger positive, expectancy-related emotional reactions when compared with attributions to effort. Otherwise, both attributions tend to elicit a similar intensity of affect. These results partially support studies by Brown and Weiner (1984), Covington and Omelich (1979b), Nicholls (1976), Sohn (1977), Weiner (1979, 1986), and Weiner and Kukla (1970). In these studies, attributions to effort were found to be equally or more likely than attributions to ability to elicit affective reactions.

An unexpected finding was that attributions to high ability displayed a positive relationship to the emotions of thankfulness, gratefulness, and relief. These emotions have previously been found to be related to the causal dimension of uncontrollability and to attributions such as good luck or task ease (Weiner, 1986, 1989; Graham & Weiner, 1991). The results of this study, however, indicate an opposite pattern. That is, attributions to higher ability elicited stronger associations to emotions that are external in causal orientation.

One possible explanation of these results is that the

sample in this study consisted of students who typically perform very poorly in mathematics. For these students, a successful outcome may be associated with attributions to higher ability. However, a sense of emotional uncertainty or apprehensiveness may be experienced. Perhaps a history of repeated failure may induce a unique attributional pattern and emotional response system that associates external-type emotions with internal causal ascriptions. Of particular relevance here is Covington and Omelich's (1981, 1985) "failure accepting perspective," whereby students, through successive failures, come to view such outcomes as inevitable. Although the outcome here was success, the remedial subtraction students may have responded to success from a perspective of failure acceptance and expectation. That is, they may have felt thankful, grateful, and relieved that they performed well.

When examining the ability and effort attributional affective linkages to guilt and shame, no statistically significant results emerged from the failure sub-group. These results fail to support much previous attributional research where either shame or guilt emerged as a powerful emotional reactions to failure attributed to low effort or ability (cf. Covington and Omelich, 1985; Brown and Weiner, 1984; Kukla, 1970; Nicholls, 1975, 1976; Russell and McAuley, 1986; Sohn, 1977; and Weiner, 1986).

The lack of support in Study II for a low effort-guilt

and/or low ability-shame linkage may be a result of the repeated failing experiences common to this group of students. Again, if a "failure accepting perspective" is acquired, unique attributional-emotional patterns may develop over time. Thus, as students become desensitized to failing experiences, feelings of shame or guilt may decrease in intensity.

An independent analysis of the success and failure sub-groups failed to support Weiner's (1986) concept of attribution-independent emotions. Recall that these global types of emotions occur in the absence of attributional activity, and are dependent upon the objective outcomes of success or failure experiences. Results from the success and failure sub-groups revealed no statistically significant findings. When considering findings from both Studies I and II, there is little support for Weiner's notion of attribution-independent emotions.

In summary, the results of Study II suggest that: (a) attributions to ability and effort are likely to elicit a similar degree of emotional reaction when success or failure is not defined arbitrarily; (b) when attributions to ability elicit a greater intensity of affective experience, it is likely to be emotions related to positive expectancies, and to emotions linked with an external causal orientation; (c) there is little evidence supporting a low ability-low effort shame or guilt linkage under conditions of failure; and (d) the

concept of attribution-independent emotions remains unsupported.

A possible explanation of the results inconsistent with previous attributional research is that the vast majority of previous research in this area has been linked to hypothetical rather than actual performance outcomes (Sears, 1986). Studies I and II differed from this previous work in that students' attributional perceptions and judgments were based on actual performance outcomes. Indeed, emotional intensity and reactions may differ greatly when outcomes are more directly meaningful and personal. Using hypothetical outcomes as a methodology in research may be efficient and economical. However, as a consequence of overemploying this methodology during the past two decades, the large body of attributional research amassed in educational psychology may not be representative of how human beings react in actual achievement contexts. With this in mind, the findings from Studies I and II that failed to support previous attributional research may be more indicative of students' attributional reactions to actual performance outcomes. Such inconsistencies in findings from attributional research may be resolved or understood better by conducting more studies of students' reactions in actual rather than contrived, achievement situations.

Summary and Conclusion

The purpose of this research was to explore Weiner's theory of attribution and emotion in a classroom context. Overall, Studies I and II varied in their support of Weiner's theoretical propositions. In many cases, however, Weiner's theoretical propositions were upheld. Under conditions of success, the following hypotheses were supported.

1. Attributions to high ability and high effort displayed positive associations with positive and self-esteem enhancing emotions, to test scores, and to increased expectancy for success.
2. Attributions to task ease displayed positive associations to positive affect, to test scores, and to increased expectancy for success.
3. Attributions to stable causes, such as ability, under conditions of success, were associated with emotions related to positive expectancies.

Under conditions of failure, the following hypotheses were supported.

1. Attributions to low ability displayed a negative association to negative emotions and expectancy of success, and displayed a positive relationship to test scores.

2. Attributions to low effort displayed a negative association to negative affects and to test scores.

3. Attributions to task difficulty (an external and uncontrollable cause) displayed a positive relationship to anger and a negative relationship to expectancy for success.

When theoretical propositions were not supported, relationships may have been in the hypothesized direction, but failed to attain statistical significance. In some cases, however, results indicated relationships in direct opposition to current attributional theory. Most notable of these were the ability and effort shame-guilt linkages that failed to emerge under conditions of failure. Findings from previous attributional research indicated highly positive associations between low ability-low effort and shame or guilt (Covington & Omelich, 1985).

In further opposition to current attributional theory, it was found that the grade three children made stronger associations between attributions to ability and emotional experience compared with associations between attributions to effort and emotional experience. The grade eight students associated stronger external emotions with attributions to ability. Finally, there was little evidence to support Weiner's proposition of attribution-independent emotions.

When examining developmental differences between participants in these studies, a few outcomes are noteworthy.

Unlike the grade eight students, the grade three students made: (a) strong associations between attributions to good luck and success, and (b) under conditions of failure, emotions related to negative expectancies were less differentiated across the stability dimension. Specifically, attributions to ability and effort displayed similar relationships to hopefulness. In previous attributional research, and with the grade eights, under conditions of failure, attributions to effort displayed a stronger relationship to positive expectancy emotions such as hopefulness and confidence than did attributions to ability. Finally, self-efficacy functioned as a slightly better predictor of both success and failure for the grade eight students.

Examining similarities between age groups, many findings remained consistent across both studies: (a) self-efficacy was only minimally associated with affective experience, and (b) functioned as a better predictor of failure than success. Both groups displayed the strongest correlations between subtraction skill and all other variables, suggesting that performance scores, an objective outcome, set the tone for all reactions, attributional and emotional. Both groups displayed clearly differentiated patterns of response across the four attributions and tended to make stronger associations to attributions to ability.

Although Studies I and II utilized actual rather than hypothetical outcomes, a number of limitations in these studies should be noted. First, correlational analyses fail to provide sufficient evidence of causal relationships. Thus, a causal link between the attributions and emotions examined in these studies can only be inferred, and with great caution. Secondly, the correlation matrices generated an enormous number of statistical outcomes. Type I errors were minimized somewhat by adapting a more stringent alpha level of .01. However, the possible role of chance in producing some of the results from these studies still needs to be recognized. Thirdly, estimates of the reliability of several of the test instruments used in these studies were not reported in Schunk's (1982; 1986) research. A stronger case for the results from these studies could be attained by conducting and reporting appropriate tests of reliability. This might be especially important with respect to single-item measures of self-efficacy. Fourthly, the schools, classroom teachers, and participants in these studies were not selected randomly. As such, the results of Studies I and II are limited in their scope and generalizability to other students and contexts. Finally, pencil and paper assessments of the variables of interest are useful, but fail to encompass the complexities of human thought, explanation, anticipation, and emotion in real-life settings. Individual interviews in conjunction with paper

and pencil tests might provide more complete data with respect to students' attributional processes and associated motivation and emotion.

At least some future attributional research probably should involve a focus on individual case studies. In the past two decades, attributional research has been conducted on group samples using a hypothetical outcome methodology. Clearly, these investigations have produced many insights regarding the function and influence of attributional processes in achievement contexts. Yet, greater knowledge of how attributional processes elicit affective reactions, and influence future expectancies, task persistence, and effort expenditure may be obtained through case studies that go beyond the use of easily administered questionnaires and self-rating scales.

Future research also should be carried out in classroom settings where students are engaged in real life, meaningful, and personal tasks. Although Studies I and II were based on actual performance outcomes, the degree of meaningfulness and personal relevance of the activities to the participants involved remains uncertain.

A more complete understanding of human causal thought may be achieved by investigating attributional patterns in the foregoing and other ways. Attributions studied in isolation fail to represent the complexities of attributional-affective relationships. Attributions do not occur in vacuums. Rather,

causal ascriptions interact with one another, and with other factors to produce highly complicated outcomes. The tendency in past attributional research to focus on single attributions may have produced an incomplete, or at best, partial understanding of how attributional processes elicit emotional reactions and influence achievement motivation. When considering the benefits that may be derived from a fuller understanding of attributional processes in educational contexts, we eventually may be able to develop powerful means of promoting students' personal and academic development that incorporates results from such research. If so, the effort and cost of conducting more individualized and contextualized research in this area will be well repaid.

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APPENDIX A

Self-efficacy Materials

AGE _____ ID _____ SEX _____

(1)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

(2)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

(3)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

(4)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

(5)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

(6)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

(7)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

(8)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

(9)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

(10)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

(11)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

(12)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

(13)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

(14)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

(15)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

(16)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

(17)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

(18)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

(19)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

(20)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

(21)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

(22)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

(23)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

(24)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

(25)

0	10	20	30	40	50	60	70	80	90	100
	Not Sure			Maybe			Pretty Sure			Real Sure

APPENDIX B

Subtraction Skill Test

$$(1) \quad 73 \\ - \quad \underline{6}$$

$$(2) \quad 836 \\ - \quad \underline{8}$$

$$(3) \quad 644 \\ - \quad \underline{37}$$

$$(4) \quad 433 \\ - \quad \underline{178}$$

$$(5) \quad 913 \\ - \quad \underline{304}$$

$$(6) \quad 815 \\ - \quad \underline{526}$$

$$(7) \quad 129 \\ - \quad \underline{34}$$

$$(8) \quad 703 \\ - \quad \underline{316}$$

$$(9) \quad 100 \\ - \quad \underline{37}$$

$$(10) \quad 8124 \\ - \quad \underline{6365}$$

$$(11) \quad 7595 \\ - \quad \underline{8}$$

$$(12) \quad 8765 \\ - \quad \underline{6136}$$

$$(13) \quad 9728 \\ - \quad \underline{7336}$$

$$(14) \quad 6349 \\ - \quad \underline{2918}$$

$$(15) \quad 4036 \\ - \quad \underline{1324}$$

$$(16) \quad 6590 \\ - \quad \underline{3221}$$

$$(17) \quad 7508 \\ - \quad \underline{5122}$$

$$(18) \quad 8564 \\ - \quad \underline{2915}$$

$$(19) \quad 8410 \\ - \quad \underline{5208}$$

$$(20) \quad 9412 \\ - \quad \underline{6406}$$

$$(21) \quad 4004 \\ - \quad \underline{1356}$$

$$(22) \quad 76218 \\ - \quad \underline{48439}$$

$$(23) \quad 96575 \\ - \quad \underline{43276}$$

$$(24) \quad 90003 \\ - \quad \underline{27329}$$

$$(25) \quad 816453 \\ - \quad \underline{591627}$$

APPENDIX C

Attributions

APPENDIX D

Emotions: Study I

I.D. NUM _____

0	10	20	30	40	50	60	70	80	90	100
	A Little			Somewhat			Quite			Very
	Mad			Mad			Mad			Mad

0	10	20	30	40	50	60	70	80	90	100
	A Little			Somewhat			Quite			Very
	Happy			Happy			Happy			Happy

0	10	20	30	40	50	60	70	80	90	100
	A Little			Somewhat			Quite			Very
	Sad			Sad			Sad			Sad

0	10	20	30	40	50	60	70	80	90	100
	A Little			Somewhat			Quite			Very
	Hopeful			Hopeful			Hopeful			Hopeful

APPENDIX E

Emotions: Study II

I.D. NUM _____

0	10	20	30	40	50	60	70	80	90	100
A Little Angry			Somewhat Angry			Quite Angry			Very Angry	

0	10	20	30	40	50	60	70	80	90	100
A Little Happy			Somewhat Happy			Quite Happy			Very Happy	

0	10	20	30	40	50	60	70	80	90	100
A Little Sad			Somewhat Sad			Quite Sad			Very Sad	

0	10	20	30	40	50	60	70	80	90	100
A Little Regret			Some Regret			Quite Regret			Very Regretful	

0	10	20	30	40	50	60	70	80	90	100
A Little Frustrated			Somewhat Frustrated			Quite Frustrated			Very Frustrated	

0	10	20	30	40	50	60	70	80	90	100
A Little Hopeful			Somewhat Hopeful			Quite Hopeful			Very Hopeful	

0	10	20	30	40	50	60	70	80	90	100
A Little Disappointed			Somewhat Disappointed			Quite Disappointed			Very Disappointed	

0	10	20	30	40	50	60	70	80	90	100
A Little Ashamed			Somewhat Ashamed			Quite Ashamed			Very Ashamed	

0	10	20	30	40	50	60	70	80	90	100
A Little Proud			Somewhat Proud			Quite Proud			Very Proud	

0	10	20	30	40	50	60	70	80	90	100
A Little Satisfied			Somewhat Satisfied			Quite satisfied			Very Satisfied	

0	10	20	30	40	50	60	70	80	90	100
A Little Self-Blaming			Somewhat Self-Blaming			Quite Self-Blaming			Very Self-Blaming	

0	10	20	30	40	50	60	70	80	90	100
A Little Self-Doubting			Somewhat Self-Doubting			Quite Self-Doubting			Very Self-Doubting	

0	10	20	30	40	50	60	70	80	90	100
A Little Lucky			Somewhat Lucky			Quite Lucky			Very Lucky	

0	10	20	30	40	50	60	70	80	90	100
A Little Joyful			Somewhat Joyful			Quite Joyful			Very Joyful	

0	10	20	30	40	50	60	70	80	90	100
A Little Shameful			Somewhat Shameful			Quite Shameful			Very Shameful	

0	10	20	30	40	50	60	70	80	90	100
A Little Guilty			Somewhat Guilty			Quite Guilty			Very Guilty	

0	10	20	30	40	50	60	70	80	90	100
A Little Surprised			Somewhat Surprised			Quite Surprised			Very Surprised	

0	10	20	30	40	50	60	70	80	90	100
A Little Relieved			Somewhat Relieved			Quite Relieved			Very Relieved	

0	10	20	30	40	50	60	70	80	90	100
A Little Confident			Somewhat Confident			Quite Confident			Very Confident	

0	10	20	30	40	50	60	70	80	90	100
A Little Thankful			Somewhat Thankful			Quite Thankful			Very Thankful	

0	10	20	30	40	50	60	70	80	90	100
A Little Grateful			Somewhat Grateful			Quite Grateful			Very Grateful	