

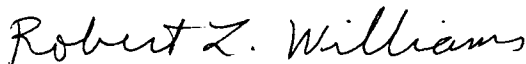
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I am submitting herewith a dissertation written by Sherry Lynn Mee Bell entitled "Student Attributions for Social and Academic Success and Failure and their Relationships with Self-Concept, Social Functioning, and Achievement." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Education.

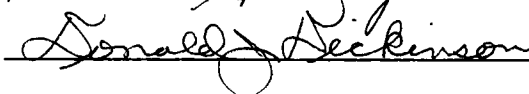


R. Steve McCallum, Major Professor

We have read this dissertation
and recommend its acceptance:







Accepted for the Council:



Vice Provost
and Dean of the Graduate School

STUDENT ATTRIBUTIONS FOR SOCIAL AND ACADEMIC
SUCCESS AND FAILURE AND THEIR RELATIONSHIPS WITH
SELF-CONCEPT, SOCIAL FUNCTIONING, AND ACHIEVEMENT

A Dissertation
Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

Sherry Lynn Mee Bell

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DEDICATION

This dissertation is dedicated to my family whose support truly has made completion of this project possible.

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ABSTRACT

Hypothesized relationships among students' self-attributions for social and academic success and failure, dimensions of self-concept, and social functioning were examined. Social attributions were measured using the Student Social Attribution Scale (SSAS) which was developed for this study. The SSAS is a measure of effort, ability, and external attributions for social success and failure in the school setting. Cronbach's alpha, item-subscale correlations and test-retest reliability coefficients provided evidence that the scale is psychometrically sound; factor analyses provided evidence for a predicted six factor structure.

Academic attributions were assessed using the Sydney Attribution Scale (SAS), a scale developed in Australia, but validated for use with American students from data collected in this study; self-concept was assessed using the Self-Description Questionnaire (SDQ); social functioning was assessed using the Social Skills Rating System (SSRS); finally, academic achievement was assessed using the Comprehensive Test of Basic Skills (CTBS/4). The instruments were administered to 237 4th and 5th graders according to scripted directions.

Generally, social, reading, and math success attributed to ability and effort were significantly positively related to predicted dimensions of self-concept (SDQ scores) and to

social behavior (SSRS) and academic achievement (CTBS/4 scores). For example, children who highly endorsed effort as a cause for making friends were more likely to have higher social self-concepts and social skills scores than were children who less highly endorsed effort as a cause for friend making. Generally, social, reading, and math failure attributed to ability and effort were significantly negatively related to predicted dimensions of self-concept and to performance.

Although attributions, self-concept, and (social and academic) performance may causally influence each other in a reciprocal manner, results from a path analysis provided support for the following causal paths: 1) attributions for social success and failure outcomes lead to social self-concept, which in turn leads to social functioning; and similarly, 2) attributions for academic success and failure outcomes lead to academic self-concept, which in turn leads to academic achievement.

Results provide evidence that attributions are related to self-concept and social and academic performance. With further development, the SSAS and the SAS may be used to assess social and academic attributions to plan school-based interventions.

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CHAPTER 1

INTRODUCTION

Purpose

The purpose of the study was to examine hypothesized relationships between students' self-attributions for social and academic success and failure, dimensions of self-concept, and social/academic functioning. Specifically, students' attributions for their own success and failure in reading, math, and social functioning were correlated with measures of student self-concept (e.g., academic self-concept, reading self-concept, social self-concept), and with measures of student achievement (reading achievement, math achievement) and social functioning. Before the social attributions could be examined, it was necessary to construct a psychometrically sound measure of social attributions.

Rationale

A common source of frustration for teachers of school-age children is apparent lack of student motivation accompanied by low achievement. Teachers often express a desire to change a student's attitude, presuming a changed attitude will increase student responsibility for success and increase effort. Students who assume personal responsibility for their success are more likely to work hard. A factor proposed to be an important determinant of the amount of effort a student puts forth, and ultimately,

the level of achievement, is attributional thinking, or the causes students perceive to be responsible for their success or failure.

Causal attributions are inferences about why outcomes occur. Presumably, students who attribute their success to their ability and effort would put forth effort to achieve. But students who attribute their failure to lack of ability would be less likely to put forth effort. Conversely, students who attribute failure to a lack of effort may be more likely to put forth effort on a future task. In addition, attributional thinking has been proposed to be a determinant of self-concept, which has been shown to be related to achievement. Presumably, students who attribute their success to their ability would exhibit high self-concepts while students who attribute their failure to lack of ability would exhibit low self-concepts. It is important for researchers interested in increasing school success to determine the relationships between causal attributions and achievement and between causal attributions and self-concept. If attributional thinking does indeed influence student effort and student self-concept, it may be possible to increase effort and enhance self-concept by altering student attributions through attribution training programs and sensitizing teachers to the importance of attributional thinking in the classroom.

Relationships between self-esteem related emotions, such as pride and shame, and student attributions for success to their own ability and attributions for failure to their own ability, respectively, were demonstrated by Weiner, who developed an attributional theory of motivation (1979; 1986). Weiner's research is based on an experimental/situational approach in which subjects make attributions for specific experimental or structured situations at one point in time. From a different perspective, Marsh (1984) and Marsh, Cairns, Relich, Barnes, and Debus (1984) demonstrated relationships between students' ability and effort attributions for success and achievement, and between attributions for success and student self-concept. Marsh and colleagues examined attributions from an individual differences perspective that attempts to discern individual differences in attributional thinking across situations.

A review of attribution research relevant to school success follows. A brief overview of attribution theory is provided followed by a comparison of the experimental/situational approach and the individual differences approach. Next a specific explanation of Weiner's model and an examination of the experimental/situational research supporting the model is followed by a discussion of research based on the individual differences approach, particularly Marsh's findings.

Literature Review:

Attribution Research Relevant to School Success

Overview of Attribution Theory

"Attribution theory is an attempt to specify the methods employed by the average person in interpreting the behavior of others and of herself or himself" (Geen, Beatty, & Arkin, 1984, p. 216). Fritz Heider is credited with being "the originator of attributional thinking" (Weiner, 1986, p. 44). Heider's attribution theory was called "commonsense psychology" because it held that naive or common people follow specifiable rules in interpreting causes of behavior in everyday life (Geen et al., 1984). According to Heider, people perceive four major causes for events: ability and effort, both causes internal to the person, and task characteristics and luck, causes external to the person. Heider's analysis of attributional thinking was compelling apparently for it spurred much subsequent thought, theorizing, and research.

Bernard Weiner and colleagues have considerably expanded and tested Heider's theory. Much of the research literature in the area of causal attributions is based on Weiner's expansion of Heider's theory. Others (e.g. Seligman) have suggested that individuals exhibit an attributional style; "an attributional style is a predisposition to view the causes of behavior in some way" (Geen et al., 1984). Researchers have focused on

relationships between attributional style and personal factors such as tendency to be depressed, achievement level, and self-esteem (Abramson, Seligman, & Teasdale, 1978; Dweck, 1975; Marsh, 1984). Other theorists and researchers have focused on different aspects of causal attributions. Jones and Davis presented a theory of correspondence inference which examines an observer's attributions about someone else (Geen et al., 1984). Kelley formulated a model of covariation which focuses on distinctions between personal and environmental forces in making attributions (Geen et al., 1984). The bulk of the research literature in attribution is experimental in nature and is based on Weiner's attributional theory of motivation. There is a growing body of research that focuses on attributional style from an individual differences perspective. Both experimental and individual differences attribution research have yielded findings relevant for school success.

Experimental/Situational versus Dispositional Research

Marsh (1984) and Marsh et al. (1984) discussed the differences between situational and dispositional research in studying attributions. Situational research involves systematic manipulation of contexts to determine the corresponding change in attributions. Subjects may be asked to choose causes for themselves or for a hypothetical other in highly structured situations that may be systematically varied. The intent is to discern the effects of the

situational manipulations. On the other hand, dispositional research involves the examination of subjects' attributions in different settings. Typically, little information about the context of the situation is given. The subject is asked to make self-attributions and the intent is to discern attributional tendencies in the individual subjects that generalize across situations (attributional style).

According to Marsh and colleagues, neither approach is inherently superior; both are legitimate. However, they stressed the inappropriateness of assuming the findings from one approach will generalize to another. Thus, it is important to substantiate relationships suggested by experimental research with findings from dispositional research. Both approaches have yielded findings relevant for school success. Specifically, both approaches have yielded support for relationships between attributions and self-esteem and between attributions and achievement and social functioning.

Weiner's Attributional Model of Motivation

Weiner's theory of motivation has its roots in the attributional theorizing of Heider, "the originator of attributional thinking" (Weiner, 1986, p. 44). Weiner's theory is intended to be a broad and general theory or model of motivation. According to a basic assumption of the model, motivation for making causal ascriptions flows from a desire to understand complex behavioral phenomena and

particularly one's own behavior. Causal attributions are a critical element of the model, which attempts to account for the complex relationships between cognitions, emotions, and actions.

Weiner's model, derived from logical analysis and shaped by a body of empirical research, includes consideration of an outcome (success or failure), affects or emotions dependent on the outcome, causal ascriptions for the outcome, cognitive and affective consequences of the causal ascriptions, and behavioral consequences of these cognitions and affects. Weiner has proposed a temporal sequence that proceeds from the initial outcome to behavioral consequences with each aspect of the model potentially influencing each other aspect.

The component of the model that has been most scrutinized and that is considered most critical is the component describing causal attributions. Beliefs in certain causes are hypothesized to lead to certain cognitions and affects, which in turn lead to certain behavioral consequences. Belief that a given cause is responsible for a given outcome (success or failure) leads to a given expectancy for success or failure in the future. "The heart of the theory consists of an identification of the dimensions of causality and the relation of these underlying properties of causes to psychological consequences" (Weiner, 1979, p. 3).

Weiner's Three Dimensional Model of Causality. In his common-sense psychology, Heider presented a "naive analysis of action" in which he posited that average people follow specifiable rules in their analyses of the causes of everyday behavior (Geen et al., p. 217). One of Heider's main assertions was the person-versus-environment differentiation; that is, he believed that people view the cause of an event as dependent on factors within the person or external/environmental factors. The person is believed to make a determination as to whether the cause of an event is internally controlled or controlled by something external to the person. In his intuitive analysis, Heider subdivided the internal dimension into two categories, ability and effort, and the external dimension into two categories, task characteristics and luck.

This internal-external dimension with its subcategories has been studied extensively, most notably by Rotter (1966) and his colleagues. However, Weiner (1971), cited in Weiner (1986), argued that Rotter's classification of individuals as internal or external is insufficient and called for a second dimension of causality. Apparently, some internal causes are stable (typically, ability) while some are unstable (typically, effort); similarly external causes may be stable (task difficulty) or unstable (luck).

Weiner and colleagues proposed a 2 x 2 categorization scheme with the two dimensions, stable-unstable (stability)

and internal-external (locus). Weiner (1979; 1986) asserted that the stability dimension is more related to expectancy for success while the locus dimension is more related to affects associated with self-esteem such as competence, pride, and shame. These affects may in turn have behavioral consequences. Findings from a study by Weiner, Nierenberg, and Goldstein (1976), cited in Weiner (1986), support Weiner's criticisms of Rotter's unidimensional scheme. Subjects in six experimental conditions of success at a block design task (0-5 consecutive successes) gave attributions for success on both the stability and locus dimensions, which were independently determined. An increase in expectancy of future success was related to perceived stability of the cause of the prior outcome. The relationship between expectancy of success and perceived locus of the cause of the prior outcome was not significant.

Prompted by a 1972 study by Rosenbaum, Weiner and his colleagues identified a third dimension, called intentionality by Rosenbaum but labeled controllability by Weiner (Weiner, 1986). Subsequently Weiner began to examine causes within a 2 x 2 x 2 categorization scheme (locus x stability x controllability). Controllability as defined by Weiner is the person's perception of whether the outcome of the event is controllable by oneself or by others or not controllable by anyone (luck, randomness).

Weiner's logical analysis of causality, shaped by ongoing empirical research, led to a three dimensional model with each of the dimensions (locus, stability, and controllability) considered a bipolar continuum. Causes are classified, however, as if each dimension is a dichotomy (internal-external, stable-unstable and controllable--uncontrollable).

Ongoing Weinerian-based attribution research comprises a rich and diverse literature that addresses examination of the causes people give for success and failure in achievement and social situations; verification of the three causal dimensions; documentation of spontaneous causal ascriptions in everyday life; and examination of the temporal sequence of the attribution model, including investigations of the linkages among affect, causal attributions, success expectancy, and behavior. A few researchers have attempted to assess individual differences in attribution or attributional style, though Weiner himself has not endorsed this approach (1986). Attribution researchers have employed a wide range of methodologies including simple descriptive studies, correlational studies including factor analysis and path analysis, and quasi-experimental and experimental studies. (See Weiner, 1986, for a thorough review of research based on or relevant to his model). From the myriad of studies exploring the various components of Weiner's attribution model has emerged

a set of rather consistent findings supporting his three dimensions and his proposed temporal sequence. This consistency is impressive considering the variety of measurement techniques and methodologies that have been employed across studies. A review of attribution research relevant to school success and consistent with Weiner's model follows.

Weiner's Model Applied to the School Setting

Weiner (1979; 1986) reviewed classroom-oriented attribution research studies relevant to his model, most of which were experimental/situational. The studies were similar in that they involved "students or teachers stating the causes of success or failure at real or imagined events, and judging themselves or others" (1979, p. 4). Typically, subjects were asked to imagine a hypothetical event, to recall a particular outcome (e.g., failure on a math test), or were exposed to a contrived success or failure situation. The events were typically academic tasks or social situations. After imagining, recalling, or experiencing the outcome, subjects were asked to choose the cause they or a specified other would give for the outcome and to indicate other variables such as emotions that would be experienced or the degree to which they believed future success would be possible. Ability, effort, and task difficulty emerged as the main perceived causes of outcome on academic tasks and in social situations. These causes have been classified on

the three dimensions (locus, stability, controllability) of Weiner's scale and correlated with variables such as affect or emotion and expectancy of future success. Results of both factor-analytic and correlational studies suggest that the self-esteem related affects, pride and shame, are related to internal attributions to ability for success and failure, respectively (Weiner, 1979; 1986). Expectancy of future success has been linked with stable attributions. (One would expect to succeed in the future if a current failure is attributed to the unstable cause of effort but one would expect to fail in the future if a current failure is attributed to the stable cause of ability) (Weiner, 1979; 1986).

A robust finding from the situational research describes the so-called self-serving bias. In general, children (and adults) tend to make similar attributions for outcomes on academic tasks and in social situations. That is, children tend to attribute success outcomes to internal causes and failure outcomes to external causes (Whitley & Frieze, 1985). This tendency appears to hold for children as young as five years old; consistency in attributional thinking has been demonstrated across different developmental stages (Weiner & Handel, 1985). The self-serving bias or attributional egotism hypothesis holds that people are motivated by the need to enhance or maintain self-esteem. Attributing success to internal factors and

failure to external factors allows one to enhance or maintain self-esteem (Whitley & Frieze, 1985). In a meta-analysis of adults' attributions for success and failure, Whitley and Frieze, 1983, (cited in Whitley & Frieze, 1985) found that, indeed, adults do tend to attribute success to the internal causes of ability and effort, and failure to the external causes of task difficulty and luck.

Results from the Whitley and Frieze (1985) meta-analysis of 25 studies dealing with children's attributions for success and failure provide "general support for the egotism theory" (p. 612). Specifically, in these studies, children who succeeded tended to make stronger attributions to the internal causes of ability and effort while children who failed tended to make stronger attributions to task difficulty. Whitehead, Anderson and Mitchell, 1987, demonstrated support for the self-serving bias in an experimental context. Students in grades 1-4 credited successes more than failures (for academic and social tasks) to ability and effort.

After reviewing evidence for the existence of a self-serving bias in the attribution literature, Marsh et al., 1984, concluded that attributions for success and failure do differ in systematic ways (i.e., success attributions to ability and effort and failure attributions to external causes such as task difficulty). However, they suggested that this tendency may not represent a bias, but may in fact

depict the reality of the situation or at least the person's perception of it. They suggested that researchers have not been specific about the meaning of bias.

Whitley and Frieze, 1985, and Whitehead, Anderson, and Mitchell, 1987, found no support for developmental trends in causal attributions made by children in various grade levels. Weiner and Handel, 1985, found that children as young as five years can distinguish lack of ability from lack of effort as causes of achievement failure and suggested that earlier findings to the contrary could be due to developmental differences in processes other than attributional thinking (e.g., communication strategy). Research, then, supports a general tendency for children across age levels to make attributions for academic success and failure which will enhance or maintain their self-esteem.

Summary of Situational Research Relevant to School Success. In summary, research has demonstrated that children from early school age on tend to make attributions for success and failure in ways that enhance or maintain self-esteem. Specifically, they tend to attribute success to internal factors (effort, ability) and failure to external factors (luck, task difficulty). Also, children tend to exhibit high success expectancy when success is attributed to stable factors (ability) and low success expectancy when failure is attributed to stable factors

(ability). These results, obtained primarily in experimental/situational studies, are based on and are consistent with Weiner's three-dimensional attribution model. However, children who experience a great deal of failure typically have low self-esteem. It has been argued that their attributional thinking differs from the thinking of those who have had more success experiences. Evidence for maladaptive attributional thinking comes primarily from research designed to ascertain individual differences in children's attributional thinking.

Individual Differences Approach

The bulk of studies that have investigated attributions for success and failure in achievement and social situations have relied on a situational or experimental approach. That is, attributions for one's own or hypothetical others' success or failure in a specific experimental or hypothetical situation has typically been correlated with specific affects, such as pride, shame, or guilt or with specific success expectancy (i.e., whether or not the subject expects to succeed on the next task presented). This approach differs from an attempt to ascertain individual differences in attributional thinking or a tendency to attribute success or failure to certain causes, i. e., an attributional style (Marsh, 1984; Marsh et al., 1984). However, for those interested in enhancing school performance, the appeal of understanding attributions lies

in the assumption that students exhibit an attributional style which in part determines the amount of effort they display in school situations. If children do indeed exhibit attributional style, a reasonable intervention for low achievers would be to alter the attributional style.

A few researchers have attempted to assess individual differences in children's attributional style. These researchers typically used scales or questionnaires designed to measure a student's tendency or style of making attributions by asking the subject to choose from a list of attributions. However, there has been surprisingly little attention given to the psychometric properties of these scales and the same scale has rarely been used twice (Marsh, 1984; Marsh, et al., 1984). Despite the lack of attention given to measurement issues, there is evidence for attributional style in children. There is evidence for an adaptive versus a maladaptive style of attributional thinking in achievement contexts (Dweck, 1975; Weiner, 1986), in social situations (Ames, Ames & Garrison, 1977; Schneider & Leitenberg, 1989) and in academic, athletic, and social situations (Fielstein et al., 1985). Evidence also supports the existence of some gender differences in children's attributional thinking (Bond & Deming, 1982; Dweck & Gilliard, 1975; Dweck, Goetz, & Strauss, 1980).

Maladaptive Attributional Thinking. It has been hypothesized that children repeatedly exposed to failure

develop a helpless mind-set, that is, thinking maladaptive or counterproductive to putting forth effort and to learning. A state of helplessness results when one's responses or attempts are perceived as not increasing the probability of success (Weiner, 1986). A child who repeatedly fails in school learns that his/her efforts will not lead to success. The child comes to believe that he/she cannot achieve success no matter what he/she does. Failure is due to uncontrollable factors, leading the child to have low expectancy of success in the future. With a low expectancy of success, fewer attempts will be made, resulting in a decrease in learning and performance. Dweck, 1975, argued that attributions for failure to factors beyond the control of the child are maladaptive because these attributions lead to helplessness, low success expectancy, and lowered motivation. Thus, ascribing failure to low ability, poor luck, or external factors is said to be maladaptive; ascribing failure to lack of effort or to poor planning or strategy is adaptive because the child can change these causes (Weiner, 1986).

Dweck (1975) reported a study (Dweck & Repucci, 1973) that demonstrated a maladaptive pattern of thinking in children. Following failure at a task, a certain group of children failed to perform a response required to succeed even though they could do so. The children most likely to give up following failure were those who took less personal

responsibility for success and failure (external attributions) and, to the extent that they did take responsibility for failure, tended to attribute it to low ability rather than to lack of effort. These "helpless" children tended to place "significantly less emphasis on the amount of effort exerted as a determinant of success and failure than did the more persevering subjects" (Dweck, 1975, p. 674). Presumably, these children did not persevere because they attributed failure to lack of ability and did not believe they could succeed.

Dweck (1975) reported a number of studies with similar findings, consistent with her interpretation that children who exhibit performance deficits after failure tend to engage in maladaptive attributional thinking. Ames et al., 1977, reported similar findings for attributional thinking about success and failure in the social domain. A group of eighty 4th, 5th, and 6th graders who were designated to be either high or low social status were asked to choose causes for positive and negative interpersonal outcomes. High social status children tended to choose internal causes for positive outcomes and external causes for negative outcomes (self-serving bias) while low social status children tended to choose external causes for positive outcomes and internal causes for negative outcomes. Unfortunately, the researchers did not distinguish between the internal causes of ability and effort. Fielstein et al., 1985, demonstrated

differences between high- and low self-esteem children in attributions for success and failure at academic, athletic, and social situations. Using a forced-choice attribution response format and a generalized measure of self-esteem, they determined that low-self esteem children attributed success to good luck and failure to lack of ability. Using the same forced-choice attribution measure, Schneider and Leitenberg (1985) demonstrated that withdrawn and withdrawn-aggressive children were less likely to attribute success to ability than were control and solely aggressive children.

Dweck, 1975, emphasized that it is the perception of noncontingency between one's responses and outcomes, rather than actual noncontingency, that leads to the maladaptive pattern of thinking characteristic of learned helplessness. This is important in considering that girls tend to engage in more maladaptive attributional thinking than do boys.

Gender Differences in Attributional Thinking. Gender differences in attributional thinking have been established as major determinants for "the important sex differences in reactions to failure in achievement situations" (Dweck et al., 1980, p. 441). Dweck et al., 1980, demonstrated that girls tend to attribute failure to lack of ability (an internal, stable, uncontrollable cause) but boys tend to attribute failure to lack of effort (internal, controllable) or to external factors such as characteristics of the teacher. Girls who attribute failure to low ability

experience lowered success expectancy following failure. Weiner, 1986, and colleagues have demonstrated that stable attributions such as ability are related to success expectancy. After failure, girls tend to avoid the task they failed, stop working, and give up. Boys, on the other hand, tend to improve performance, work longer, and to attempt new tasks after failure. Apparently, girls more readily perceive noncontingency than do boys, even given a similar history of success and failure outcomes (Dweck et al., 1980). Dweck and Gilliard, 1975, asked boys and girls to make statements of success expectancy before attempting a series of four puzzles, which they all failed. Following failure, boys continued to make statements of success expectancy consistent with their initial statements. However, girls' statements tended to be much lower than their initial statements, indicating that their success expectancy was greatly lowered due to failure experiences.

Also, there is evidence that girls more readily generalize failure experiences across situations than do boys. That is, when girls fail at specific tasks, they are more likely than are boys to attribute the failure to a general lack of ability. In an investigation of success expectancy after failure at four academic tasks, girls tended to maintain a low level of success expectancy after the task was changed, suggesting an attribution to generalized low ability. Boys, on the other hand, tended to

increase their success expectancy after the task was changed which suggests they did not form a perception of generalized low ability (Dweck et al., 1980). Girls, then, tend to exhibit maladaptive attributional thinking more than do boys. In addition, Bond and Deming, 1982, in a study of 3rd, 5th, and 11th graders, found that both boys and girls across all the grade levels tended to attribute male failure to effort and female failure to lack of skill.

In summary, some researchers have attempted to measure individual differences in attributional thinking, or attributional style (Ames, Ames, & Garrison, 1977; Bond & Deming, 1982; Dweck, 1975; Dweck et al., 1980; Fielstein et al., 1985; Schneider & Leitenberg, 1989). There is evidence that some children exhibit a maladaptive pattern of attributional thinking. They attribute failure to a stable cause (typically, low ability) so that future success expectancy is lowered leading to fewer attempts to try the task. These children exhibit real performance decrements after failure. Girls tend to exhibit this maladaptive pattern more than boys; they tend to attribute failure to generalized low ability. These findings are based on often-cited studies. However, it is possible that some attribution studies would have yielded somewhat different results if different measurement techniques had been used. The lack of attention to measurement issues and questionable use of forced-choice or other ipsative scales may at times

have resulted in inaccurate data and false or overdrawn interpretations (Marsh et al., 1984). Marsh's distinction between situational and dispositional research and his examination of measurement issues are important contributions to attribution research and pave the way for greater clarity and precision in future attribution studies.

Marsh's Dispositional Approach

As discussed above, Marsh, 1984, and Marsh et al., 1984, distinguished between situational and dispositional research in studying attributions and pointed out some shortcomings of attribution research to date. Situational research involves systematic manipulation of contexts to determine the corresponding change in attributions. Individuals may be asked to choose causes for themselves or for a hypothetical other in highly structured situations which may be systematically varied. Dispositional research involves the examination of attributions in different, somewhat ambiguous settings. Individuals are asked to make self-attributions in order to discern attributional tendencies that generalize across situations (attributional style). Though neither approach is inherently superior, it may be inappropriate to assume the findings from one approach will generalize to another (Marsh, 1984; Marsh et al., 1984). Specifically, Marsh and colleagues pointed out that the great majority of support for Weiner's approach comes from situational research and that it is inappropriate

to assume Weiner's proposed three dimensions are valid or relevant for individuals. For example, they suggested that Weiner's three dimensions may not emerge in individual differences research. (In fact, Weiner, 1986, has questioned the existence of robust and consistent individual differences in attributional thinking). Weiner has demonstrated that self-esteem related affects are related to internal attributions (ability and effort) in certain situations. However, it may be inappropriate to conclude that self-esteem or self-concept is related to the tendency to make internal attributions across situations. This relationship would have to be substantiated from an individual differences perspective.

Measurement Issues. Marsh et al., 1984, discussed a major shortcoming of attribution research, most of which is situational. Attribution research has been characterized by "an unfortunate disregard for measurement issues" which is "typical of instruments which focus on experimental manipulations rather than the assessment of individual differences" (p. 11). They cited poor quality measurement instruments and a lack of comparable measurement procedures as limiting the comparability of situational attribution research. Russell, McAuley, and Tarico, 1987, noted that "relatively little attention has been paid to the reliability and validity of different methods for assessing attributions" (p. 1248). They reviewed Elig and Frieze's

1979 evaluation of three commonly used techniques for assessing causal attributions--open-ended questions in which the subject simply states why he/she succeeded or failed, percentage/ipsative scales in which the subject indicates how much each cause contributed to his/her outcome, with the sum of the percentages equaling 100, and importance of different causes ratings in which the subject independently rates the importance of each cause to the outcome. They determined the independent rating of importance of causes to be more reliable and valid than open-ended or percentage/ipsative measures. Marsh et al., 1984, also argued for the superiority of the rating response format. Russell, 1982, developed the Causal Dimension Scale in which the subject directly rates the importance of causes to a specified outcome within Weiner's three dimensions. The Causal Dimension Scale has been described as possessing adequate psychometric properties (Russell, 1982; Russell et al., 1987) and, consistent with Weiner's model, is used to measure attributions in an experimental/situational context.

The individual differences approach to attribution research also has been limited by a lack of quality attribution measures. In 1984, Marsh et al. noted, "There are no widely used instruments that are satisfactory as measures of individual differences in self-attributions" (p. 12). Anderson, Horowitz, and French, 1983, developed the Attributional Styles Assessment Test (ASAT) for adults

(college students). It consists of 20 hypothetical situations of interpersonal success or failure followed by six possible causes. Subjects were asked to indicate (forced-choice) which of the six possible causes is the best explanation for the outcome. The test purportedly yields a measure of the subject's attributional style for success and failure across situations. No reliability and validity data were reported. The Attributional Style Questionnaire (ASQ) (Peterson et al., 1982) was developed from the learned helplessness model of depression to test the relationship between attributions and depression in adults. Respondents indicate (forced-choice) their attributions for 12 hypothetical positive and negative achievement and affiliation outcomes within three dimensions, locus, stability, and globality-specificity. The test yields a variety of scores, including "two composite attributional style scores, one for good and one for bad events" (Peterson et al., 1982, p. 292). Subsequent studies have revealed psychometric inadequacies. For example, Cutrona, Russell and Jones (1985) computed coefficient alphas for the subscales and composite scores of the ASQ and found them to be unacceptably low, "even for experimental use of the measure" (p. 1046).

The Multidimensional-Multiattributional Causality Scales (MMCS) were developed by Lefcourt, VonBaeyer, Ware, and Cox (1979). The MMCS has two 24-item Likert scales, one

for affiliation and one for achievement, and is designed for college undergraduates. Each scale has 12 success items and 12 failure items; there are four categories of causes, two internal and two external, and two stable and two unstable (ability, effort, context and luck) for each scale.

Respondents rate the importance of each cause from 0 to 4. A number of scores can be derived from these scales. The largest score is total externality; this is determined by the respondent's agreement with external attributions and denial of internal attributions. Other scores include independent internal and external scales for affiliation and achievement and attribution-specific scales. Lefcourt et al. (1979) reported on the development of the MMCS; reliability coefficients were computed from an administration of the MMCS to 241 undergraduates. The authors reported test-retest reliability coefficients for the achievement scale, .77; for the affiliation scale, .70; and for total locus of control, .79. Internal consistency coefficients were reported for the achievement scale, .61; for the affiliation scale, .61; and for total locus of control, .77. Evidence for concurrent validity was established by moderate significant correlations (.23 to .62) between items on the MMCS scales and the Rotter I-E Scale (Rotter, 1966). Several validity studies have been conducted (Lefcourt et al., 1979; Lefcourt, Martin, Fick, & Saleh, 1985). In contrived social situations, subjects who

scored high on internal affiliation items on the MMCS more often self-disclosed appropriately, exhibited better listening skills, and were rated higher on a composite index of social skills than those scoring high on external items. In a contrived achievement situation, males who scored high on internal achievement items on the MMCS exhibited significantly more signs of discomfort on an increasingly difficult and stressful academic task than did those scoring high on external items.

An additional finding with important implications is the relative independence of subjects' scores on the MMCS achievement and affiliation scales. Lefcourt et al. (1979) reported only weak relationships between achievement items and the affiliation scale (average $r = .10$) and between affiliation items and the achievement scale (average $r = .09$), suggesting that an individual's attributional style may vary in different contexts or domains. Lefcourt et al. (1979) noted that "specific causal attributions should afford more predictive power than general statements of causality . . ." for specific types of behavior (e. g., achievement, affiliation) (p. 288).

Marsh et al., 1984, reviewed instruments used to measure individual differences in attributions in school settings. The Intellectual Achievement Responsibility (IAR) instrument (Crandall et al., 1965) has been used extensively in attribution research with children. It assesses the

student's tendency to take responsibility for academic successes and failures. However, the scale cannot reliably be broken down into ability and effort subscales (the internal consistency coefficients are too low) though many researchers have done so. Another problem with the IAR and with other attribution measures used in situational and dispositional research is the use of a questionable response format. Russell et al., 1987, determined the independent rating of importance of causes to be the most reliable and valid method for assessing causal attributions. Marsh and colleagues cited Elig and Frieze's 1979 multitrait-multimethod analysis comparing three response formats most commonly used in measuring attributions; they found the rating technique superior to the ipsative/ranking technique or the open-ended responses. Marsh et al. further argued against a forced-choice response format because of its ipsative properties which "will produce large, artificially negative correlations among the subscales and complicate their comparison with external criteria" (p. 15). That is, when subjects are forced to choose between attributions for success or failure, (e.g., ability, effort, and external causes) artificial negative relationships may emerge. For example, in reviewing research of the internal-external dimension by Collins (1974) and Collins, Martin, Ashmore, and Ross (1973), Lefcourt et al. (1979) noted that "items in Rotter's (1966) I-E Scale did not generate high negative

correlations when each forced choice item was responded to as a separate and distinct item" (p. 289). Using a forced-choice format, high achieving students may choose ability rather than effort or external causes while low achieving students may choose external causes rather than ability and effort. However, if allowed to rate the importance of each cause to the successful outcome, both high achieving and low achieving students may rate all the causes as important to some degree.

Marsh and Gouvernet, 1989, as part of a larger construct validation study using factor analysis and multitrait-multimethod analyses, examined the Multidimensional Measure of Children's Perceptions of Control (CPC; Connell, 1985). The CPC is "the only instrument claiming to measure children's perceived control for general, academic, social, and physical domains" (Marsh & Gouvernet, 1989, p. 59). The CPC has three dimensions or facets: cause (internal, powerful others, or unknown), outcome (success or failure), and content (general, academic, social, or physical). Analyses of responses to the CPC "provided only modest support for convergent validity and little support for the discriminant validity of responses to other than the physical domain" (p. 66). Marsh and Gouvernet cautioned against use of the CPC in its present form for researchers interested in the general, academic, or social domains.

Robins and Hinkley (1989) described the Children's Attributional Style Questionnaire (CASQ), also referred to as the KASTAN. Its development was described by Kaslow, Tanenbaum, and Seligman, 1978 in an unpublished manuscript. According to Robins and Hinkley, the CASQ "assesses the degree to which children attribute good and bad events to either internal or external, stable or unstable, and global or specific causes" (1989, p. 31). The measure is comprised of 48 forced-choice items that assess attributions across a variety of domains (achievement, social, leisure, health) and which are designed to determine the respondent's general attributional style. "Its 48 items are scored for internal, stable, and global attributions for negative and positive events, a negative composite, a positive composite, and a summary score" (Robins & Hinkley, 1989, p. 31). Seligman et al. (1984), as reported in Robins and Hinkley (1989), determined internal consistency coefficients in normal samples: .31 to .55 for the subscales and .50 and .66 for the composites. Test-retest reliability coefficients were reported: over 3 months, .61 and over 12 months, .35 (Nolen-Hoeksema, Girgus & Seligman, 1986, cited in Robins & Hinkley, 1984). Robins and Hinkley cited several studies that demonstrated significant relationships between scores on the CASQ and scores on the Children's Depression Inventory by Kovacs and Beck.

Summary of Marsh's Dispositional Approach and Measurement Issues. Marsh et al., 1984 and Marsh, 1984, contrasted the situational versus the dispositional approach to attribution research. The bulk of support for Weiner's theory of attribution comes from situational research. Marsh et al. did not question the validity of this approach; however, they argued that results from the situational approach cannot be generalized to individuals. For example, they suggested that Weiner's three dimensions may not emerge in individual differences research. The purpose of the dispositional approach is to measure and examine individual differences in attributional thinking that generalize across situations. Marsh et al., 1984, and Russell et al., 1987, examined the state of the art in attribution measurement and found it inadequate. Little regard has been given to psychometric issues in situational or individual differences research. Russell's Causal Dimension Scale, 1982, which is based on Weiner's experimental/situational approach, does appear to have promise. The ASAT (Anderson et al., 1983) and the ASQ (Peterson et al., 1982) are both designed to measure attributional style of adults. Both use forced-choice response format and have unknown or problematic psychometric properties. The MMCS affiliation and achievement scales are designed to measure context-specific attributional style in college students; a rating response format is used. Several studies provide evidence for

reliability and validity of these scales (Lefcourt et al., 1979; Lefcourt et al., 1985). Marsh et al., 1984, and Marsh and Governet, 1989, examined two individual differences attribution measures for children, the IAR and the CPC, respectively. Both lack adequate psychometric properties. The psychometric adequacy of the CASQ appears to be better established (Robins & Hinkley, 1989). However, it measures attributions across a variety of domains or contexts such as achievement, affiliation, health, and leisure and does not allow measurement of context-specific (e.g., achievement) attributions. A major problem with many of the attribution measurement instruments is response format (Marsh et al., 1984). Forced-choice or other ipsative ranking scales are often used, resulting in artificially large negative correlations among the subscales.

Marsh's School-Relevant Attribution Research

One of the major findings of situational research based on Weiner's model is the relationship between self-esteem related affects and internal attributions. Feelings of pride are related to ability attributions for success while feelings of shame are related to ability attributions for failure (Weiner, 1979; 1986). This finding leads to the hypothesis that self-concept is related to the tendency to make ability attributions. This hypothesized relationship between self-concept and attributional thinking is important for researchers interested in enhancing school success

because self-concept has been shown to be related to achievement (MacDonald & Lyon, 1989). However, much of the research relating achievement to self-concept has accepted the assumption that self-concept is a general, unitary trait when in fact there is evidence that self-concept is multidimensional. In a recent review of self-concept literature, MacDonald and Lyon, 1989, concluded that self-concept is multifaceted rather than unidimensional. MacDonald and Lyon noted that "the majority of recent studies tend to support. . . the multidimensional and hierarchical facets of self-concept as proposed by Shavelson et al. (1976)" (p. 3).

Marsh and Shavelson, 1985, presented an elaboration of the Shavelson et al. model of self-concept. The Marsh-Shavelson model, which has been the basis for and has been shaped by much empirical research, posits that self-concept is multidimensional with the different dimensions being only moderately related to each other. The Marsh-Shavelson model holds that self-concept is hierarchical in that there is a loosely defined general self-concept and fairly discrete divisions and subdivisions of self-concept. Marsh and Shavelson demonstrated that as age increases, self-concept becomes more multifaceted, with different dimensions being less related to other dimensions. Marsh developed the Self-Description Questionnaire (SDQ) instruments; there are three levels of the SDQ instruments for different age groups. The

SDQ-I measures specific dimensions of elementary student self-concept in academic (reading, math, and general school) and nonacademic areas (physical abilities, physical appearance, peer relations, parent relations) and a general self-concept (1989). Numerous factor-analytic studies support the factor structure and construct validity of the SDQ instruments and provide strong support for the Marsh-Shavelson model (Marsh & Shavelson, 1985; Marsh, Smith, Barnes & Butler, 1983).

Because self-concept is multidimensional, it is important to be able to measure dimensions separately and to relate these dimensions to achievement and other variables important in school success. There is evidence that using a measure of general self-concept may obscure relationships with achievement and other variables. The correlations between achievement and general self-concept have typically been moderate at best (MacDonald & Lyon, 1989). Achievement has been shown to be correlated with general self-concept modestly (about .2), but the relationship with academic self-concept has been substantially higher, about .4 (Marsh, 1984). Like the studies relating self-concept and achievement, studies investigating the relationship between self-concept and attributions have tended to use a measure of general self-concept or self-esteem (e. g., Ames et al., 1977; Fielstein, 1985). However, Marsh and colleagues,

using the SDQ, investigated the relationships among dimensions of self-concept, attributions, and achievement.

Marsh et al., 1984 and Marsh, 1984, investigated the relationships among 5th grade Australian students' attributions for their own academic success and failure, dimensions of self-concept, and academic achievement. As part of their investigation, Marsh and colleagues developed an attribution scale, the Sydney Attribution Scale (SAS), which asks students to rate causes for their success or failure on given academic tasks. The SDQ was used to measure dimensions of self-concept. Achievement was measured by standardized achievement tests. Exploratory and confirmatory factor analyses of the SAS and correlations among the SAS scales, SDQ scales, and academic achievement were conducted. A description of the SAS and the SDQ is followed by a brief discussion of their results.

Sydney Attribution Scale (SAS). The SAS was designed to measure students' perceptions of the causes of their academic successes and failures. The 18 scales were derived from the combination of three facets: academic content (math, reading, general school), outcome (success or failure), and perceived cause (ability, effort, or an external cause). Students responded to questions about success or failure in math, reading, or general school by rating the importance of each of three causes (ability, effort, external) in producing that outcome. Factor

analysis of responses to the SAS yielded seven attribution factors: a) reading ability; b) math ability; c) success due to effort; d) success due to external causes, e) failure due to lack of ability, f) failure due to lack of effort, and g) failure due to external causes. "These results demonstrate support for the separation of attributions according to outcome and perceived cause and, at least in the case of ability attributions, for the separation of attributions according to academic content area" (Marsh, 1988, p. 80). Marsh, 1984, revised the SAS to include only 72 items; he eliminated the general school subscales and shortened the other subscales. Despite the fewer number of items, exploratory factor analyses again identified the same seven factors. The seven factor solution provided a reasonable fit to the data, according to confirmatory factor analyses. Importantly, the factor analyses do not support the existence of Weiner's dimensions (internal-external; stable-unstable; controllable-uncontrollable) but instead support the existence of factors made up of specific causes (ability, effort, external). However, the SAS included a limited sample of attributions across Weiner's three dimensions; inclusion of a broader sample of attributions may have resulted in a different factor structure, more supportive of Weiner's theory.

Self-Description Questionnaire (SDQ). The SDQ is based on the Marsh-Shavelson hierarchical, multidimensional model

of self-concept (Marsh & Shavelson, 1985; Marsh, 1988). The SDQ-I (grades 2-6) originally included four areas of nonacademic self-concept (Peer Relations, Parent Relations, Physical Abilities, and Physical Appearance) and three areas of academic self-concept (Reading, Math, and General School). These seven dimensions have emerged as separate factors in more than twelve factor analytic studies with different populations (Marsh, 1988). Recently, an eighth scale, General-Self, has been added. It is similar to other scales used to measure general self-esteem and allows for comparison with self-concept research conducted with a global or undimensional self-concept scale.

Results of the Marsh Studies. Statistical analyses of two studies (Marsh, 1984; Marsh et al., 1984) indicated that academic self-concepts were substantially positively correlated with success attributed to ability and with success attributed to effort. Academic self-concepts were substantially negatively correlated with failure attributed to ability and with failure attributed to effort. There were weak positive correlations between academic self-concepts and success attributed to external and failure attributed to external causes. The finding that academic self-concepts were weakly positively correlated with external attributions for success was unexpected. The correlations tended to be stronger between attributions and self-concept in the same domain (e. g., attributions for

success in reading and reading self-concept versus math self-concept). In addition, Marsh, 1984, conducted path analyses to examine the causal ordering of achievement, self-concept, and attributions. Marsh predicted the order to be achievement, then self-concept, and then attributions. However, he noted that other theorists (e.g., Covington & Omelich, 1984, cited in Marsh, 1984) propose a different causal ordering. According to Marsh (1984), both achievement and self-concept causally affect attributions, but he noted that the relationships are complex . . .

"Academic achievement, self-concept, and self-attributions are interwoven in a network of reciprocal relations such that a change in any one will produce other changes in order to reestablish an equilibrium" (p. 1307).

Summary

Weiner proposed a three dimensional model of attributional thinking which has been supported by a multitude of varied research studies, primarily situational/experimental in nature. Research based on Weiner's model has indicated a link between self-esteem related affects and internal attributions. Also, research has supported the existence of a self-serving bias in attributional thinking in that people tend to attribute successful outcomes to internal causes and unsuccessful outcomes to external causes. This has been demonstrated in academic and social contexts with school children. Another

approach to attribution research is the individual differences or dispositional approach. Research by Dweck and others indicates that some children exhibit maladaptive attributional thinking. That is, they tend to attribute success to external, unstable causes and failure to internal, stable causes. This has been demonstrated in academic and social settings. Girls tend to exhibit this pattern more than boys, despite equal achievement. Attribution research has been limited by poor measurement instruments and a lack of attention to their psychometric properties. The response format is important in that using a forced-choice format can result in distortion of data. Marsh and colleagues developed an academic attribution scale which employs a rating response format. Factor analyses and reliability estimates indicate the test has very good psychometric properties. Marsh and colleagues have investigated the relationships among students' attributions for success and failure, dimensions of self-concept, and academic achievement in Australia. They found positive relationships among ability and effort attributions for success, academic self-concept, and achievement. They found negative relationships among ability and effort attributions for failure, academic self-concept, and achievement. Ability attributions tended to be content-specific. They found no support for Weiner's three dimensions--locus, controllability, and stability although it is possible that

their instrument does not include an adequate sampling of attributions across the dimensions. While the situational approach is useful for exploring the theoretical aspects of attributional thinking, the dispositional approach seems most amenable to application in the classroom. If attributional styles exist, teachers may be able to discern those styles and capitalize on that knowledge to enhance student motivation.

Marsh's school-related studies of attributional thinking have focused on academics. Other school-related attributional thinking is also important for school success, such as attributional thinking in social situations. Instruments designed to investigate attributions in social contexts have not been psychometrically nor conceptually sound. There is a need to develop such an instrument.

Statement of the Problem

Researchers interested in enhancing school success have examined the role of attributional thinking in the classroom in achievement situations. Specifically, the relationships between attributional thinking and academic self-concept and between attributional thinking and achievement have been investigated. However, the relationships between attributional thinking in social situations and social self-concept and between attributional thinking and social functioning have not been examined specifically. In fact,

no psychometrically sound instrument currently exists which measures students' attributional thinking in the social domain. In addition, the relationships among academic attributions, academic self-concept, and achievement have been examined only in Australian students. Thus, additional investigations are needed to examine the relationships among attributions for academic and social success and failure, dimensions of self-concept, and achievement/social functioning in American students.

The Need for the Development of a Student Social Attribution Scale

Using Weiner's motivation model (see Weiner, 1986, for a review), researchers have examined the relationship between attributions for success/failure and social affiliation or social success from an experimental/situational approach, but their findings apply only to narrow situations. The relationships among attributions for social success and failure, dimensions of self-concept, and social functioning have not been thoroughly examined from an individual differences orientation. In part this is because there are currently no widely used, psychometrically sound measures of individual differences in attributional thinking in the social domain. Those researchers examining social attributional thinking from an individual differences perspective have employed questionnaires with forced-choice

response formats (Ames et al., 1977; Fielstein et al., 1985; Schneider & Leitenberg, 1989). The forced-choice format may result in data distortion (Marsh, 1984; Marsh et al., 1984). Further, the Ames et al. study did not distinguish between the internal causes of ability and effort. In addition, most social attribution questionnaires have been brief, often with as few as six questions (Fielstein et al., 1985; Whitehead, Anderson, & Mitchell, 1987). None of the previously developed social attribution questionnaires have established reliability and validity. Consequently, there is a need to develop a psychometrically sound measure of individual differences in attributions for success and failure in the social domain. Thus, the purpose of this study was to develop such an instrument and to establish relationships among it and relevant measures of self-concept and social functioning.

Need to Establish Relationships Among Attribution, Social Self-Concept, and Social Functioning

Weiner (1986) proposed a link between self-esteem related affects and internal attributions for success and failure in academic and social settings. Marsh (1984) and Marsh et al. (1984) demonstrated relationships between attributions and academic self-concept and between attributions and achievement. As attributions for academic success and failure are related to dimensions of self-

concept, especially academic self-concept, it follows that attributions for social success and failure would be related to dimensions of self-concept, especially social self-concept. Further, as attributions to ability and effort for academic success are positively related to academic achievement, it follows that attributions to ability and effort for social success would be positively related to social functioning. Fielstein et al., 1985, demonstrated differences between high and low self-esteem children in attributions for success and failure in academic, athletic, and social situations. However, they used a forced-choice format to assess attributions; this format may result in data distortion as discussed above. In addition, the Fielstein et al. study used a measure of generalized self-esteem which assumes a unidimensional rather than a multidimensional construct. There is evidence that self-concept is hierarchical and multidimensional (Marsh & Shavelson, 1985). There is a need to examine from an individual differences perspective the relationships among American students' attributions for social success and failure, dimensions of self-concept, and social functioning. So far, studies of individual differences in attribution, which have used well-developed instruments to assess attributions and self-concept, have focused only on academic achievement in Australian students (Marsh, 1984; Marsh et

al., 1984). There is a need to establish basic relationships among these variables including two possible causal models.

Need to Establish Relationships Among Attribution, Academic Self-Concept, and Achievement

Most of the studies examining relationships among attribution, self-concept, and achievement have used an experimental/situational methodology; findings emanating from this paradigm cannot be applied readily to the classroom. This approach does not allow predictions about individuals, just certain rather limited situations (Marsh, 1984; Marsh et al., 1984). Much of the individual differences research, which does lend itself to application more readily, has been conducted using poorly constructed attribution measures and measures of global self-esteem (Marsh, 1984; Marsh et al., 1984). Using specific instruments with well-defined psychometric properties, Marsh, 1984, and Marsh et al., 1984, demonstrated relationships among attributions for academic success and failure, academic self-concept, and achievement in Australian students. There is a need to similarly examine the relationships among American students' attributions for academic success and failure, dimensions of self-concept, and academic achievement using well-developed and specific instruments.

Research Questions and Hypotheses

General research questions are followed by specific hypotheses generated by findings from the previous literature.

1) Does the SSAS provide a psychometrically sound assessment of social attributions? Do the reliability coefficients of the subscales exceed .6, the minimum suggested by Salvia and Ysseldyke (1988) for experimental research? Do the item-subscale correlations for the SSAS reach statistical significance? Are test-retest reliability coefficients for the SSAS subscales adequate? To what extent do student responses to the SSAS correspond to the predicted (six) factor structure? The factors are predicted to be: SA (success/ability); SE (success/effort); SX (success/external); FA (failure/ability); FE (failure/effort); and FX (failure/external).

2) To what extent do student responses to the SAS define the seven factors found by Marsh, 1984 and Marsh et al., 1984? The predicted factors are: reading ability; math ability; success/effort; success/external; failure/ability; failure/effort; and failure/external. Are test-retest reliability coefficients for the SAS adequate?

3) What are the relationships between attributions for social success and failure and dimensions of self-concept? What are the relationships between attributions for academic success and failure and dimensions of self-concept?

More specifically, what are the relationships between--
 attributions for social and achievement (reading and
 math) success and failure and
 total self-concept?
 nonacademic self-concept?
 academic self-concept?
 social self-concept?
 reading self-concept?
 math self-concept?

Predictions are as follows:

a) The following attributions will be significantly
 positively correlated with the related dimensions
 of self-concept:

ability attributions for social success and--
 total self-concept
 nonacademic self-concept
 social self-concept

effort attributions for social success and--
 total self-concept
 nonacademic self-concept
 social self-concept

ability attributions for reading success and--
 total self-concept
 academic self-concept
 reading self-concept

effort attributions for reading success and--

total self-concept
 academic self-concept
 reading self-concept
 ability attributions for math success and--
 total self-concept
 academic self-concept
 math self-concept
 effort attributions for math success and--
 total self-concept
 academic self-concept
 math self-concept

It is predicted that the relationships will be strongest between attributions and specific self-concepts in the same domain (e.g., social self-concept and attributions for social success).

b) The following attributions will be significantly negatively correlated with the related dimensions of self-concept:

ability attributions for social failure and--
 total self-concept
 nonacademic self-concept
 social self-concept
 effort attributions for social failure and--
 total self-concept
 nonacademic self-concept
 social self-concept

ability attributions for reading failure and--

total self-concept

academic self-concept

reading self-concept

effort attributions for reading failure and--

total self-concept

academic self-concept

reading self-concept

ability attributions for math failure and--

total self-concept

academic self-concept

math self-concept

effort attributions for math failure and--

total self-concept

academic self-concept

math self-concept

It is predicted that the relationships will be strongest between attributions and specific self-concepts in the same domain. It is predicted that the relationships will be stronger for failure attributed to ability than to effort.

4) What are the relationships between attributions for social success and failure and social functioning? What are the relationships between attributions for academic (reading and math) success and failure and achievement in reading and math?

Specifically, what are the relationships between--

attributions for social success and social functioning?

attributions for social failure and social functioning?

attributions for reading success and reading achievement?

attributions for reading failure and reading achievement?

attributions for math success and math achievement?

attributions for math failure and math achievement?

a) It is predicted that the following attributions will be positively correlated with the related dimensions of social functioning/achievement:

ability attributions for success and--

social functioning

reading achievement

math achievement

effort attributions for success and--

social functioning

reading achievement

math achievement

b) It is predicted that the following attributions will be negatively correlated with the related dimensions of social functioning/achievement:

ability attributions for failure and--

social functioning

reading achievement
math achievement
effort attributions for failure and--
social functioning
reading achievement
math achievement

It is predicted that social functioning and reading and math achievement will be most highly correlated with ability attributions for success (positively) and with ability attributions for failure (negatively).

5) What are the causal relationships among attributions, self-concept, and achievement/social functioning? Specifically, what are the causal relationships among attributions for social success and failure, social self-concept, and social functioning? Similarly, what are the causal relationships among attributions for academic success and failure, academic self-concept, and achievement? Based on Marsh, 1984, the predicted causal flow for the academic domain is achievement, academic self-concept, and attributions. Similarly, in the social domain, the predicted causal flow is social functioning, social self-concept, and attributions. However, Weiner's theory (1986) suggests a different causal flow; thus an alternative predicted causal ordering for the social domain is attributions, social self-concept, and social functioning.

CHAPTER II

METHOD

Subjects

Participants were 237 4th and 5th graders enrolled in a public elementary school (grades K--5) in a county school district in East Tennessee located less than 15 miles from a metropolitan area (population over 250,000). Demographic information about the student population was taken from a 1986 self-evaluation of the school completed by school staff for accreditation purposes; the self-evaluation reports data from the 1985-86 school year (Seymour Primary School, Self-Evaluation, 1986). Student population for the entire school district for the 1985-1986 school year was 8,099. The self-evaluation indicated that the majority of students in the school "are from average socio-economic backgrounds. Only about 3% of the parents are unemployed and 4% partially or wholly dependent on welfare funds" (p. 17). Parents of the student population represent a broad range of educational and occupational levels. Educational levels of parents for the 1985-86 school year were: 4.72% less than high school, 48.81% completed high school, 14.17% some college but without a degree, 20.47% completed college, and 11.80% an advanced degree. The three most common occupational levels for mothers were homemaker (43.75%), clerical (21.87%), and professional (14.06%). For fathers, the three most common

occupational levels were professional (31.30%), managerial (30.43%), and skilled (23.47%).

In the participating sample, there were 123 boys and 114 girls. One hundred twenty-one were 4th graders and 116 were 5th graders. The school population is predominantly white (over 99% of the students are white). Consequently, almost all of the participants were white; only one Black child and two Oriental children participated in the study. Eleven of the participating students were classified as Learning Disabled, 22 were classified as Intellectually Gifted, and 8 were classified as Speech/Language Impaired. All 4th and 5th grade students were invited to participate in the study. Approximately two weeks before data collection, classroom teachers distributed permission forms to each 4th and 5th grade class with a brief oral explanation. Students were asked to return the permission forms the next day. For those students who did not return the form, a second form was sent home a week later. All students who returned the signed form (89.78%) and who were present on the days of data collection were included in the study.

Instruments

A principal focus of this study was to develop an instrument for measuring individual differences in student attributions for success and failure in the social domain. The student social attributions measure was patterned after

the Sydney Attribution Scale; a description of the social attribution measure follows the description of the Sydney Attribution Scale.

Attribution Measures

The revised Sydney Attribution Scale (SAS; Marsh, 1984) was used to measure students' perceptions of causes of their academic success and failure. The SAS is designed to measure 12 scales. These scales result from the factorial combination of three facets: content area (R = reading; M = math); outcome (S = success; F = failure); and attribution (A = ability; E = effort; X = external causes). For example, MSA refers to the scale which includes items that attribute ability as the cause of math success. Each of the 12 scales includes 6 of the 72 items. Each of 24 scenarios depict the subject experiencing reading or math success or failure; each scenario is followed by three randomly ordered causes (ability, effort, external) for the outcome. Students independently rate causes: false (1), mostly false (2), sometimes false (3), mostly true (4), or true (5). (See Marsh et al., 1984, for a detailed rationale for the design of the instrument). Statistical analysis of responses to the revised SAS (Marsh, 1984) indicated the scale is reliable. Coefficient alphas for the eight scores used to summarize responses to the SAS ranged from .70 to .86, but only one score had an alpha less than .80. Because test-retest reliabilities were not calculated in the Marsh

studies, they were calculated for data from the present study and are reported in the Results. Additionally, factor analytic data were calculated and compared to the factor structure found in the Marsh (1984) and Marsh et al. (1984) Australian studies.

The Student Social Attribution Scale (SSAS) was developed for this study. Designed to parallel the SAS, the SSAS measures students' perceptions of causes of their school-related social success and failure. It has six scales which result from the factorial combination of two facets in the school social domain: outcome (S = success; F = failure); and attribution (A = ability; E = effort; X = external causes). For example, SA refers to the scale which includes items that assess "attributions to ability" as the cause of school social success. In the preliminary version of the SSAS, each of 30 scenarios depict the subject experiencing social success or failure and are followed by three randomly ordered causes (ability, effort, external). The scenarios were developed from a variety of sources including published and non-published social attribution questionnaires, input from classroom teachers, and input from university faculty. Six classroom teachers were asked to independently rate the importance to students of each of the 30 scenarios on a scale from 1 to 5. Twenty-five scenarios were rated 3.5 or higher in importance. The remaining five were examined and modified. In addition,

three raters (two graduate students and one faculty member) were asked to identify independently the causes (ability, effort, or external). The causes were identified with 100% agreement among the three raters. Response format parallels the SAS; students independently rate causes from false (1) to true (5). In a pilot study, the preliminary version of the SSAS was administered to a heterogeneous group of 25 4th graders in another school in the same school district as the participating sample. Item-subscale correlations were calculated. These values were used to help determine the best items for retention in the SSAS. Items with nonsignificant item-subscale correlations ($p > .05$) were deleted or altered. The revised version of the SSAS was comprised of 24 items (See Appendix A). For the 24-item version of the SSAS, administered to the large sample, relevant item analysis techniques yielded item--total test correlations and exploratory and confirmatory factor analysis loadings. Reliabilities of the six SSAS scales were determined by Cronbach's alpha. Test-retest reliability correlation coefficients were computed also for the SSAS scales.

Self-Concept Measure

The Self-Description Questionnaire-I (SDQ-I) (Marsh, 1988) measures eight components of preadolescent self-concept based on the Marsh-Shavelson model of multidimensional, hierarchical self-concept (Marsh &

Shavelson, 1985). There are two areas, academic and nonacademic. The academic portion includes three components: reading, math, and (general) school. Nonacademic includes four components: physical ability, physical appearance, peer relations, and parent relations. An eighth component, general-self, is similar to Rosenberg's self-esteem scale. The SDQ-I was normed on a sample of 3,562 Australian 2nd--6th graders from geographically and socioeconomically diverse backgrounds. Though no American children were represented in the standardization sample, Marsh (1988) noted that there are data to provide "preliminary support for using this large, well-stratified norms sample for children outside Australia" (p. 19). Evidence of construct validity of the SDQ-I is provided by extensive factor analyses; Marsh (1984) reported that "results of exploratory factor analyses and confirmatory factor analyses of responses to the SDQ" . . . "provide strong support for the eight factors" (p. 1297). Marsh (1988) reported strong evidence for the reliability of the SDQ-I. Based on the total normative sample ($n = 3,562$), internal consistency reliability coefficients for the eight subscales were all above .8; reliabilities for the three total scales were all above .9. Test-retest reliability coefficients provide evidence of the stability of the SDQ-I over a 6 month period (mean $r = .61$ for the eight subscales; mean $r = .65$ for the three total scales). The SDQ-I yields

T scores and percentiles for each of the eight components of self-concept and for total nonacademic, total academic, and total self. (Norms are not available for the general-self scale for 2nd--4th graders.) For this study, scores from the Reading, Math, Peer Relations, Total Academic, Total Nonacademic and Total subscales were used as measures of self-concept. The score from the Peer Relations subscale was used as the measure of social self-concept.

Achievement Measures

Reading and math achievement measures were obtained from routine group achievement testing conducted by school personnel in April, 1990. All students in the state were administered the Comprehensive Test of Basic Skills, 4th Edition, Survey Test (CTBS/4). The test, which is published by CTB McGraw Hill, was nationally normed in 1988. The standardization sample included over 300,000 K-12 students from all 50 states; the students were identified using stratified random sampling procedures. The CTBS, a norm-referenced group achievement test, has been widely used by school systems across the nation to measure academic achievement in the areas of reading, math, and language. Test publishers reported evidence of reliability and validity for the CTBS/4. Kuder-Richardson Formula 20 coefficients for Total Reading for 4th grade (.86 and .88) and for 5th grade (.83 and .85) and for Total Mathematics for 4th grade (.79 and .85) and for 5th grade (.80 and .86)

provide evidence of internal consistency of the Total Reading and Total Mathematics scales. The aim of the CTBS/4 is to provide "valid measurement of academic basic skills in reading, spelling, language, mathematics, study skills, science, and social studies" (CTB Macmillan/McGraw Hill, 1989, p. 8). Test developers attempted to establish content validity by reviewing and covering the content in "state and district curriculum guides, textbook series, instructional programs, and norm-referenced and criterion-referenced assessment instruments" (CTB Macmillan/McGraw Hill, 1989, p. 8). For purposes of this study, the CTBS/4 Total Reading scale score was used as the measure of reading achievement. The CTBS/4 Total Mathematics scale score was used as the measure of math achievement. These scores are produced from an equal-interval scale of scores which ranges from 000 to 999.

Social Functioning

Social functioning was assessed by the Social Skills Rating System (SSRS) student form, elementary level (Gresham & Elliott, 1990, American Guidance Service). The SSRS student form, elementary level, is designed for students in grades K-6 and yields one score, a measure of social skills. It is part of a larger system which includes parent, teacher, and student questionnaires designed to assess social skills, academic competence, and problem behaviors. On the SSRS elementary student form, students rate the

frequency (0 = Never; 1 = Sometimes; 2 = Very Often) of 34 statements describing social behaviors (e. g., "I say nice things to others when they have done something well"). Data have been collected on a nationally representative sample for all forms of the SSRS (parent, teacher, and student). Evidence of reliability and validity for all forms of the SSRS is reported in an unpublished draft of the manual. "Across all forms and levels, the median coefficient alpha reliability for the Social Skills scale was .90", providing evidence of internal consistency (Gresham & Elliott, 1989, p. 4). "Student self-ratings of Social Skills yielded a test-retest reliability coefficient of .68", providing moderate evidence for temporal stability of the scale (Gresham & Elliott, 1989, p. 5). Evidence of criterion-related validity was established by two studies which found relationships in predicted directions between scores on the SSRS student form and scores on the Child Behavior Checklist-Youth Self Report Form (YSR) and scores on the Piers-Harris Children's Self-Concept Scale. "Low to moderate correlations, most of them negative, were found between the SSRS Scale and Subscale scores and the YSR Externalizing, Internalizing, and Total Problem scores" on the YSR (Gresham & Elliott, 1989, p. 22). Moderate correlations were found between the SSRS Subscale scores and the Piers-Harris cluster scores, Behavior, and Intellectual and School Status. Because standardization data are not yet

available, the SSRS raw score was used as the measure of social functioning.

Procedure

The revised SAS, the SSAS, the SDQ-I, and the SSRS elementary student form were administered orally by the author or one of eight trained graduate students in school psychology. Directions provided by the test authors were read aloud in a standardized manner; students were allowed to ask questions after the directions were read. The measures were administered in counterbalanced order to intact classes of no more than 50 students during the regular school day. The measures were administered at one sitting with a break after one hour. Students were instructed not to discuss the instruments until the session was over. A week after initial instrument administration, the same students were re-administered either the SSAS or the SAS to determine test-retest reliability. Approximately half were administered the SSAS and the other half were administered the SAS. The CTBS/4 was administered by school personnel according to standardization directions in April, 1990. Achievement test scores were obtained from school personnel in the form of a computer printout.

Data Analyses

Relevant descriptive statistics (means, standard deviations) were obtained for all the variables. Psychometric characteristics of the SSAS were determined by

correlating item-subscale correlation coefficients, calculating Chronbach's alpha coefficients for the subscales, and obtaining exploratory and confirmatory factor analyses. Test-retest reliability coefficients for the SSAS and the SAS were calculated. Results of the SAS were factor analyzed (exploratory analysis) to allow comparison with results from the Marsh (1984) study. Hypothesized relationships between attributions for success and failure and dimensions of self-concept and between attributions for success and failure and achievement/social functioning were determined by correlational analyses. Confirmatory factor analyses for the SSAS were computed using LISREL VI (Joreskog & Sorbom, 1986). Exploratory factor analyses of the SSAS and the SAS were computed using the Statistical Analysis System (SAS; SAS Institute Inc., 1985). Other statistical analyses (i. e., correlational analyses, reliability estimates, descriptive statistics) were computed using SPSS-X (SPSS Inc.).

Causal relationships among attributions, self-concept, and social functioning/achievement were analyzed by path analyses. As Marsh (1984) suggested, it is unclear which order the causal path should follow. He predicted the causal ordering to be first achievement, then self-concept, and then attributions; he conducted two path analyses which provided support for this ordering. Thus, the predicted causal flow for this study in the academic domain was

achievement, self-concept, and attributions. An alternative causal ordering, consistent with Weiner's attribution model (attributions, self-concept, achievement), was compared to Marsh's proposed model using LISREL VI (Joreskog & Sorbom, 1986). For the social domain two alternatives were suggested and compared using LISREL VI: social functioning, self-concept, and attributions; and attributions, self-concept, and social functioning.

CHAPTER III

RESULTS

Results provide evidence needed to address five research questions and related a priori hypotheses. The first question focuses on basic psychometric properties of the SSAS, particularly reliability and construct validity, the second on test-retest reliability and construct validity of the SAS for American students, the third and fourth on the various relationships among attributions, dimensions of self-concept, and social functioning/achievement, and the fifth on the causal ordering of attributions, self-concept, and social functioning/achievement. These five questions and related hypotheses are addressed in turn; discussion of each question is preceded by a presentation of related descriptive statistics.

Research Question 1

Does the SSAS provide a psychometrically sound assessment of social attributions? Descriptive statistics for the six subscales of the SSAS are presented in Table 1. For the three success scales, students tended to endorse effort attributions most highly, followed by ability attributions, and finally external attributions. For the three failure scales, students tended to endorse external attributions most highly and effort and ability attributions about equally.

Table 1
Means and Standard Deviations for
Student Social Attribution Scale (SSAS) Subscales*

SSAS	Mean	SD	N
SA	43.057	8.958	229
SE	49.389	6.751	229
SX	31.070	8.276	227
FA	25.544	10.076	226
FE	26.513	9.404	228
FX	36.424	7.382	229

* Twelve items per subscale

The psychometric adequacy of the SSAS was evaluated by determining Cronbach's alpha, item-subscale correlations, and test-retest reliability coefficients for the six subscales of the SSAS. Generally, the correlational analyses provide positive evidence of reliability for all subscales; all of the reliability coefficients were greater than .6, the minimum suggested by Salvia and Ysseldyke (1988) for experimental research, and four are .80 or greater. Coefficient alphas for the six subscales were: SA: .87; SE: .80; SX: .77; FA: .89; FE: .84; and FX: .65. Item-subscale correlations ranged from .31 to .78; items on the external scales tended to have lower item-subscale correlations (See Table 2). Test-retest reliability coefficients for the six subscales were: SA: .66; SE: .77; SX: .24; FA: .67; FE: .74; and FX: .24.

Construct validity of the SSAS was determined by factor analytic data. It was predicted that factor analysis of the SSAS would yield six factors: SA, SE, SX, FA, FE, and FX. Factor loadings from a forced six factor principal components factor analysis (iteration method) with oblique rotation failed to provide support for the proposed six factor model, using the criterion of .40 as representing a significant item-factor loading. Two separate factors were defined by SX and FX items. A third factor was defined by FA and FE items. A fourth factor was defined by SE and some SA items. A fifth factor was defined by SA items. The

Table 2

Item-Subscale Pearson Correlation Coefficients for the
Student Social Attribution Scale (SSAS)*

Success Ability (SA)	Success Effort (SE)	Success External (SX)	Failure Ability (FA)	Failure Effort (FE)	Failure External (FX)
SA1 .52	SE1 .58	SX1 .53	FA1 .59	FE1 .52	FX1 .44
SA2 .61	SE2 .49	SX2 .48	FA2 .67	FE2 .59	FX2 .41
SA3 .68	SE3 .50	SX3 .56	FA3 .75	FE3 .64	FX3 .39
SA4 .62	SE4 .62	SX4 .54	FA4 .59	FE4 .52	FX4 .44
SA5 .66	SE5 .67	SX5 .62	FA5 .54	FE5 .66	FX5 .51
SA6 .60	SE6 .62	SX6 .37	FA6 .69	FE6 .70	FX6 .32
SA7 .77	SE7 .67	SX7 .57	FA7 .77	FE7 .63	FX7 .46
SA8 .55	SE8 .70	SX8 .56	FA8 .78	FE8 .70	FX8 .46
SA9 .74	SE9 .70	SX9 .49	FA9 .64	FE9 .69	FX9 .46
SA10 .63	SA10 .78	SX10 .64	FA10 .68	FE10 .62	FX10 .50
SA11 .75	SE11 .77	SX11 .58	FA11 .56	FE11 .63	FX11 .51
SA12 .61	SE12 .50	SX12 .50	FA12 .72	FE12 .49	FX12 .49

NOTE: All correlations are significant at $p < .001$ level.

* Twelve items per subscale

sixth factor was defined by only three seemingly unrelated items. These results suggested the sixth factor may not be viable. Factor loadings from a forced five factor principal components factor analysis (iteration method) with oblique rotation were similar to the six factor solution. Two separate factors were defined by SX and FX items; a third factor was defined by FA and FE items; a fourth factor was defined by SE and some SA items; and a fifth factor was defined by SA items. In both the six and five factor exploratory analyses, the total variance explained by the factors was low (less than 50%).

Based on the exploratory factor structure, confirmatory factor analyses were conducted to determine the goodness-of-fit of the six and five factor solutions. Several indicators of goodness-of-fit were evaluated (see Table 3). Results indicated that neither the six nor the five factor solution provides a good fit to the data. For the six factor solution, the factors were ill-defined primarily because of the high correlation between FA and FE factors, making calculation of the goodness-of-fit indices meaningless. For the five factor solution, goodness-of-fit indices indicated a poor fit to the data (see Table 3). For example, the NFI ranges from 0 to 1.0, with 0 representing the fit of the null model and 1.0 representing the fit of the ideal model. The NFI for the five factor solution was low, .363, indicating a poor fit to the data.

Goodness-of-fit Indices for Five and Six Factor
Confirmatory Factor Analyses of the SSAS**

Model	χ^2	df	χ^2/df	GFI	NFI
Null	8184.24	2556	3.200	.293	-
5 Factor	5215.12	2462	2.120	.574	.363
6 Factor*	4772.94	2452	1.946	.606	.417

Note: NFI = Normed Fit Index. NFI ranges from 0 to 1.0; 0 equals the fit of the null model and 1.0 equals the fit of the ideal model.

* Phi is not positive definite; the correlation between factors 4 and 5 exceeds 1.0.

** Twelve items per subscale

Because there were so many items per subscale (12), requiring considerable administration time, and because evidence from the exploratory and confirmatory analyses indicated that some items did not fit well with their intended factors, a shortened scale was developed by deleting six items per subscale. The item selection process required first a confirmatory factor analysis for each subscale (SA, SE, etc.). Then, based on multiple criteria (factor loadings and t-values showing the significance of the item's loading on the factor), six items per subscale were chosen for retention in the shortened scale. On the success scales, items 1, 5, 7, 9, 10, and 11 were retained. On the failure scales, items 5, 7, 8, 10, 11, and 12 were retained (see Appendix A). Finally, six and five factor confirmatory factor analyses were conducted with the shortened scale. Results indicate that the six-factor model is statistically better than the five-factor model ($\Delta\chi^2 = 124.13$; $\Delta df = 5$; $p < .001$) and that the six-factor model provides a reasonably good fit to the data ($\chi^2/df = 1.68$; GFI = .800; NFI = .658) (see Table 4). Factor loadings from the six-factor solution are presented in Table 5. The factor loadings are generally quite high (LISREL Maximum Likelihood Estimates range = .408 to 1.119) and provide support that the shortened scale measures the six hypothesized factors, SA, SE, SX, FA, FE, and FX. Means and standard deviations for the shortened SSAS

Table 4

Goodness-of-fit Indices for Five and Six Factor
Confirmatory Factor Analysis of the Shortened SSAS*

Model	χ^2	df	χ^2/df	GFI	NFI
Null	2884.40	630	4.51	.424	-
5 Factor	1096.31	584	1.88	.767	.615
6 Factor	972.18	579	1.68	.800	.658

Note: NFI = Normed Fit Index. NFI ranges from 0 to 1.0; 0 equals the fit of the null model and 1.0 equals the fit of the ideal model.

*Twelve items per subscale

Table 5

Factor Loadings from the Six Factor Confirmatory
Factor Analysis of the Shortened SSAS

Item	SA	SE	SX
1	.622	.413	.408
5	.904	.486	.855
7	.838	.676	.674
9	.720	.578	.422
10	1.060	.643	.853
11	1.119	.650	.655

Item	FA	FE	FX
5	.534	.605	.561
7	.988	.824	.419
8	1.023	.845	.694
10	.837	.778	.791
11	.834	.659	.675
12	.847	.442	.743

Note: All loadings are significant; $p < .05$.

subscales are presented in Table 6; they follow the same pattern described above for the longer scale. Cronbach's alpha and item-subscale correlations for the shortened SSAS subscales were calculated to determine reliability.

Coefficient alphas for the six shortened subscales provide evidence of internal consistency; SA: .85; SE: .75; SX: .67; FA: .81; FE: .75; and FX: .63. Item-subscale correlations for the shortened SSAS ranged from .50 to .83 (see Table 7). Intercorrelations for the six-item subscales of the SSAS are presented in Table 8. Ability and effort items tended to be positively correlated, especially on the failure scales. Success external items tended to be weakly negatively correlated with success ability and effort items. Failure external items were uncorrelated with failure ability and effort items. Test-retest reliability coefficients for the shortened SSAS were: SA: .53; SE: .74; SX: .10; FA: .60; FE: .62; and FX: .47. Because factor analyses and reliability estimates provide evidence for the reliability and construct validity of the shortened SSAS, the shortened form was used in all further data analyses involving the SSAS.

Research Question 2

To what extent do student responses to the SAS define the seven factors found by Marsh, 1984, and Marsh et al., 1984? The predicted factors were: reading ability, math

Table 6

Means and Standard Deviations for Shortened SSAS Subscales

SSAS	MEAN	SD	N
SA	20.021	5.577	234
SE	25.133	4.028	233
SX	14.322	4.674	233
FA	13.118	5.628	229
FE	11.610	4.804	231
FX	15.403	4.869	233

Table 7

Item - Subscale Pearson Correlation Coefficients
for the Shortened SSAS

SA	SE	SX	FA	FE	FX
SA1.65	SE1.61	SX1.50	FAS.59	FES.64	FXS.59
SA5.76	SES.62	SX5.70	FA7.77	FE7.70	FX7.53
SA7.76	SE7.72	SX7.62	FA8.79	FE8.73	FX8.61
SA9.70	SE9.65	SX9.51	FA10.72	FE10.73	FX10.65
SA10.80	SE10.72	SX10.69	FA11.73	FE11.69	FX11.59
SA11.83	SE11.71	SX11.64	FA12.72	FE12.55	FX12.61

Note: All correlations are significant at $p = .001$ level.

Table 8
Intercorrelations for the Shortened SSAS

	SA	SE	SX	FA	FE	FX
SA	-					
SE	.26	-				
SX	-.18	-.21	-			
FA	-.42	-.22	.44	-		
FE	-.04	-.16	.16	.52	-	
FX	.24	.07	.26	.05	.09	-

ability, success/effort, success/external, failure/ability, failure/effort, and failure/external.

Descriptive statistics for the twelve subscales of the SAS are presented in Table 9. The pattern of students' endorsement of the SAS subscales was generally similar to the pattern of endorsement on the SSAS. That is, for the six reading and math success subscales, students tended to endorse effort attributions most highly, closely followed by ability attributions; external attributions were least highly endorsed. For the six reading and math failure subscales, students tended to endorse external and effort attributions about equally; ability attributions were least highly endorsed.

Test-retest reliability coefficients for the twelve subscales were: RSA: .70; RSE: .53; RSX: .56; MSA: .53; MSE: .55; MSX: .28; RFA: .57; RFE: .68; RFX: .44; MFA: .58; MFE: .50; and MFX: .24.

An exploratory principal components factor analysis (iteration method) of the SAS with a forced seven factor solution and oblique rotation yielded a pattern of factor loadings very similar to those reported in Marsh (1984) (see Appendix B). As in the Marsh (1984) study, items from each subscale were paired for the factor analysis. For example, the first two items were combined to form one score, the next two items were combined to form the next score, etc., as follows: RSAP1 = RSA1 + RSA2; RSAP2 = RSA3 + RSA4; RSAP3

Table 9
Means and Standard Deviations for
Sydney Attribution Scale (SAS) Subscales

SAS	Mean	SD	N
RSA	24.524	4.452	233
RSE	25.355	4.228	231
RSX	13.921	4.908	227
RFA	12.127	5.213	229
RFE	16.169	5.568	231
RFX	16.070	4.819	230
MSA	22.333	5.221	228
MSE	23.360	4.330	228
MSX	16.305	5.051	223
MFA	12.897	5.053	232
MFE	16.361	5.199	230
MFX	17.039	4.512	228

= RSA5 + RSA6. The factor analysis yielded support for Marsh's proposed seven factor structure of the SAS. The paired factor loadings from the U. S. and Australian students' responses are presented in Appendix B. Less than 5% of the loadings differed by more than .20.

Research Question 3

What are the relationships between attributions for social success and failure and dimensions of self-concept? What are the relationships between attributions for academic success and failure and dimensions of self-concept?

Descriptive statistics for the students' responses to subscales of the self-concept measure, the Self-Description Questionnaire (SDQ), are presented in Table 10. The subscale scores are reported as T scores and are similar to population means.

The relationships between attributions for success and failure and dimensions of self-concept, as defined by a priori hypotheses, were investigated using correlational analyses. The correlational analyses generally support the predicted relationships between attributions, measured by subscales of the SSAS and SAS, and dimensions of self-concept, measured by the subscales of the SDQ (See Tables 11 and 12).

Specifically, it was predicted that measures of ability and effort attributions for social success would be significantly positively correlated with measures of Total,

Table 10

Means and Standard Deviations for Self-
Description Questionnaire (SDQ) Subscales

SDQ	Mean	SD	N
Physical Ability	50.283	9.960	237
Physical Appearance	51.675	8.808	237
Peer Relations	49.333	10.910	237
Parent Relations	45.519	11.440	237
Reading	46.114	9.731	237
Math	49.105	9.699	237
General School	44.266	9.700	237
General Self	49.460	9.514	237
Total Nonacademic	49.169	9.886	237
Total Academic	45.852	9.960	237
Total Self	46.321	9.040	237

Table 11
Correlations Between Shortened SSAS Subscales
Predicted SDQ Subscales

SDQ	SSAS					
	SA	SE	SX	FA	FE	FX
Total	.34**	.36**	-.23**	-.29**	-.11*	.01
Nonacademic	.43**	.31**	-.25**	-.34**	-.07	-.03
Peer Relations	.59**	.35**	-.31**	-.50	-.11*	.03

* $p < .05$

** $p < .01$

Table 12

Correlations Between SAS Subscales and Predicted SDQ Subscales

SDQ	SAS											
	RSA	RSE	RSX	MSA	MSE	MSX	RFA	RFE	RFX	MFA	MFE	MPX
Total	.41	.31	-.18	.44	.35	-.10	-.22	-.10	-.18	-.36	-.11	-.23
Academic	.40	.33	-.19	.46	.36	-.11	-.17	-.15	-.17	-.36	-.16	-.24
Reading	.41	.32	-.25	-	-	-	-.24	-.23	-.19	-	-	-
Math	-	-	-	.53	.37	-.09	-	-	-	-.42	-.14	-.21

Note: With three exceptions (MSX and Total; MSX and Math; and RFE and Total), all correlations are significant; 29 coefficients are significant at $p < .01$.

Nonacademic, and social self-concept (Peer Relations). Similarly, it was predicted that measures of ability and effort attributions for reading and math success would be significantly positively correlated with measures of Total, Academic, and Reading or Math self-concept. The data support these predictions. Social success attributed to ability (SA) and social success attributed to effort (SE) were significantly positively related to predicted dimensions of self-concept (SDQ Total, Nonacademic, and Peer Relations scores). Coefficients ranged from .31 to .59. Reading and math success attributed to ability (RSA, MSA) and reading and math success attributed to effort (RSE, MSE) were significantly positively related to predicted dimensions of self-concept (SDQ Total, Academic, and Reading or Math scores). Coefficients ranged from .31 to .53.

It was predicted that measures of ability and effort attributions for social failure would be significantly negatively correlated with measures of total, nonacademic, and social self-concept. Similarly, it was predicted that measures of ability and effort attributions for reading and math failure would be significantly negatively correlated with measures of total, academic, and reading or math self-concept. Correlational analyses generally yielded support for the predicted relationships between ability and effort attributions for failure and given dimensions of self-concept. Social failure attributed to ability (FA) was

significantly negatively related to the predicted dimensions of self-concept (coefficients ranged from $-.29$ to $-.50$). Social failure attributed to effort (FE) was also significantly negatively related to Peer Relations ($r = -.11$) and to Total Self-Concept ($r = -.11$); the relationship between FE and Nonacademic self-concept was not significant ($r = -.07$; $p = .143$). Reading and math failure attributed to ability (RFA, MFA) were significantly negatively related to the dimensions of self-concept as predicted. Coefficients ranged from $-.17$ to $-.42$. Reading and math failure attributed to effort (RFE, MFE) were also significantly negatively related to these predicted dimensions of self-concept in all but one case ($r = -.10$ to $-.23$). The relationship between RFE and Total self-concept approached significance ($r = -.10$; $p = .068$).

It was predicted for both success and failure attributions that relationships would be strongest between attributions and specific self-concepts in the same domain. This prediction was generally supported by the data (See Tables 11 and 12). For example, the relationship between social success attributed to ability (SA) and social self-concept (Peer Relations) ($r = .59$) was greater than the relationship between SA and Nonacademic self-concept ($r = .43$), which in turn was greater than the relationship between SA and Total self-concept ($r = .34$). Also, for failure attributions only, it was predicted that ability

attributions would yield stronger relationships with dimensions of self-concept than would effort attributions. This prediction was supported by the data (See Tables 11 and 12); all nine of the failure/ability relationships were significant, $p < .01$. All nine of the failure to effort/self-concept relationships were weakly negative; only 3 of 9 were significant at the $p < .01$ level.

Because of anomalies in Marsh's external scales (e. g., low reliabilities and failure of the scales to correlate in predicted ways with each other and with external measures; see Marsh, 1984), a priori predictions about relationships involving the external scales were not advanced. However, attribution theory and previous research (i.e., self-serving bias literature) suggests that success attributed to external causes would be negatively related to self-concept and that failure attributed to external causes would be positively related to self-concept. The data provide only limited support for this pattern (see Tables 11 and 12). Social success attributed to external causes was significantly negatively related to Total, Nonacademic, and Peer Relations self-concept scores (coefficients ranged from $-.23$ to $-.31$); however, social failure attributed to external causes failed to correlate significantly with these dimensions of self-concept. Similarly, reading success attributed to external causes was significantly negatively related to Total, Academic, and Reading self-concept scores

(coefficients ranged from $-.18$ to $-.25$); however, math success attributed to external causes was not significantly related to Total, Academic, and Math self-concept scores. Reading and math failure attributed to external causes was significantly negatively related to the dimensions of self-concept. Coefficients ranged from $-.17$ to $-.24$).

Research Question 4

What are the relationships between attributions for social success and failure and social functioning? What are the relationships between attributions for academic (reading and math) success and failure and achievement in reading and math?

The mean and standard deviation of students' raw scores ($N = 237$) on the Social Skills Rating System (SSRS) student elementary form were calculated; ($X = 47.09$; $SD = 7.52$). Descriptive statistics for student responses to the CTBS/4 are presented in Table 13. These scores are reported in the form of scale scores, which are equal interval and can range from 1 to 999. A priori hypotheses defining the relationships between attributions for success and failure and social functioning and academic achievement were investigated using correlational analyses. The correlational analyses generally support predicted relationships between attributions, measured by the SSAS and SAS, and social functioning and achievement, measured by the SSRS and CTBS/4 (See Tables 14 and 15).

Table 13

Means and Standard Deviations for
Comprehensive Test of Basic Skills (CTBS/4) Scores

CTBS/4	MEAN	SD	N
Total Reading	730.390	40.459	236
Total Math	733.443	41.029	235
Total Language	733.777	40.571	233
Total Battery	732.498	36.642	233

Table 14
Correlations Between Shortened SSAS and SSRS Scores

SSAS	SSRS	
SA	.18	(p = .003)
SE	.42	(p = .000)
SX	-.24	(p = .000)
FA	-.27	(p = .000)
FE	-.26	(p = .000)
FX	.04	(p = .253)

Table 15

Correlations Between SAS and CTBS/4 Scores

SAS	CTBS/4 Total Reading	SAS	CTBS/4 Total Math
RSA	.29 (p=.001)	MSA	.19 (p=.002)
RSE	.10 (p=.058)	MSE	.09 (p=.08)
RSX	-.25 (p=.001)	MSZ	-.10 (p=.07)
RFA	-.17 (p=.005)	MFA	-.21 (p=.001)
RFE	-.10 (p=.062)	MFE	-.09 (p=.094)
RFX	-.03 (p=.302)	MFX	-.11 (p=.054)

Specifically it was predicted that ability attributions for social success would be significantly positively correlated with the SSRS score. This prediction was supported by the data ($r = .18$, $p < .01$). It was predicted that ability attributions for reading and math success would be significantly positively correlated with CTBS/4 Total Reading and Total Math scores respectively. These predictions were also supported by the data (for reading $r = .29$; for math $r = .19$ (See Table 15).

It was predicted that social success attributed to effort would be significantly positively correlated with the SSRS score; this prediction was supported by the data ($r = .42$, $p < .01$). Similarly, it was predicted that reading and math success attributed to effort would be significantly positively related to CTBS/4 Total Reading and Total Mathematics scores; this prediction was not supported by the data (for reading $r = .10$; for math $r = .09$) (See Table 15).

Social failure attributed to ability was predicted to be significantly negatively correlated with the SSRS score. This prediction was supported by the data ($r = -.27$, $p < .01$). Similarly it was predicted that reading and math failure attributed to ability would be significantly negatively related to CTBS/4 Total Reading and Total Math scores. This prediction was supported by the data (for reading $r = -.17$; for math $r = -.21$) (see Table 15).

It was predicted that social failure attributed to effort would be significantly negatively related to the SSRS score. The data supported this prediction ($r = -.26$, $p < .01$). Similarly it was predicted that reading and math failure attributed to effort would be significantly negatively related to the CTBS/4 scores. The data did not support these predictions (for reading $r = -.10$; for math $r = -.09$) (see Table 15). It was predicted that social functioning and reading and math achievement would be most highly correlated with ability attributions for success (positively) and failure (negatively) and less highly correlated with effort attributions for success (positively) and failure (negatively). This prediction was supported by the data (see Tables 14 and 15). Relationships tended to be stronger between ability attributions and social functioning or achievement and weaker between effort attributions and social functioning or achievement, with the exception of the relationship between SE and the SSRS ($r = .42$). Predictions were not made about relationships involving the external scales. However, as discussed previously, there is limited evidence, based on theory and past research, to support the prediction that external attributions for social and academic success would correlate negatively with the SSRS and CTBS/4 scores while external attributions for social and academic failure would correlate positively with the SSRS and CTBS/4 scores. The data provide limited

support for this pattern. Relationships between social and reading success attributed to external causes were significantly negatively related to the SSRS ($r = -.24$) and CTBS/4 Total Reading ($r = -.25$) scores respectively. However, coefficients expressing relationships between math success and social, reading, and math failure attributed to external causes were nonsignificant (see Tables 14 and 15).

Research Question 5

What are the causal relationships among attributions, self-concept, and achievement/social functioning? Specifically, what are the causal relationships among attributions for social success and failure, social self-concept, and social functioning? Additionally, does this data provide support for Marsh's (1984) proposed causal ordering in the academic domain (achievement, academic self-concept, and attributions)?

Path analyses using LISREL were conducted to examine causal relationships in the academic and social domains. In each domain, two path models were compared and various statistics were computed to determine which path models provide better summaries of the causal relationships. Figure 1 presents a figure consistent with the causal path proposed by Marsh for the achievement domain (achievement leading to self-concept leading to attributions for success and failure outcomes). Figure 2 presents an alternative causal path which is consistent with Weiner's attribution

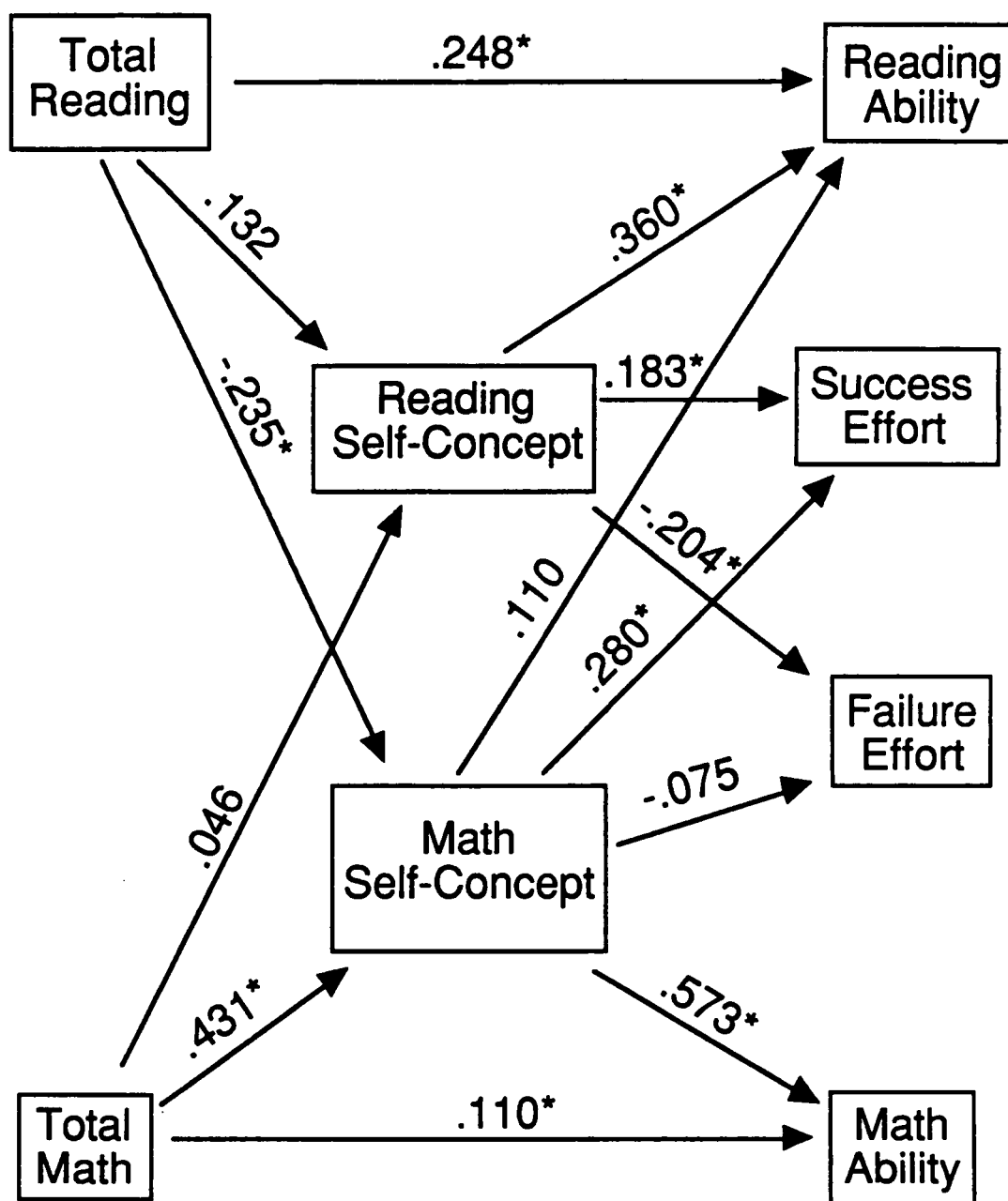


Figure 1. Causal path model showing achievement leading to self-concept leading to attributions (* t values > 2.0 , $p < .05$)

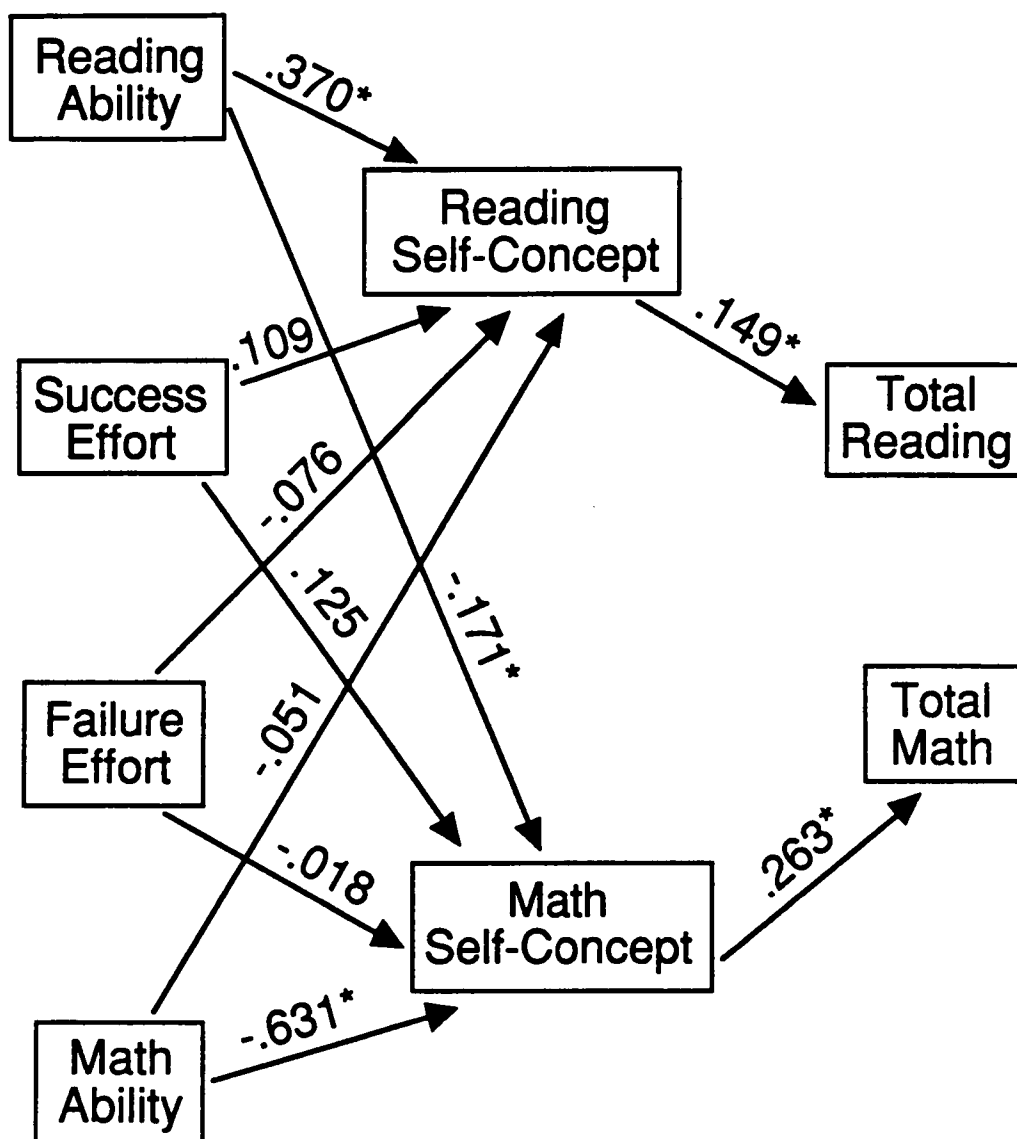


Figure 2. Causal path model showing attributions leading to self-concept leading to achievement (* t values > 2.0 , $p < .05$)

theory (attributions for success and failure outcomes, self-concept, and achievement). Paths with significant relationships are indicated by an asterisk. Table 16 presents chi-square statistics, goodness-of-fit indices, and total coefficient of determination estimates for the two path models. The total coefficient of determination shows the joint effect of all the predictor variables on the criterion variables. Data indicate that the alternative model, consistent with Weiner's theory, provides the better fit to the data and that more of the variance in the criterion variables is explained by the predictor variables than in Marsh's model.

Figure 3 presents a causal path for the social domain which is consistent with Marsh's proposed ordering in the achievement domain (social functioning, social self-concept, and attributions for success and failure outcomes). Figure 4 presents an alternative causal path which is consistent with Weiner's theory (attributions for success and failure outcomes, social self-concept, and social functioning). Paths with significant relationships are indicated by an asterisk. Table 17 presents chi-square statistics, goodness-of-fit indices, and total coefficient estimates for the two path models. As in the academic domain, data indicate that the alternative model, consistent with Weiner's theory, provides the better fit to the data and

Table 16

Comparison of Two Causal Models in the Academic Domain

Model	χ^2	df	χ^2/df	GFI	Total Coefficient of Determination
Marsh	198.27*	14	14.16	.813	.200
Weiner	201.30*	12	16.78	.861	.498

Table 17

Comparison of Two Causal Models in the Social Domain

Model	χ^2	df	χ^2/df	GFI	Total Coefficient of Determination
Marsh	67.70	6	11.28	.918	.237
Weiner	2.98	3	.993	.995	.580

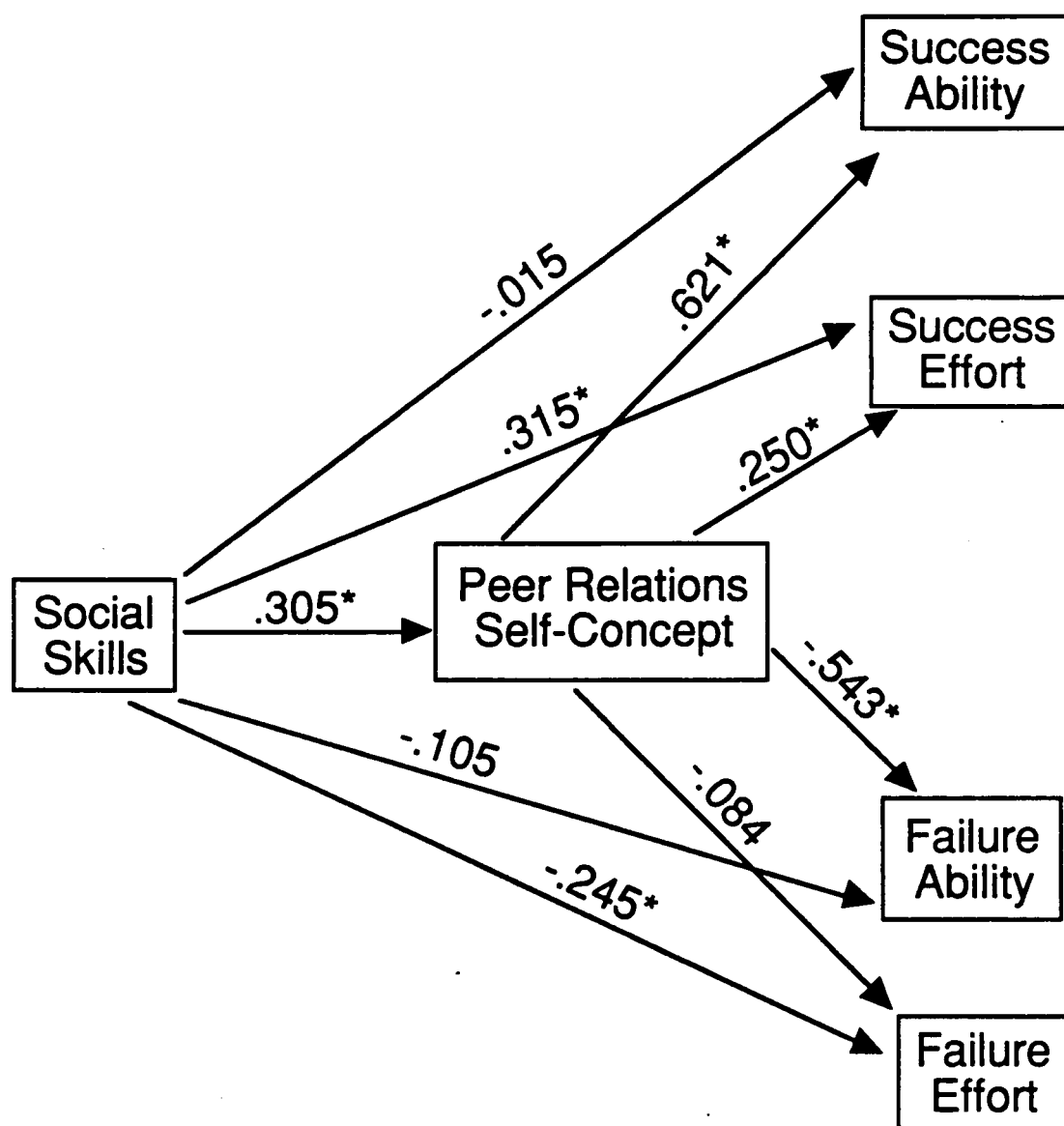


Figure 3. Causal path model showing social skills leading to self-concept leading to attributions (* t values > 2.0 , $p < .05$)

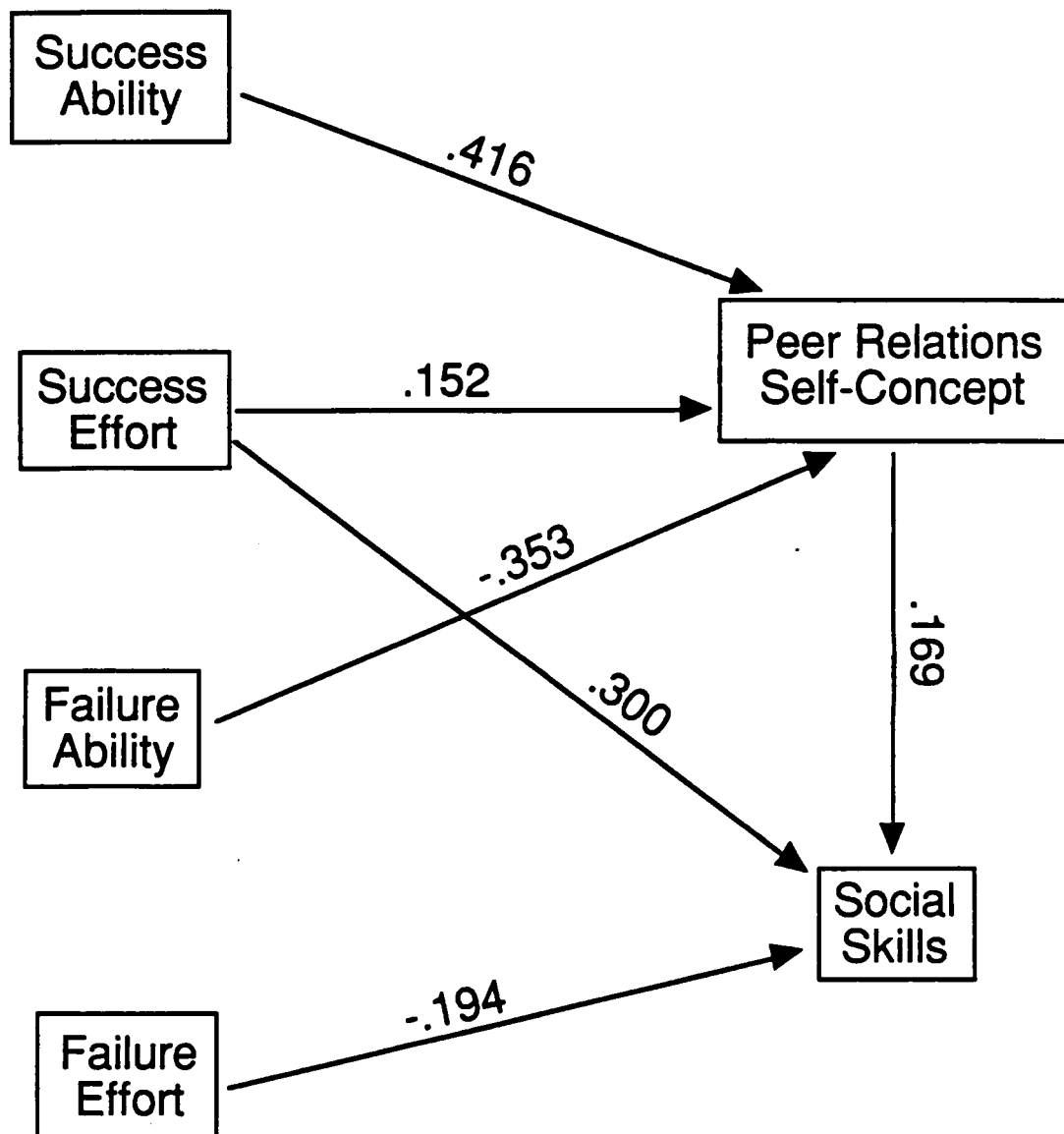


Figure 4. Causal path model showing attributions leading to self-concept leading to social skills (All t values > 2.0 , $p < .05$)

that more of the variance in the criterion variables is explained by the predictor variables in the alternative model.

CHAPTER 1V

DISCUSSION

An important purpose of the study was to develop a psychometrically sound measure of student social attributions, the SSAS, and to examine its relationship to other criteria (i. e., dimensions of self-concept and social functioning). A secondary purpose was to examine the factor structure of U. S. students' responses to the SAS, a measure of student academic attributions, and to examine its relationship to dimensions of self-concept and academic achievement. Research questions and hypotheses focused on the psychometric properties of the SSAS and the SAS for American students and on the relationships among attributions, dimensions of self-concept and social functioning/achievement. Discussion will focus on findings from each research question and how these findings relate to previous research, an examination of broader issues relating to the use of the SSAS and the SAS for the measurement of attributional style, limitations of the study, implications for practical use of the instruments, and suggestions for further research.

Development of the SSAS

Research Question 1 addressed the development and psychometric adequacy of the SSAS. After a preliminary pilot version was developed, a six-scale, 72-item instrument was developed. Cronbach's alpha, item-subscale

correlations, and test-retest reliability coefficients for the subscales yielded positive evidence of internal consistency and stability of the SSAS subscales. Retest reliability coefficients tended to be lower for the external scales, indicating students' tendency to make external attributions may vary more across time than the tendency to make ability and effort attributions. Exploratory and confirmatory factor analyses of the entire SSAS scale failed to yield support for the proposed six factor structure or an alternative five factor structure. Because of the inconsistency of the factor solution for the predicted model, the inordinate length of the test, and the limited amount of variance accounted for, a shorter version was developed. After item deletion based on several criteria, confirmatory factor analyses of the shortened SSAS (six items per subscale) yielded the predicted six factor solution; this solution provides a good fit to the data and is superior to a five factor. Thus, confirmatory factor analyses supported the hypothesized six factor structure (SA, SE, SX, FA, FE, and FX) of the final (six item) version of the SSAS. Though the final version yields six factors, there is a tendency for ability and effort items, especially for failure, to be correlated.

The six factor structure and internal consistency and reliability of the SSAS provide evidence that the SSAS is a reliable and valid measure of students' attributions for

success and failure to ability, effort, and, to a lesser extent, external causes in the social domain. Further, the six factor structure of the scale provides evidence that students do make somewhat independent attributions to ability, effort, and external causes for social success and failure, as they do in the academic domain (Marsh, 1984). Thus, the scale provides evidence for the existence of an attributional style in the social domain. The tendency for ability and effort items to be correlated suggests that students view ability and effort in social situations as related. For example, one item asked students to rate causes for being excluded from a conversation at the water fountain. Students who highly endorsed the effort response "you do not behave in a friendly way to others" also tended to endorse highly the ability response "it is hard for you to talk to popular kids". Apparently, participants tended to believe the effortful behavior (behaving in a friendly way) is related to one's ability (the ease or difficulty involved) in talking to well-liked peers.

Reliability and Validity of the SAS

Research Question 2 addressed the factor structure and retest reliability for the SAS. Factor analytic results provided support for the seven factors found by Marsh (1984) and Marsh et al. (1984) with Australian children. The seven factors are reading ability, math ability, success/ effort, success/external, failure/ability, failure/effort, and

failure/external. As in the Marsh studies, students responded differently to ability attribution items for reading and math, indicating students view reading and math ability as distinct. Retest reliability coefficients generally provided support for temporal stability of the SAS subscales. Similar to the SSAS, the external scales of the SAS tended to yield lower retest reliabilities, indicating student academic attributions to external causes may be more unstable across time than attributions to ability and effort. Analyses from this study indicate American students, like their Australian counterparts, make somewhat independent attributions to ability, effort, and external causes for academic success and failure. Thus, the scale provides additional evidence for the existence of an attributional style in the academic domain.

Attributions and Self-Concept

Research Question 3 addressed the relationships between social and academic attributions and dimensions of self-concept. Correlational analyses generally provide support for the predicted relationships between attributions, measured by subscales of the SSAS and SAS, and dimensions of self-concept, measured by the SDQ. The pattern of relationships for both social and academic functioning is generally similar to the pattern of relationships reported in the Marsh (1984) and Marsh et al. (1984) studies. Social success attributed to ability and social success attributed

to effort were significantly positively related to predicted dimensions of self-concept (Peer Relations, Nonacademic, and Total). For example, participants were asked to rate causes for being invited to a classmate's party. Students who highly endorsed the ability response "making friends is easy for you" and the effort response "you work hard at making friends" also tended to have high scores on the Peer Relations, Nonacademic, and Total subscales of the SDQ. Similarly, reading success and math success attributed to ability and to effort were significantly positively related to predicted dimensions of self-concept (Reading, Math, Academic, and Total). For example, participants were asked to rate causes for earning a gold star in reading. Students who highly endorsed the ability response "your reading is good" and the effort response "you earned it by working hard" tended to score highly on the Reading, Academic, and Total subscales of the SDQ. These findings are similar to findings in the Marsh studies which showed that students who attribute academic success to their own ability and effort tended to have higher academic self-concepts.

Social failure attributed to ability was significantly negatively related to the predicted dimensions of self-concept. Reading failure and math failure attributed to ability were significantly negatively related to the predicted dimensions of self-concept. Social failure and reading and math failure attributed to effort were also

negatively related to the predicted dimensions of self-concept but the correlations tended to be weak and did not reach significance in some cases. Thus, as predicted, relationships were stronger for failure attributed to ability than to effort. For example, on the SSAS, participants were asked to rate causes for not being asked to play at recess. Students who highly endorsed the ability response "it is hard for you to make friends" tended to have low scores on the Peer Relations, Nonacademic, and Total subscales of the SDQ. Students who highly endorsed the effort response "you do not try to get along with others" also tended, but to a lesser degree, to have low scores on the relevant SDQ subscales. Similarly, on the SAS, students were asked to rate causes for getting a math problem wrong at the board. Students who highly endorsed the ability response "you always have trouble solving problems" tended to have low scores on the Math, Academic, and Total subscales of the SDQ. Students who highly endorsed the effort response "you did it too quickly and made a silly mistake" also tended, but to a lesser degree, to have low scores on the relevant SDQ subscales. Also as predicted the relationships between attributions and specific dimensions of self-concept (e. g. Math self-concept) tended to be stronger than relationships between attributions and broader dimensions of self-concept (e. g., Academic self-concept). These findings mirror the findings of Marsh and colleagues

(1984) which showed that students who attribute academic failure to their own ability, and to a lesser extent, effort, tended to have lower academic self-concepts and that relationships were stronger between attributions and specific dimensions of self-concept.

Social and reading success and reading and math failure attributed to external causes were significantly, but weakly, negatively related to the relevant dimensions of self-concept; social failure and math success attributed to external causes were not significantly related to dimensions of self-concept. Marsh (1984) found that reading and math success and failure attributed to external causes were not significantly related to dimensions of self-concept. Intuitively it seems that success attributed to external causes would be negatively related to self-concept and that failure attributed to external causes would be positively related to self-concept. That is, one who believes he or she succeeds because of external events could be expected to hold a poor self-image while one who believes his or her failure is caused by external events could be expected to hold a positive self-image. The finding that social and reading success attributed to external causes were negatively related to relevant dimensions of self-concept is consistent with this reasoning. However, it is more difficult to interpret the finding that reading and math failure attributed to external causes were negatively

related to self-concept and that social failure and math success attributed to external causes were not related to dimensions of self-concept. These findings could be indicative of inadequacies with the external scales, or they could reflect that a person's tendency to make external attributions is unrelated to the tendency to make ability and effort attributions and to self-concept. For example, individual A with a high social self-concept may be unlikely to attribute social failure to ability, effort, and external causes while individual B, also with a high social self-concept, may be unlikely to attribute social failure to ability and effort, but more likely to attribute it to external causes.

Attributions and Performance

Research Question 4 addressed relationships between attributions and achievement/social functioning. Correlational analyses generally provide support for the predicted relationships between attributions, measured by subscales of the SSAS and SAS, and social functioning and achievement, measured by the SSRS and the CTBS/4 Total Reading and Total Mathematics subtests. Analyses reveal a pattern of relationships similar to the pattern reported in Marsh (1984) and Marsh et al. (1984) for both the social and academic domains. Social success attributed to ability and to effort was significantly positively correlated with social functioning. For example, students were asked to

rate causes for being chosen class president. Students who highly endorsed the ability response "getting along with others is easy for you" and the effort response "you try hard to get along with others" tended to score highly on the SSRS. This finding is consistent with the Ames et al.

(1977) finding that high social status children tended to choose internal causes for positive social outcomes.

Reading success and math success attributed to ability were significantly positively correlated with Total Reading and Total Mathematics scores respectively, but reading success and math success attributed to effort were positively, but not significantly, related to the achievement test scores. For example, students were asked to rate causes for being chosen to read at a parent assembly. Students who highly endorsed the ability response "you are a good reader" tended to have high Total Reading scores. Students who highly endorsed the effort response "you have been working hard on your reading all year" also tended, but to a lesser degree, to have high Total Reading scores. This pattern is similar to the pattern reported in Marsh (1984); ability attributions for reading and math success were more highly correlated with achievement than were effort attributions for reading and math success.

Social failure attributed to ability and social failure attributed to effort were significantly negatively related to social functioning. For example, students were asked to

rate causes for not being invited to a popular classmate's party. Students who highly endorsed the ability response "you are not good at being popular" and the effort response "you do not try to be liked by your classmates" tended to have low scores on the SSRS. This finding is consistent with the Ames et al. (1977) finding that low social status children tended to choose internal causes for negative social outcomes. Reading failure and math failure attributed to ability were significantly negatively related to Total Reading and Total Math scores; reading failure and math failure attributed to effort were negatively, but not significantly, related to achievement scores. For example, students were asked to rate causes for having trouble with a new math skill. Students who highly endorsed the ability response "anything in math is hard for you" tended to have low Total Math scores. Students who highly endorsed the effort response "you should pay more attention" also tended, but to a lesser degree, to have low scores on Total Math. These findings are consistent with Marsh (1984); he found that students who attributed academic failure to lack of ability, and, to a lesser extent, to a lack of effort, tended to have lower achievement.

As predicted, relationships in the academic domain tended to be stronger between ability attributions and achievement than between effort attributions and achievement. This suggests students may think of academic

success as more determined by ability than by effort. However, in the social domain, the relationship between effort attributions for success and social functioning ($r = .42$) was stronger than the relationship between ability attributions and social functioning ($r = .18$). This suggests students may think of social success as more determined by effort than by ability.

Social success attributed to external causes was significantly negatively related to social functioning. For example, students were asked to rate causes for getting a high Conduct grade. Students who highly endorsed the external response "almost everybody gets high grades in Conduct" tended to have low SSRS scores. This finding is consistent with the Ames et al. (1977) finding that low social status children tended to choose external causes for positive social outcomes. Similarly, reading success attributed to external causes was significantly negatively related to reading achievement. For example, students were asked to rate causes for doing well on a reading test. Students who highly endorsed the external response "you were lucky" tended to have low Total Reading scores. These findings are consistent with Marsh's (1984) finding that students who attributed academic success to external causes tended to have lower achievement. However, math success attributed to external causes was not related to math achievement. For example, students were asked to rate

causes for being chosen to help correct some math tests. Students who highly endorsed the external response "it was your turn to do it" displayed no tendency to have low scores on Total Math.

Social failure attributed to external causes was not significantly related to social functioning as measured by the SSRS. For example, students were asked to rate causes for not being chosen as a partner on a field trip. There was no relationship between the way students responded to the external item "you were unlucky to be left out" and the way students rated themselves on the SSRS. This finding is inconsistent with the Ames et al. (1977) finding that high social status children tended to choose external causes for negative social outcomes. However, it is of note that the Ames et al. study used a forced-choice response format which does not allow respondents to rate causes independently. Thus, in the Ames et al. study, students had to choose either an internal or an external cause for negative social outcomes. Given a forced choice, it seems that high social status children would choose an external over an internal cause for a negative outcome. However, when allowed to rate causes independently, they might (and did in the present study and the Marsh studies) rate all causes of failure as low.

Reading failure and math failure attributed to external causes were not related to reading achievement and math

achievement, respectively. For example, students were asked to rate causes for doing poorly on a math test. There was no relationship between the way students responded to the external item "the test was hard for everyone" and Total Math scores. The finding that external attributions for failure was unrelated to achievement test scores (and to social functioning) is consistent with the Marsh (1984) findings.

Attributions, Self-Concept, and Performance:

Are They Causally Related?

Research Question 5 addressed causal relationships among attributions, dimensions of self-concept, and social functioning/achievement. Two alternative causal models were tested for both the academic and social domains, one based on Marsh's (1984) proposed causal ordering (achievement, self-concept, attributions; social functioning, self-concept, attributions), and one consistent with the proposed temporal sequence in Weiner's (1986) attribution theory (attributions, self-concept, achievement and attributions, self-concept, and social functioning). Weiner has hypothesized and presented evidence from experimental/situational research for a temporal sequence that proceeds from an outcome (success or failure) and attributions for the cause of the outcome, to self-esteem related emotions such as pride or shame, to subsequent behavior or performance. Results from the LISREL path analyses

indicated that, in both the academic and social domain, the alternative proposed model, consistent with Weiner's hypothesized temporal sequence, represented a better fit to the data, lending support for Weiner's proposed temporal sequence in the context of dispositional research. However, as Marsh (1984) pointed out, alternative causal models "need not contradict one another, and support for one does not preclude the other" (p. 1306). Both Marsh (1984) and Weiner (1986) have argued that these variables are all interrelated in such a way that a change in one will likely lead to a change in the others.

For purposes of early intervention, it would be helpful to identify which of the variables (attributions, self-concept, performance) may initially be most causative of the others. Weiner (1986) presented evidence that outcomes (success or failure) lead to attributions which lead to feelings about self and to subsequent effortful behavior. The learned helplessness model (Dweck, 1975) suggests that some students form a perception of noncontingency between their responses and outcomes. It is hypothesized that the perception is formed because of repeated exposure to failure regardless of effort expended. Thus, a first grade boy who continually gets negative feedback about the work he produces may develop the perception that regardless of his efforts he cannot control the outcome (produce acceptable work). Failure leads to the perception of noncontingency

and development of a tendency to attribute failure to ability (which is not controllable by the child) and success to external causes (also not controllable by the child). This tendency to make maladaptive attributions leads to decreased effort and even poorer achievement. Results from the path analyses indicate that attributions have an effect on self-concept and on performance (social functioning, achievement). Thus, if attributional style is indeed shaped as the result of cumulative positive and/or negative outcomes, an effective early intervention might be to focus on providing success experiences contingent on effort. However, because of the complex and reciprocal interaction of these variables (attributions, self-concept, and performance), the most effective early intervention would most likely address all three aspects. For example, a first grade teacher would want to provide success experiences contingent on effort and to model and to give feedback consistent with adaptive attributions and a healthy self-concept. ("You can do this if you stick with it"; "You seem to be good at solving problems").

Measurement of Attributional Style Using the SSAS and SAS

Weiner (1986), upon whose work much of current attribution research is based, has investigated attributions from an experimental approach and has questioned the existence of an attributional style. Others (e. g., Dweck, 1975; Peterson et al., 1982) have demonstrated evidence of

attributional style in specific situations or domains. The present study and the studies by Marsh (1984) and Marsh et al. (1984) provide further evidence for the existence of students' attributional style in the social and academic domains.

The similarity between patterns of student responses to the subscales of the SSAS and subscales of the SAS is striking. In both the social and academic domains, ability and effort attributions tended to be related. That is, students who scored high on ability attributions for success also tended to score high on effort attributions for success. The same pattern is true for failure attributions. This relationship between ability and effort attributions is consistent with logic. A person who has high ability in a domain is likely to also put forth effort in that domain because of the perceived payoff.

Another possible explanation for the relatedness of the ability and effort items is offered by Weiner's three-dimensional model (1986). Weiner has presented evidence that attributions may be classified on three dimensions: locus, stability, and controllability. Ability items are generally considered internal, uncontrollable, and stable. Effort items are internal, controllable and may be stable or unstable. That is, a person may think of him/herself as effortful across similar situations or may think of effort as being more situation-specific. In the two attribution

instruments used in this study, the SSAS and the SAS, effort items tended to be stated in a way that would suggest stability across the domain (social, reading, and math). A typical effort item from the SSAS reads "you do not try to be friendly in class". A typical effort item from the SAS reads "you work hard to be good at math". Thus, a possible explanation for the relationship between ability and effort items on the two scales is that they both tend to measure stable causes. If more of the effort items had been worded to be very situation-specific and thus leave the stability dimension more ambiguous, it is possible that ability and effort items would have been less substantially related.

Contrary to previous research which used a forced-choice format, but consistent with the Marsh studies, the present study found social and academic external attributions for success to be only weakly negatively related or unrelated to ability and effort attributions for success. When summarizing this pattern of relationships, Marsh concluded that "dispositions to attribute success to ability and to effort are not related to dispositions to attribute success to external causes" (p. 1306). External attributions for social failure were not related to ability and effort attributions for social failure. In contrast, external attributions for academic failure were significantly positively related to ability and effort attributions for academic failure. This finding is

consistent with the Marsh (1984) findings; Marsh suggested that students with high self-concepts may be likely to rate all causes of failure as low while students with low self-concepts may be likely to rate all causes of failure as high.

Patterns of responses to the subscales of the SSAS and the two administrations of the SAS subscales are quite similar. In addition, the patterns of relationships between the SSAS and SAS subscales with external measures are also quite similar. These similarities are strong and provide evidence for the existence of students' attributional style in the social and academic domains. Generally, students who attribute social and academic success to ability and effort tend to have higher self-concepts and social functioning and achievement. Students who attribute social and academic failure to lack of ability and, to a lesser extent, to lack of effort tend to have lower self-concepts and social functioning and achievement. The pattern of relationships involving external attributions is less clear and is confounded by difficulties inherent in assessing external attributions (e. g., the complex relationships between external attributions and ability and effort attributions, the many types of external attributions).

Integrating Attributional Research

Findings from the present study will be related to previous attribution research, specifically, the self-

serving bias, Weiner's attribution theory, and Rotter's social learning theory.

Self-Serving Bias

Previous research has rather consistently supported a so-called "self-serving bias" in children's attributional thinking. A meta-analysis of 25 studies of children's attributions for success and failure found that children tended to attribute success to ability and to effort and to attribute failure to external causes (Whitley & Frieze, 1985). The pattern of responses in the present study for both the SSAS and the SAS is consistent with these findings. Students tended to endorse most highly success ability and effort items and failure external items.

Weiner's Attribution Theory

As Marsh et al. (1984) suggested, it is important to determine if findings from dispositional research are consistent with findings from experimental research. Findings from this study provide strong evidence for the attribution--self-esteem link proposed by Weiner (1986). Weiner hypothesized that internal attributions for success and failure lead to self-esteem related emotions such as pride and shame. For both the social and academic domains, there were significant positive relationships between internal (ability and effort) attributions for success and dimensions of self-concept. Similarly, for both the social and academic domains, there were significant negative

relationships between ability, and to a lesser extent, effort attributions and dimensions of self-concept. Weiner proposed a temporal sequence that flows from attributions related to a given outcome, attribution-related affect, such as pride and shame, and subsequent behavior or performance. Support for this temporal sequence in both the social and academic domains is provided by the path analyses.

There are many other aspects of Weiner's theory that cannot be addressed by data from the present study. For example, no attempt was made to include attributions in all possible dimensions (locus, stability, controllability). The ability items from the SSAS can be classified as internal, stable and uncontrollable, but it is less clear about the classification of other item types. The effort items are internal and controllable but may be stable or unstable. The external items are external but may be stable or unstable and may be controllable or uncontrollable by someone. The SAS is similar in that there was no attempt to include and classify items according to all dimensions of Weiner's model. Results cannot be used, then, to comment on the adequacy of Weiner's three-dimensional model for the study of individual differences in attributions. However, results do not appear to be inconsistent with Weiner's detailed model.

Rotter's Social Learning Theory

A key component of Rotter's (1966) social learning theory is generalized locus of control of reinforcement. Rotter proposed that individuals tend to perceive locus of control as internal or external. Results from this study provide some support for the existence of an internal and an external locus in that ability and effort items for success and ability and effort items for failure on both the SSAS and the SAS tended to correlate moderately highly with each other. External items for success and for failure tended to be weakly correlated or uncorrelated with the ability and effort for success and failure. Despite the moderate correlations between ability and effort items, factor analyses did support the existence of separate factors for ability and effort as the best solution. Thus, there is some evidence for the validity of the internal-external construct, but the internal dimension is best understood when broken down into ability and effort items (perhaps because they differ, as Weiner, 1986, suggested, on other dimensions such as controllability and stability).

Limitations of the Study

According to Cook and Campbell (1979), limitations may occur because of threats to four types of validity: construct, external, internal, and statistical conclusion.

Four Types of Validity

Threats to Construct Validity. Threats to construct validity occur when constructs are not defined and measured accurately. Although each of the variables in the study (attributions, self-concept, achievement, and social skills) was defined and measured by only one instrument, the content assessed by each of the instruments was drawn from a thorough review of the literature. All except the SSRS are multidimensional and made up of several subscales. In addition, each of the instruments has good psychometric properties. However, a related weakness which may limit the validity of the results of the study is the self-report nature of most of the instruments used. The SSAS, SAS, SDQ, and SSRS are all self-report instruments. The CTBS/4 was the only instrument used which provides an objective measure of performance. Student responses on self-report measures may be influenced by social desirability. Also, because several of the instruments are rather long and have a similar format, it is possible that some students may have developed a response set that did not accurately represent their true beliefs. However, evidence of psychometric adequacy is provided by data from Chapter 3 and the fact that findings from this study are similar to the findings in the Marsh (1984) and Marsh et al. (1984) studies. Further, in the Marsh (1984) study, similar patterns of relationships

were found using teacher and peer ratings of student self-concepts.

External Validity. External validity refers to the generalizability of findings. Sample characteristics may limit the generalizability of findings from this study. Participants were almost exclusively white, middle class 4th and 5th graders. Students came from suburban and rural areas; no urban students were included. Students at different ages and developmental ages may present different patterns of responses on the attribution, self-concept, and social skills measures. Generalizations should be limited to students and settings with characteristics similar to those included in the study.

Internal Validity. Internal validity threats are those which limit causal inferencing. Because of the nonexperimental nature of the study, threats to internal validity are less critical. However, resolving Question 5 involves the application of path analysis in an attempt to define a causal path of the variables (attributions, dimensions of self-concept, and social functioning/achievement). Path analysis allows the use of correlational data to construct a causal path based on a theoretical model supplied from the literature; it may also be used to test competing models. Because path analysis is based on a theoretical model, the validity of the results depends on the accuracy of the model. Unfortunately, the relevant

attribution literature does not suggest an unambiguous causal path; thus conclusions about causality are limited even though the relative value of two causal models can be established. Other models (e. g., a reciprocal model) may be better.

Statistical Conclusion Validity. Statistical conclusion validity refers to the power associated with the statistical tests used in the study. One factor which causes low statistical power is small sample size. The sample size of the study was more than adequate ($N = 237$). Another factor which limits statistical conclusions is unreliability of measures. Each of the measures used has adequate to good reliability estimates as reported in Chapter 2. A third factor which limits statistical conclusion validity is lack of standardization. Each of the instruments for the study was administered in a standardized fashion (read to the students by trained administrators). Thus, threats to statistical conclusion were reasonably well controlled.

Implications for Further Research and Practical Use of the SSAS

The six-item version of the SSAS appears to be a psychometrically sound measure of student attributions to ability, effort, and, to a lesser extent, external causes in the social domain. As such, it is appropriate for use as a research instrument. The scale should be administered to

different populations of 4th and 5th graders and to older students to determine if children with different socioeconomic and ethnic backgrounds and of different ages respond similarly. Further, the SSAS may be used to explore the relationship of social attributions with other variables, such as depression, learned helplessness, and gender differences. Data analyses from the present study could be extended to include examination for gender differences and differences among high and low achieving students. Another avenue for further research (and one which is currently being proposed) is to develop and administer a version of the SSAS to high school students.

Though the SSAS appears to be psychometrically sound, there are several aspects of the scale which warrant further development and refinement. First, the external scales are psychometrically weaker than the ability and effort scales; Cronbach's alphas and test-retest reliability were lower for the external scales. Similarly, the external scales from the SAS were weaker than the other scales in the Marsh studies and in the present study. Marsh (1984) suggested the lower reliability of the external scales may be due to the greater heterogeneity of items included in the scales; various kinds of external items were grouped together in the SAS and the SSAS. The external scales could be further refined by creating scales to measure specific categories of

external causes, such as context and luck, as used by Lefcourt et al., 1979.

After some refinement of the external scales, the SSAS should be administered to another relatively large sample and again analyzed for psychometric adequacy. If the scale yields acceptable psychometric properties, it could be standardized with a representative sample from the nation.

Further research in the interest of applying Weiner's three-dimensional model to individuals would involve refinement of the scale to provide a better fit to Weiner's attributional model. Items (ability, effort, and external) could be developed and categorized according to Weiner's three dimensions (locus, controllability, stability). Results could be analyzed for differences between the dimensions that would be predicted by Weiner's theory and experimental research. There are, however, practical problems with developing an individual differences measures which encompasses all three of Weiner's dimensions. The primary problem is that it is difficult to classify some attributions (e. g., is effort stable or unstable?). Another problem is that the scale would be quite lengthy. A compromise might be to eliminate certain dimensions.

The SSAS was developed to fulfill two goals. One was to develop a sound research tool for analyzing the relationships among student attributions and other important variables in the social domain. A second goal was to

develop a tool with practical use in the school setting.

Attributions are related to self-concept and social skills in the school setting. If school psychologists, counselors, and teachers can assess attributions, they may be able to plan interventions based on changing the students' cognitions and self-statements about causes of social success and failure. The current status of the SSAS is a logical first step toward developing a practical assessment of social attributions for school use.

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APPENDICES

APPENDIX A
STUDENT SOCIAL ATTRIBUTION SCALE

Name _____ Boy _____ Girl _____ Grade _____
 Age _____ School _____ Teacher _____

Student Social Attribution Scale (SSAS)

This is not a test. There are no right or wrong answers. There are a number of things listed that could happen in school or at home - you are asked to show how true or false each reason is for you.

Look at the first example. A boy named Matt has filled this one in.

	False	Mostly False	Sometimes True Sometimes False	Mostly True	True
1. Suppose you and some friends have a running race and you lose. It is probably because					
a. you are a slow runner					
b. you were unlucky					
c. you did not try to run fast					

(Matt put a check on the Sometimes True/Sometimes False line for the first reason because sometimes he is slow at running. He put a check on the Mostly True line for the second reason because he felt pretty unlucky to lose. Matt put a check on the True line for the last reason because he really did not try to run very fast.)

Now let's look at the second example. A girl named Beth filled this one in.

	False	Mostly False	Sometimes True Sometimes False	Mostly True	True
2. Suppose the music teacher asked you to sing in a program for parents. It would probably be because					
a. you are a good singer					
b. you try hard in music class					
c. you were just lucky					

(Beth checked Mostly True for the first reason because Beth thinks she is a good singer. She checked True for the second reason because she really tries to do well in music. Beth checked False for the last reason because she did not believe the teacher chose her due to luck).

Now You Try These Examples

	False	Mostly False	Sometimes True Sometimes False	Mostly True	True
3. Suppose you made a clay sculpture and the other children said it was bad. It would probably be because					
a. you are bad at working with clay	_____	_____	_____	_____	_____
b. you only tried a little	_____	_____	_____	_____	_____
c. the other kids don't like you	_____	_____	_____	_____	_____
4. Suppose you drew a picture that the teacher said was very good. It would probably be because					
a. you draw good pictures	_____	_____	_____	_____	_____
b. you tried very hard	_____	_____	_____	_____	_____
c. the teacher likes you	_____	_____	_____	_____	_____

DO NOT TALK TO ANYONE ABOUT YOUR ANSWERS OR LOOK AT ANYONE ELSE'S PAPER

	False	Mostly False	Sometimes True Sometimes False	Mostly True	True
1. Suppose you are invited to a classmate's party. It is probably because					
a. a lot of people were invited	_____	_____	_____	_____	_____
b. making friends is easy for you	_____	_____	_____	_____	_____
c. you work hard at making friends	_____	_____	_____	_____	_____
2. Suppose a classmate complains to the teacher about you. It is probably because					
a. your classmate likes to tell on people	_____	_____	_____	_____	_____
b. you are not good at getting along with people	_____	_____	_____	_____	_____
c. you did something to make your classmate mad	_____	_____	_____	_____	_____
3. Suppose you are chosen to work with several other students in a special class project. It is probably because					
a. many students were chosen	_____	_____	_____	_____	_____
b. you work hard at getting along in groups	_____	_____	_____	_____	_____
c. working well with others is easy for you	_____	_____	_____	_____	_____
4. Suppose a friend says bad things about you. It is probably because					
a. you are not very good at keeping friends	_____	_____	_____	_____	_____
b. your friend happened to be in a bad mood	_____	_____	_____	_____	_____
c. you had said something bad about your friend	_____	_____	_____	_____	_____

		False	Mostly False	Sometimes True Sometimes False	Mostly True	True
5.	Suppose a classmate sits with you on the bus. It is probably because					
	a. there weren't many other seats	_____	_____	_____	_____	_____
	b. you usually try hard to make people like you	_____	_____	_____	_____	_____
	c. you do well at making friends	_____	_____	_____	_____	_____
6.	Suppose you invite some friends to spend the night at your house. If they do not come it is probably because					
	a. they already had something else planned	_____	_____	_____	_____	_____
	b. making friends is hard for you	_____	_____	_____	_____	_____
	c. you do not try to show your friends a good time	_____	_____	_____	_____	_____
7.	Suppose you ask a popular kid to play with you at recess. If the kid plays with you it is probably because					
	a. you asked the kid to play in a very nice way	_____	_____	_____	_____	_____
	b. you are good at being popular	_____	_____	_____	_____	_____
	c. the kid happened to be in a friendly mood	_____	_____	_____	_____	_____
8.	Suppose you get into a fight with a classmate. It is probably because					
	a. you are not good at getting along with others	_____	_____	_____	_____	_____
	b. you do not control your temper	_____	_____	_____	_____	_____
	c. your classmate was in a bad mood	_____	_____	_____	_____	_____

		False	Mostly False	Sometimes True Sometimes False	Mostly True	True
9.	Suppose your classmates are asked to choose five classmates they would most like to play with. If they choose you it will probably be because					
	a. being popular is easy for you	_____	_____	_____	_____	_____
	b. you were just lucky to be chosen	_____	_____	_____	_____	_____
	c. you let friends know you like them them by telling them	_____	_____	_____	_____	_____
10.	Suppose some popular kids in your class ignore you when you try to join their conversation at the water fountain. It is probably because					
	a. you do not behave in a friendly way to others	_____	_____	_____	_____	_____
	b. it is hard for you to talk to popular kids	_____	_____	_____	_____	_____
	c. the kids did not know you wanted to talk	_____	_____	_____	_____	_____
11.	Suppose you get a lot of phone calls from classmates. It is probably because					
	a. you listen to friends when they want to talk	_____	_____	_____	_____	_____
	b. it is easy for you to talk to friends	_____	_____	_____	_____	_____
	c. your classmates wanted to ask for the homework assignment	_____	_____	_____	_____	_____
12.	Suppose you get sent to the principal's office. It would probably be because					
	a. the teacher sent you on an errand	_____	_____	_____	_____	_____
	b. you do not try to get along with others	_____	_____	_____	_____	_____
	c. getting along with others is hard for you	_____	_____	_____	_____	_____

		False	Mostly False	Sometimes True Sometimes False	Mostly True	True
13.	Suppose a lot of kids try to stand by you in the lunchline. It is probably because					
	a. you try to be nice and friendly with people	_____	_____	_____	_____	_____
	b. it is easy for you to be well-liked	_____	_____	_____	_____	_____
	c. you are near the front of the line	_____	_____	_____	_____	_____
14.	Suppose no one asks you to play at recess. It is probably because					
	a. you do not try to get along with others	_____	_____	_____	_____	_____
	b. it is hard for you to make friends	_____	_____	_____	_____	_____
	c. no one was in a friendly mood that day	_____	_____	_____	_____	_____
15.	Suppose a friend tells you about an important problem. It is probably because					
	a. it is easy for you to be a good listener	_____	_____	_____	_____	_____
	b. you try to understand how your friends feel	_____	_____	_____	_____	_____
	c. you were the only one around to talk to	_____	_____	_____	_____	_____
16.	Suppose your class is going on a field trip and no one chooses you as a partner. It is probably because					
	a. you were unlucky to be left out	_____	_____	_____	_____	_____
	b. it is hard for you to be well-liked	_____	_____	_____	_____	_____
	c. you do not try to be friendly in class	_____	_____	_____	_____	_____

	False	Mostly False	Sometimes True Sometimes False	Mostly True	True
17. Suppose you get a high grade in Conduct on your report card. It is probably because					
a. almost everybody gets high grades in Conduct	_____	_____	_____	_____	_____
b. you try hard to get along with your classmates	_____	_____	_____	_____	_____
c. getting along with others is easy for you	_____	_____	_____	_____	_____
18. Suppose some classmates pick on you. It is probably because					
a. it is hard for you to have friends	_____	_____	_____	_____	_____
b. you did something to make them mad	_____	_____	_____	_____	_____
c. the classmates are bullies	_____	_____	_____	_____	_____
19. Suppose you are voted President of your class. It is probably because					
a. you try to be friendly and fair with others	_____	_____	_____	_____	_____
b. you were lucky to be chosen	_____	_____	_____	_____	_____
c. being popular is easy for you	_____	_____	_____	_____	_____
20. Suppose you ask a friend to sit with you at lunch but your friend sits with someone else. It is probably because					
a. your table is too crowded	_____	_____	_____	_____	_____
b. you have not been trying to be friendly with your friend	_____	_____	_____	_____	_____
c. you are poor at making friends	_____	_____	_____	_____	_____

		False	Mostly False	Sometimes True Sometimes False	Mostly True	True
21.	Suppose a popular kid in your class asks you over to spend the night. It is probably because					
	a. you are good at being popular	_____	_____	_____	_____	_____
	b. you try to be nice to people	_____	_____	_____	_____	_____
	c. a lot of people were invited	_____	_____	_____	_____	_____
22.	Suppose a popular classmate does not ask you to a party. It is probably because					
	a. most kids in the class were not invited	_____	_____	_____	_____	_____
	b. you do not try to be liked by your classmates	_____	_____	_____	_____	_____
	c. you are not good at being popular	_____	_____	_____	_____	_____
23.	Suppose a classmate says good things about you. It is probably because					
	a. your classmate always says nice things about people	_____	_____	_____	_____	_____
	b. you are good at getting along with others	_____	_____	_____	_____	_____
	c. you often say nice things to others	_____	_____	_____	_____	_____
24.	Suppose you see some kids from your class at a shopping mall and they do not speak to you. It is probably because					
	a. they were in a hurry	_____	_____	_____	_____	_____
	b. you do not make friends easily	_____	_____	_____	_____	_____
	c. you did not smile and wave at them	_____	_____	_____	_____	_____

APPENDIX B

SUMMARY OF CONVENTIONAL/EXPLORATORY

FACTOR ANALYSES OF RESPONSES TO SAS

Summary of Conventional/Exploratory Factor Analysis of Responses to the SAS*

<u>Variable</u>	<u>Read</u>		<u>Math</u>		<u>Succ</u>		<u>Fail</u>		<u>Fail</u>	
	<u>Abil</u>		<u>Abil</u>		<u>Efft</u>		<u>Abil</u>		<u>Efft</u>	<u>Extr</u>
RSAP 1	.70(.67)		.14(.10)		.09(.17)		.03(-.06)		.03(.04)	-.01(-.01)
RSAP 2	.45(.73)		.1 (.08)		.31(.13)		-.21(-.05)		.17(.03)	.07(-.03)
RSAP 3	.71(.80)		.34(.19)		.10(.02)		-.03(-.06)		-.09(-.01)	.03(.01)
RSEP 1	.12(.26)		.22(-.03)		.58(.62)		.13(.05)		-.10(-.08)	-.15(.03)
RSEP 2	-.02(.35)		.07(.16)		.74(.49)		-.01(.13)		-.05(-.10)	-.02(-.01)
RSEP 3	-.04(.11)		-.03(.06)		.73(.61)		-.02(.09)		.05(.03)	-.01(-.07)
RSXP 1	-.30(-.14)		-.03(.05)		-.19(-.18)		-.11(.14)		.58(-.07)	.20(.04)
RSXP 2	-.01(-.11)		.09(.09)		-.05(-.04)		-.03(-.02)		-.00(.08)	.03(.10)
RSXP 3	-.20(-.10)		.15(.02)		.06(.07)		.26(.08)		-.02(.04)	.05(.01)
MSAP 1	.20(.08)		.68(.73)		.09(.03)		.05(.01)		-.04(.01)	.01(.03)
MSAP 2	.12(.10)		.65(.78)		.22(.08)		.06(-.01)		.12(.08)	-.18(.01)
MSAP 3	.22(.20)		.64(.74)		.18(.04)		.03(.05)		-.10(-.04)	.19(.11)
MSEP 1	-.10(-.03)		.39(.39)		.38(.25)		-.12(-.20)		-.05(.03)	.01(-.02)
MSEP 2	-.02(.01)		.22(.28)		.58(.47)		-.04(-.10)		.02(.02)	-.08(.06)
MSEP 3	.13(.10)		.25(.49)		.36(.30)		-.08(-.07)		.05(.01)	.28(.10)

MSXP 1	-.11(.07)	-.10(-.16)	.17(.07)	.42(.53)	-.04(.01)	.12(.04)	.14(.07)
MSXP 2	.11(.05)	-.02(-.02)	-.13(-.03)	.73(.72)	-.03(-.04)	.02(.00)	-.04(.02)
MSXP 3	.03(.00)	-.08(-.05)	.05(.04)	.53(.64)	.10(-.02)	-.02(.05)	.12(.10)
RFAP 1	-.19(-.35)	.10(.13)	.07(.01)	-.07(.04)	.65(.53)	-.03(.17)	.13(-.04)
RFAP 2	-.18(-.35)	.06(.18)	-.03(-.05)	.01(.00)	.81(.55)	-.04(.15)	-.11(-.04)
RFAP 3	-.18(-.36)	.22(.12)	-.05(.13)	-.01(.04)	.79(.46)	.00(.33)	-.03(-.08)
RFEP 1	.03(-.05)	-.04(.04)	.01(-.04)	-.01(-.03)	.18(.15)	.70(.53)	-.09(-.02)
RFEP 2	-.06(-.05)	.17(.15)	-.27(-.18)	.22(.02)	.46(.14)	.45(.54)	.12(.09)
RFEP 3	-.07(-.26)	.17(.08)	.04(.04)	.06(.15)	.47(.12)	.32(.57)	.12(.03)
RFXP 1	.00(-.08)	.03(.03)	.15(.15)	.10(-.01)	.10(.12)	-.06(-.05)	.55(.49)
RFXP 2	-.05(.03)	.01(.02)	-.13(-.13)	.02(.14)	.04(.10)	-.05(-.07)	.75(.55)
RFXP 3	.10(.03)	-.05(.07)	-.04(-.16)	.15(.07)	-.03(-.16)	.01(-.02)	.57(.62)
MFAP 1	.11(.08)	-.38(-.32)	.22(-.05)	.08(.05)	.63(.55)	-.06(.10)	.05(-.10)
MFAP 2	.18(.10)	-.25(-.30)	-.03(.05)	-.05(.10)	.73(.57)	-.11(.09)	.11(.04)
MFAP 3	.16(.13)	-.14(-.33)	.15(-.06)	.08(.13)	.58(.45)	.06(.17)	-.04(.01)
MFEP 1	.13(.13)	-.01(.10)	-.17(-.35)	.06(.05)	.55(.40)	.28(.30)	-.08(.03)
MFEP 2	-.03(.06)	-.04(-.01)	.14(-.02)	.14(.03)	.09(-.05)	.72(.68)	.00(.01)
MFEP 3	.07(.06)	-.07(-.25)	.12(.14)	.09(.12)	.45(.12)	.35(.52)	-.08(.03)

MFXP 1	.01(.04)	-.17(-.08)	.36(.12)	.00(-.10)	.34(.25)	.14(.24)	.22(.29)
MFXP 2	.01(.08)	.07(.07)	-.13(-.09)	.30(.17)	-.03(.04)	-.01(-.15)	.50(.64)
MFXP 3	.26(-.03)	-.04(-.04)	-.06(.12)	.30(-.03)	.06(-.10)	.12(.17)	.19(.52)

*Factor loading from Marsh (1984) are in parentheses

VITA

Sherry Lynn Mee Bell was born in Knoxville, Tennessee where she attended public elementary and high schools. Her degrees include the Bachelor of Science (with highest honors) with majors in Elementary Education and Special Education, the Master of Science with a major in Educational Psychology, and the Doctor of Philosophy with a major in School Psychology, all from the University of Tennessee, Knoxville.

Upon completion of her Bachelor's degree, Ms. Bell worked for five years as a special education teacher in Knox County Schools. While enrolled in graduate school, Ms. Bell worked as a school psychology intern with Cherokee Mental Center of Morristown, Tennessee, as a graduate teaching assistant, and as an editorial assistant for the Journal of Psychoeducational Assessment.

As a licensed school psychologist and psychological examiner, Ms. Bell currently works as a school psychologist with Psychoeducational Associates of Knoxville and with Cherokee Mental Health Center. She serves as editor of the Tennessee School Psychologist.

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