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# Shaping Academic Success: Understanding the Interrelationship Between Intelligence Beliefs, Motivation, Learning, and Achievement

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SHAPING ACADEMIC SUCCESS: UNDERSTANDING THE  
INTERRELATIONSHIP BETWEEN INTELLIGENCE BELIEFS, MOTIVATION,  
LEARNING, AND ACHIEVEMENT

by

Susan Harris Warner

A Research Project Presented in Partial Fulfillment  
of the Requirements for the Degree  
Master of Education

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June, 2006

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## ABSTRACT

The findings of recent studies in the area of achievement indicate that the motivation to learn contributes to academic success, apart from intelligence, individually and significantly. While the early motivational theorists concluded that cognitive skills and abilities were factors of intelligence, and that behavioral and psychosocial attributes were factors of motivation, the more contemporary motivational researchers have found that the belief one holds about intelligence influences both cognition and behavior, more powerfully than previously estimated. Presented here are the main social cognitive components of motivation: (a) competence beliefs and self-efficacy, (b) attributions, (c) intrinsic motivation, and (d) achievement goals. The research on each of these components was reviewed, along with its relationship to academic achievement, based upon which suggestions are offered for instruction and assessment. The goal of this project is to provide a useful means by which student motivation might be increased and achievement improved, thereby shaping student success. This project includes an Instructional Booklet for Educators, including Learning Motivation and Academic Achievement Models, which were designed by the author to inform teachers of the ways in which beliefs about the nature of intelligence (i.e., those of students, teachers, and parents) affect academic achievement. In addition, this booklet may guide educators in instructional and classroom design, along with the informal assessment of intelligence beliefs, which they may use to shape academic achievement through the feedback and the developmental actions that foster motivation and learning, immediately and continually.

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## Chapter 1

### INTRODUCTION

The fast changing and increasing demands created by an ever shrinking world present challenges to the knowledge and education of its population, who need the ability to learn, quickly, for a successful future. In order to equip students for life long learning, teachers bear the traditional responsibilities of education; also, they are required to know how to develop sustainable learning motivation in students. Educators and psychologists have long researched the ways in which cognitive skills and behavioral motivation affect academic achievement, as outlined in Graham and Weiner's (1996) review in "Theories and Principles of Motivation." In much of the early research on student achievement, a distinction was made between cognition and motivation, for example, the earlier psychoanalytical theories of Freud (1960, 1964), Jung (1933), Erickson (1959), and Adler (1927), and the behavioral learning theories Piaget (1958; all cited in Dweck & Leggett, 1988). The shift in motivational theories from traditional models to achievement and social cognitive models (Bandura, 1986, 1997; Dweck & Leggett, 1988; Pintrich & Schunk, 2002) facilitated the integration of motivational and cognitive factors.

Since the 1980s, researchers have focused their studies on the interaction between motivational and cognitive factors and the influence of each on achievement; one result being the recognition that students need both the skill and the will to be successful. In addition, other researchers (Goodnow, 1980; Nicholls, 1984; Sternberg, Conway, Ketron, & Bernstein, 1981; Wellman, 1985; Yussen & Kane, 1985; all cited in Dweck & Leggett,

1988) have found that motivation, learning, and achievement might be affected by the beliefs about intelligence held by students and others who influence school experiences, including parents, teachers, and peers. It is the intention of this author to consider the contributions to achievement made by motivational and cognitive factors, in conjunction with the affect of beliefs about intelligence. In the opinion of this author, the combination of these factors and beliefs necessitates that educators and parents be provided with sound, research based information, in order to instruct, guide, and shape student success.

#### Statement of the Problem

“You are so smart!” is a common response to a child who has completed a task quickly, perfectly, or successfully. Although intended to reinforce achievement behavior and promote motivation, this praise of intelligence and ability, based on skill demonstration or performance, does not appear to teach children to welcome challenge and learn from errors; rather, it might teach that easy success signifies intelligence and that errors and effort do not (Leggett & Dweck, 1986; Stipek & Gralinski, 1996; both cited in Dweck, 2000). Based on a shift in motivational theories from traditional achievement models to more social cognitive models of motivation (Bandura, 1993, as cited in Spinath & Spinath, 2005; Dweck & Leggett, 1988; Eccles & Wigfield, 1995, as cited in Spinath & Spinath; Graham & Weiner, 1996, Kamins & Dweck, 1997; both cited in Mueller & Dweck, 1998; Pintrich & Schunk, 2002), psychologists and educators suggest that the impact of beliefs about intelligence on a student’s academic success are more direct than previously theorized. Behavior and learning are

influenced, tremendously, by feedback, and the type of praise or criticism bestowed affects student responses to success and failure through their expression of persistence, resilience, or helplessness. To promote academic success, it may be necessary for educators to evaluate and change their own beliefs about the nature of intelligence, as well as those held by parents and students, in order to influence and truly inspire the motivation to learn and achieve.

### Purpose of the Project

The purpose of this project was to facilitate a better understanding of how academic success might either be supported or thwarted by the ways in which intelligence, ability, effort, failure, and success are perceived by students, teachers, and parents. This author developed an instructional booklet for teachers, in which the motivational and cognitive factors that researchers determined to be of influence to learning and achievement were explored, in conjunction with the strategies that they suggested for improvement. The author presented this booklet, which is incorporated within Chapter 4, to teachers for their review and informal feedback, which is summarized in Chapter 5. In the future, at the discretion of school personnel, the appropriateness of the further dissemination of this booklet to parents and students may be determined.

### Definition of Terms

This list of definitions is comprised of some of the specific terms that the author used throughout this research project:

*Attribution:* an individual's desire to understand why events occur (i.e., experiences of failure or success), which elicits an analysis of the situation, to determine its cause(s) (Weiner, 1985).

*Competence Beliefs:* the judgment of capabilities with regard to specific tasks, based on actual accomplishment, success, or failure (White, 1959); the need for competence refers to the desire to master and be competent in interactions with the environment (Deci & Ryan, 1985).

*Expectancy:* based on beliefs in ability, capability, and the possibility of doing well, students are more likely to be motivated in terms of effort, persistence, and behavior than those who believe they are less able or those who do not expect to succeed (Bandura, 1997; Pintrich & Schunk, 2002).

*Extrinsic Motivation:* a wide variety of behaviors in which the desired goal or reward for performance of the task is "typically unrelated to the learning, itself, and thus are likely to draw attention away from the inherent benefits of learning" (Covington, 2001, p. 170).

*Intrinsic Motivation:* "behavior which is motivated by one's need for feeling competent and self-determining" (Deci, 1975, p. 62); and "that which compels a person to do something, when nothing is required, based on his or her desire to seek and conquer challenges. Intrinsic motivation is fueled by one's desire for: (a) autonomy (e.g., controlling decisions); (b) competence (e.g., doing things that promote success); (c) belonging and relatedness (e.g., feeling part of something larger); (d) self-esteem (e.g., feeling good about whom one is); and

(e) involvement and stimulation (e.g., finding pleasure in what one does; Raffini, 1996, p. 6).

*Mastery Goals (also known as Learning Goals):* in the domain of intellectual achievement, the type of goal in which individuals are concerned with increasing their competence; mastery goals orient the student toward learning and understanding, developing new skills, and a focus on self-improvement using self-referenced standards (Dweck & Leggett, 1988).

*Performance Goals:* in the domain of intellectual achievement, the type of goal in which individuals are concerned with gaining favorable judgments of their competence; performance goals represent a concern with demonstrating ability, obtaining recognition of high ability, protecting self-worth, and a focus on comparative standards relative to other students and attempting to best or surpass others (Dweck & Leggett, 1988).

*Self-Determination:* the integration of both needs and social cognitive constructs, based on three basic needs: competence, autonomy, and relatedness (Deci & Ryan, 1985).

*Self-Efficacy:* the attribution of success to abilities or traits (i.e., an individual who attributes success to internal ability has been classified as being high in self-efficacy; Mueller & Dweck, 1998).

### Chapter Summary

Motivation has been determined to be a dynamic quality, one of the most important assumptions posited by social cognitive models, rather than one that is

quantifiable, as viewed in the traditional models of motivation. For the social cognitive model, there is an emphasis on the importance of understanding: (a) how and why students might be motivated to achieve, academically, and (b) that students can be motivated in multiple ways. Another means by which motivation and achievement might be of impact to academic success is through the belief held by the student in regard to the nature of intelligence. This author has suggested that the consideration of this additional factor, by teachers and parents alike, might improve students' construction of learning and motivation.

In Chapter 2, the historical and theoretical background of this topic will be presented, upon which the recommendations that are made in the project booklet were based. As explored in the Review of Literature, the information from which these research findings have been substantiated will be presented and a case made for its consideration and use. In Chapter 3, Methods, the project will be explained in terms of the development of this informational booklet.

## Chapter 2

### INTRODUCTION

Although studied extensively for the past 30 years, in the more recent explorations of motivation, researchers and theorists have examined the interrelationship between motivation and intelligence to form a model of motivation in which the social and cognitive aspects of learning and development are considered as they relate to achievement. The focus of this research project was the examination of the construction (i.e., construct) of academic motivation, along with the consideration of factors that might promote or hinder the development of a student's desire to learn and achieve, which include: (a) intelligence and competence beliefs; (b) cognitive, behavioral, social, and environmental affects; and (c) student, educator, and parental influences. To promote the adoption of a proactive approach to student academic motivation, this author collected and synthesized the findings of these studies into an informative booklet for educators, so that their understanding of motivational behavior may be increased, and their apprehension reduced.

#### Implicit Theories of Intelligence

Why do some students focus on the adequacy of their ability whereas others focus on the development of their ability? What leads a student to favor one type of goal over another? Motivational researchers theorized that a person's conception about the nature of intelligence, or one's theory of intelligence, influences the way in which he or she approaches and interprets: (a) ability, (b) effort, and (c) goal orientation (Goodnow,

1980; Nicholls, 1984; Sternberg, Conway, Ketron, & Bernstein, 1981; Wellman, 1985; Yussen & Kane, 1985, all cited in Dweck & Leggett, 1988); hence, this belief connects with achievement (Bandura & Dweck, 1985, as cited in Dweck & Leggett). Some students favor what Dweck and Leggett termed an incremental theory of intelligence (i.e., that intelligence is a malleable, increasable, controllable quality, a capacity that may be nurtured and developed); while others lean toward what Dweck and Leggett termed an entity theory of intelligence (i.e., that intelligence is a fixed trait that is inherited involuntarily). As an entity theorist, a student would believe that intelligence is a trait possessed by a person; made evident by the degree it is performed. In contrast, those who are incremental theorists would conceive of intelligence as a capability, which may be cultivated and expanded, that is malleable and changeable. As outlined in Table 1, shown on page 10, Dweck and Leggett indicated that students “who believe intelligence is increasable pursue the learning goal of increasing competence, whereas those who believe intelligence is a fixed entity are more likely to pursue the performance goal of securing positive judgments of that entity or preventing negative judgments of it” (p. 262).

#### *Entity Theory of Intelligence*

Typically, a trait is thought of as a characteristic that cannot be changed, one which is bestowed on a person through genetics in varying degrees (Dweck & Leggett, 1988). When intelligence is perceived as fixed, the degree that it is demonstrated might be interpreted as the means by which it is discerned and measured. For students who consider intelligence a fixed entity, the repercussions might include concerns about



whether they: (a) possess enough intelligence, (b) appear or feel *smart*, and (c) compare to and outperform others.

With the use of the Implicit Theory Scale (Dweck, Chiu, & Hong, 1995, as cited in Mueller & Dweck, 1998), Mueller and Dweck ascertained that a student's response to the statement, "You have a certain amount of intelligence and really can't do much to change it" (p. 44), indicated to her or him the idea that intelligence is a fixed trait.

Mueller and Dweck reported that the study participants who viewed intelligence through the lens of entity theory regarded tasks which required effort, were difficult, or were negative as those that called their intelligence into question, regardless of prior successful experiences or performance. As indicated from these results, the students who hold this theory might: (a) require easy success, (b) resist challenge, (c) pass up opportunity that might reveal inadequacy, (d) disengage because of obstacles, (e) feel threatened by setbacks, and (f) demonstrate fewer coping skills or low self-esteem (Dweck, 2000).

### *Incremental Theory of Intelligence*

When intelligence is perceived by students as malleable, it would not likely be questioned in terms of its existence; rather, it would be seen as a capacity that can be cultivated and expanded through learning and with effort (Dweck & Leggett, 1988). An Incremental theorist perceives intelligence as an improvable capability, one that may be increased through: (a) focus, (b) effort, (c) guidance, and (d) strategy. Few repercussions appear to exist for these students because they perceive: (a) learning as desirable; (b) little consequence in appearing *smart* or *dumb*; and (c) worry as a waste of time, when

it is possible for them to become smarter (Sorich & Dweck, in press; Stone, 1998; Elliott & Dweck, 1988; all cited in Dweck, 2000).

When students who hold this theory encounter a difficult task they might:

- (a) sacrifice advancement of current knowledge in favor of new learning opportunities;
- (b) thrive on challenge, although current confidence may be low; and (c) approach difficult tasks wholeheartedly and persistently (Elliott & Dweck, 1988, as cited in Dweck, 2000). Elliott and Dweck found that these students tend to: (a) engage fully in new tasks, (b) exert effort toward mastery, (c) strengthen skills, (d) put knowledge to good use, and (e) help other students (Bempechat & Dweck, 1983; as cited in Mueller & Dweck, 1998).

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Table 1

*Theories, Goals and Behavior Patterns in Achievement Situations*

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Theory of Intelligence	Goal Orientation	Perceived Present Ability	Behavior Pattern
Entity (Intelligence is fixed)	Performance (Goal is to gain positive judgments/avoid negative judgments of competence)	High	Mastery oriented (Seek challenge; high persistence)
		Low	Helpless (Avoid challenge; low persistence)
Incremental (Intelligence is malleable)	Learning (Goal is to increase competence)	High or low	Mastery oriented (Seek challenge that fosters learning; high persistence)

---

*Note.* Adapted from “A social-cognitive approach to motivation and personality,” by C. Dweck and E. Leggett, 1988, *Psychological Review*, 95(2), p. 259.

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*Intelligence Beliefs and Praise*

In a survey conducted by Mueller and Dweck (1996), they found that 85% of parents believe that the praise of ability for doing well is necessary for a child's self-esteem. This is a popular and widely accepted methodology, which has been reinforced by educational researchers (Brophy, 1981; Koestner, Zuckerman, and Koestner, 1987; Delin & Baumeister, 1994; Kanouse, Gumpert, & Canavan-Gumpert, 1981; all cited in Mueller & Dweck, 1988). Parents and educators have believed that this type of praise develops and maintains achievement motivation behaviors and strategies. The endorsement of this practice has perpetuated the notion that recognition for intelligence reinforces beliefs about being smart; therefore, the use of praise increases confidence and persistence in response to challenges.

Although the praise of intelligence (i.e., ability praise) is common, and seemingly intuitive, Mueller and Dweck (1998) suggested that a student's motivation to learn and achieve might be affected negatively, according to the type of praise received. In addition, they asserted that students' theories about intelligence (i.e., fixed vs. malleable) influence the way they approach and interpret praise, thus, the existence of a connection between intelligence beliefs and achievement was reinforced (Mueller & Dweck). Thus, while conventional wisdom may tell parents to criticize the behavior but not the child, lest children learn to label themselves negatively (Briggs, 1970, as cited in Mueller & Dweck), the conventional wisdom for praise is the opposite: The more children are labeled as smart, the greater will be their enjoyment of and motivation for achievement.

Given this possible interrelationship, Mueller and Dweck (1998) tested the effects of praise on students who had been complimented for being smart, and then offered a new and different opportunity, in order to determine: (a) their eagerness toward challenge, at the risk of revealing a deficiency; or (b) their preference to perform well and feel content about being labeled as smart. They hypothesized that the encounter of an obstacle would represent low ability to a student who holds an entity theory, therefore, it would elicit: (a) the avoidance of challenging learning tasks, or (b) the gravitation toward easier tasks. In addition, they explored whether these students would seek affirmation for the positive outcome of prior experiences and, thus, avert a negative result.

Under the separate circumstances of failure and success, based on the results of six studies, Mueller and Dweck (1998) distinguished the effects of praise for ability (i.e., intelligence) vs. praise for hard work (i.e., effort). They found that ability praise: (a) impeded a *can-do* attitude; (b) reduced students' self-esteem; and (c) encouraged vulnerability, fed by easy success and failure. In contrast, the praise of effort and learning promoted good feelings about intelligence; also, students perceived easy tasks as a waste of time. The students in these studies, who were praised for their ability, acquired the general tendency to judge intelligence based on performance, beyond the diagnostic task of a specific study. In addition, the researchers found that effects of the contrasting forms of praise administered to students prior to their setbacks continued.

### *Intelligence Beliefs and Motivation*

Along with beliefs about intelligence, Dweck (2000) cited several researchers who found that the assumptions about motivation and achievement made by students, as well

as their teachers and parents, affected students': (a) perceptions about ability and performance vs. effort and strategy (Elliott, Henderson, & Dweck, 1990; Mueller & Dweck, 1997; Sorich & Dweck, in press; Stipek & Gralinski, 1996); (b) interpretations of praise and criticism (Heyman, Dweck, & Cain, 1992); and (c) judgments about failure and success (Mueller & Dweck, 1998). Academic achievement is shaped and influenced by the assumptions, judgments, and responses of teachers and parents, as well as of the students, themselves. According to Dweck and Leggett (1988), the combination of these assumptions and beliefs impacts: (a) interpretation of ability and intelligence (i.e., the student's own, along with that of others); (b) goal orientation (i.e., the selection of performance vs. mastery goals); (c) reaction to failure (i.e., helplessness vs. effort and strategy); (d) attributions of success and failure (i.e., trait- vs. self-efficacy); and (d) motivation to learn (i.e., demonstration vs. growth). Also, these researchers surmised the predictable patterns of behavior, cognition, and affect that are displayed in Table 2.

When the social cognitive approach to motivation was considered in conjunction with the effect of praise on motivation, the findings reported by these researchers (Dweck & Leggett, 1988; Mueller & Dweck, 1998) indicated that: (a) there is a direct relationship between the intelligence beliefs of students and their assumptions or perceptions about ability, effort, and goal preference; (b) the theory held by a teacher and parent about the nature of intelligence affects student behavior, motivation, and learning; (c) praise and criticism are interpreted through intelligence beliefs, which influence student responses to success and failure; and (d) intelligence praise fosters performance goals and helpless responses, while praise for effort or strategy better supports the development of students' skills, knowledge, and responsiveness to challenge and change.

Table 2

*Generalization of Model to External Attributes*

Theory	Goal Orientation	Predicted Pattern
Entity (Attributes of people and world are fixed or uncontrollable)	Judgment (Goal is to make positive or negative judgment of attributes)	Behavior: Low initiation of and persistence toward change  Cognition: Rigid, oversimplified thinking  Affect: Evaluative affect such as contempt
Incremental (Attributes of people and world are malleable)	Development (Goal is to understand and improve attributes)	Behavior: Mastery oriented goal pursuit  Cognition: Process analysis  Affect: Empathy

*Note.* Adapted from “A social-cognitive approach to motivation and personality,” by C. Dweck and E. Leggett, 1988, *Psychological Review*, 95(2), p. 267.

Intelligence praise appears to foster a theory of fixed intelligence, a belief associated with vulnerability; in sharp contrast, effort praise promotes a desirable outcome (Mueller & Dweck, 1998). Although praise for intelligence is not the worst thing that may happen to a child, these findings strongly suggested that better alternatives exist. When children perform well, the urge to reinforce how good, talented, or smart

they are seems irresistible. Also, it might be difficult to know how to show approval and admiration in ways that are more productive. Mueller and Dweck suggested effort praise to be a way in which accomplishment might be better discerned and recognized due to its focus on interests, creativity, strategies, concentration, methods, decision making, speculation, and reflection. It is suggested that this type of discussion might show more appreciation of a child's accomplishments and capacity, separating "the deed from the doer" (p. 50). Ability praise seems to ignore the essence or merit of the accomplishment and appears to appreciate work when it reflects ability.

#### Foundations of Motivational Theories

The traditional motivational theorists (Harter, 1978; White, 1959) described effectance or competence motivation as the force behind the desire to learn about, explore, understand, or conquer one's surroundings and described it as "a kind of motivation that is directed towards and satisfied by a feeling of efficacy" (White, p. 322). White asserted that there is an innate desire within all humans to demonstrate competence. Effectance motivation is theorized as the connection between an individual's sense of satisfaction or enjoyment and her or his feelings of efficacy and competence; one of the common assumptions founded on this theory was that the motivation to learn is based upon beliefs about competence. In the context of effectance motivation theory, students are thought to engage in tasks because of their desire to feel competent, in which case, learning progress and enjoyment are considered as by products. In addition, students who demonstrate the enjoyment of tasks and experiences that carry the potential for learning were considered as motivated to learn by these theorists.

The modern theories of motivation include intrinsic or interest motivation (Deci & Ryan, 1985; Wigfield & Eccles, 2000) and goal and mastery theories (Dweck & Leggett, 1988; Nicholls, 1994). In addition, some of the prominent motivation theorists (Deci & Ryan; Eccles & Wigfield, 1995; as cited in Spinath & Spinath, 2005), along with many educators, assumed that there was a link between student learning motivation and competence beliefs, while others indicated the need for more research, “given the scarce and in part inconsistent results of the existing studies” (Spinath & Spinath, p. 89). In some formulations of motivation, the interest in a particular subject or activity is considered; that is, students who demonstrate a strong personal interest in a subject are perceived as motivated. In this case, it is suggested that learning and achievement may result from that strong interest. Other researchers (Pintrich, 2000a, as cited in Pintrich & Schunk, 2002) posited that the distinctions made among differing theories and constructs of motivation cause confusion and, therefore, may not support its improvement.

Contemporary motivational theorists (Covington, 2000, as cited in Dweck & Leggett, 1988; Gottfried, 1983; Mueller & Dweck, 1998; Stipek, 1996; as cited in Gottfried & Gottfried, 2004; Dweck, 2000) determined that the beliefs held by a person about his or her capabilities, known as self-theories (i.e., goals, coping patterns), form the core of his or her meaning system. The emphasis in this meaning system approach is focused on how people organize and understand their world. It is interesting to note that the early work of cognitive developmental psychologist Piaget (1983, as cited in Dweck & Leggett, 1988) was focused on logical thinking; however, toward the end of his career, Piaget believed that the meaning systems people adopt are just as important, if not



more so, in the shaping of their thinking (Piaget, Garcia, & Feider, 1989, as cited in Dweck).

### Motivational Factors of Achievement

Motivation appears to elicit special interest from teachers, educational psychologists, and parents, who may suspect its connection to academic achievement. In addition to cognition, motivation is recognized by researchers (Dweck, 2000; Gottfried & Gottfried, 2004; Pintrich & Schunk, 2002) as a separate factor of academic achievement. For example, Gottfried (1985, as cited in Gottfried & Gottfried) identified academic intrinsic motivation as “a realm that has inherent ties to cognition, intellect, and achievement” (p. 122) and defined it as “the enjoyment of school learning characterized by an orientation toward mastery; curiosity; persistence; task-endogeny; and the learning of challenging, difficult, and novel tasks” (p. 122).

To construct academic learning motivation and identify the factors that spark a student’s desire to learn, researchers have examined different variables (e.g., age, subject, gender) in concert with traditional and modern motivation theories. For example, in separate studies, it has been found that intrinsic motivation and learning goal orientation declined with regard to: (a) age, from third through eighth grade (Anderman & Midgley, 1997; Meece & Miller, 2001); (b) school subject (Bouffard, Marcoux, Vezeau, & Bordelau, 2003); (c) gender (Gottfried, Fleming, & Gottfried, 2001), and (d) reduced interest task value (Wigfield, et al., 1997, all cited in Spinath & Spinath, 2005).

### Social Cognitive Models of Motivation

In the context of the traditional theories of motivation, as previously cited by this author, educators and researchers assumed that motivation is a stable trait: (a) that student motivation is influenced by cognition; and (b) that student engagement and achievement are mediated by perceptions about motivation and learning. However, contemporary motivational researchers perceive motivation as multidimensional, not stable, because they determined that students are motivated in multiple ways, according to learning situation and environmental variables (e.g., culture, demographics, personality). From these assumptions, researchers have proposed the social cognitive motivational constructs and models, which are thought to facilitate student achievement and learning. For example, Pintrich and Schunk (2002) observed that a variation in student motivation might be a function of: (a) subject (i.e., mathematics, reading, science, social studies); (b) domain; (c) a specific classroom; or (d) a certain teacher. In addition, the use of general motivation assessment instruments were deemed as less useful than domain or context specific assessment tools. Also, insofar as the motivation to learn may be situational, changeable, and sensitive to context, Pintrich and Schunk discerned that instructional and classroom design influence student achievement.

In terms of social cognitive motivational theories, this author will focus on four broadly examined areas of motivational beliefs, which researchers (Dweck & Leggett, 1988; Eccles, Wigfield, & Schiefele, 1998; Graham & Weiner, 1996; Pintrich & Schunk, 2002) indicated as relevant to the relationship between achievement and academic

success: (a) competence beliefs and self-efficacy, (b) attribution, (c) intrinsic motivation, and (d) goal orientation. This author will summarize each motivational component and provide an overview of its relationship to student achievement and learning. The research based implications for instruction and assessment will be presented within this literature review and incorporated into the research project booklet, as well. The author would like to acknowledge the limited scope of this project with regard to achievement, in comparison to the existing interrelated models of: (a) self-efficacy, (b) attribution, (c) intrinsic motivation, and (d) goal orientation. Readers who are interested in comprehensive overviews, or detailed studies and reports of motivational processes, should refer to those provided by Dweck (2000) and Pintrich and Schunk (2002).

### *Competence Beliefs and Self-Efficacy*

Competence beliefs may be described as one's judgment of his or her capabilities with regard to specific tasks, based on actual accomplishment, success, or failure. In addition, self-efficacy appears to be an important factor of motivation, because of its relationship with student competence beliefs about the performance of tasks or activities (Spinath & Spinath, 2005). The relationship between competence belief and self-efficacy has long been studied in a variety of domains (e.g., psychosocial health, smoking cessation, business, athletics). More recently, researchers have examined how these beliefs relate to behavior in academic settings (Bandura, 1997; Eccles et al., 1998; Pintrich, 2000b; Pintrich & De Groot, 1990; Schunk, 1989a, 1989b, 1991; all cited in Pintrich & Schunk, 2002).

### *Competence Beliefs*

The extent to which learning motivation may be influenced or determined by competence belief has been explored extensively by researchers (Anderman & Midgley, 1997; Bouffard et al., 2003; Gottfried et al., 2001; Meece & Miller, 2001; Midgley et al., 1995; Newman, 1984; Stipek & Daniels, 1988; Stipek & MacIver, 1989; Wigfield et al., 1997; all cited in Spinath & Spinath, 2005). For example, a substantial correlation between student mastery goals and competence beliefs was revealed, initially, in a study by Obach (2003, as cited in Spinath & Spinath), although 1 year later, competence beliefs were not found as predictive of mastery goals. In two other investigations, the factor of interest was connected with the motivational factors of: (a) investment (Skaalvik & Valas, 1999) and (b) intrinsic task value (Nurmi & Aunola, 2005); however, the findings from neither study indicated causal link to competence belief (both cited in Spinath & Spinath). Although a substantial correlation between competence belief and learning motivation was reported by Jacobs, Lanza, Osgood, Eccles, and Wigfield (2003, as cited in Spinath & Spinath), this divergence of results from those of other researchers might be attributable to the combination of importance and utility values (i.e., thought to be factors of performance motivation vs. factors of learning motivation) and interest value (Marsh, Craven, Hinkley, & Debus, 2003, as cited in Spinath & Spinath). By means of their recent longitudinal study, Spinath and Spinath confirmed prior researchers' findings of a parallel but separate decline in learning motivation and competence beliefs over the course of elementary school years. In addition, based on much of this research, they hypothesized a causal link between competence belief and learning motivation.

*Competence belief study results.* Spinath and Spinath (2005) verified that both general school related competence belief and learning motivation declined throughout elementary school; the findings from their longitudinal examination reinforced many prior studies (i.e., Anderman & Midgley, 1997; Bouffard et al., 2003; Gottfried et al., 2001; Meece & Miller, 2001; Midgley et al., 1995; Newman, 1984; Stipek & Daniels, 1988; Stipek & MacIver, 1989; Wigfield et al., 1997). Also, they detected: (a) a stronger decline in learning motivation for older than younger students; and (b) lower competence beliefs in younger students than older ones. Thus, their findings supported and supplemented the previous examinations of developmental trends judged as “universal across a variety of culturally different classroom contexts” (Spinath & Spinath, p. 98).

While these findings reinforced the clear decline between competence belief and learning motivation throughout elementary school, Spinath and Spinath (2005) emphasized the importance of continued examination of those factors that might influence the relationship, as well. For example, they cited evidence in which the reported declining trends took different courses: (a) for boys than for girls; (b) by school subject (Wigfield et al., 1997); and (c) in terms of onset (Nurmi & Aunola, 2005). This appears to support further investigation as to whether the decline in competence belief and learning motivation are developmental phenomena vs. variables influenced by the characteristics of a setting. With regard to competence beliefs and learning motivation, the hypothesized link in the study model which best represented student longitudinal development also predicted: “(a) substantial stability, in terms of interindividual differences; (b) moderate to high intercorrelation with each other; however, (c) no causal influence on one another” (Spinath & Spinath, p. 98). These higher correlations were

posited by Spinath and Spinath as due to the general measures used, in comparison to the domain specific issues used in other studies (i.e., the Michigan Longitudinal Study, Wigfield et al.).

### *Self-Efficacy*

Bandura (1997) defined self-efficacy in terms of an individual's beliefs about her or his performance capabilities (i.e., competence): (a) in a particular context; (b) on a specific task; or (c) by domain. For example, Pintrich and Schunk (2002) described self-efficacy as situated and contextualized (e.g., a student's high self-efficacy in algebra but lower self-efficacy in geometry, depending on past successes and failures), not as a general belief about self-concept or self-esteem (i.e., self-efficacy beliefs appeared to be distinct). Modern motivational theorists appear to agree: (a) that students' belief systems affect academic achievement; and (b) that school experiences affect self-efficacy and foster behavior that is either adaptive or maladaptive, which then, might raise or lower self-esteem, respectively (Elliott & Dweck, 1988, as cited in Dweck, 2000). In summary, it has been posited that school experiences compel self-efficacy beliefs, which compel behavioral responses (either adaptive or maladaptive), which compel achievement.

*Self-efficacy study results.* To understand why some students function well while others do not, achievement behavior has been examined in conjunction with self-efficacy beliefs, to determine whether: (a) behavior that meets or exceeds expectations results from adaptive self-efficacy, and (b) self-defeating or destructive behavior results from maladaptive self-efficacy. In experimental and correlational studies (Bandura, 1997;

Pintrich & Schunk, 2002) that involved students from a variety of age groups produced results which revealed that self-efficacy was related positively with higher levels of achievement and learning, as well as a wide variety of academic behavior that is typically defined as adaptive (e.g., higher levels of effort, increased persistence on difficult tasks). Therefore, the students who demonstrated a belief in their ability to perform a task were more likely: (a) to work harder, persist, and eventually achieve at higher levels; and (b) to choose difficult courses (Eccles et al., 1998, as cited in Pintrich, 2003). Also, these beliefs were linked to: (a) cognitive engagement, (b) self-regulatory strategies (i.e., study skills), and (c) achievement (Pintrich, 2000b; Pintrich & De Groot; Welters, Yu, & Pintrich, 1996; all cited in Pintrich & Schunk).

From these study results (Pintrich & Schunk, 2002), it was concluded that there was a relationship between self-efficacy and positive learning behaviors and outcomes, which appeared to be stable across the factors of age, grade, gender, and ethnic group. Also, it seems clear that self-efficacy beliefs are related to other factors that shape success (e.g., persistence, task engagement, self-regulation, study skills), which suggested that students with high self-efficacy beliefs employed adaptive strategies. The results from these studies are important to teachers because they suggest that the commonly held assumption that declined learning motivation is an inevitable consequence of more realistic student perceptions of self-efficacy should be suspended by teachers. Self-efficacy that is positive and optimistic, not unrealistic or over stated, is adaptive for learning and achievement because it supports the development of positive competence and self-beliefs in students.

*Realism, Optimism, and Social Norms*

Bandura (1997) conveyed the importance of student self-efficacy beliefs that are accurate or calibrated to actual accomplishments (i.e., self-efficacy beliefs that match or are somewhat higher than actual skills but are overly positive, which makes the attempted task far beyond student capability). Student capabilities should not be overestimated or underestimated; rather, students should have accurate but optimistic beliefs about their efficacy in school; thus, by implication, teachers should attempt to foster positive, but accurate, self-efficacy beliefs. Likewise, Spinath and Spinath (2005) suggested that practices in which overly optimistic self-perceptions are perpetuated, and/or unrealistically positive or imprecise feedback is utilized, are not likely to foster competence beliefs; conversely, such practices may hamper the learning progress to the degree that students are set up for failure. What is likely to foster actual ability and positive self-evaluation lies in enabling students: (a) to evaluate their abilities, realistically; (b) to choose adequate tasks; and (c) to perceive authentic learning progress. Although optimism was deemed necessary for learners to overcome their shortcomings, in order to stay motivated to learn, these researchers (Spinath & Spinath) suggested that optimism is fostered by viewing: (a) abilities as malleable qualities, as in Dweck and Leggett's (1988) Incremental Theory, and (b) learning progress as personal, as prescribed by Rheinberg, Duscha, and Michels (1980; both cited in Spinath & Spinath).

*Attribution Theory*

The focus of attribution theory (Weiner, 1985, as cited in Graham & Weiner, 1996) is placed on the individual's attempts to understand why events occur. As with



other traditional motivational theories, initially, the study of attribution was not focused on academic achievement. However, the research of Weiner and others (Borkowski, Weyhing, & Carr, 1988, as cited in Pintrich & Schunk, 2002) linked attribution to student behavior and success in academic settings, which advanced the exploration of attribution in relation to learning.

Weiner (1986) theorized that student experiences of failure or success (e.g., failing a mathematics exam, performing particularly well on an assignment) elicit an analysis of the situation, to determine its cause(s). Based on Attribution Theory (Weiner, 1985), the causal factors are identified as either: (a) environmental factors (e.g., a distracting testing environment, bias on the part of the teacher), or (b) personal factors (e.g., a lack of knowledge or ability, the failure to prepare adequately for a test). Further, Weiner specified the perception of these causes in terms of: (1) stability (i.e., stable or unstable), (2) locus of control (i.e., internal or external), and (3) controllability (i.e., controllable or not controllable). Weiner determined that a specific cause might then be categorized with the use of these three causal dimensions; for instance, a student's attribution of the failure of an exam to instructor bias (i.e., external, stable, controllable) or lack of ability (i.e., internal, stable, uncontrollable). As summarized in Table 3, shown on page 29, Dweck and Leggett (1988) surmised the effects of intelligence beliefs, combined with attribute level, on students' perceptions of control.

According to Attribution Theory, it is the individual's focus on the reason for success or failure that explains: (a) future expectancies, (b) self-efficacy, and (c) affect. Further, Weiner linked these outcomes to engagement and achievement. An understanding of the Attribution Theory is useful for educators and parents because the

factors of feedback and environment may be leveraged to affect student beliefs about the causes of events. In particular Graham (1984) and Mueller and Dweck (1998) demonstrated that the reaction to success or failure influences its attribution, which suggests the important role of the teacher in terms of her or his affect on the types of attributions made by students. For example, a postfailure expression of pity might increase the likelihood of its attribution to low ability (i.e., a factor that is perceived as internal, stable, uncontrollable by a student who believes that intelligence is a fixed trait). As cited in Mueller and Dweck (1998), it has been suggested and well documented, by researchers interested in achievement (Bell, McCallum, Bryles, & Driesler, 1994; Covington & Omelich, 1984; Dweck, 1975; Jagacinski & Nicholls, 1984; Weiner, Russell, & Lerman, 1979), that the attribution of either success or failure to external factors might hinder a student's acquisition of strategies insofar as it reduces the incentive to learn strategies and implies the importance of attribution to the promotion of learning strategies.

#### *Adaptive Attribution*

Although attribution theorists (Miller & Bolen, 1975; Nicholls, 1975; Powers, Douglas, Cool, & Gose, 1985; all cited in Mueller & Dweck, 1998; Weiner, 1985) have not suggested the direct link of adaptive attributions to academic achievement, Weiner observed an indirect link to students' association between adaptive attributions and: (a) success; (b) academic self-efficacy; and (c) positive affect (e.g., pride, hopefulness); in addition to higher expectations of engagement and persistence.

*Adaptive attribution of success.* Weiner (1986) suggested that a student's attribution of success to ability, skill, or talent (i.e., stable, internal factors), which may apply to future tasks, as well, is adaptive. A student's attribution of success to an unstable but controllable, internal factor (i.e., effort) is especially adaptive because effort can be modified based on the situation. However, Pintrich and Schunk (2002) cited Carr, Borkowski, and Maxwell (1991) and Licht (1983), who suggested that the attribution of success to the use of strategy might be more beneficial than its attribution to effort. Instead, the attribution of success to the use of effortful strategy is recommended. These researchers hypothesized the importance of this distinction, specifically students with learning disabilities, whose effort may not always lead to success.

*Adaptive attribution of failure.* With an experience of failure, a student's attribution to factors that are unstable is adaptive (Weiner, 1986). Also, a student's attribution of failure to bad luck (i.e., an unstable, uncontrollable, external factor) is adaptive, because the student may believe that the circumstances that cause the failure might not exist in future situations. The attribution of failure to the lack of effort (i.e., an unstable, controllable, internal factor) not only allows students to protect their self-worth; in addition, it facilitates their appraisal that future failure is avoidable by the exertion of more effort. However, rather than attributing failure to lack of effort alone, its attribution to the lack of strategy, or to the use of inappropriate strategies, might dispel the belief that effort always leads to success, yet it may convey the possibility of future success.

*Maladaptive Attribution*

Mueller and Dweck (1998) suspected that the strong influence of praise on student attributions of success and failure; that is, the type of praise (i.e., ability praise vs. effort praise) received after a good performance might develop students' ability attributions for failure. Specifically, teachers and parents who praise ability may reinforce that intelligence is a stable trait (i.e., the fixed or Entity Theory), which is reflected by performance. Students who believe that intelligence is reflected by performance may interpret poor performance as low intelligence and, thus, make ability attributions not only for their successes but also for their failures. Mueller and Dweck's (1998) findings supported the idea that students who are praised for ability, regardless of good or low performance, demonstrate: (a) reduced task enjoyment; (b) decreased persistence; and (c) lower performance, compared to those who are praised for effort.

*Results from Mueller and Dweck's study.* Mueller and Dweck's (1998) findings confirmed those from earlier studies on adaptive and maladaptive response to success and failure and its consequent effect on motivation and performance. Indeed, an emphasis on grades has been found to lead students toward the assessment of their abilities through performance (Butler, 1987, 1988, as cited in Mueller & Dweck); in addition, some of the research has documented the negative effects of ability praise after success, when it leads students to feel pressured to produce future good performance (Baumeister, Hutton, & Cairns, 1990, as cited in Mueller & Dweck). As expected, differences occurred between the responses from those students praised for hard work (i.e., who tended to be adaptive) vs. those praised for intelligence (i.e., who tended to be maladaptive) in terms of: (a) the

attribution of effort and ability, and (b) the postfailure task enjoyment and performance.

For postfailure, there were no significant differences in the desire to persist; however, the majority (56%) of students praised for effort defined intelligence as meaning “to work hard” (Mueller & Dweck, p. 48), while a significantly lower percent (25%) of those praised for ability did so.

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Table 3

*Perceptions of Control as a Function of Theory*

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Theory	Perceived Attribute Level <sup>a</sup>	Perceptions of Control over Events
Entity (attributes are fixed or uncontrollable) <sup>a</sup>	High	Control is possible
	Low	Control is not possible: Outcomes will be negative or determined by chance
Incremental (attributes are controllable) <sup>b</sup>	High	Control is possible
	Low	Control is possible although requiring more time and effort

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<sup>a</sup> Perceived level of the attribute that is relevant to outcome.

<sup>b</sup> Assumes a generalized theory, for purposes of simplicity.

*Note.* Adapted from “A social-cognitive approach to motivation and personality,” by C. Dweck and E. Leggett, 1988, *Psychological Review*, 95(2), p. 269.

Overall, the findings from the Mueller and Dweck (1998) study supported the hypothesis that the students who are praised for intelligence when they succeed: (a) are the least likely to attribute their performance to effort, a factor over which they have

control; and (b) are the most likely to show preference for ability explanations over effort explanations. Thus, praise for intelligence does not appear to teach students that they are smart; rather, such praise appears to teach them to make inferences and attributions about their ability vs. their effort about how well they perform.

### *Intrinsic Motivation*

Intrinsic motivation might be characterized as a person's choice of an activity for no compelling reason beyond the satisfaction derived from the activity itself. Raffini (1996) defined intrinsic motivation as that which compels a person to do something, when nothing is required, based on his or her desire to seek and conquer challenges. Intrinsic motivation is fueled by one's desire for: (a) autonomy (e.g., controlling decisions); (b) competence (e.g., doing things that promote success); (c) belonging and relatedness (e.g., feeling part of something larger); (d) self-esteem (e.g., feeling good about who one is); and (e) involvement and stimulation (e.g., finding pleasure in what one does).

As part of an exploration of the role played by intrinsic motivation in academic achievement, Gottfried (1985) described academic intrinsic motivation as "the enjoyment of school learning characterized by an orientation toward mastery, curiosity, persistence, task-endogeny, and the learning of challenging, difficult, and novel tasks" (Gottfried & Gottfried, 2004, p. 122). Based on these findings, he developed the Children's Academic Intrinsic Motivation Inventory (CAIMI, 1985, 1986). In the Potentiality-Enrichment Theory (Gottfried, Gottfried, Bathurst & Guerin, 1994, as cited in Gottfried & Gottfried), the inherent tie between academic intrinsic motivation and the development of intellect was proposed. With the use of this foundation, Gottfried and Gottfried identified a higher

level of motivation (i.e., proposed as gifted motivation), defined as “the superior strivings and determination pertaining to an endeavor” (Gottfried & Gottfried, p. 122).

The comparison between intrinsic motivation and extrinsic motivation, as it relates to academic success, is prevalent within social cognitive models of motivation (Sansone & Harackiewicz, 2000). Theorists, such as Pintrich and Schunk (2002) and Raffini (1996), described intrinsic motivation as the motivation to engage in an activity for its own sake and extrinsic motivation as the motivation to engage in an activity as a means to an end. Because a discussion of the specific and various lines of research that fall under the heading of intrinsic vs. extrinsic motivation would be too vast, given the limitations of this project, this author’s attention is focused on: (a) academic intrinsic motivation, and (b) personal and situational interest, each in relation to achievement.

#### *Academic Intrinsic Motivation*

Based on Gottfried’s (1985) early examination of the construct of academic intrinsic motivation, a foundation for the hypothesized connection between intrinsic motivation and achievement was formed. This hypothesis was explored via the Fullerton Longitudinal Study (FLS; Gottfried, Fleming, & Gottfried, 2001), which was conducted with 130 participants over a 24 year timeframe. Although the construct and predictive validity between intrinsic motivation and achievement were reported in the earlier research, the research findings of the FLS team established that academic intrinsic motivation: (a) predicted academic achievement over and above intelligence, (b) demonstrated stability throughout childhood, (c) was linked closely with level of intellect, and (d) related to aspects of the environment. Also, these findings indicated

intra- and inter-study consistency in comparison to other studies (Davis & Connell, 1985; Henderson, Gold, & McCord, 1982; Holm, 1988; Li, 1988; Vallerand, Gagne, Senecal, & Pelletier, 1994; all cited in Gottfried & Gottfried).

In terms of construct validity, Gottfried and Gottfried (2004) clarified the independent affect of academic intrinsic motivation on academic achievement, which reinforced Gottfried's (1985) earlier conclusions that academic intrinsic motivation: (a) "is a construct that is not accounted for by intelligence" and (b) "relates to achievement and other performance criteria beyond IQ" (Gottfried; both cited in Gottfried & Gottfried, 2004, p. 124). This suggested that intrinsic motivation may be assessed independently from intelligence and other traditional measures associated with academic achievement (e.g., IQ, GPA). For example, the students in the study who were identified with high academic intrinsic motivation (i.e., by means of the assessments described in Appendix A) demonstrated: (a) higher achievement (Gottfried; Gottfried et al., 2001), (b) greater persistence, (c) less anxiety, (d) decreased response to extrinsic motivation, and (e) higher intellectual performance (Gottfried, Bathurst, & Guerin, 1994; as cited in Gottfried & Gottfried).

In terms of predictive validity from their studies, Gottfried et al. (2001) and Gottfried and Gottfried (2004) asserted the viability of predicting academic achievement vis-à-vis academic intrinsic motivation, because this type of motivation is: (a) fostered throughout childhood by the stability and continuity of the construct, and (b) propelled by student curiosity and mastery goals (i.e., variables linked to motivation). In addition to the positive effects on learning and achievement in the regular classroom, the fostering of academic intrinsic motivation might carry implications for the identification of gifted



students, along with the enhancement of the regular classroom and instructional design. Traditionally, motivation has been considered as a contributor to, portion of, or byproduct of giftedness (Dai, Moon, Feldhusen, 1998; Feldhusen, 1986; Gagne, 2000; Gottfried & Gottfried, 1996; Gottfried et al., 1994; Lens & Rand, 2000; Renzulli, 1986; Ziegler & Heller, 2000; all cited in Gottfried & Gottfried); however, Gottfried and Gottfried proposed a broadened conception of academic success, in which intrinsic motivation is considered a standalone construct of achievement, apart from intellect (i.e., giftedness).

### *Interest Motivation*

One of the multidimensional perspectives of intrinsic motivation is Deci and Ryan's (1980, 1985) Self-Determination Theory, in which they identified interest in a task or activity as a defining feature, or a reflection of intrinsic motivation. In addition, some contemporary motivational researchers (i.e., Leggett & Dweck, 1988; Pintrich & Schunk, 2002) perceived interest as multidimensional; and they cautioned against the prevalent belief that interest is simply liking or not liking a particular task or subject. Also, Krapp, Hidi, and Renninger (1992, as cited in Pintrich and Schunk) defined interest as the interaction between the individual and his or her environment.

Further, interest theorists distinguished between personal interest (i.e., individual interest) and situational interest (Hidi, 1990; Hidi & Harackiewicz, 2000; both cited in Pintrich, 2003). Both personal and situational interest may influence achievement and other academic success. In addition, Malone and Lepper (1987, as cited in Pintrich & Schunk) suggested: (a) that personal interest is stable over time and, along with the aspects of the task, is a function of an individual's preferences; and (b) in contrast, that

situational interest is sensitive to the context of a task. These results suggested that academic achievement, study skills, and engagement are increased by links to students' personal interests.

### *Personal Interest*

Hidi and Harackiewicz (2000, as cited in Pintrich, 2003) described personal interest as that which reflects an individual's interest in a particular topic or domain, and they thought of it as measurable based on student reports of enjoyment of an activity or subject area. Also, as one might suspect, increased attention and persistence has been associated with personal interest (Hidi & Harackiewicz). Krapp (2002) reported a positive association between personal interest and academic achievement, and Schiefele, Krapp and Winteler (1992, both cited in Pintrich, 2003) found that both personal and situational interest influenced the use of deeper cognitive strategies by children and adults. Further, the need for research was indicated as to: (a) how personal interests develop, (b) how individuals become interested in one specific topic or activity over other activities, and (c) how these interests relate to the development of other motivational constructs (e.g., efficacy, value) and the development of self- and personal identity (Krapp). According to Pintrich (2003), the role that contextual factors play in interest development is not understood completely.

### *Situational Interest*

Mitchell (1993, as cited in Pintrich & Schunk, 2002) expanded the notion of situational interest beyond the initial focus on domain (i.e., studies which were focused on reading) and suggested that situational interest is broken into the factors of *catch* and

*hold*. Although an understanding of the environments and situations that catch and hold student interest may foster the development of personal interest (Hidi & Harackiewicz, 2000), Krapp (2002, both cited in Pintrich, 2003) identified the need for “longitudinal, microgenetic, and intraindividual developmental studies that examine the mechanisms that might underlie this relation” (p. 674).

*Catch factors* are those motivational factors that stimulate students or capture their attention. Examples of catch factors include: (a) innovative or novel instructional techniques (e.g., using an exciting computer program, learning by playing a game); and (b) group projects designed so that students work together (Mitchell, 1993).

*Hold factors* are those that: (a) empower students through meaningful content; (b) are perceived by students as useful; and (c) encourage student involvement in a task. In addition, the activities that encourage active involvement (e.g., small group work or discussions, rather than lectures) promote the hold factor of situational interest. Pintrich and Schunk (2002) cited the increased attention that Harackiewicz, Barron, Tauer, Carter, and Elliot (2000) placed on the hold factor, because it is estimated to predict continuing interest better than the catch factor. Pintrich and Schunk (2002) found that the relationship between situational interest and achievement compared favorably with other factors of academic success (i.e., situational interest enhanced achievement by engaging students in a task or activity). Furthermore, they suggested an association between the catch and hold components of situational interest and other enablers of academic success (e.g., persistence, strategy use), at least for the time during which situational interest is activated.

*Academic intrinsic motivation study results.* Gottfried and Gottfried (2004) measured intrinsic motivation with the use of comprehensive, standardized instruments, which facilitated the examination of development across a broad variety of domains (see Appendix A, Instructional Implications and Assessments). They validated the independence of intrinsic motivation from intelligence by evaluation of its relationship to achievement and other performance with the use of hierarchical regressions; achievement was the outcome variable, and IQ and academic intrinsic motivation were the predictor variables. The impact of gender was controlled through inclusion and exclusion, with no indication of a significant effect, which validated prior findings relative to gender differences and academic intrinsic motivation (Gottfried, 2001, as cited in Gottfried & Gottfried).

To predict achievement, the CAIMI (Gottfried, 1986; as cited in Gottfried & Gottfried, 2004) motivation score that corresponded to each specific subject was used. For comparison to actual achievement, the *Woodcock-Johnson Psycho-Educational Battery* (Woodcock & Johnson, 1977, 1989) appropriate for the school subject and grade was used, along with the parent and teacher ratings from the *Child Behavior Checklist* (CBC; Achenbach, 1994a, 1991b; both cited in Gottfried & Gottfried) and the cumulative high school grade point average (GPA). The results from regression analysis indicated that academic intrinsic motivation develops cumulatively: That is, each age predicts the subsequent age, which showed: (a) that school age mastery motivation is predictable based on preschool mastery motivation; and (b) that preschool mastery motivation is predictable from infancy mastery motivation. Gottfried and Gottfried's findings

demonstrated the correlation between early cognitive mastery motivation and future academic intrinsic motivation.

Although Gottfried and Gottfried (2004) constructed a theoretical and empirical foundation for a new construct of giftedness with the use of academic intrinsic motivation as its basis. However, of greater importance, perhaps, their findings revealed the significance of the emergence of motivation beyond IQ. For example, a high level of academic intrinsic motivation correlated with: (a) increased stability of motivation in adolescence; (b) positive effect on parent, teacher, and standardized assessment outcomes; and (c) increased cumulative GPA. The variety of the achievement indices used seems important, based upon the differences of sources and objectivity of testing instruments. Although Gottfried and Gottfried found that the academically gifted might be advantaged cognitively and/or motivationally, these results demonstrated that IQ, alone, is not responsible for achievement. The variance contributed by motivation was less than for IQ. Academic intrinsic motivation showed substantial cross criterion and construct validity in terms of development and achievement, from childhood through adolescence, and indicated superiority in intellectually gifted students (Gottfried & Gottfried, 1996, as cited in Gottfried & Gottfried). The findings from other studies produced similar results and, also, incorporated additional factors: (a) psychological constructs of personality (Roberts & DelVecchio, 2000); (b) temperament (Guerin & Gottfried, 1994; Guerin, Gottfried, Oliver, & Thomas, 2003); (c) competence beliefs (Wigfield, et al., 1997); and (d) intelligence (Asendorpf, 1992; all cited in Gottfried & Gottfried).

### *Achievement Goal Theory*

Goal Theory is a prominent area of motivational research (Dweck, 2000; Pintrich & Schunk, 2002), in which two general goal orientations, mastery goals and performance goals, are stipulated. In the context of these goal orientations, the individual's task pursuit, approach, and engagement are considered. As cited by Dweck, the variety of labels used to refer to these two goals include: (a) learning and performance goals (Dweck & Leggett, 1988); (b) task and ability goals (Maehr & Midgley, 1996); (c) task-involved and ego-involved goals (Nicholls, 1984); and (d) mastery and performance goals (Ames, 1992; Elliot, 1997; Elliot & Church, 1997; Elliot & Harackiewicz, 1996; Harackiewicz, Barron, & Elliot, 1998).

#### *Mastery Goals and Performance Goals*

Ames (1992) described mastery goals as those that orient students in “developing new skills, trying to understand their work, improving their level of competence, or achieving a sense of mastery based on self-referenced standards” (p. 262). In contrast, Ames explained that performance goals “orient students to focus on their ability and self-worth, to determine their ability by outperforming others in competitions, to surpass others in achievements or grades, and to receive public recognition for their superior performance” (p. 262).

From the literature reviewed, this author found that the theoretical assumptions about these two goal orientations are: (a) that mastery goals foster a host of adaptive motivational, cognitive, and achievement outcomes; and (b) that performance goals generate less adaptive, or even maladaptive, outcomes (Ames, 1992; Dweck, 2000).

Pintrich and Schunk (2002) cited three studies focused on goals and achievement processes that support these assumptions, particularly with regard to the adaptive behaviors facilitated by mastery goals (Ames; Dweck & Leggett, 1988, Pintrich, 2000c). However, the assumption that performance goals are maladaptive for all outcomes was not confirmed (Pintrich; Harackiewicz et al., 1998; both cited in Pintrich & Schunk).

In regard to the relationship that might exist between achievement goals and social norms, it has been suggested that a number of social variables may be useful to predict the types of achievement goals that are adopted by students: (a) a sense of belonging in school; (b) the response to social responsibility goals (i.e., adhering to norms or rules); (c) the desire for acceptance by a peer group; and (d) the achievement of social status (Anderman & Anderman, 1999). In particular, the students, who felt a sense of belonging, were more likely to adopt a mastery goal orientation; in contrast, students who focused on the development of social relationships in order to achieve social status were more likely to endorse performance goals.

*Mastery goals.* The similar patterns found through the research conducted at the University of Michigan (Pintrich, 2003) indicated that mastery goals relate positively with cognitive strategy use and self-regulation. The students in these studies, who were identified as possessing higher levels of mastery goals, were more likely to use: (a) elaboration, (b) organizational strategies, (c) metacognition, and (d) regulation (Pintrich, 2000b; Pintrich & De Groot, 1990; both cited in Pintrich & Schunk, 2002). To support greater cognitive engagement and achievement, these researchers suggested that a mastery goal orientation might help students who are focused on learning,

understanding material, and improving future performance to: (a) maintain self-efficacy in the face of failure; (b) ward off negative affect (e.g., anxiety); (c) lessen the probability of distracting thoughts; and (d) free up cognitive capacity.

*Performance goals.* In contrast, the University of Michigan researchers (Pintrich, 2003) surmised that students who function under a performance goal orientation (i.e., those who are typically concerned about being the best, receiving higher grades, or performing well compared to others) might experience: (a) negative affect; (b) anxiety; (c) distraction; and (d) irrelevant thoughts (e.g., worry about how others do rather than focus on the task), each of which diminish cognitive capacity, task engagement, and performance (Pintrich, 2003). What are the mechanisms through which the different goals produce associated patterns of cognition, affect, and behavior? Dweck and Leggett (1988) suggested that the goal pursued creates a framework for interpreting and responding to events that occur; thus, the same event may have different meanings and impact if it occurs within the context of a learning vs. a performance goal. In Table 4, the different frameworks that they theorized as established by the two goals are summarized.

#### *Approach and Avoidance Performance Goals*

Within the performance goal orientation, goal theorists (Elliot & Harackiewicz, 1996; Middleton & Midgley, 1997; both cited in Pintrich & Schunk, 2002) distinguished the separate orientations of *approach* goals and *avoidance* goals, which they theorize as reflecting a focus on: (a) outperforming others (i.e., approach goals); and (b) avoiding the appearance of incompetence compared to others (i.e., avoidance goals). Although these researchers refined the previous conclusions that performance goals (i.e., approach goals)



invite maladaptive behavioral responses, they continued to support the conclusions that avoidance goals tend to perpetuate maladaptive patterns of learning (Elliot & Harackiewicz; Middleton & Midgley; Skaalvik, 1997; all cited in Pintrich & Schunk).

Table 4

*Cognitive and Affective Mechanisms of Debilitation and Facilitation in the Face of Difficulty*

Performance Goal: Debilitating Factors	Learning Goal: Facilitating Factors
1. Loss of belief in efficacy of effort, given low ability attribution	1. Continued belief in efficacy of effort: Effort self-instruction instead of low ability attribution; positive rule emphasizes utility of effort
2. Defensive withdrawal of effort: Effort confirms low ability judgment; inverse rule creates conflict between task requirements and goal	2. No defense required: Effort is consonant with task requirements and goal
3. Attention divided between goal (worry about outcome) and task (strategy formulation and execution)	3. Undivided, intensified attention to task that directly serves goal
4. Negative affect can interfere with concentration or can prompt withdrawal	4. Affect channeled into task
5. Few intrinsic rewards from effort (or high effort progress) to sustain process	5. Continuous intrinsic rewards for meeting challenge with effort

*Note.* Adapted from “A social-cognitive approach to motivation and personality,” by C. Dweck and E. Leggett, 1988, *Psychological Review*, 95(2), p. 262.

*Approach goals.* As cited by Pintrich and Schunk (2002), from the findings of the studies conducted on student performance in light of goal type researchers suggested that

approach type goals might not affect achievement as negatively as previously concluded. For instance, in the Harackiewicz et al. (1998, as cited in Pintrich & Schunk) study conducted with secondary and college students, it was reported: (a) that cognitive engagement and self-regulation did not necessarily decline; and (b) that approach goals and competitive urges seemed to relate positively to actual performance. Also, in studies with students in junior high (Pintrich, 2000b, 2000c) to compare low vs. high approach goals in combination with high mastery goals, those with high approach goals and high mastery goals: (a) were not more anxious, (b) did not experience more negative affect, and (c) were equally motivated.

#### *Goals and Praise, Success and Failure*

In goal theory, it is suggested that the goals pursued by students are influenced by the type of praise they receive: (a) the praise of intelligence might foster the choice of a performance goal, at the expense of learning; whereas (b) the praise of effort might foster a preference for mastery goals (i.e., learning new or challenging material; Dweck, 2000). As hypothesized by Mueller and Dweck (1998): (a) students who are praised for ability are interested in measuring performance, while those praised for effort are interested in learning goals and strategy improvement; and (b) students who are praised for ability respond differently to difficulty than those praised for effort. In addition, they suggested that task preference is affected by the goal type that is selected, which is fueled by the desire to demonstrate ability either in terms of performance or in terms of learning.

*Praise and goal orientation.* The type of praise a student receives influences the type of goals he or she pursues, which affect the tasks that are selected/preferred: (a) the

praise of intelligence fosters the goal of performance demonstration, thus, a preference for tasks in which success may be easy/ensured and their *smarts* validated; and (b) the praise of hard work or strategy fosters the goal of mastery, thus, a preference for tasks in which they might learn, even at the expense of looking smart (i.e., praise type fosters goal preference; goal preference fosters task preference; praise type fosters task preference).

*Praise, task selection, and goal orientation.* As reported by Mueller and Dweck (1998), when allowed to choose between a performance or a learning oriented task: (a) the majority of students who received praise for intelligence chose the performance goal task, which was an indication of their desire to appear smart; and (b) the majority of students who received praise for effort chose the learning goal task, which was an indication of their interest in the pursuit of a potentially fruitful challenge over ensured success. In Table 5, from the results of previous studies (Dweck & Leggett, 1988), the effect of intelligence theory on goal type selection was reported as significant. The similarity between these researchers' results and others (Burhans & Dweck, 1995; Dykman, 1998; Harter, 1990; all cited in Mueller & Dweck), which were related to contingent self-worth (i.e., the belief that worth or competence depends upon performing well), underscored the effects of intelligence theory on effort praise and ability praise, and the subsequent affect on achievement goals.

*Failure and goal orientation: Maladaptive and adaptive response.* It appears that some goal theory research has led to the conceptualized assumption that mastery goals are adaptive and that performance goals are maladaptive. According to Mueller and Dweck (1998), the encounter of failure or challenge might lead students to alter their

achievement goals. From Elliott and Dweck's (1988) prior research, in which the relationship between goal type and behavioral response was explored: (a) performance goals were found to elicit helpless, maladaptive reactions (i.e., negative self-cognitions and affect, challenge avoidance, impaired performance); and (b) learning goals were found to elicit an adaptive, mastery orientation (i.e., positive self-cognitions and affect, challenge-seeking behaviors, enhanced performance).

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Table 5

*Percentage of Subjects With Each Theory of Intelligence Selecting Each Achievement Goal*

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Theory of Intelligence	Goal Choice		
	Performance Goal (avoid challenge)	Performance Goal (approach challenge)	Learning Goal (seek challenge)
Entity theory ( $n = 22$ )	50.0	31.8	18.2
Incremental theory ( $n = 41$ )	9.8	29.3	60.9

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*Note.* Adapted from "A social-cognitive approach to motivation and personality," by C. Dweck and E. Leggett, 1988, *Psychological Review*, 95(2), p. 263.

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*Failure, intelligence praise, and goals: Maladaptive and adaptive response.*

Also, Mueller and Dweck (1998) measured the post-success and post-failure effects of both intelligence praise and effort praise on: (a) the desire to persist, (b) the desire for enjoyment, and (c) the perception of performance. They confirmed that, after a successful experience, the students least likely to persist (e.g., take problems home to finish) were those who were praised for intelligence, a possible indication of either task

aversion or a belief that additional effort would not help; therefore, they wanted nothing more to do with the problems. In fact, after success, the students who had received intelligence praise expressed as much task enjoyment and desire to persist as those who received effort praise; thus, these aspects of motivation were not impaired. However, after a failure, task enjoyment and persistence plummeted in students who had received prior intelligence praise, as did their self-assessment of ability and performance. Also, after an encounter with failure, the students who were praised for intelligence, based on prior success, were the least likely to attribute it to their effort, whereas those who were praised, previously, for hard work or strategy considered effort as part of their failure. The praise of intelligence seemed to rule effort out of the explanation of the outcome. When faced with their failure, the students who had been praised, previously, for high ability condemned their ability and proved more likely to interpret it to mean they were either not good at the problems or not smart enough.

These results from Mueller and Dweck (1998) demonstrated that students who are taught to measure themselves based upon success also measure themselves based upon their failure. The students who were praised for intelligence demonstrated the worst performance; their failure seemed debilitating. In contrast, the students who were praised for effort showed the best performance and demonstrated improvement; therefore, failure did not hamper their performance, rather, it might have inspired it. Mueller and Dweck demonstrated the development of vulnerability in students whose intelligence was praised vs. those whose effort was praised for a job well done. Student goals were dramatically affected by the type of feedback they received, even before the occurrence of a failure;

most of those who were praised for intelligence proved no longer interested in challenge and learning.

In these new ways, post failure, Mueller and Dweck (1998) examined students' goals and concerns and confirmed that: (a) those who received effort praise cared more about learning how to master problems than how well their peers performed (Ruble & Frey, 1991, as cited in Mueller & Dweck); and (b) those who received intelligence praise may become so oriented toward performance goals that they lied about failure (i.e., post failure, 90% of students praised for effort told the truth about assessment results, 40% of students praised for intelligence lied about their results). In terms of goal pursuit, praise promoted the selection of performance goals in 55% of students who had received prior intelligence feedback vs. 23% of students who had received prior effort feedback. These results indicated that, doing well is of primary importance to students who receive intelligence praise and who care more about their performance in comparison to peers; however, their performance may be distorted.

In summary, these studies produced evidence which suggested that the adoption of mastery goals is related, positively, to learning and other factors that enable academic success (e.g., study skills and engagement). Also, the consideration of a possible association between certain types of approach goals and academic achievement has been suggested, despite the evidence that this relationship may be a result of improved study skills, engagement (i.e., strategy and effort), or the adoption of performance goals in conjunction with mastery goals. Although Schunk's (1996, as cited in Mueller & Dweck, 1998) results suggested that ability praise might lead to benefits that effort praise does not, Mueller and Dweck's findings were supported by the earlier work of Elliott and

Dweck (1988, as cited in Mueller & Dweck), in which they determined that goals do not lead to different achievement behaviors in the absence of challenge.

### Chapter Summary

The traditional conceptions of the motivation to learn indicated competence or effectance to be the force that drives this motivation. A commonly held assumption, based on classical motivation theory, is the existence of a connection between learning motivation and competence beliefs, an assumption shared by many teachers, even today.

To construct the more contemporary learning motivation theories, much research was conducted to discern what drives the desire to learn. Based on the multidimensional, social cognitive view that motivation is not a stable trait but, rather, a reflection of each individual student and what he or she might bring to the learning context, this author's focus in this review was the exploration of the effects of motivation on academic success. In doing so, the interrelationship between intelligence beliefs and achievement was examined; in addition, the author presented a survey of four components of contemporary achievement motivational theory. In Chapter 3, the method by which the author will inform and advise teachers of the classroom implications and recommendations that affect academic motivation will be discussed.

## Chapter 3

### METHOD

To spark the desire to learn, educators and researchers established the importance of making a connection between this desire and what motivates it. Although seemingly obvious, when it comes to the issue of academic or learning motivation, it is the opinion of this author that students should not merely be labeled in terms of their motivation, with no further regard for its development (i.e., either as *motivated* or *unmotivated*). Instead, to enhance all students' academic motivation, educators should consider and alter the learning environment through a variety of motivational factors: (a) competence beliefs and self-efficacy; (b) attributions; (c) intrinsic motivation; and (d) achievement goals.

### Target Audience

This project booklet was tailored to teachers, and this author incorporated the research based instructional design and assessment recommendations that appeared to support and promote student motivation in the classroom, which have been summarized in Table 6. In addition, several motivational assessments were described in Appendix A, such as: (a) the Children's Academic Intrinsic Motivation Inventory (CAIMI; Gottfried, 1985); (b) the Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich, Smith, Garcia, & McKeachie, 1993); and (c) the mid Patterns of Adaptive Learning Survey (PALS; Midgley et al., 1998).



To this author, this research review and booklet would be of interest and value to any individual who is involved with educational motivation and, perhaps, even to students. Based on this information, some of which is quite recent and challenging to the traditional conceptions of motivation, intelligence, praise, and academic success, the specific strategies that affect students' academic motivation may be applied. From this research, teachers and parents may explore the influence of various motivational factors on student achievement.

### Goals

In the realm of learning, the study and comprehension of motivation continues to evolve via research, examination, evaluation, practice, reflection, and collegial exchange. So that teachers' awareness of the changes and recent developments in the area of learning motivation may be expanded, the goals for this project were: (a) to provide background information that underscored the importance of the development and maintenance of learning motivation in all students; (b) to advance teachers' and parents' understanding of the affective strategies that might be employed, so that student cognition, learning, and motivation can be facilitated; (c) to support the planning and implementation of lessons, strategies, and classrooms, by which teachers may improve student motivation; and (d) to emphasize the link between student motivation and academic success.

Table 6

*Motivational Generalizations and Design Principles*

Generalization	Design Principle
Adaptive self-efficacy and competence beliefs motivate students.	Provide clear, accurate feedback regarding competence and self-efficacy, focusing on developing competence, expertise, and skill. Design tasks that offer opportunities to be successful with challenge.
Adaptive attributions and control beliefs motivate students.	Provide feedback that stresses the learning process, including importance of effort, strategies, potential self-control of learning. Provide opportunities to exercise some choice and control. Build supportive and caring personal relationships in the community of learners in the classroom.
Higher levels of interest and intrinsic factors motivate students.	Provide stimulating and interesting tasks, activities, and materials, including some novelty and variety in tasks and activities. Provide content material and tasks that are personally meaningful and interesting to students.
Higher levels of value motivate students.	Display/ model interest and involvement, in content and activities. Provide tasks, material, and activities that are relevant and useful to students, allowing for some personal identification with school. Focus on importance and utility of content and activities.
Goals motivate and direct students.	Use organizational and management structures that encourage personal/ social responsibility; provide safe, comfortable, predictable environment. Use cooperative and collaborative groups to allow opportunities to attain both social and academic goals. Classroom discourse should focus on mastery, learning, and understanding course and lesson content. Use task, reward, and evaluation structures that promote mastery, learning, effort, progress, and self-improvement standards and less reliance on social comparison or norm-referenced standards.

*Note.* Adapted from “A Motivational Science Perspective on the Role of Student Motivation in Learning and Teaching Contexts,” by P. R. Pintrich, 2003, *Journal of Educational Psychology*, 95(4), p. 672.

### Procedures

The booklet was developed with the use of the Microsoft Office Word program. The author formed the foundation for this booklet from the main categories that were researched for the literature review in Chapter 2. In addition, copies of Tables 1-6 and the Reference list were incorporated within the booklet. The booklet was introduced to the reviewers by way of the author's informal presentation of the booklet, itself, along with an explanation of the model developed by the author.

### Informal Feedback

This project was reviewed by three colleagues, each of whom was asked to provide feedback via the form shown in Appendix B, which the author designed to lend structure to the feedback. After review, the author met with each colleague, separately, and the Informal Feedback Form was shared and used to facilitate these discussions. The results from these surveys are presented in Chapter 5 of this research project.

Each of these colleagues possesses an extensive background in education. The first reviewer has 8 years of classroom teaching experience in public, parochial, and private schools at most elementary grade levels; this reviewer is a core classroom teacher, who is currently at a school that specializes in gifted and talented education. Prior to teaching, this colleague was a Graduate Assistant in teacher training for 4 years and has a Master's Degree in Curriculum and Instruction. The second reviewer has both a Master's Degree in Education and a Master's in Science, studied under Prof. Rudolph Dreikers, University of Illinois, and has over 30 years of teaching experience, and as a consultant to schools in ACSI, at the pre-K, elementary, high school levels. In addition, this reviewer

is a published author, with books currently in press, is a contributor to other published books, and is a lecturer of some renown in the area of motivation. The third reviewer, who has over 20 years of teaching and teacher training experience, is a college professor and faculty member of the education department of a metropolitan college located in Denver, Colorado.

### Copyright

The copyright of this paper, the Instructional Booklet, and the models and charts developed by the author will be enforced. Therefore, the written permission to use this paper, or its content, must be obtained from the author prior to its use.

### Chapter Summary

To support teachers and parents and expand their understanding of the factors that influence academic motivation, this author created a booklet that is designed to inform teachers about the ways in which student beliefs about the nature of intelligence might affect their academic motivation and achievement. The informal presentation of this booklet to colleagues facilitated a discussion of the contemporary, multidimensional, and social cognitive components of motivation presented in the booklet. An overview of the research about each of these components was provided, along with an explanation of its relationship to academic achievement and its connection to instructional implications and assessment strategies. The booklet, presented in Chapter 4, represents an introduction to some of the more recent developments and research based suggestions, which teachers may use in the classroom to improve learning motivation and to shape the academic success of their students.

## Chapter 4

### RESEARCH PROJECT

This chapter is a hard copy of the booklet that was developed by the author to inform teachers of the ways in which student beliefs about the nature of intelligence might affect motivation and academic achievement. In this booklet, a synthesis of the research that was covered in Chapter 2 of this paper is presented, which addressed the factors of: (a) competence beliefs and self-efficacy; (b) attributions; (c) intrinsic motivation; and (d) achievement goals. The research on each component that describes its relationship to motivation and academic achievement was incorporated, together with the suggestions offered for instruction and assessment.

### Audience

This booklet was designed for adults who work with elementary through middle school age children, with the main audience targeted as teachers. In addition, it could be introduced to parents, school administrators, other educational specialists, and even older students. It was formulated so that it may be distributed, directly, without the need for formal presentation, because minimal introduction and explanation should be required. Further, this booklet could be presented to groups in a more formal context (e.g., seminars, teacher in-services, parent advisories, school committees).

Instructional Booklet and Learning Motivation and Academic Achievement Models

# SHAPING ACADEMIC SUCCESS:

UNDERSTANDING THE INTERRELATIONSHIP BETWEEN  
INTELLIGENCE BELIEFS, MOTIVATION, LEARNING,  
AND ACHIEVEMENT



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AN INSTRUCTIONAL BOOKLET FOR EDUCATORS

by  
Susan Harris Warner  
June, 2006

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## *Why examine the motivation to learn?*

The incredible pace, rate of change, and demands of our advancing, global society necessitate that a person be knowledgeable, more educated, and attain mastery... In the shortest time possible!

More than ever, possession of the ability and the desire to continually learn is of prime importance throughout life—it not only impacts one’s degree of success but is now a minimal requirement for consideration or job qualification.

Technology, innovation, and changing values also require the capability and desire to learn, continually, and to expand our understanding of what “makes us tick.”

## **Interrelationship between *motivation, intelligence, and achievement* –**

In addition to intelligence, motivation and the ability to learn, continually, each contributes to academic success, individually and significantly.

### *Old Theories...*

Cognitive skills and abilities were thought of as factors of *intelligence*.  
Whereas behavioral and psychosocial attributes were thought of as factors of *motivation*.

### *New Research Findings...*

The *beliefs about the nature of intelligence* influence both cognition and behavior more powerfully than previously determined.

### *Recent Explorations have examined...*

- The construction (i.e., construct) of **Academic Motivation**
- The factors that promote / hinder development of the desire to learn and achieve, which include:

*Intelligence and Competence Beliefs*  
*Cognitive, Behavioral, Social, and Environmental Affects*  
*Student, Teacher, and Parental Influences*



## **In this booklet –**

***Descriptive Models of Academic Motivation*** – incorporating the social and cognitive aspects of learning and development that relate to achievement.

***Useful, Research-Based Suggestions for Increasing Students' Motivation and Improving the Odds of Achievement*** – thereby shaping academic success.

***Updated Information for Educators and Parents*** – explaining how beliefs about the nature of intelligence affect academic achievement.

***Instruction and Assessment Ideas*** – for detecting intelligence beliefs and shaping academic achievement, through feedback and developmental actions that foster motivation and learning.

## **A Proactive Approach to Academic Motivation:**

This booklet represents a synthesis of study findings, which promotes:

- ✓ *Increased Understanding of Motivational Behavior*
- ✓ *Reduced Apprehension (demystification)*
- ✓ *Academic Achievement*
- ✓ *Student Success*

*To be successful, students need both the skill and the will...*

Results from the latest motivational studies indicate:

- Motivation, learning, and achievement are affected by the beliefs about intelligence held by students and others who influence school experiences, including parents, teachers, and peers.
- Motivational and cognitive factors contribute to achievement, in conjunction with the affect of beliefs about intelligence.
- This combination of factors and beliefs necessitates that educators and parents be equipped with sound, research-based information, in order to instruct, guide, and shape student success.



### *What goes into Academic Motivation?*

- *Competence Beliefs and Self-Efficacy*
- *Attributions*
- *Intrinsic Motivation*
- *Achievement Goals*

## Motivational and Cognitive Factors that Influence Learning and Achievement – *What affects achievement motivation?*

### Intelligence Beliefs:

- Set up the goals we pursue (which set up adaptive/maladaptive achievement patterns)
- Affect our real world achievement
- Are fostered by **praise**

### Intelligence Praise:

- Ability Praise
- vs.
- Effort Praise

### Self-Theories:

- Form the core of one's *meaning system*
- Provide a framework for understanding achievement
  - Goals*
  - Coping Patterns*
  - Self-Esteem*
- Where do they come from?
  - Experiences*
  - Belief Systems*

### Motivational Patterns:

- Fostered by:
  - Self-Theories*
  - Experiences*
  - Setbacks (vulnerability to depression / loss of self-esteem)
- Implications:
  - Consequences – with regard to achievement:*
    - Adaptive / Maladaptive Functioning (regardless of past success) -
    - Confidence
    - Self-Esteem
    - Self-Defeating Behavior
  - Consequences – for society:*
    - Judging
    - Labeling
    - Stereotyping

## The Social Cognitive Approach to Motivation:

*In considering both the social cognitive approach and the effect of praise on motivation, researchers indicate:*

- There is a direct relationship between the intelligence beliefs of students and their assumptions or perceptions about ability, effort, and goal preference.
- The theory held by a teacher and parent about the nature of intelligence affects student behavior, motivation, and learning.
- Both praise and criticism are interpreted through intelligence beliefs, which influence student responses to success and failure:

***Praise for Intelligence*** – fosters performance goals and helpless responses

***Praise for Effort or Strategy*** – better supports the development of skills, knowledge, and responsiveness to challenge and change

### *Intelligence Beliefs and Motivation...*

**Assumptions about motivation and achievement affect:**

- Perceptions about **ability and performance vs. effort and strategy**
- Interpretations of **praise and criticism**
- Judgments about **failure and success**

**Academic achievement is shaped and influenced by the assumptions, judgments, and responses** – of teachers and parents, as well as of the students, themselves.

**This combination of assumptions and beliefs impacts:**

- Interpretation of ability and intelligence (the student's own, along with that of others)
- Goal orientation (the selection of performance vs. mastery goals)
- Reaction to failure (helplessness vs. effort and strategy)
- Attributions of success and failure (trait- vs. self-efficacy)
- Motivation to learn (demonstration vs. growth)

## *What supports, or thwarts, academic success?*

**The perceptions of students, teachers, and parents with regard to...**

- *Intelligence*
- *Ability*
- *Effort*
- *Failure*
- *Success*

*One's conception about the nature of intelligence – or theory of intelligence...*

*...perpetuates / challenges academic success –  
influences / inspires the motivation to learn and achieve*

**Implicit Theories of Intelligence –**

***The Entity Theory*** – an individual's inherent capacity or skills and knowledge, ruling-out effort and/or motivation as part of intelligence.

***The Incremental Theory*** – an individual's potential for learning, including effort and motivation as part of intelligence.

*Why do some students focus on the adequacy of their ability?  
 Why do others focus on the development of their ability?  
 What leads a student to favor one type of goal over another?*

**Our Beliefs about Intelligence –**

- *Construct learning and motivation*
- *Impact motivation and achievement*
- *Influence the interpretation of:*  
     Ability  
     Effort  
     Goal Orientation

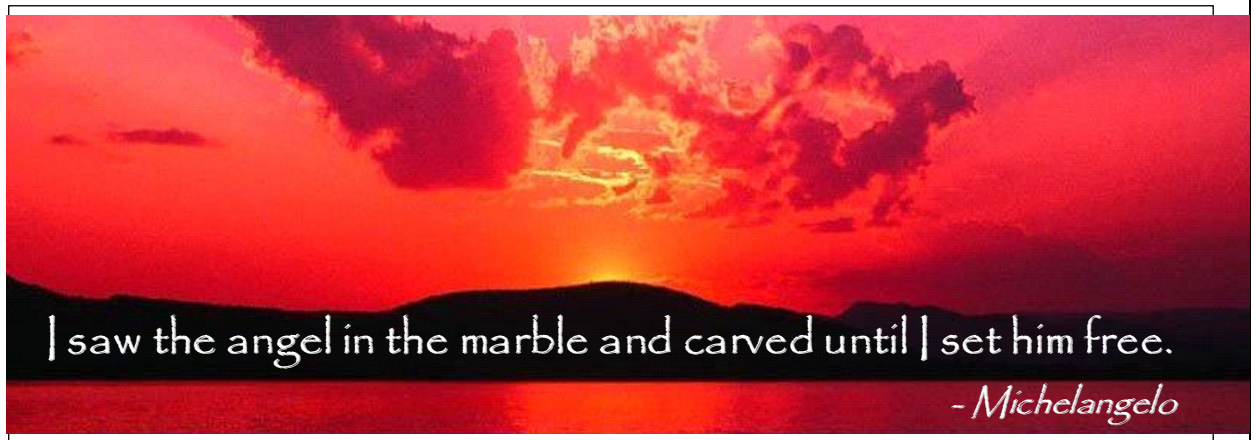
*hence...*

- ***Connect with achievement!***

*Examining beliefs about the nature of intelligence  
 (Teachers' and Parents' and Students')...*

**Goal – not to resolve what intelligence is, rather to understand:**

- *What is the most useful way of thinking about intelligence?*
- *What are the consequences of adopting one view over another?*



## The Incremental Theory of Intelligence –

### *Intelligence is perceived as...*

- Malleable
- Controllable
- May be Nurtured, Developed, Changed

### **So, through learning, and with effort, it is believed that intelligence...**

- *Can be cultivated and expanded*
- *Is not questioned in terms of its existence*
- *May be increased through:*

*Focus*

*Effort*

*Guidance*

*Strategy*

*Few repercussions exist for students who consider intelligence as malleable:*

- Learning is desirable.
- Little consequence is perceived from appearing to be *smart* or *dumb*.
- Worry is a waste of time, when it is possible for them to become smarter

*Students who hold this theory encounter a difficult task might also:*

- Sacrifice advancement of current knowledge in favor of learning opportunities
- Thrive on challenge, although current confidence may be low
- Approach difficult tasks wholeheartedly and persistently

*Students who hold this theory:*

- **Engage fully in new tasks**
- **Exert effort toward mastery**
- **Strengthen skills**
- **Put knowledge to good use**
- **Help other students**

## The Entity Theory of Intelligence –

### *Intelligence is perceived as...*

- A fixed trait - a characteristic that cannot be changed
- Bestowed - inherited, involuntarily
- Discerned and measured through performance

### **The concerns of students who consider intelligence a fixed entity...**

*Do I possess enough intelligence?*

*Do I seem or feel smart?*

*How do I compare to and/or outperform others?*

(For these students, the tasks requiring effort, or are difficult or negative, call intelligence into question... regardless of prior successful experiences or performance.)

### *Students who hold this theory:*

- **Require easy success**
- **Resist challenge**
- **Pass up opportunity that might reveal inadequacy**
- **Disengage because of obstacles**
- **Feel threatened by setbacks**
- **Demonstrate fewer coping skills or low self-esteem**

### KEY POINT...

Students who believe **intelligence is *developable*** pursue...  
*the **learning goal** of increasing competence*

Students who believe **intelligence is *fixed*** pursue...  
*the **performance goal** of securing positive judgments,  
or preventing negative judgments*



<b>Intelligence Belief:</b>	<b><i>Entity Theory</i></b>	<b><i>Incremental Theory</i></b>
<b><i>Intelligence is...</i></b>	<b>Fixed</b>	<b>Malleable</b>
<b>Attitude toward <i>Intelligence</i>:</b>	<b>Performance</b>	<b>Effort</b>
	Ability – <i>get good grades</i>	Mastery – <i>learn new things</i>
	Permanent	Development
<b>Interpretation of <i>Smart</i>:</b>	<b>Adequacy – do well – good enough</b>	<b>Learn a lot</b>
	Perfection - Accuracy	Discovery
	Goodness (good enough)	Make mistakes
	Speed	Focus
<b>Interpretation of <i>Failure</i>:</b>	<b>Inadequacy – <i>being a failure</i></b>	<b>Growth</b>
	Difficulty	Opportunity
	Weakness (fear of mistakes)	Improvement
	Setback – swamps success (interpreted as measure of intelligence)	Challenge
<b>Attitude toward <i>Effort</i>:</b>	<b>Undesirable</b> (interpreted as low intelligence)	<b>Desirable</b>
	Ineffective	Progress
		Effective
<b>Approach/Avoid Strategies:</b>	<b>Approach:</b>	<b>Approach:</b>
	Ease	Value
	Importance	Investment
	Utility	Liking
	<b>Avoid:</b>	<b>Avoid:</b>
	Blame	Impatience
	Boredom	Too Easy
	Obstacles	Waste of Time
<b>Behavioral Responses:</b>	<b>Vulnerability</b>	<b>Resilience</b>
	Helplessness	Persistence
	Defensive	Optimism
	Disorganized	Effectiveness
	Self-handicapping (intentional withholding of effort)	Self-monitoring (confront deficiencies)
	Unpreparedness	Self-instruction
	Procrastination	Choice
	Over-persistence	Flexibility
	Validation	Confidence
	Defeat	Perseverance
	Worry	Faith
<b>Perception of <i>Self</i>,</b>	<b>In relation to Others</b>	<b>In relation to Self</b>
Social Norm:	Competitive	Self-efficacy
	Win / Lose ( <i>you win, I lose</i> )	Win / Win (or whatever...)
	Social	Individual
<b>Motivational Tendencies:</b>	<b>Extrinsic</b>	<b>Intrinsic</b>

## ***Why can't we accept that endowment does not equal potential – that skills can grow and abilities blossom?***

Several years after winning the Nobel Prize, a scientist found out his IQ – which was in the lower-average. He was struck that his IQ was too low to have enabled his accomplishments...

“...Someone with such a low IQ could not have made groundbreaking discoveries!”

He admitted that, had he known, he would never have dreamed of embarking on his scientific career.

## ***What is intelligence?***

### **Fallacies and Perceptions:**

#### **IQ**

- By measuring present skills, potential has been assessed
- That looking at the present predicts the future (Deci, 1990; Resnick, 1983; Sternberg, 1985, 1990)

However... in terms of predicting intellectual achievement...

- Great margin for error – because potential cannot really be measured.
- IQ point differences between groups, etc. of no use – cannot predict potential.

#### **Cultural notions about intelligence:**

*American* – ability is integral part of intelligence (i.e., Entity theorists)

*Asian* – effort is major and integral part of intelligence (i.e., Incremental theorists)  
(Stevenson, Lee, Chen, Stigler, Hsu & Kitamura)

#### **Beliefs about the nature of intelligence:**

*Entity* – inherent capacity or skills and knowledge, rules out effort/motivation

*Incremental* – includes effort and motivation as parts of intelligence

## ***Ask anyone to define intelligence...***

### **Using this equation:**

$$\text{Intelligence} = \text{_____ \% effort} + \text{_____ \% ability}$$

Experimental Study results:

*Entity theorists* said: 35% effort + 65% ability

*Incremental theorists* said: 65% effort + 35% ability

(Mueller & Dweck, 1997)

### **Who is smarter – Who should be admitted into college...**

*Those with higher ability, even when not achieving as well?*

*or Those who had worked and achieved higher grades, even though test scores are not as high?*

Experimental Study results:

*Entity theorists*: “Those who study right before test and score high, this student is smarter.” (to Entity theorists, effortless ability is primary)

*Incremental theorists*: “Those who diligently study each week.”

## *When do you feel smart?*

### The following responses indicate an **Entity Theory** framework:

Grade Schoolers:

*“When I don’t make mistakes.”*

*“When I turn my papers first.”*

*“When I get easy work.”*

(When tasks could be performed easily, without errors, more quickly than peers.)

College Students:

*“When I ace an exam.”*

*“When the others are struggling, but it’s easy for me.”*

Meaning, they feel smart when their intelligence is not called into question by:

- Errors
- Effort
- Challenge

(each are seen as undermining)

**The notion that only winners may feel smart implies that losers should not feel smart – This devalues cooperation!**

An Entity believer’s ideal situation – being able to coast by others, not having to work too hard to win. *The problem is...* sometimes losing is inevitable, in learning situations.

This implication is fostered and supported by:

*Beliefs*

*Goals*

### The following responses indicate an **Incremental Theory** framework:

Grade Schoolers:

*“When I don’t know how to do it, or it’s pretty hard, or I figure it out without anyone’s help.”*

*“When I’m doing schoolwork because I want to learn how to get smart.”*

*“When I’m reading a hard book.”*

College Students:

*“When I’m using what I know to teach someone else.”*

When intelligence is used to:

- Confront challenge, difficulty, confusion
- Help peers to learn (who appear to be struggling)
- Fosters more cooperative atmosphere – everyone can feel smart

(Summarized from Elliott, Henderson & Dweck, 1990)

## Behavioral Responses – Helplessness vs. Mastery

### *What causes different behavioral responses?*

**The Theory of Intelligence that is adopted...**because it affects:

- What a student values
- How intellectual tasks are approached
- Interpretation and response to what happens

**Helplessness - Entity Theory** - causes concern over adequacy or inadequacy of intelligence

#### **Attitude toward effort:**

- Belief that effort is undesirable (chores) and ineffective
- Results in strategies to avoid (e.g., losing interest in a subject, cheating on a test)

#### **Results from the belief that intelligence is fixed... Demotivation:**

- Low effort
- Different interpretation of failure
- Induced by difficult tasks, when requirement for effort seen as indicator of low intelligence
- Self-handicapping
- Intentional withholding of effort

**Mastery - Incremental Theory** – few concerns about intelligence:

#### **Attitude toward effort:**

As an ally – approaching increased demand with energy and persistence (optimism)

- Optimistic performance predictions
- Instructions to self on how to improve performance
- Requests for more chances – on verge of getting it

#### **Relatively unaffected, when faced with failure:**

- Persistence – failure provokes continued effort (learning goals)
- Reminding themselves what they had learned so far (self instruction / self monitoring)
- Setbacks seen as challenges, learning opportunities, natural part of learning – also, cues for renewed effort and new strategies
- Downside – some worry about wasting time, when tasks are too easy

## *How is an intelligence belief detected?*

### **Helpless Behavior –**

Happens quite spontaneously for students made vulnerable by their belief in the **Entity Theory** (more than 1/3 of students), and regardless of prior success patterns.

When faced with failure, the behavior demonstrated is...

*Disorganization, Defensiveness, Helplessness*

*Difference in response (compared with prior experiences of success) through expressions of:*

- Negative feelings – focus on negative outcome/possibility of failure
- Avoidance
- Boredom (even when happy just prior)
- Blame
- No longer applying themselves
- Off-subject interruptions/conversation topics
- Distracting attention from failure
- Calling attention to other areas (where experiencing success)
- Changing the rules (success on own terms)

*'Problem-solving' strategies attempted:*

- Wild guesses (not using information provided)
- Choosing random solutions (answers on right side, not related to task)
- Reverting to preschool problem solving strategies
- Give up far too quickly – not objective about their abilities
- Being unprepared (not studying enough) – procrastination (or at the last minute)

*Helpless behavior may also include:*

- Choices are those likely to ensure easy success / avoid failure:
- Apprehensive/anxious about school and school work
- Unable to discuss grades, etc. unless A (B) – interests / goals shift based upon grades
- Over-persistence (admission of defeat blow to ego)
- Over-emphasis on performance goals vs. learning goals
- Questioning ability
- Overly concerned by ability – worry about its adequacy
- Continual need for validation
- Not approaching studies with vigor – steering clear of fracas
- Not easily flexing between learning and performance goals, as appropriate to the situation / task

View of Effort:

*Working hard makes the Entity believer feel dumb...*

Can't see that increasing effort will not yield much if ability level is not high.

*This attitude plays a role in declining performance...*

Though want to do well, strong desire to minimize effort

## *What is the student's belief system?*

**(The answers help to detect whether students hold Entity Theory or Incremental Theory):**

### ***Incremental Theory:***

*"It's much more important for me to learn things in my classes than it is to get the best grades."*

### ***Entity Theory:***

*"Your intelligence is something about you that you can't change very much."*

*"You can learn new things but you can't really change your basic intelligence."*

*"You have a certain amount of intelligence and you can't really do much to change it."*

*"Although I hate to admit it, I sometimes would rather do well in a class than learn a lot."*

*"If I knew I wasn't going to do well with a task, I probably wouldn't do it, even if I might learn a lot from it."*

***"If I had to choose between getting a good grade and being challenged in class, I would choose..."***

*Students with an Incremental Theory (65%) circled the word challenge;*

*Students with Entity Theory (35%) circled the words good grade.*

Answers to confidence measure questions – at transition to Middle School:

*"I usually think I'm intelligent."*

vs.

*"I wonder if I'm intelligent."*

*"When I get new work in school, I often think I may be good at it."*

vs.

*"When I get new work in school, I often think I may not be good at it."*

*"I feel pretty confident about my intellectual ability."*

vs.

*"I'm not very confident about my intellectual ability."*

**Entity theory students feel most successful when they outshine other students, even if not learning much.**

vs.

**Incremental theory students feel most successful when they make progress, even if others outperform them.**

## **HAVE YOU EVER HEARD THESE WORDS?**

### **Entity Theory – Performance Orientation – ego-involved responses:**

*“I guess I’m not very smart.”*

*“I never did have a good memory.”*

*“I’m no good at things like this.”*

*“Maybe I’m not smart enough.” (when asked about low grade – doubt intelligence)*

*“The main thing I want when I do my schoolwork is to show how good I am at it.”*

*“I mostly like schoolwork that I can do perfectly without any mistakes.”*

*“I have to admit that sometimes I would rather do well in a class than learn a lot.”*

*“Schoolwork is like chores—it has to be done,*

*but you don’t want to take much time doing it if you can help it.”*

*“I try to spend as little time on my schoolwork as I can get by with.”*

*“If you have to work hard on some problems, you’re probably not very good at them.”*

*“You only know you’re good at something when it comes easily to you.”*

*“Things come easily to people who are true geniuses.”*

*“The more effort you have to put into your school assignments, the less intelligent you are.”*

**THESE TYPES OF RESPONSES NEVER OCCURRED IN MASTERY-ORIENTED STUDY GROUPS!**

### **Incremental Theory - Effort / Strategy Orientation – mastery-involved responses:**

*“The harder it gets, the harder I need to try.”*

*“I should slow down and try to figure this out.”*

*“I’ve almost got it now.”*

*“I love a challenge!”*

*“I was hoping this would be…”*

*“Mistakes are our friends.”*

*“Maybe I’m not studying the right way.” (when asked about low grade – revise strategies/effort)*

*“I should work harder next time.”*

*“I like schoolwork that I’ll learn from even if I make a lot of mistakes.”*

*“It’s much more important to me to learn new things in my classes than to get the best grades.”*

*“I like schoolwork best when it makes me think hard.”*

*“When you’re good at something, working hard allows you to really understand it.”*

*“When something comes easily to you, you don’t know how good you are at it.”*

*“Even geniuses have to work hard for their discoveries.”*

(Summarized from participant responses, studies cited in *Self Theories*, Dweck, 2000.)

## Intelligence Beliefs and Praise:

### *“You are so smart!”*

A common response to a child who has completed a task quickly, perfectly, or successfully.  
Intended to reinforce achievement behavior and promote motivation.

However...

Praise of intelligence and ability, based on the demonstration of skill or performance:

- Does not teach children to welcome challenge
- Does not teach children to learn from errors

Rather...

- It teaches children that easy success signifies intelligence.
- It teaches children that errors and effort represent a lack of intelligence.

## *The shift in theories – to more social-cognitive models of motivation...*

*Psychologists and educators suggest that:*

The impact of beliefs about intelligence on a student’s academic success are more direct than previously theorized. (Bandura, 1993; Dweck & Leggett, 1988; Eccles & Wigfield, 1995; Graham & Weiner, 1996, Kamins & Dweck, 1997; Pintrich & Schunk, 2002)

*Behavior and learning are influenced tremendously by feedback...*

The type of praise or criticism bestowed affects student responses to success and failure through the expression of persistence, resilience, or helplessness.

## **The Problem...the praise of intelligence ~ Ability Praise:**

Survey results indicate that 85% of parents believe that the praise of ability for doing well is necessary for a child’s self-esteem. (Mueller & Dweck, 1996)

**This type of praise...** Ability praise is a popular and widely accepted methodology –

Is believed to develop and maintain achievement motivation behaviors and strategies.

Is common, seemingly intuitive, and has been endorsed by educational researchers.  
(Brophy, 1981; Koestner, Zuckerman & Koestner, 1987; Delin & Baumeister, 1994; Kanouse, Gumpert & Canavan-Gumpert, 1981; all cited in Mueller & Dweck, 1998)

**However, the endorsement of this practice has perpetuated...**

The notion that recognition for intelligence reinforces beliefs about being smart;  
The use of praise increases confidence and persistence in response to challenges.



## The Problem...

The motivation to learn and achieve is affected (negatively) according to the type of praise!

### Theories about intelligence (i.e., fixed vs. malleable)...

Influence the way people approach and interpret praise; thus, reinforcing the existence of a connection between intelligence beliefs and achievement.

### Conventional wisdom...

May be to criticize the behavior, not the child, lest children learn to label themselves negatively.

### The conventional wisdom for praise...

IS THE OPPOSITE: The more children are labeled as *smart*, the greater will be their enjoyment of and motivation for achievement.

## The Problem...

...when offered a new opportunity, will they demonstrate:

Eagerness toward challenge, at the risk of revealing a deficiency?

Or, a preference to perform well and feel content about being labeled as *smart*?

## *The effects of praise on students who are complimented for being smart...*

**Obstacles represent low ability** to a student who holds an Entity Theory, eliciting:

- Avoidance of challenging learning tasks
- Gravitation toward easier tasks
- Affirmation for positive outcome of prior experiences
- Aversion toward negative results

## *Exploring praise -- under the separate circumstances of failure and success...*

*The effects of praise for ability (i.e., intelligence)*  
vs. *The effects of praise for hard work (i.e., effort)*

### **Ability praise:**

- Impedes a *can-do* attitude
- Reduces self-esteem
- Encourages vulnerability, fed by easy success and failure

...In studies, participants who were Entity theorists acquired the tendency to judge intelligence based on performance, even beyond the diagnostic task of a specific study.

...The effects of the contrasting forms of praise continued, even post-setback.

## *To recap...*

### **Motivation is a dynamic quality, not one that is quantifiable!**

(Contemporary vs. Traditional theories)

### **The Social Cognitive Model of Motivation – emphasizes the importance of understanding:**

- **How and Why** students are motivated to achieve
- That students can be **motivated in multiple ways**

*Although praise for intelligence is not the worst thing that may happen to a child, these findings strongly suggest that better alternatives exist. When children perform well, the urge to reinforce how good, talented, or smart they are seems irresistible. Also, it might be difficult to know how to show approval and admiration in ways that are more productive.*

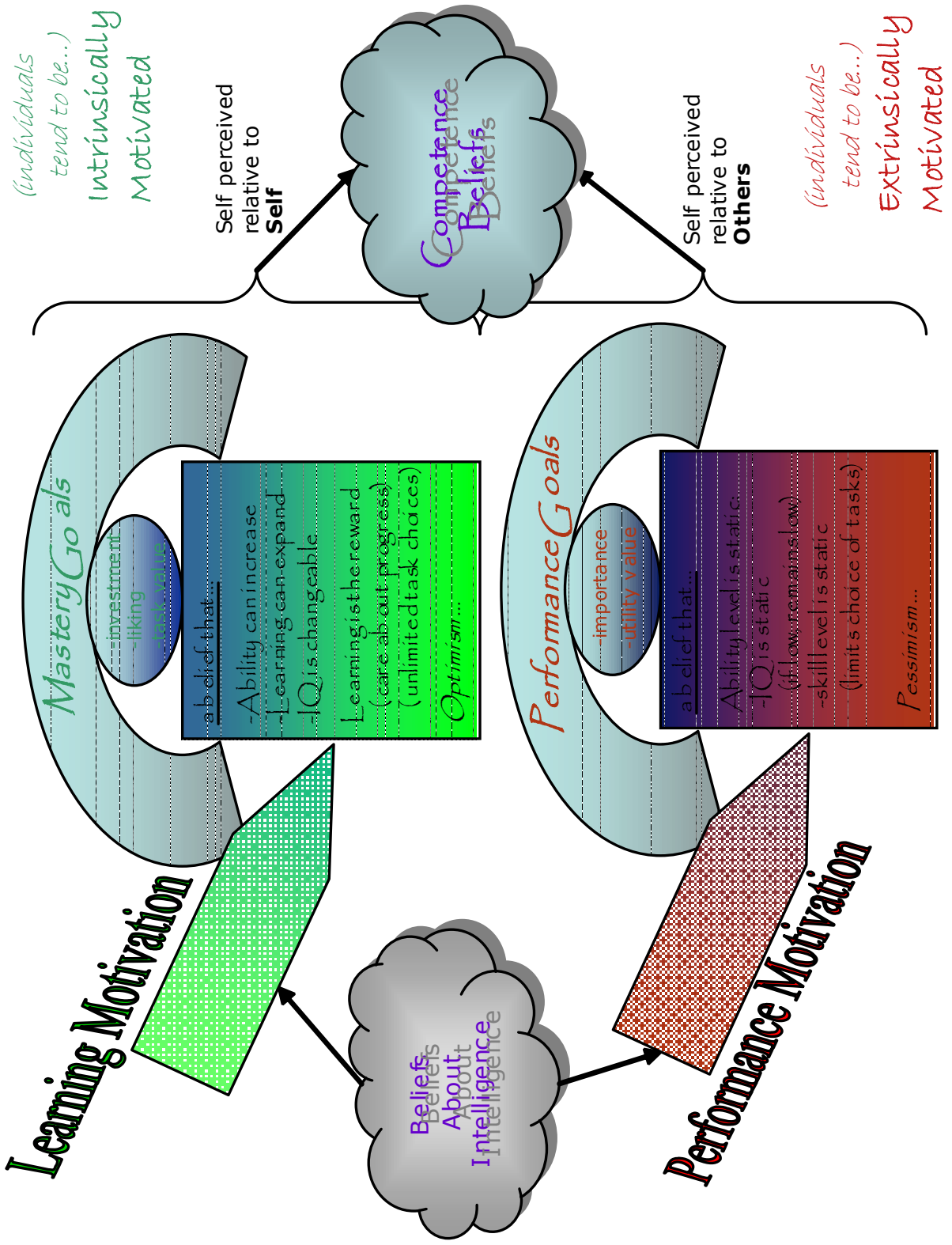
*However...*

### **Intelligence Praise – fosters a theory of *fixed intelligence*, a belief associated with *vulnerability*!**

Ability praise seems to ignore the essence or merit of the accomplishment and appears to appreciate work when it reflects ability.

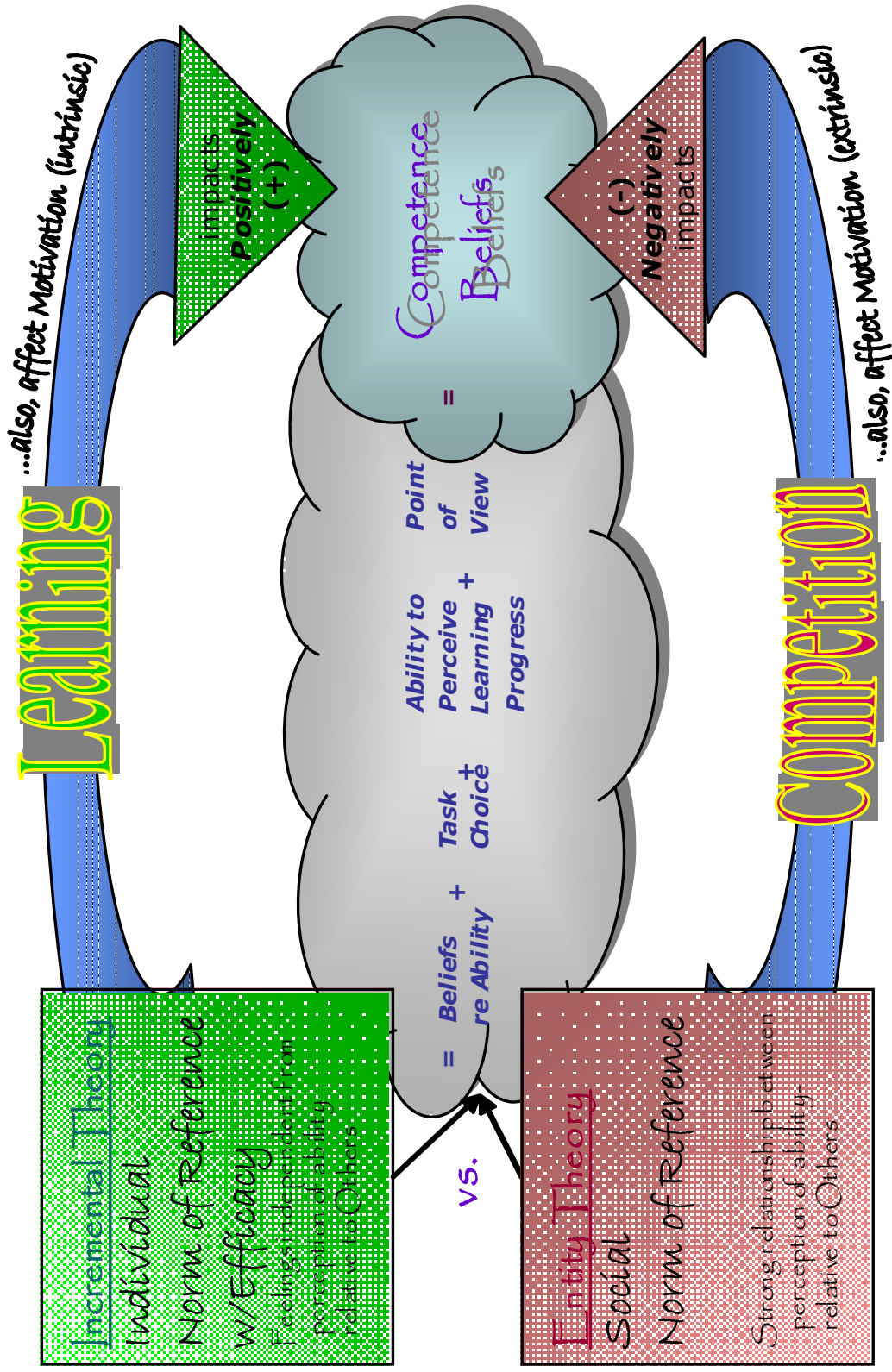
### **Effort Praise – in sharp contrast – promotes a desirable outcome!**

Effort praise is a way that accomplishment may be better discerned and recognized, due to its focus on interests, creativity, strategies, concentration, methods, decision-making, speculation, and reflection. Effort praise shows more appreciation of a child's accomplishments and capacity, separating "the deed from the doer."



# in the classroom

... Norms affect Learning Motivation & Competence Beliefs



## The Significance of Beliefs about Intelligence:

### *What's the big deal?*

### *A student's theory about intelligence predicts real world achievement!*

**A student's theory of intelligence is more important than confidence in intelligence**  
 – regardless of previous success – even in same type of situation.

*The belief in Entity Theory is tricky* – because high confidence in intelligence may not prevent the Helpless Response.

#### Failure...

- Swamps success – it is what's recalled, regardless of truth
- Is equated with *being* a failure – personal inadequacy
- Elicits a helpless response – negative consequences to the self/ impairs ability to use mind
- Translates into inadequacy

#### If intelligence is believed to be *fixed*...

Failure is made into a measure of intelligence.

School achievement is limited.

Limits the achievement of personal goals

– ALL valued, long-term goals involve obstacles – this belief compromises pursuit

Success is not final, failure is not fatal:  
 It is the courage to continue that counts.

-Winston Churchill

## Intelligence Beliefs/Theories:

### *Predict goal choices...*

#### Entity Theory:

- Performance goals provoke Helpless Response, when failure encountered
- Much time spent worrying about ability to solve – not enough time solving
- Response to environment – if more challenging, perceived as difficult – setback – more challenging also perceived as more telling (experiencing greater defeat as time goes by)

*Students who arrive at middle school believing in fixed intelligence are at a disadvantage.*

Decline in class standing (despite high confidence in intelligence – does not prevent helplessness)

### *Affect the ability to cope effectively...*

One's capacity to cope with challenge affects ability, from intellectual and emotional standpoints.

### *Are self-defeating...*

#### Entity theorists tend to:

Make choices that do not support increasing intelligence –  
 interest in areas of low proficiency, even when after removal of self-evaluated obstacle  
 Perhaps not fully admit/confront deficiency –  
 or do not believe good enough to accomplish removal of obstacle,  
 let alone demonstrate performance ability relative to goal

**CRITICAL TO PERFORMING WELL IN THE FUTURE!**

### *Perceptions about effort...*

*Entity theorists never come to value effort – goal is to minimize effort because:*

- It represents the lack of ability or intelligence, even though still want to perform well.
- Little faith in effectiveness of effort, plus it's a sign of low ability –

**THIS CREATES SIGNIFICANT CONFLICT– disharmony with learning!**

### *Students who hold an Entity Theory believe that the results of performance goal task...*

Not only represent present skill, how smart they are in general, at present –

Also, indicated how smart they will be in the future – indication of permanent intelligence

***Wouldn't you be afraid of failure if each intellectual task confronted could tell you how smart you are now and would forever be?***

### ***Social Goals...***

*Fixed Trait belief – promotes interest in:*

- Validation
- Courting status and approval
- Avoiding rejection

**The difference in attributions between theories:**

*Entity* – social incompetence attribute used more often  
*“I am not so good at making friends.”*

*Incremental* – used significantly less often

*The model that explains the Helpless Responses to failure, in achievement situations, also explains the Helpless Response to rejection in social situations – increasing vulnerability.*

**From studies on the impact of social rejection on invocation of the Helpless Response:**  
 (Goetz & Dweck, 1980)

Students given performance goals:

- Revealed less about themselves
- Were more likely to question whether they are perceived as likeable
- Were not as good at making friends
- Were perceived as ‘too different’ (as endorsed by performance goal group)
- Did not try hard enough (as endorsed by effort group)
- When focused on performance goal in social situation, interpreted as an evaluation of their social skills.

Students given effort goals:

- Revealed more about themselves
- Were more positive
- When focused on learning goal in social situation, displayed more mastery-goal response to rejection...

## ***Beliefs about intelligence INFLUENCE OTHER BELIEFS...***

*Our ideas... How we think, feel, act in achievement situations also hold promise for helping understand how to think, feel, and act in social relationships. (Knee, 1998)*

### **Entity vs. Incremental theorists:**

- Approach relationships in very different ways
- Respond differently to challenges and setbacks

## ***What do students, parents, teachers believe about...***

### **Destiny vs. Growth:**

(Do teachers do this?)

*“It was meant to be” or “if it’s meant to be...” –*

*With negative events, a coping strategy – likely to disengage from relationship or problem.*

vs. *Growth –*

*A more active coping strategy is to solve the problem, strengthen relationships, do something about it, learn from mistakes.*

### **Judging Others:**

(Do teachers do this?)

*As with judging one’s self –*

- Affects the way see and react to failures of self and those of others
- Far more extreme ratings of others

*Entity intelligence believers - judgmental (bad, mean, nasty) on more global traits*

- When bad behavior observed, attributed global negative labels
- Also, quicker to attribute positive label
- More rapid judgments of others’ intelligence
- Significantly, attribute more global traits to behaviors (both ‘good’ and ‘bad’ person)
- More likely to draw conclusion about the kind of person they are – good or bad
- More likely to attribute behavior as indicative of goodness or badness – singular behavior indicates character



## ***Do intelligence beliefs cause judging?***

### *Entity intelligence believers:*

Make significantly stronger trait judgments and predictions from present behavior.

(Chiu, Dweck, Tong, & Fu, 1997)

Believe that traits are easy to judge.

(Sorich & Dweck, 1996)

Are less sensitive to new/contradictory information, and may even try to avoid it.

(Planks & Dweck, 1997)

Believe they are judging permanent traits that reliably express accuracy.

## **Trait-based Judgments:**

### ***The belief that traits are innate...***

(Do teachers do this?)

Significant differences –

*Entity intelligence believers* **agreed** and *Incremental believers* **disagreed** that:

“Each person has a basic character, and you can tell what kind of person someone is even by the details of their behavior or appearance.”

“A single act often tells you a lot about a person’s fundamental character.”

“It’s fairly easy to tell what kind of person someone is by observing them on one or two occasions.”

Beliefs about the importance assigned to heredity and environment:

*Entity* – traits (i.e., intelligence) thought to be more innate

*Incremental* – traits thought to be more of a result of experience

(Levy & Dweck, 1996)

### **KEY POINT:**

Even in young children, views of traits influence what students think they are capable of learning.  
(Heyman & Gelman, 1997)

### ***Beliefs about the potential to change...***

(Do teachers do this?)

*Incremental* theory is defined by the belief in the potential for personal change.

*Entity* theory is defined by the belief that basic change is not a real possibility.

### ***Beliefs about what should happen to a wrongdoer...***

Study results indicate that –

Both would take action – both agree with the fact that wrong had been committed...

However...

*Entity* – none would try to educate

Vented anger, make him pay, get higher level to force right behavior,

*“I think that person is a jerk, and I would tell him.”*

*“I’d go to the principal first thing in the morning...”*

*Incremental* – more likely educate wrongdoer – even try to get them to undo deed

Grant wrongdoer capacity to understand wrong and rectify it

### ***Reactions to being victimized...***

*Entity* – focus on punishment and revenge, significantly more likely to harbor negative/ill wishes

*“fantasize about how miserable their life would be”*

*“wish them a real bad life”*

*“try to hurt if opportunity came along”*

goal – *“punish for my hurt and loss”*

*Incremental* – focus on understanding and forgiving, educating

*“I would try to understand why... try to forgive them”*

goal – educate and how to improve...

(This was the least endorsed solution of Entity believers.)

## ***Beliefs about the purpose of punishment...***

*Entity* – punish the wrongdoer (prison)

*Incremental* – is or should be to rehabilitate,  
develop potential for leading a moral/productive life

**KEY POINT:** As a result of failure:

*Entity intelligence believers* –

- Give up on themselves
- Condemn
- Lose self-esteem
- Show a depressed state,
- Lose confidence in future performance
- Also, give up on others

*Incremental believers* –

- Failures as problems to be solved – for themselves and for others
- People can make mistakes, follow wrong paths, do harm
- BUT they are capable of going beyond, changing

## ***Beliefs and stereotyping...***

(Do teachers do this?)

*Entity theory* causes stereotyping by ethnic group and by occupational group.

After reading biased article (Levy, 1998), those exposed to Entity Theory:

- Agreed significantly more with stereotyped traits
- Regarded differences as evidence of deeply rooted characterological truths

**KEY POINT:**

It is not wrong to recognize differences; however, the danger is when strong conclusions are drawn/held, based upon little evidence. The Entity belief appears to raise the chances of this happening.

## Vulnerability – In Young Children:

Early beliefs are of *invulnerability* – younger children:

- Do not have theories about themselves and others
- Do not display helpless reactions when faced w/failure
- Forge ahead, despite errors...

*Perhaps intelligence is not the right context - young children are not consumed by beliefs about intelligence.*

*However... Young children do grapple with...*

### **Goodness vs. Badness...**

#### **The Helpless Response is linked to *badness*.**

Children feel they're bad when encountering failure or criticism.

As with **Entity Theory**, with regard to intelligence, *badness* thought to be a stable trait.  
(Smiley & Dweck, 1994)

*For example: Puzzle work (Herbert & Dweck, 1985)*

*Prior to work, kids were asked if they thought they were good at puzzles – all were enthusiastic regarding their ability.*

When asked why a previously solved puzzle was chosen...

**Persistence** – measured by the desire to go back to unsolved puzzles

*"To see if I can try it again."*

*"Because I didn't hardly do any of them."*

**Non-persistence** – measured by the desire to go back to solved puzzles

37% made non-persistent choice – one they had already solved  
(not inhibited about re-solving the same puzzle)

*"Because it was the easiest"*

*"Because I already know how to do it"*

**Non-persistence (self-talk – when asked to speak out-loud while working):**

*"I can't do it. These are too hard."*

*"There's a lot of pieces. I bet I can't make this puzzle."*

*"I can do easy puzzles, but I can't do hard ones."*

*"Don't think I'll be able to get this puzzle at all."*

*"You shouldn't have mixed up the pieces because then I'll never know how to do it."*

*"Did you ever see Star Wars? That's my favorite movie."*

What if given more time?

**Most persistent children chose an incomplete puzzle.**

**Many non-persistent children chose the same puzzle.**

## *Expectations of future success and explanations of their failures...*

“If you tried very hard... do you think...”

“If you had more time... do you think...”

### **Persistence:**

**Majority of mastery-oriented children were sure they could solve – given more time**

### **Non-persistence:**

**Lower expectations of ability to solve –**

Even with more time

Even before failure

Expressed more negative emotions & judgments

## *Helplessness and Expectations of Punishment...*

*For example: Role-play – mom calling dad at work...*

(Heyman, Dweck, & Cain, 1992)

**Those who demonstrated persistence role-played little negative:**

*“She did the puzzles beautiful.”*

*“He worked hard but he just couldn’t finish them. He wants to try again later.”*

*“You did the best you could. Come sit on my lap.”*

*“He didn’t work hard enough. He can try again after lunch.”*

**50% role-played criticism:**

*“She didn’t finish the puzzles. I spanked her but she keeps on hiding.”*

*“You better do nothing but sit in your room.”*

*“He did one good one and three bad ones. He’s punished.”*

*“He’s punished because he can’t do them and he didn’t finish.”*

*“Daddy’s gonna be very mad and spank her.”*

**Helpless Response to criticism:**

**For many, a small mistake fine, until criticized –**

**39% responded to criticism by lowering evaluation of their product after criticism (when, previously, were pleased)**

- Helpless
- Paralyzed
- Seen as insurmountable
- Could not come up w/a solution
- Role-played crying or going home to throw away work
- Acted as though being judged, and that the judgment was final

## *A theory of badness...*

### *Significant relationship between the Helpless Response and a belief in fixed badness –*

In a study that informally followed children from two studies for 2 years –

*Significant stability in beliefs about badness – and in helpless- vs. mastery-oriented response to failure.*

*All young children intrigued by goodness and badness – permeates games, stories, questions.*  
Erikson, 1950 saw as critical to self-concept...

#### *Mastery-oriented children:*

- Have a sense that they are good
- Setbacks and criticism don't disrupt that sense of goodness
- Affirm their goodness, in spite of errors

#### *Helpless children:*

- Have a sense they are good, until something happens
- Failure tells them they're bad or unworthy

(Kamins & Dweck, 1998)

#### **KEY POINT:**

This stability makes it even more important in understanding where beliefs and patterns come from, and how they can be influenced.

## **Vulnerability vs. Hardiness:**

### *A contingent sense of goodness...*

#### *Might a Helpless Response arise when we are judged?*

When parent/teacher **react in a judgmental way:**

Children may not be able to distinguish between task errors and conduct errors.  
The praise for ability and goodness will not counteract this!

## Origins of Vulnerability:

Vulnerability can result from the type of praise and criticism received – whether it is

- **Wrong way** vs. **Right way**
- **Ability** vs. **Strategy**
- Reflection on **child as a whole** vs. **task** (**person-oriented criticism** vs. **sharing of strategy**)
- ***The question is... As a result of the praise or criticism, is the student able to generate constructive solutions to a problem?***

*For example: When asked about wrong answers on homework – interpretation:*

*Person-oriented feedback – the person is bad*

*Trait-oriented feedback -- raises efficacy and boosts performance, while succeeding*

*However... after **failure**:*

*BOTH Person- and Trait-oriented praise recipients are –*

*Most vulnerable to the effects of failure*

*Most deeply praised were those most affected by failure and the most helpless*

## ***What kind of praise should be **avoided**?***

**AVOID Person-oriented or Trait-oriented praise –**

*“You’re a good boy/girl.”*

*“I’m proud of you.”*

*“You’re very good at this.”*

## ***What does Outcome-oriented praise sound like?***

Somewhere in the middle...

*“That’s the right way to do it.”*

## ***What’s **most preferable**?***

**USE Strategy-oriented or Effort-oriented praise –**

**It’s the most mastery-oriented.**

**Recipients rated themselves more positively.**

*“You really tried hard.”*

*“You found a good way to do it; could you think of other way that would also work?”*

## **OVERALL: What to do...**

### **Understand which theory of intelligence is held (by students, parents, and teachers).**

To determine this:

Listen... to self-talk, explanations, responses

Observe... behavior, actions

### **Understand the problem caused by students' demonstration of intelligence over and over**

*(Even with good results – speed, accuracy, perhaps little effort compared to peers...)*

It reinforces performance goals, which may temporarily elevate confidence...

BUT... It does not encourage mastery over time (prolonged effort).

Conversely, it encourages the immediate demonstration of intellectual ability.

### **Endorse the belief that intelligence, ability, and skills can be changed and continually developed.**

### **Focus on developing intelligence (it assumes that it is changeable and not fixed).**

How? **Promote learning goals!**

### **Represent the meaning of failure ONLY as a present lack of skills/strategies:**

Student/teacher/parent concern should be about getting smarter.

Problem solving (foster mastery-oriented response):

How? **Praise effort!**

**Praise strategies!**

**Give students leeway, time to acclimate- so self-judgments of intelligence may be put on hold** – otherwise, they make premature conclusions about their chances of doing well in a new environment.

Refine... **feedback, reactions**

Reinforce... **the desire for challenge**

Retrain... **intelligence beliefs** (i.e., conduct Attribution Training)



## ***OVERALL: Understand what failure means and represents to each student...***

*Entity Theory student* - How much larger failure looms for students in a Helpless Pattern.  
*Incremental Theory student* - Though class standing may not be highest, nor their confidence in their intelligence, during times of change/transition/challenge/uncertainty, it tends to rise.

### ***Do not pit learning goals against performance goals – when choice of learning task means confusion, risk, errors...***

*The Entity Theory student:*

Prefers **performance goals** (Stone, 1998)

(However, when not pitted against each other, these students are as likely to prefer either goal, just as a student who holds the Incremental Theory.)

Would rather **validate intelligence** than risk invalidating it by trying to learn something different.

With a performance goal, **is more vulnerable**, because they may focus on:

- Negative consequences
- Possibility of failure
- The need to avoid

(Elliot & Church, 1997; Elliot & Harackiewicz, 1996; Middleton & Midgley, 1997)

*The Incremental Theory student* treats difficulty as natural – **welcomes challenge!**

### ***When introducing new concepts...***

For all students, may be new or confusing – they may not understand connection/relationship to prior learning:

*Helpless Pattern* responds with self-doubt, disruption, may decide prematurely that they aren't good in any subject:

- Particular disadvantage in Math and Science, where new concepts constantly introduced.
- Hampers learning of new materials.
- May not present because not being challenged – if still relatively easy, able to avoid difficulty.

*Present challenges early* – so self-doubt and impairment not perpetuated w/increased challenges and choices.

*Use/Reinforce achievement goals* – assist with students' selection of goal type –

theory of intelligence causes the focus on either **performance goals** or **learning goals**.

## ***OVERALL: Understand the meanings of success and effort...***

### **The Meaning of Success within an **Entity** Framework:**

Past messages have been that students should try to prove they are smart –

**A better message is *what it means to be smart and how to get smarter.***

Students need not be confident that they have a certain level of smartness,  
or that it is greater than others,

**Students do need confidence that *they, or anybody, can learn,*  
*when they apply effort and strategy.***

### **The Meaning of Effort within an **Entity** Framework:**

*Understand that the need for **effort** can be perceived and portrayed as negative.*

(i.e., having to work hard means you're not very good at it,  
or, if you're good at something, you shouldn't need effort.

***Do not connect the need to exert effort with low ability when the  
student's view of ability is that it is fixed!***

*Understand **Entity Theory** logic –*

- *If you withhold effort and do poorly, you can still think highly of your ability because you could have done well, had you applied yourself.*
- *If, somehow, you happen to do well anyway, this is extreme verification of your intelligence.*
- This sabotages long term goals for the sake of short term judgments

*Reinforce that **effort** is one thing that brings meaning to life –  
it means that:*

You care!  
Something is important to you!  
You are willing to work for it!

(This is a challenge, because it runs contrary to many of our engrained beliefs and lessons  
i.e., “Never confuse movement with action.” Ernest Hemingway)

*Show the results which can be produced through effort –*

Stretching abilities in unforeseen ways.  
Surprising yourself!  
Attaining skills admired in others but thought to be beyond reach.

***Demonstrate the effectiveness of effort!***

## Most students do have a goal of learning –

*Only those willing to undergo difficulty for the sake of learning truly have learning goals...*

- Do not establish goals/recognition that reinforce performance vs. learning
- Must accept the display of ignorance, confusion, errors
- Avoid goals that prove what is known (what good at)

## Attribution Training:

*Intelligence beliefs can be influenced (both positively and negatively)...*

Surprisingly easy – therefore they are malleable!

*Influencing the beliefs of poor performers:*

Poor performers who are influenced through exposure to **Incremental Theory** –  
73% chose to accept help that improves their skills.

vs.

Poor performers who are influenced through exposure to **Entity Theory** –  
only 13% chose to accept tutorial that would improve their skills.

*Intelligence beliefs/theories/attributes may be engrained...but can be (re)trained!*

Students are influenced by the (ineffective) Entity Theory beliefs of others (parents, environment, teachers) –

Even gifted students (determined by IQ) – who constantly prove their (own) intelligence – will alter a choice of being challenged and love of learning in favor of the validation of intelligence, **if they hold a belief of fixed intelligence.** (Aronson & Fried, 1998)

## ***Incremental Theory must be reinforced / trained!***

*Example: Stanford University experimental class, students were retrained to hold an Incremental Theory (who were evaluated as being Entity believers)*

- All students participated – not only the identified, Entity theorist population.
- Messages were conveyed consistently and reinforced: i.e., participants were told that every time challenges are experienced, or mental effort is exerted, something new is learned; that a person's brain grows neurons, and they become smarter.
- Information was backed by scientific explanations, researchers' testimonies, neurological graphics, research findings.
- Lectures stressed that intelligence can be cultivated.
- Assignments were designed, specifically to reinforce (college student participants wrote letters to grade school students, teaching them their new view of intelligence and how it can expand, with effort). *These letters reflected their new, Incremental Theory, beliefs.*

## ***Traditional success training is not the answer!***

### ***What is needed?***

### ***Training that attributes a new meaning to failure—failure is not negativ***

Even after traditional success training, failure is still interpreted as a lack of ability.  
With attribution retraining, better post-failure results.

*Why? Training in success does not help students to cope with failure...*

- *Despite showing confidence and enthusiasm, failure is interpreted as an indictment of ability and elicits the Helpless Pattern / Response.*
- *In contrast, training that gives a new meaning for failure helps students cope far more effectively... Students are more mastery-oriented.*

## ***With Entity Theory, confidence and success are not enough.***

*The Helpless Response* – is not just lack of success or confidence:

- Working within a framework where failure is an indictment of self
- Framework must be addressed before mastery-oriented responses can be shown
- Just building up within same old framework not enough – perhaps ok short-term
- Does not breed desire for challenge, or fortification against failure

*Within an Entity Theory, vulnerabilities remain –*  
(unfortunately, so much of what is typically done is within the Entity Theory...)



### ***What is the key?***

*It is common in our society to praise students for performance on easy tasks – tell them they are smart when they do something quickly and perfectly...*

When we do this, **we are not teaching them to welcome challenge and learn from errors...** We are teaching them that easy success means that they are intelligent and, by implication, that errors, or the need for effort, means they are not.

*What should we do if students have had an easy success and come to us expecting praise?*

**Apologize for wasting the student's time, and direct them to something more challenging...**

***Teach that meaningful success requires effort!***

### ***THEORIES, GOALS AND BEHAVIOR IN ACHIEVEMENT SITUATIONS***

Theory of Intelligence	Goal Orientation	Perceived Present Ability	Behavior Pattern
Entity (Intelligence is fixed)	Performance (Goal is to gain positive judgments/avoid negative judgments of competence)	High  Low	Mastery oriented (Seek challenge; high persistence) Helpless (Avoid challenge; low persistence)
Incremental (Intelligence is malleable)	Learning (Goal is to increase competence)	High or low	Mastery oriented (Seek challenge that fosters learning; high persistence)

Adapted from "A social-cognitive approach to motivation and personality," by C. Dweck and E. Leggett, 1988, *Psychological Review*.

### ***GENERALIZATION OF MODEL TO EXTERNAL ATTRIBUTES***

Theory	Goal Orientation	Predicted Pattern
Entity (Attributes of people and world are fixed or uncontrollable)	Judgment (Goal is to make positive or negative judgment of attributes)	Behavior: Low initiation of and persistence toward change  Cognition: Rigid, oversimplified thinking  Affect: Evaluative affect such as contempt
Incremental (Attributes of people and world are malleable)	Development (Goal is to understand and improve attributes)	Behavior: Mastery oriented goal pursuit  Cognition: Process analysis  Affect: Empathy

Adapted from "A social-cognitive approach to motivation and personality," by C. Dweck and E. Leggett, 1988, *Psychological Review*

### ***PERCEPTIONS OF CONTROL AS A FUNCTION OF THEORY***

Theory	Perceived Attribute Level <sup>a</sup>	Perceptions of Control over Events
Entity (attributes are fixed or uncontrollable) <sup>a</sup>	High Low	Control is possible Control is not possible: Outcomes will be negative or determined by chance
Incremental (attributes are controllable) <sup>b</sup>	High Low	Control is possible Control is possible although requiring more time and effort

<sup>a</sup> Perceived level of the attribute that is relevant to outcome.  
<sup>b</sup> Assumes a generalized theory, for purposes of simplicity.

Adapted from "A social-cognitive approach to motivation and personality," by C. Dweck and E. Leggett, 1988, *Psychological Review*.

### ***COGNITIVE AND AFFECTIVE MECHANISMS OF DEBILITATION AND FACILITATION IN THE FACE OF DIFFICULTY***

Performance Goal: Debilitating Factors	Learning Goal: Facilitating Factors
<ol style="list-style-type: none"> <li>1. Loss of belief in efficacy of effort, given low ability attribution</li> <li>2. Defensive withdrawal of effort: Effort confirms low ability judgment; inverse rule creates conflict between task requirements and goal</li> <li>3. Attention divided between goal (worry about outcome) and task (strategy formulation and execution)</li> <li>4. Negative affect can interfere with concentration or can prompt withdrawal</li> <li>5. Few intrinsic rewards from effort (or effort progress) to sustain process</li> </ol>	<ol style="list-style-type: none"> <li>1. Continued belief in efficacy of effort: Effort self-instruction instead of low ability attribution; positive rule emphasizes utility of effort</li> <li>2. No defense required: Effort is consonant with task requirements and goal</li> <li>3. Undivided, intensified attention to task that directly serves goal</li> <li>4. Affect channeled into task</li> <li>5. Continuous intrinsic rewards for meeting challenge with effort</li> </ol>

## ***MOTIVATIONAL GENERALIZATIONS AND DESIGN PRINCIPLES***

Generalization	Design Principle
Adaptive self-efficacy and competence beliefs motivate students.	<p>Provide clear, accurate feedback regarding competence and self-efficacy, focusing on developing competence, expertise, and skill.</p> <p>Design tasks that offer opportunities to be successful with challenge.</p>
Adaptive attributions and control beliefs motivate students.	<p>Provide feedback that stresses the learning process, including importance of effort, strategies, potential self-control of learning.</p> <p>Provide opportunities to exercise some choice and control.</p> <p>Build supportive and caring personal relationships in the community of learners in the classroom.</p>
Higher levels of interest and intrinsic factors motivate students.	<p>Provide stimulating and interesting tasks, activities, and materials, including some novelty and variety in tasks and activities.</p> <p>Provide content material and tasks that are personally meaningful and interesting to students.</p> <p>Display/ model interest and involvement, in content and activities.</p>
Higher levels of value motivate students.	<p>Provide tasks, material, and activities that are relevant and useful to students, allowing for some personal identification with school.</p> <p>Focus on importance and utility of content and activities.</p>
Goals motivate and direct students.	<p>Use organizational and management structures that encourage personal/ social responsibility; provide safe, comfortable, predictable environment.</p> <p>Use cooperative and collaborative groups to allow opportunities to attain both social and academic goals.</p> <p>Classroom discourse should focus on mastery, learning, and understanding course and lesson content.</p> <p>Use task, reward, and evaluation structures that promote mastery, learning, effort, progress, and self-improvement standards and less reliance on social comparison or norm-referenced standards.</p>

*Note.* Adapted from "A Motivational Science Perspective on the Role of Student Motivation in Learning and Teaching Contexts," by P. R. Pintrich, 2003, *Journal of Educational Psychology*, 95(4), p. 672.



## **DEFINITION OF TERMS:**

**ATTRIBUTION:** an individual's desire to understand why events occur (i.e., experiences of failure or success), which elicits an analysis of the situation, to determine its cause(s) (Weiner, 1985).

**COMPETENCE BELIEFS:** the judgment of capabilities with regard to specific tasks, based on actual accomplishment, success, or failure (White, 1959); the need for competence refers to the desire to master and be competent in interactions with the environment (Deci & Ryan, 1985).

**EXPECTANCY:** based on beliefs in ability, capability, and the possibility of doing well, students are more likely to be motivated in terms of effort, persistence, and behavior than those who believe they are less able or those who do not expect to succeed (Bandura, 1997; Pintrich & Schunk, 2002).

**EXTRINSIC MOTIVATION:** a wide variety of behaviors in which the desired goal or reward for performance of the task is "typically unrelated to the learning, itself, and thus are likely to draw attention away from the inherent benefits of learning" (Covington, 2001).

**INTRINSIC MOTIVATION:** "behavior which is motivated by one's need for feeling competent and self-determining" (Deci, 1975); and "that which compels a person to do something, when nothing is required, based on his or her desire to seek and conquer challenges. Intrinsic motivation is fueled by one's desire for: (a) autonomy (e.g., controlling decisions); (b) competence (e.g., doing things that promote success); (c) belonging and relatedness (e.g., feeling part of something larger); (d) self-esteem (e.g., feeling good about who one is); and (e) involvement and stimulation (e.g., finding pleasure in what one does; Raffini, 1996).

**MASTERY GOALS (ALSO KNOWN AS LEARNING GOALS):** in the domain of intellectual achievement, the type of goal in which individuals are concerned with increasing their competence; mastery goals orient the student toward learning and understanding, developing new skills, and a focus on self-improvement using self-referenced standards (Dweck & Leggett, 1988).

**PERFORMANCE GOALS:** in the domain of intellectual achievement, the type of goal in which individuals are concerned with gaining favorable judgments of their competence; performance goals represent a concern with demonstrating ability, obtaining recognition of high ability, protecting self-worth, and a focus on comparative standards relative to other students and attempting to best or surpass others (Dweck & Leggett, 1988).

**SELF-DETERMINATION:** the integration of both needs and social-cognitive constructs, based on three basic needs: competence, autonomy, and relatedness (Deci & Ryan, 1985).

**SELF-EFFICACY:** the attribution of success to abilities or traits (i.e., an individual who attributes success to internal ability has been classified as being high in self-efficacy; Mueller & Dweck, 1998).

***ACADEMIC ATTITUDES – INSTRUMENT LIST***

<b>Instrument</b>	<b>Age Level</b>	<b>Type</b>	<b>Admin. and Scoring</b>	<b>Reliability</b>	<b>Validity</b>
<b><i><u>CHILDREN'S ACADEMIC INTRINSIC MOTIVATION INVENTORY, GOTTFRIED</u></i></b>	Elem & MS	Subject	3	3	2
<b><i><u>MOTIVATED STRATEGIES FOR LEARNING QUESTIONNAIRE, PINTRICH</u></i></b>	MS	Subject	3	1	1
<b><i><u>SCHOOL ACHIEVEMENT MOTIVATION SCALE, CHUI</u></i></b>	Elem & HS	Teachers	3	3	3
<b><i><u>CLASSROOM GOAL ORIENTATION SCALE, DUDA</u></i></b>	HS	Subject	3	2	2
<b><i><u>CLASSROOM BELIEF SCALE, DUDA</u></i></b>	HS	Subject	3	2	2
<b><i><u>CLASSROOM SATISFACTION SCALE, DUDA</u></i></b>	HS	Subject	3	2	2

## **ACADEMIC ATTITUDES – INSTRUMENT DESCRIPTIONS**

### **ACADEMIC INTRINSIC MOTIVATION IN ELEMENTARY AND JUNIOR HIGH SCHOOL STUDENTS (JOURNAL ARTICLE)**

<b>INSTRUMENT:</b>	<b>Children's Academic Intrinsic Motivation Inventory (CAIMI)</b>
<b>RATINGS:</b>	Administration and Scoring 3 Reliability 3 Validity - 2
<b>AUTHOR:</b>	Adele Eskeles Gottfried
<b>JOURNAL:</b>	Journal of Educational Psychology, 77, pp. 631-645, 1986
<b>PUB. INFO.:</b>	Psychological Assessment Resources, Inc., Odessa, FL 33556
<b>ABSTRACT:</b>	<p>The Children's Academic Intrinsic Motivation Inventory (CAIMI) is based upon a theoretical model of academic motivation conceived by Adele Gottfried, the author of the test. Intrinsic motivation is conceptualized as being specific for each primary subject area. Each specific scale is comprised of 24 Likert-scale items and two forced-choice items; the general scale is made up of 18 Likert-scale items. The items are presented in a rather unusual format. There are 44 questions; the 26 relevant to the specific scales each require four responses, one for each content category. The items appear to be understandable for students at least in the fourth grade, and scoring is surprisingly simple, requiring no templates or scoring keys. The author has developed an economical and simple method of obtaining a substantial amount of information. Reliability has been demonstrated, with no differences found as a function of race, sex, or IQ. CAIMI scores were significantly correlated with achievement test results on matched subject areas. Measured intrinsic motivation was related to achievement, but the two variables were largely independent. Math CAIMI scores were especially strongly related to math achievement. CAIMI scores were found to be negatively correlated with measures of subject-related academic anxiety; thus, intrinsic motivation is inversely related to anxiety within each subject area. The General CAIMI score was significantly correlated with the children's ratings of their academic competence. Teachers' ratings of a child's intrinsic motivation were significantly related to CAIMI Reading, Math, and General Motivation. CAIMI Reading and Math scores were also correlated with these areas of achievement after controlling for IQ. Studies of convergent and discriminant validity indicate these scales provide a fairly good measure of a child's academic ability, thoughts regarding self efficacy as it relates to school work, and teacher perception of a child's motivation. Academic intrinsic motivation also appears to be independent of intelligence and largely independent of achievement. The scales appear to be free of sex and racial bias, and should be fairly resistant to response sets. As part of a larger battery it may provide useful information regarding academically unsuccessful children.</p>
<b>REVIEWER:</b>	C. DALE POSEY, Licensed Psychologist, CME Psychology Consultants

***MOTIVATIONAL AND SELF-REGULATED LEARNING COMPONENTS OF CLASSROOM ACADEMIC PERFORMANCE (JOURNAL ARTICLE)***

<b>INSTRUMENT:</b>	<b>Motivated Strategies for Learning Questionnaire (MSLQ)</b>
<b>RATINGS:</b>	Administration and Scoring 3 Reliability 1 Validity - 1
<b>AUTHOR(S):</b>	Paul R. Pintrich; Elisabeth V. De Groot
<b>JOURNAL:</b>	Journal of Educational Psychology, 82, 33-40, 1990
<b>ABSTRACT:</b>	The authors here report findings related to the Motivated Strategies for Learning Questionnaire (MSLQ). They found that motivation is highly correlated to the use of cognitive strategies and academic achievement. Five scales along two dimensions emerged from a factor analysis. Related to motivational beliefs, the scales are: 1) Self-efficacy ("I'm certain I can understand the ideas taught in this course"); 2) Intrinsic value ("I prefer class work that is challenging so I can learn new things"); and 3) Test anxiety ("I have an uneasy, upset feeling when I take a test"). Related to self-regulated learning strategies, the scales are: 1) Cognitive use strategies ("When I study for a test, I try to put together the information from class and from the book"); and 2) Self-regulation ("I ask myself questions to make sure I know the material I have been studying"). There are a total of 56 items in this self-report measure, and items are rated on a 7-point Likert scale (1=not at all true of me, 7=very true of me). The motivational beliefs scales would, perhaps, be most useful in a character education program evaluation.
<b>CONTACT:</b>	Paul R. Pintrich, School of Education, University of Michigan at Ann Arbor, pintrich@umich.edu

***DEVELOPMENT AND VALIDATION OF THE SCHOOL ACHIEVEMENT MOTIVATION RATING SCALE (JOURNAL ARTICLE)***

<b>INSTRUMENT:</b>	<b>School Achievement Motivation Rating Scale</b>
<b>RATINGS:</b>	Administration and Scoring 3 Reliability 3 Validity - 3
<b>AUTHOR(S):</b>	Dr. Lian-Hwang Chiu Indiana University, Kokomo, lchiu@iuk.edu
<b>JOURNAL:</b>	Educational and Psychological Measurement, 57, 292-305, 1997.
<b>ABSTRACT:</b>	The author presents evidence of validity for a 15-item measure of achievement motivation. Teachers rate students on 15 behavioral descriptors on a five-point scale (always, frequently, occasionally, seldom, and never). The instrument items are correlated with 11 well-established achievement and psychological measures including the Iowa Tests of Basic Skills, the Coopersmith Self-Esteem Inventory, and the Test Anxiety Scale for Children.

***DIMENSIONS OF ACHIEVEMENT MOTIVATION IN SCHOOLWORK AND SPORT  
(JOURNAL ARTICLE)***

<b>INSTRUMENT:</b>	<b>Classroom Goal Orientation Scale</b> <b>Sport Goal Orientation Scale</b> <b>Classroom Belief Scale</b> <b>Sport Belief Scale</b> <b>Classroom Satisfaction Scale</b> <b>Sport Satisfaction Scale</b>
<b>RATINGS:</b>	Administration and Scoring 3 Reliability 2 Validity - 2
<b>AUTHOR(S):</b>	Joan L. Duda; John G. Nicholls
<b>JOURNAL:</b>	Journal of Educational Psychology, 84, 290-299, 1992
<b>ABSTRACT:</b>	<p>The authors investigated the relationship between task orientation and ego orientation with respect to motivation and beliefs about what constitutes success in academics and sports. The article contains six scales rated on a five point Likert-type scale (1=strongly agree; 5=strongly disagree). 1) Classroom Goal Orientation consists of 21 items along four dimensions: Ego orientation ("I feel really successful when I know more than other people"); Task orientation ("I feel really successful when what I learn really makes sense"); Work avoidance ("I feel really successful when I can goof off"); and Cooperation ("I feel really successful when my friends and I help each other figure things out"). 2) The Sport Goal Orientation is parallel to the Classroom Goal Orientation scale. 3) The Classroom Belief Scale consists of 20 items along four dimensions measuring beliefs about the causes of success: Deception ("People succeed if they are attractive and have the right clothes"); Motivation/Effort ("People succeed if they work really hard"); Ability ("People succeed if they are smarter than others"); and External Factors ("People succeed if teachers think they will do well"). 4) The Sport Belief Scale is parallel to the Classroom Belief scale. 5) The Classroom Satisfaction Scale is an eight-item scale measuring boredom and satisfaction or enjoyment. 6) The Sport Satisfaction scale parallels the Classroom Satisfaction Scale.</p>
<b>CONTACT:</b>	Joan L. Duda, Director, Sport and Health Psychology Laboratory, Purdue University, West Lafayette, IN, jduda@purdue.edu

Adapted from Character Education Partnership, Washington, DC 20036

[http://www.character.org/site/c.qwKUJhNYJrF/b.995163/k.B0F6/Academic\\_Attitudes.htm#CDP93](http://www.character.org/site/c.qwKUJhNYJrF/b.995163/k.B0F6/Academic_Attitudes.htm#CDP93)

**ADDITIONAL RESOURCES: TRAITS OF SELF-DIRECTED LEARNERS**

<b>TRAIT</b>	<b>RESEARCH</b>	<b>CLASSROOM IMPLICATIONS</b>
<b><i>Student Motivation and Achievement Motivation</i></b>	Anderman, 2004; Gottfried & Gottfried, 2004; Guthrie, Alao & Rinehart, 1997; Howse, Lange, Farran & Boyles, 2003; Lumsden, 1994, 1999	Challenging, but achievable, relevant assignments; conceptual theme instruction; choice in task/task accomplishment; mastery learning/outcome-based instruction; cooperative/collaborative learning; individual goal setting; accelerated learning; teacher modeling of positive behaviors; depth rather than breadth of topics.
<b><i>Goal Orientation</i></b>	Caraway, Tucker, Reinke & Hall, 2003; Dweck, 2000; Nichols, Jones & Hancock, 2003; Stefanou & Parkes, 2003	Type of assessment influences motivation; learner emotions/teacher instructional strategies influence student goal orientation; a higher general level of confidence increases student engagement in curriculum.
<b><i>Locus of Control</i></b>	Harlen & Crick, 2003; Miller, Fitch & Marshall, 2003	Learning goals rather than performance goals; at-risk students have a higher external locus of control.
<b><i>Self-Efficacy</i></b>	Bouffard & Couture, 2003; Pintrich & Schunk, 2002; Thomas, 1993; Zimmerman, 2002	Student demonstrates behavioral, cognitive, motivational engagement; teachers assist students to maintain self-efficacy beliefs; foster belief that competence/ability is changeable; motivational variables do not change much across subject matter; performance feedback improves independent learning.
<b><i>Self-Regulation</i></b>	Palmer & Wehmeyer, 2003	Students can develop self-regulation through problem-solving/goal-setting instructional activities.
<b><i>Metacognition</i></b>	Blakey & Spence, 1990; Ngeow & Kong, 2001	Students should plan, monitor, and evaluate their thinking processes – should engage in inquiry/problem-based learning that includes problem framing, data gathering, divergent thinking, idea generation, evaluating alternatives.

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## Chapter Summary

In most of the contemporary approaches to the study of motivation, researchers and psychologists considered: (a) competence (i.e., the desire to become competent, to appear competent to others, to feel competent, or even to avoid feeling or appearing incompetent), (b) self-theories (i.e., the beliefs about capabilities that form one's meaning system and impact his or her goals and coping patterns), or (c) social factors (i.e., the desire to work with friends and peers, to please parents, and to please the teacher). Although many of the factors that influence academic motivation have been explored, to this author, seemingly, few studies provided recommendations or suggestions for its improvement based on a teacher's influence or classroom practices. To support educators with a useful synthesis of how they may put theory into practice in the classroom, the author's examination and integration of some of the prominent social cognitive conceptualizations of motivation (i.e., self-efficacy, attribution theory, interest and intrinsic motivation, and achievement goal theory) are presented in the Instructional Booklet, shown on pages 54 through 103, and the Learning Motivation and Academic Achievement Models, shown on pages 75 and 76, each designed and developed by the author.



## Chapter 5

### DISCUSSION

To support all students, rather than citing the lack of motivation as a reason for lower than expected academic performance, the modified focus on learning motivation that this author described emphasizes that teachers and parents should not label students as motivated or unmotivated. Rather, a body of literature has shown that students must be motivated in order to succeed, academically, and that teachers can incorporate strategies and designs in which motivation is considered as an important element of their instruction and classrooms.

### Project Contributions

The goal of this project was to provide a useful means by which motivation might be increased and achievement improved, thereby shaping academic students' success. This project included a booklet, along with corresponding models, which the author designed to inform teachers of the ways in which student beliefs about the nature of intelligence might affect their academic achievement. This booklet and the models were created and developed by the author to serve as a guide for teachers in the informal assessment of intelligence beliefs, which they may use to shape academic achievement through the feedback and developmental actions that foster motivation and learning. At the discretion of the teacher, this booklet may be useful in other settings, as well: (a) in-services for teachers; (b) parent education meetings; and (c) directly with students.

## Conclusion and Implications

Based on the research reviewed in the construction of this project, the author recognized a powerful but illusive link between the beliefs held by a person about the nature of intelligence, motivation, and achievement. Traditionally, the use of praise to motivate and encourage children with low levels of achievement received widespread support, especially from parents (Mueller & Dweck, 1996; Phillips, 1984, as cited by Mueller & Dweck, 1998). However, the results from studies conducted by Mueller and Dweck (1998) explained how the use of ability praise, specifically, perpetuates negative beliefs and behaviors about achievement: (a) praise for intelligence does not teach students that they are smart; rather, it appears to teach them to infer ability vs. effort from performance results; (b) praise for intelligence does not affect post failure self-evaluation more significantly than praise for effort; (c) praise for intelligence can backfire by making students highly performance oriented and extremely vulnerable to the effects of setbacks; (d) praise for intelligence after high performance can lead to the belief that what is being measured is fixed intelligence; (e) praise for intelligence after success causes negative response to subsequent failure; and (f) praise for intelligence influences students' beliefs about the nature of intelligence.

A powerful conclusion, based upon these studies, was that the situations in which students' beliefs about intelligence are challenged, repeatedly, influence their theories about intelligence (Mueller & Dweck, 1998). The type of praise bestowed upon students was found to influence these beliefs, hence, their motivation. For instance, after successful experiences, students who were told they are *smart* more often held an Entity

Theory of Intelligence than those who received effort praise. In addition, the experiences of failure tested the strength of this belief; despite not feeling good about their performance or intelligence, students who received intelligence praise held the Entity Theory significantly more often than students who received praise for effort. The results from this research invite further exploration into the types of situations in which students' theories about intelligence might be molded in a more permanent way.

Mueller and Dweck (1998) demonstrated the continuity in student beliefs about intelligence; that intelligence praise creates vulnerability and effort praise creates hardiness, regardless of task or assessor. Given this, it seems likely that the different ways in which students respond to failure (i.e., after receiving praise for effort vs. after receiving praise for ability) can be attributed to differing interpretations of the meaning of achievement. The praise of intelligence for a job well done was found to carry significant drawbacks, which caused: (a) extreme performance orientation (e.g., study participants sacrificed learning, or lied about performance, in order to look better); and (b) vulnerability to failure (i.e., to the point that enjoyment dwindled, performance suffered, and faith in ability plummeted upon encountering a setback).

In other words, the students whose intelligence was the most hailed belonged to the group whose opinion of their own ability was the lowest. Although the type of work that requires little or no effort to produce quick or high quality results is occasionally appropriate, rather than praising it, in this author's opinion, an apology for wasting the student's time on something that did not challenge or provide a learning opportunity might be more appropriate. Rather than teaching students that low effort products are what they

should be most proud of, these researchers suggested the direction of students into activities that are more profitable, where their time will be better invested. This research reinforces the benefits of effort and strategy praise, and its far reaching effect on motivation and academic achievement, while conveying a strong message of caution against the interpretation of ability and performance as intelligence. Fundamentally, children cannot be insulated from failure throughout their lives, thus, care should be taken to send students messages that are motivationally beneficial.

Gottfried and Gottfried (2004) concluded that motivation predicts achievement (i.e., high motivation predicts gifted levels of achievement). The results from their studies: (a) demonstrated construct, concurrent, and predictive validity; and (b) were supported by those of other studies (Davis & Connell, 1985; Henderson, Gold, & McCord, 1982; Holm, 1988; Li, 1988; Vallerand, Gagne, Senecal, & Pelletier, 1994; all cited in Gottfried & Gottfried) with regard to continuity across childhood and the variables thought to be linked to motivation (i.e., curiosity, mastery).

Gottfried and Gottfried's (2004) examination of motivation in relation to achievement represented a new direction. These findings were considered as important because the relationship between academic intrinsic motivation, achievement, and other performance criteria beyond IQ was clarified and, therefore, differentiated from intelligence in relationship to academic performance. These researchers positioned and, ultimately, clarified the distinction between the constructs of academic intrinsic motivation and IQ, along with the independent contributions made by each to the prediction of achievement. From the results of these studies, it was established and

reinforced that students with higher academic intrinsic motivation tend to demonstrate:

- (a) significantly higher achievement (also in Gottfried, 1985, 1990; Gottfried et al., 2001),
- (b) greater persistence, (c) less anxiety, (d) decreased response to extrinsic motivation, and
- (e) higher intellectual performance.

In addition to the general recognition of the important role of academic intrinsic motivation in terms of academic success, this acknowledgement may support gifted programs and classrooms that are more diverse and inclusive, because a broader demographic may be considered. The Gottfried and Gottfried (2004) article caused this author to ponder the positive effect of a new construct of heightened motivation, results from which might include: (a) more inclusive classrooms, (b) greater cultural diversity, (c) a wider array of talent, (d) an increase in funding and number of educational grants due to demographic changes, (e) fewer social barriers, and (f) a different dynamic created by students who are self-motivated, easy learners, who are easy on teachers and each other. Intervention that enhances motivation at an early age potentiates the future for all, and the concept of gifted motivation that was positioned by Gottfried and Gottfried clarified that teaching the desire to learn may be of equal importance as teaching academic skills.

#### Future Directions and Research Recommendations

A great deal of research on students' motivation in academic settings has been conducted; however, there appears to be a clear need for additional research. With an eye toward turning motivation into action, the future examinations of motivation could be designed to explore: (a) the generalizability of motivation across domains and subject populations, to consider socioeconomic status, ethnicity, and ability; and (b) an expanded

definition of *talent*, which might include politics, social realms, art, music, or sports (Gottfried & Gottfried, 2004). For example, one direction for the future might be the study of motivational processes for various ethnic groups. Although the results from the initial findings (Gottfried, Fleming, & Gottfried, 2001; Wigfield et al., 1997) on motivation were based on Caucasian students, more recently, motivational researchers have made efforts to extend and test various motivational theories for students of different ethnic and cultural backgrounds (Graham, 1994, as cited in Pintrich, 2003). However, there appears to be a need to continue this type of research so that the motivation of students from varied cultural backgrounds may be explored. As posited in Pintrich, the comparison of groups in terms of differences is not the issue; rather, the issue was described as the similarity of, or relationship between, motivation and other outcomes of academic success (i.e., engagement, self-regulation, study skills, achievement) within the groups: (a) relationships that are similar may be useful in understanding that group's motivation and achievement; whereas (b) in relationships that are not similar, the models may need to be changed or supplemented with other constructs.

Does the need for autonomy or choice and control have the same meaning in different ethnic groups or cultures (cf. Deci & Ryan, 1985; Iyengar & Lepper, 1999)? Are beliefs about efficacy, competence, control, and self-worth defined and made in a similar manner in different ethnic groups or cultures (cf. Graham, 1994; Heine et al., 1999; Holloway, 1988; Markus & Kitayama, 1991)? These types of questions will be central for future motivational science research. Moreover, although there is a great deal of disagreement about the applicability of social-cognitive beliefs and processes to different ethnic groups and cultures, they provide an excellent theoretical and conceptual foundation on which to build our future research efforts (Graham, 1994). In other words, it will not be productive for future research to do away with or ignore intrapsychological motivational beliefs and processes as in some strong situated models, but rather come to understand them as resources and tools used to cope and adapt to contextual and cultural demands and affordances (Pintrich, p. 681).

In addition to ethnic and cultural factors, the suggestions from researchers for future investigations included: (a) the developmental/educational histories of highly motivated individuals, for which longitudinal research has been started by Cook, Morris, Gottfried, and Gottfried (2003, as cited in Gottfried & Gottfried, 2004); (b) the motivational strategies that support or enhance giftedness; (c) the manifestation of motivation across the lifespan; and (d) the mechanisms by which individuals overcome adversity and achieve through persistence and striving (Leovy, 1999; Gale, 1998; Martin, 2001; Cole, 1998; Vaughn, 2000; all cited in Gottfried & Gottfried). Also, the need to continue to study the relevance of motivational theories in relation to personal talent and determination of life goals (Moon, 2000, 2002, as cited in Gottfried & Gottfried) and volition (Corno, 1993; Corno & Kanfer, 1993, as cited in Gottfried & Gottfried) was identified.

Although the current theories of motivation are social cognitive, emphasizing both individual and contextual influences, much of the research within achievement motivation was focused on motivation at the individual level (Pintrich, 2003). It seemed to this author that educational researchers should further examine how the specific features of classroom environment might affect a variety of aspects of motivation. In doing so, the examination beyond self-reported measures of motivation might be required, along with the consideration of other methodologies (e.g., direct observations, to observe how motivation plays out in classroom contexts). As suggested by the theories discussed by this author, and to the extent that context plays a central role, future studies that explore the development of adaptive motivational beliefs might be of value (i.e., increased self-

efficacy; attributions to internal, controllable factors; interest in academic tasks; and mastery-goal orientations). However, what this author found was that much of the research within the field of achievement motivation is correlational, or that it had been conducted in experimental contexts, which did not reflect typical learning environments. It is this author's opinion that further collaboration between educational researchers, teachers, and administrators will be necessary, in order to implement changes to the context and evaluate the effectiveness of these changes. Although this may be a large endeavor, it seems essential that these theories of motivation are applied to students' learning, directly.

The social cognitive models of motivation appear to have favored the factor of cognition. Although motivation and affect have been linked, traditionally, some contemporary social cognitive theories seemed to downplay the role of emotions. As described by the author in Chapter 2, emotions have been theorized as central to attribution theory, and researchers have considered both the affective and value factors of interest. However, it seems that other cognitive constructs of motivation (e.g., achievement goals, self-efficacy) are being expanded, so that emotion might be more widely considered, along with cognition, in the understanding of motivation. This may be important for students who have serious problems in school (e.g., those with learning disabilities or more severe emotional and behavioral adjustment problems).

Spinath and Spinath (2005) produced evidence that the decline of learning motivation is not an inevitable consequence of the decline in competence belief, and vice versa. They connected the important developmental task of students being able to



perceive, realistically, their own ability with the variable of competence belief. As a result of this study, Spinath and Spinath recommended future research in which the developmental curves of these two constructs might be untangled. This project was conceived from a teacher perceived gap in their own knowledge about and successful strategies for forming and boosting learning motivation. It appears to this author that it would be beneficial for researchers to continue the exploration of the existence of a cause and effect relationship between the desire to learn and what compels it.

The future investigations in these areas might lead to closer examination of the effect of effort praise on motivation. Mueller and Dweck highly endorsed research into the hardiness of intrinsic motivation, testing its ability to withstand failure. Also, it was suggested that further investigation as to the role of trait oriented feedback, in the establishment of a sense of contingent self-worth, might be beneficial. These types of explorations would be beneficial and facilitate the understanding of how learning motivation can be directly affected by teachers, students, and all involved in the learning community.

### Limitations and Strengths

The limitations and strengths of the project were explored by means of an informal but structured review of the Instructional Booklet and corresponding Learning Motivation and Academic Achievement Models, which was conducted with the colleagues (reviewers) who were identified in Chapter 3. In addition to the limitations and strengths identified through this review process, the author's recommendations for considerations and improvements to this project are discussed later in this chapter.

In the first part of the feedback form, 6 close-ended questions were asked, using a 5-point Likert scale for responses. The second part of the form included 2 open-ended opportunities for response to areas of strength/ interest and to areas of concerns/ questions. The informal feedback questions, format, and process appeared to be appropriate in terms of its fit to both the subject area and reviewers. Only 1 of the 6 initial questions was described as difficult to answer, based on the responses of two colleagues, who expressed their lack of familiarity with the experts in this area of motivation. However, this response would appear to underscore the author's and other researchers' evaluation of the importance and the need for greater emphasis and increased teacher education in this area of student achievement; perhaps, this might reinforce a call to action. Overall, the reviewers' responses to each question indicated either strong agreement or agreement (i.e., a 5 or 4 on the scale), indicating the high degree of relevance of the project and the thoroughness of coverage of the subject.

Each colleague indicated strong agreement that the research in this project reflected depth of knowledge in terms of the topic covered. Two colleagues agreed, and 1 colleague strongly agreed, that the needs of the target audience were addressed, using understandable language and terms. All colleagues strongly agreed that the explanations of motivational factors were understandable; while 2 agreed, and 1 strongly agreed that the explanation of teachers' influences on motivation was understandable. The colleagues either agreed/ were neutral or strongly agreed that this booklet could be used in schools. One colleague agreed that the references cited included reputable authors in the field;

2 did not answer this question, instead, they indicated that the author seemed to be current and well-versed, based upon the presentation and depth of information provided.

The prompts that elicited open feedback are shown below in italics, along with the author's syntheses of the reviewers' comments.

*The specific areas of strength or interest that were noted in this project:* With regard to the need to be motivated and to learn, continually, the author's incorporation of the context of the global nature of society was applauded (reviewer identified as "the latest buzz"). Each of the reviewers was struck by the meaningful incorporation of the example of the Nobel Prize winner's response to his IQ score, which was described as hitting home in terms of the general, albeit false, impression of the importance of IQ score as an indication of intelligence and how this interpretation may function as a barrier to academic motivation and achievement. The author's expression of a defined goal for the reader, and the clarity of the conclusions with regard to the impact of a teacher's employment of the Entity Theory vs. Incremental Theory—these were each cited by the reviewers as project strengths and of extreme interest and importance. One colleague reflected on her "Entity Theory background" and the endorsement of that approach in her own teacher education. Each expressed appreciation with regard to the quality/ strength of the comparisons, the charts (i.e., Intelligence Beliefs vs. Mastery Goals), and the models that the author designed, along with the creative and meaningful use of color to enhance clarity. One reviewer highlighted the author's emphasis on the need for both the skill and the will to succeed and the author's examples regarding praise for effort and strategy, adequacy of ability vs. development of ability, identifying these as "excellent."

The way in which the author related this information to the reader was described as “usable and easy to understand.” The colleague who is currently an elementary teacher said, “I want to put a lot of your statements on posters for students to see.”

*Specific areas of concerns or questions you have, which should be considered for future study:* Not expressed as a concern, but described by one reviewer as a comment or question: 1) How does this relate to, or what is the implication with regard to the new grading systems adopted by many public schools – or even in sporting events? 2) How does this relate to other models of motivation (e.g., as expressed by the reviewer, “the ‘little g factor’ of intelligence—or the range within which nurture has power”)? One reviewer expressed that her immediate reaction, after reading the cover, only, was “This has been done”—that the subject area of the project was nothing new. However, after reading the entire booklet, this colleague indicated that the integration and presentation of the research and information was different and well done. Another colleague was of the opinion that the booklet is too long to be used as a tool in the classroom on a daily basis; however, it would make for a “fantastic” professional development seminar. One reviewer felt that, although all the questions and comments were addressed, eventually, the information seemed redundant, at times, and needed “a little simplification.”

Based on these colleagues’ feedback, and their interactive and valuable discussions with the author, the usefulness of this Instructional Booklet may be enhanced by the incorporation of the items that are shown below:

1. A teacher’s consideration of her or his classroom/ school culture with regard to assessment practices—to ensure that messages are not mixed or misunderstood (i.e., between teachers, students, parents, other faculty members).

2. Based on the classroom/ school, determination of what the implication(s) and need(s) might be in terms of changing rating/ grading systems, educational standards, standardized testing—ensuring a balance between ‘anything goes’ in terms of classroom learning and performance vs. ‘teaching to the test’.
3. In the “What to do...” section, the author’s inclusion of a list of 30 positive, Incremental Theory-type praise statements, perhaps in the form of a job aid or pull-out card—to increase the ease of use, provide more accessible, visual reminders for teachers.
4. In the author’s opinion, with an eye toward the future publication of the instructional booklet and its models, and/or the development of a professional seminar, make the information more accessible, easier to understand and use (i.e., develop job aids, enhance formatting/ design/ visual impact).

### Project Summary

The purpose of this project was to create a booklet for teachers, and, possibly, for parents and other adults who are involved in education, with the goal of highlighting the key research findings on how academic achievement may be improved through an understanding of the connection between intelligence beliefs and motivation. Although additional research about the influence of classroom context on the multiple aspects of academic motivation is necessary, as the author reviewed in Chapter 2, it is clear, from what is known, that context shapes: (a) motivation, (b) engagement, (c) strategy use, and (d) achievement. The contemporary models of academic motivation assumed neither that a student can be labeled as motivated or unmotivated, nor that student motivation can be characterized in some quantitative manner, as on a continuum.

To learn and achieve in school, students require more than cognitive skill; they need motivational will. Although motivation has long been an area of intense interest of educators, psychologists, and parents, in earlier studies the factors that influence learning

and achievement were separated; therefore, the studies that were conducted did not integrate cognition and motivation with learning, achievement, and academic success.

Based on the work of contemporary researchers, the focus of motivational study has been placed on the interaction of and the influence between motivational and cognitive factors on achievement and learning. Because motivation directly links to one's interests and desires, and it influences one's choices, decisions, and accomplishments at every moment throughout the lifespan, it might be said that motivation affects all aspects of being human, including, perhaps especially, learning.

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## APPENDIX A

### Instructional Implications and Assessments

The instructional design principles, shown in Table 6, reflect student motivation in terms of increasing adaptive student motivation such as: (a) efficacy, (b) control, (c) interest, (d) values, and (e) goals. Although these design principles overlap with many that have been suggested by cognitive researchers (Bransford et al., 1999; Brown, 1997, as cited in Pintrich, 2003), which demonstrated the utility of considering both motivation and cognition, simultaneously, these principles may need to be adapted to the contexts of classroom, school, community, or culture. It is this author's opinion that, quite aptly, Pintrich (2003) stated that:

The development of design principles does not take away from the creativity and ingenuity of teachers and other educators in terms of the design of instruction. The application of these principles is where the art of teaching takes over from the science of motivation and cognition. Just as in architecture and engineering, there are many creative and artistic ways to design bridges and buildings that differ dramatically from one another in appearance, there are some basic scientific foundations and principles that ensure that the bridges and buildings remain standing. Classrooms and schools also can differ in dramatic ways; they do not all have to look the same in terms of how they attempt to motivate students or how they facilitate cognition and learning through instruction. Just as there are multiple pathways for development (Greenfield et al., 2003), there are multiple pathways for the design of motivating classrooms and schools. There should be some underlying foundations and principles that are followed, but how they are developed and implemented are up to the Edisons of the education world. Our task as motivational scientists is to follow Bohr and Pasteur in terms of the development of basic and use-inspired basic research that generates well-reasoned, empirically supported understandings that can become the scientific foundations for educational practice to improve motivation, learning, and teaching. (pp. 681-682)

### Classroom Applications

As described by Gottfried and Gottfried (2004), the instruments they used to assess achievement measures are acknowledged as established, standardized, reliable, and valid.

They cited the following general achievement measures, which may be obtained from multiple sources, which include:

*Woodcock-Johnson Psycho-Educational Battery (1977, 1989, as cited in Gottfried & Gottfried, 2004).* Grade percentile scores may be used to measure reading and mathematics, correcting scores for grade level at a given age.

*Child Behavior Checklist (Achenbach & Rescorla, 2001, as cited in Gottfried & Gottfried, 2004).* Reading and mathematics performance ratings may be obtained through this assessment, both from teachers and from parents.

*Wechsler Intelligence Scale (WISC-R, 1974; WISC-III, 1991; WAIS-R, 1981; all cited in Gottfried & Gottfried, 2004).* Intellectual performance may be measured with the appropriate age and version of this instrument.

### *Self-Efficacy*

#### *Instructional Implications*

Self-efficacy appears to be facilitated by the provision of opportunities for students to succeed on tasks within their range of competence and, through these experiences, develop new capabilities and skills. In the absence of specific accomplishments, inaccurate or inappropriate praise of students does not appear to foster self-efficacy; to the contrary, Pintrich and Schunk (2002) emphasized that meaningless or invalid praise can foster inaccurate beliefs in students, who might see themselves as capable of a task in which they are unable to prove skill. Attainable success is supported by researchers

(Mueller & Dweck, 1998; Pintrich & Schunk) as that which is facilitated through tasks and assessments that are calibrated to students' skills, in which appropriate levels of challenge are incorporated. A variety of tasks and multiple forms of assessments (e.g., portfolio, essay, and project-based assessment) may provide students with opportunities for success; thus, their self-efficacy is fostered.

### *Assessment*

Typically, self-efficacy is assessed with the use of self-report questionnaires. The Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich, Smith, Garcia, and McKeachie, 1993) and the mid Patterns of Adaptive Learning Survey (PALS; Midgley et al., 1998) were developed to assess motivation, strategy use, and general attitudes about school. In each of these assessments, students respond to a series of statements and indicate the degree of truth for them. These self-report measures have been deemed reliable for a broad range of students, from fourth grade through college freshmen and sophomores (as cited in Gottfried & Gottfried, 2004).

Although these measures were intended for the purpose of research, it seems they may be useful to teachers who wish to determine the efficacy beliefs of the students in their classrooms. As indicated, these assessments are not norm-referenced (i.e., as standardized intelligence and achievement tests); therefore, researchers (Midgley et al., 1998; Pintrich & Schunk, 2002) suggested that teachers consider the context in which efficacy is being assessed (i.e., classroom, subject, or type of task) and make adjustments, according to classroom norms (e.g., a teacher interested in academic self-efficacy in

mathematics should ask questions about feelings and beliefs about math, not about school in general).

*Teacher's Report Form of the Child Behavior Checklist (Achenbach & Rescorla, 1991, as cited in Gottfried & Gottfried, 2004).* Classroom functioning may be appraised with regard to: (a) how hard the child works; (b) how appropriately the child behaves; (c) how much the child learns; (d) and how happy the child seems, on a 7 point Likert scale, which compares each student was to others of the same age.

*School Achievement Motivation Rating Scale (Chiu, 1997).* This 15-item assessment measures achievement motivation. Teachers rate students on 15 behavioral descriptors on a five-point scale (always, frequently, occasionally, seldom, and never). The instrument items are cited in Chiu as correlated with 11 established achievement and psychological measures (i.e., including the Iowa Tests of Basic Skills, the Coopersmith Self-Esteem Inventory, and the Test Anxiety Scale for Children).

*Self-Description Questionnaire II (Marsh, 1990, as cited in Gottfried & Gottfried, 2004).* This instrument may be used to assess self-concept, with the General School and General Self Measures.

### *Attribution*

#### *Instructional Implications*

The feedback from teachers that follows a success or failure appears to influence a student's attributions and reactions to success and failure. Also, Mueller and Dweck

(1998) suggested that success or failure occurs for a student based on his or her judgments about success and failure; as such, the type of consideration and assistance that allows students to make adaptive, but accurate, attributions about their failure or success is recommended. For instance, in a circumstance of failure, Mueller and Dweck recommended that its attribution to an unstable cause may allow students to perceive the possibility of success in the future (i.e., it is adaptive to attribute failure to a lack of effort or to the use of an inappropriate strategy). However, after a failure that is due to the use of an inappropriate strategy, the encouragement to try harder is of little use to students; in this case, a more appropriate solution might be that the teacher work with the student to promote the development of the strategies and skills that are necessary to succeed in the future. When successful, a student's attribution to effort is adaptive, assuming that effort was a requirement. Also, it is adaptive for a student to attribute her or his success to the appropriate use of strategy, which perpetuates the use of strategies in the future. However, it should be considered that success is possible without great effort, in which case, it is adaptive for it to be attributed to talent or skill.

### *Assessment*

From the research on attributions, it was suggested that a variety of methods be used to assess students' attributions; one cited as particularly useful by Pintrich and Schunk (2002) is the informal assessment (i.e., discussions with students about why they think they succeeded or failed in a specific situation). This type of discussion was recommended as a means by which teachers may develop a better understanding of the

attributional responses of their students and determine whether students should be retrained in how they respond to success and failure.

### *Intrinsic Motivation*

#### *Instructional Implications*

As discussed by Pintrich and Schunk (2002), teachers may approach a student's intrinsic motivation by way of building upon his or her personal interest or by creating situational interest. They suggested that the encouragement of work on topics of personal interest might help students to engage in such a way that better learning strategies are used, hence, higher levels of achievement may be reached (e.g., allow students to pick topics for class projects or reports). In addition, they acknowledged the difficulty that teachers might encounter in their design of classroom activities that capitalize on the personal interest of all students; therefore, they suggested the consideration of ways to enhance situational interest.

The enhancement of situational interest may be promoted through the use of catch and hold factors (Mitchell, 1993, as cited in Pintrich & Schunk, 2002). To spark situational interest and engage students in a specific activity, the employment of a catch factor is suggested (e.g., experiments that are exciting or computer based tools that are innovative). Also, so that student interest is engaged in future activities, it is suggested that teachers consider how they might promote the hold factor of situational interest (e.g., make the topic meaningful to students by capitalizing on the utility of what is being learned, to help students perceive benefits outside of school or for future goals).



*Assessment*

In terms of assessment, behavioral measures of personal interest are suggested as measures (e.g., the student's continued engagement during free time, the student's self-reported items that assess *liking* or *enjoyment*, Barron & Harackiewicz, 2001, as cited in Pintrich, 2003). Although Harackiewicz et al. (1998, as cited in Pintrich & Schunk, 2002) have begun to develop self-reported measures of catch and hold, so that situational interest may be assessed more immediately, they recommended that teachers observe student reactions to different instructional techniques and discuss the aspects of activities that students find exciting or meaningful.

*Self-report Scale of Intrinsic vs. Extrinsic Motivation in the Classroom (Harter, 1981)*. When used to examine motivational orientation, this instrument measures intrinsic and extrinsic motivation through the assessment of motivational components (i.e., preference for challenge, curiosity/interest, mastery) and cognitive-informational structures (i.e., independent judgment, internal criteria). Designed for upper elementary students, it consists of a forced-choice format in which students indicate their similarity to the intrinsically or extrinsically motivated students provided in examples. From this scale motivation is measured at a more general level, but is specified as adjustable to a specific classroom or subject area.

*Children's Academic Intrinsic Motivation Inventory (CAIMI, Gottfried, 1985)*.

Used to measure children's intrinsic motivation, the scales and subscales of this self-report measure intrinsic motivation separately for the topic areas of reading, math, social studies,

science, and in general. In contrast to Harter's (1981) scale, the CAIMI does not measure intrinsic vs. extrinsic motivation; instead, it assesses high vs. low intrinsic motivation. As with other self-report measures, this scale has been suggested for use with upper elementary through college-aged students, in addition to the elementary ages.

*Motivated Strategies for Learning Questionnaire (MSLQ, Pintrich, Smith, Garcia, & McKeachie, 1993).* This instrument is used to assess intrinsic and extrinsic goal orientations and task value (i.e., interest, importance, utility) in junior high through college students. It should be noted that, although task value is not the same as personal interest, it does contain a personal interest component; therefore, it may be of use in determining interest in a particular subject area. This instrument is recommended for the assessment of student motivation in a particular context.

*Teacher Rating of Academic Achievement Motivation (TRAAM; Stinnett, Oehler-Stinnett, & Stout, 1991).* Teacher ratings may correlate with student ratings of intrinsic motivation; however, some researchers (Gottfried, 1985) indicated that a student's own ratings may provide more accurate descriptions of her or his intrinsic motivation.

### *Achievement Goals*

#### *Instructional Implications*

In Achievement Goal Theory, it is suggested that the differences in the way a learning environment is perceived are linked to a student's goal adoption (Maehr & Anderman, 1993; Roeser, Midgley, & Urdan, 1996; Urdan, Midgley, & Anderman, 1998;

all cited in Dweck, 2000). This is an important implication for teachers, because they may shape the classroom to focus students on mastery, performance, or both, which are linked to other factors that shape academic success and achievement. Although Pintrich and Schunk (2002) suggested that performance approach goals are adaptive for achievement, whether these goals are adaptive for all students in all contexts, especially when mastery goals are not adopted, remains unclear. Therefore, the focus that they promoted is mastery goal adoption.

Achievement Goal theorists (Ames, 1992) have explained how classroom structure (i.e., the way in which the teacher establishes routines, sets rules, assigns tasks, and evaluates students) and environment may influence student perceptions of the classroom goal structure, which is thought to relate to a student's adoption of a mastery vs. a performance goals. The alteration of classroom structure dimensions (i.e., task, authority, recognition, and evaluation) may promote student mastery or performance goal orientations (Ames; Midgley et al., 1998). The types of tasks selected by the teacher tend to convey different messages to students about the general goal structure of the classroom. To encourage mastery goal adoption, Ames recommended the use of meaningful and appropriately challenging tasks (e.g., hands-on, applied activities that challenge and help students recognize how learning in school relates outside of school instead of worksheets). When varieties of tasks are offered, students may choose those that appeal to their personal interests; at the same time, the opportunity for performance comparison is decreased.

Also, the authority structure of the classroom sends important messages about the achievement goal-orientation of the classroom. Mastery goals are promoted when autonomy is granted to students (e.g., permission to choose the order in which assignments are completed), and teachers relinquish some authority (Ames).

### *Assessment*

The tone that is set in a classroom is emphasized through the teacher's evaluation and recognition of students' mastery and performance goals. The adoption of a mastery goal is fostered by the evaluation of a student that is focused on the individual's improvement, in addition to the mastery of ideas (e.g., evaluation of improvement over several drafts of a written assignment focuses students on learning rather than on performing better than others perform). Also, student effort and improvements that are recognized privately, rather than publicly, promote a mastery-oriented learning environment (Pintrich, 2003).

*Mid Patterns of Adaptive Learning Survey (PALS, Midgley et al., 1998).* In addition to classroom goal structure, the consideration of a student's personal goal orientation is an important factor of achievement. PALS is a self-report questionnaire that may be administered to students from fourth grade through college. Achievement goals are assessed by way of student responses to a series of questions about their orientations toward achievement situations. The nature of these orientations is perceived as situated; therefore, the focus on a particular context or subject area (i.e., mathematics) has been recommended. Although these measures were designed for the purpose of research,

teachers who are interested in assessing their students' goal orientations or perceptions of the classroom may use PALS.

*Classroom goal structure* (i.e., the perception about what is emphasized in the classroom) may be assessed through students' self-reports, as well as the teacher's self-reports of their instructional practices.

*Classroom Goal Orientation Scale; Sport Goal Orientation Scale; Classroom Belief Scale; Sport Belief Scale; Classroom Satisfaction Scale; Sport Satisfaction Scale* (Duda & Nicholls, 1992). Each of these instruments consists of scales that are rated on a five point Likert-type scale (1=strongly agree; 5=strongly disagree). The Classroom Goal Orientation and The Sport Goal Orientation each consist of 21 items along the dimensions of: Ego orientation ("I feel really successful when I know more than other people"), Task orientation ("I feel really successful when what I learn really makes sense"), Work avoidance ("I feel really successful when I can goof off"), and Cooperation ("I feel really successful when my friends and I help each other figure things out"). The Classroom Belief Scale and The Sport Belief Scale each consist of 20 items along the dimensions that measure beliefs about the causes of success: Deception ("People succeed if they are attractive and have the right clothes"); Motivation/Effort ("People succeed if they work really hard"); Ability ("People succeed if they are smarter than others"); and External Factors ("People succeed if teachers think they will do well"). The Classroom Satisfaction Scale and The Sport Satisfaction scale are each 8 item scales that measure boredom and satisfaction or enjoyment.

## APPENDIX B

### Informal Feedback Form

## INFORMAL FEEDBACK

Dear Colleague:

Thank you for your time in reviewing this project. Would you take a moment to answer the following questions? Your responses and comments are greatly appreciated.

In the box below, please describe your background. Kindly, include whether you are (or have been) a teacher, a trainer of educators, an administrator, etc.

Please answer the following questions using the following scale:

5=Strongly Agree, 4 =Agree, 3 =Neutral, 2 =Disagree, 1 = Strongly Disagree, N/A = Not Applicable

Question						
The research in this project reflects depth of knowledge of the topic covered.	5	4	3	2	1	N/A
The needs of the target audiences were addressed, using understandable language and terms.	5	4	3	2	1	N/A
The explanations of motivational factors were understandable.	5	4	3	2	1	N/A
The explanation of teachers' influences on motivation was understandable.	5	4	3	2	1	N/A
This booklet can be used in school(s).	5	4	3	2	1	N/A
The references cited included reputable authors in the field.	5	4	3	2	1	N/A

Please provide any comments you may have in the spaces below.

Specific areas of strength or interest that you noted in this paper:

Specific areas of concerns or questions you have, which should be considered for future study:

Your input will be incorporated, anonymously, as part of the results published by this author. It will be greatly appreciated.