Goal Orientation: Delineating Prerequisites for Sustained Achievement Motivation Within an Attributional Retraining Context

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BY

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Abstract

Attributional retraining (AR) is an intervention for changing maladaptive causal attributions to adaptive ones (Wilson & Linville, 1982; 1984). While the therapy shows promise as a remedial technique for assisting at-risk students (Perry et al, 1993), differences exist in it's efficacy which appear to be due, in part, to individual student characteristics (Menec et al, 1994). Mastery and performance orientations (Ames, 1984) represent attributional preferences for explaining achievement as due to effort or ability respectively (Dweck, 1986), and can be construed as contributing to the effectiveness of the intervention. However, while mastery-orientation exists as a unidimensional motive, performance-orientation may consist of both approach and avoidance components (Elliott & Harackiewicz, 1996), linked to the student's success perceptions. College students (n = 328) were evaluated on their goal orientation and success perceptions at the beginning of the academic term, after which half of the sample received AR, with the other half serving as a control. Hypotheses were tested using an attributional retraining (no AR, AR) by goal orientation (failure-accept, performance-avoid, performance-approach, mastery) by perceived success (low, high) 2 x 4 x 2 factorial design. Dependent measures of final grade, perceived control, attributions and affect were assessed at the end of the year. Goal orientation and perceived success interacted with attributional retraining such that when compared to the control group, AR had little influence on the dependent measures for mastery-oriented students, and differential effects for the two performance-orientations depending on their perceived success. Discussion focused on acknowledging the self-worth and ego-protective motives as influential in the success of attributional retraining, with suggestions for reconciling the effort/ability dichotomy to make the therapy beneficial for the student population at large.

Goal Orientation: Delineating Prerequisites for Sustained Achievement Motivation Within an Attributional Retraining Context

"Psychologists should theorize not about what is, but what is perceived to be..."

(Asch, 1952).

The social-cognitive approach to human discourse implies that perception does not exist in stasis, where the individual is viewed as part of a larger context comprised of the self, and interactions with the task and other players in the situation (Pintrich & Schrauben, 1992). In this connection, measures of attitudes often serve as means to the construction of more accurate theories about the cognitive schemas used by students in the organization of their social experience (Ames, 1992; Schuunk, 1996). Personality theorists adopt a slightly different perspective (Thorkildsen & Nicholls, 1998), placing a triple emphasis on the (1) whole person, (2) motivation, and (3) individual differences. Here, the presumption is that individuals determine the nature of their experience, wherein achievement motivation is construed as an aspect of identity (Covington, 1992). While these approaches entail considerable overlap, a failure to consistently recognize the contributions of each has resulted in the absence of "filters" to guide inquiry in educational psychology (Thorkildsen & Nicholls, 1998).

One such filter may exist in goal theory (Ames, 1984). Researchers ascribing to this body of knowledge perceive that all actions are given direction, purpose and meaning by the goals individuals seek out, and that the intensity and quality of behaviour changes as a function of shifts in these goals (Covington, 1993). Indeed, common to both frameworks is the definition by researchers of adaptive motivational orientations as acting to promote the establishment, maintenance and attainment of achievement goals (Dweck, 1986).

A student's first year of college provides a prime opportunity for the manifestation of detrimental motivational patterns (Perry, 1991), with statistics indicating that a sizable number of students are ill equipped to meet the demands of the university classroom. More than 40% of entrants withdraw from their programs short of a degree (Tinto, 1987). It is not surprising then, that much effort has been given to finding methods for facilitating positive motivational tendencies in students and delineating a more precise specification of the associated cognitive patterns.

The past work of this laboratory has been firmly grounded in social-cognitive theory, with an attributional focus drawn from Rotter's (1966) locus of control theory, Covington's (1984) self-worth theory, and Weiner's (1986; 1995) theory of achievement motivation. Moving from this base, Perry (1991) found that a pattern of low perceived control, negative affect and poor performance is characteristic of failure-prone students and, further to this, that the pattern persists even in the presence of high quality teaching. Hence an unfortunate paradox arises in that those students most in need of assistance are unable to benefit from it in the classroom. More recent research by Perry and his colleagues (e.g. Perry & Penner, 1990; Menec et al, 1994; Perry & Struthers, 1994) has been directed at establishing interventions for assisting students identified as being at-risk for failure using a psychotherapeutic technique known as *attributional retraining* (Wilson & Linville, 1982, 1985; Forsterling, 1990).

The intervention is intended to increase students' perceptions of control over their academic outcome by changing stable and uncontrollable ascriptions for failure, such as ability, to unstable and controllable ones, such as effort (Perry, 1991). In the case of success, the intervention attempts to replace unstable and uncontrollable attributions for achievement, like

luck, with a stable and controllable one, such as study strategy. The current focus of this laboratory (e.g Drewniak, 1997; Hladkyj, Hunter, Maw & Perry, 1998; Hunter, 1997) is an exploration of the role of individual difference variables in the success of this intervention, with the aim being to determine which students, under what conditions, will benefit most.

Goal theorists contend that the type of goal a student pursues is largely responsible for their attributional preferences (c.f. Ames, 1984). *Mastery-oriented* students are motivated to increase their capability for a task and see effort as a positive and pivotal force in reaching this goal. Conversely, *performance-oriented* students are motivated to demonstrate their ability relative to others, where effort is seen as undermining this perception and irrelevant to their goal. In this connection, goal orientation can be construed as creating a predisposition for the success or failure of attributional retraining in establishing the desired pattern. The present study continued the focus of our laboratory by attempting to determine whether the salience of achievement goals could account for variance in the success of attributional retraining (see Perry et al., 1993 for a review). In addressing this hypothesis, several overlapping approaches to motivation and achievement striving were considered using goal theory as a unifying construct. A framework for this dynamic and the underlying theories will be discussed in detail.

Classic Achievement Goal Theory

The study of goals during the last decade has achieved the standing previously held only by motivation as an umbrella construct (Weiner, 1992) in that goals provide the means for the theoretical coordination of behavioural patterns (Ames & Archer, 1988), cognition (Schacter, Copper & Delaney, 1990) and affect (Emmons, 1989) as an interactive system. According to past research, motivation is determined in part by personal commitment to a specific goal and by

one's mental attitude toward possible barriers to this goal (Bandura, 1982). People's judgment of their capacity to deal effectively with a given situation becomes most salient in the thought patterns affecting action, where these self-percepts are the basis for choices involving how much effort to invest in pursuing a goal, how long to sustain this effort in the face of disappointing results, and whether or not goal pursuit is iniated with confidence. Individuals use their past history and cues within the environment to anticipate the likely consequences of their actions, setting goals for themselves in relation to probable outcomes in ways that are often "not only ineffective, but potentially detrimental as well" (Bandura, 1986; pp. 19-20).

Essentially, goal orientations are described as creating conditions that relate to two specific motivational directives: those focused on demonstrating one's ability and those aimed at increasing one's competence at a given task (Ames & Archer, 1988). Research in this area was spurred by the documentation of two contrasting reactions to failure outcomes wherein some students, despite previous success on a task, quickly began to attribute their failures to low ability, to display negative affect, and subsequently to experience deterioration in performance (Diener & Dweck, 1978; 1980). In contrast, those with a so-called "mastery" response pattern did not focus on failure when encountering negative outcomes, instead exhibiting solution oriented strategies, constant or increased positive affect, and sustained or improved performance. In the first group of students, failure elicited a reaction indicating that these individuals felt they had received a reprimand with regard to their ability, while the latter group expressed a reaction suggesting they felt this feedback was useful to learning and mastery.

Elliott and Dweck (1988) characterized these responses as reflecting two major goals prevalent in achievement situations. To recapitulate, *performance-oriented* individuals are

characterized by a preoccupation with ability and concern with being judged able. These students seek both to maintain positive judgments of their ability and avoid negative evaluations. Most desired is success with ease: that is, success with little or no apparent effort. Students with this orientation are motivated by external reinforcements in terms of grades which serve to validate their perception of performance as contingent on ability. In sum, individuals pursuing this goal value ability ascriptions, with the primary focus on demonstrating one's ability by outperforming others. *Mastery-oriented* individuals, on the other hand, attach importance to the development of new skills. It is the process of learning itself that is pursued, with mastery seen as dependent and contingent upon effort. Unlike a performance orientation, in which learning is only a means to the end of achieving relative success, for a mastery-oriented student learning is an end unto itself. The focus of attention is on the task, rather than on an extrinsic reward (Nicholls, 1984), and value is placed on improving one's ability through applying effort rather than on the actual performance outcome.

Elliott & Dweck (1988) further proposed that each goal could be viewed as creating its own set of concerns and as generating a framework for the processing of new information, which could account for the contrasting reactions to failure. Under a mastery-orientation, even individuals with low self-evaluations of their current ability exhibit a mastery rather than a helpless profile, as they are not focused on judgment of their current ability: errors are not seen as failure and low current ability makes skill acquisition even more salient. To provide empirical support for this contention, these investigators experimentally manipulated goals (performance versus mastery) and perceptions of ability (low or high), with results revealing that indeed, achievement goals were critical determinants of this pattern. When performance goals were

dominant and students perceived they had low ability, they responded to feedback about mistakes in a characteristically maladaptive manner, making attributions for failure to low ability, responding with negative affect and experiencing decreases in motivation. These same individuals under high perceived ability manipulations responded in a mastery-like pattern: in the face of obstacles they persisted and did not make ability attributions for failure or display negative affect. However, these students were unable to risk failure and gave up the opportunity to increase their skills on a task that involved potential public mistakes.

In contrast, when a mastery goal was pursued, perceived ability did not influence achievement behaviour. Students sought to increase their competence by choosing challenging tasks and seizing opportunities to learn new skills, even when failure was a possibility. In fact when these students did encounter failure, their problem-solving strategies improved. Hence, the specific goals by which a student is motivated have important implications for approaching tasks. Individuals with mastery goals persist and maintain strategic behaviour longer in the face of failure and have more positive affective responses to both success and failure than do performance-oriented individuals. A schematic representing these goal orientations is presented in Table 1.

The two orientations are best understood in terms of the entity and incremental theories of intelligence each reflects (Ames, 1992). Those with a performance-orientation ascribe to *entity theory*, in which attributes are fixed and uncontrollable and the goal is to create positive judgments of these attributes. These individuals do not see the utility of effort as a means for increasing ability, which they view as immutable; rather they see it as revealing to

Table 1

Goal Orientation, Attribution Valence, Perceived Success and Outcome

ORIENTATION	VALENCE, VALUE AND REWARD	ASCRIPTION	PERCEPTION	RESPONSE	OUTCOME
Mastery	Interest, Effort and Intrinsic Elements	High Effort	Perceived Success	Maintain Effort	Positive
		Low Effort	Perceived Failure	Increase Effort	Positive
Performance	Competition, Ability and External Elements	High Ability	Perceived Success	Effort not viewed as necessary	Positive until failure encountered
		Low Ability	Perceived Failure	Reduction of effort and withdrawal from learning situation	Negative

others that they lack ability. The associated behaviour pattern is low initiation and persistence toward functional change (Dweck & Leggitt, 1988). Students having a mastery-orientation however, are characterized by *incremental theory* which holds that attributes are malleable. The developmental goal is one of understanding and improving these attributes, and the associated behaviour pattern in this instance is mastery-oriented goal pursuit (Dweck & Leggitt, 1988). The goal dynamic can then be construed to entail major implications for perceptions of control over events, as evidenced in Table 2.

Attribution Theory

Inherent to attribution theory is the tenet that goal attainment is caused by factors within the person or within the environment. This categorization was also fundamental to Rotter's (1966) locus of control theory which postulates that some individuals perceive an event to be contingent upon their own behaviours (internal locus), while others have the opposite perspective, namely that outcomes are independent of one's own actions (external locus). While Rotter advanced attribution analysis to a degree, some researchers felt that the internal/external dichotomy did not allow a sufficient description of causality and in an expansion of this theory, Weiner (1972) reconceptualized "locus". Specifically, while Rotter's theory advocated the locus of control as being a function of forces perceived as existing within or outside of a person, Weiner's (1972) modification defined locus in terms of the nature of the causes themselves, calling this dimension the *locus of causality*. The distinction between the two is that Weiner saw the "external" and internal" differentiation as just one dimension of a cause, which could also be classified along other causal dimensions.

Table 2

Perceptions of Control as a Function of Theory.

THEORY	PERCEIVED ATTRIBUTE LEVEL	PERCEPTIONS OF CONTROL OVER EVENTS
ENTITY: (attributes are fixed or uncontrollable)	High	Control is possible.
	Low	Control is not possible, outcomes will be negative or determined by chance.
INCREMENTAL: (attributes are controllable)	High	Control is possible.
	Low	Control is possible although requiring more time and effort.

The modification allowed a second dimension which described whether the locus of an event was constant or variable in nature. This distinction was termed *stability*, wherein an event is classified as being either stable or unstable over time. A third dimension of causality was introduced by Rosenbaum (1972) who recognized that causes, though internal-stable, external-stable, internal-unstable or external-unstable, could be further classified as being either subject to or independent of volitional control. Weiner (1979) incorporated this dimension into his theory under the label *controllability*, wherein an event is considered to be either controllable or uncontrollable by the attributor.

Weiner's complete theory of achievement motivation and emotion (1986; 1995) suggests that all attributions can be categorized along the dimensions of locus, stability and controllability. These properties were initially conceived to exist as a bipolar continuum, but for simplification purposes Weiner's model delineates causes as falling into discrete categories constituting a 2 x 2 x 2 taxonomy into which behaviours can be classified. Each cell relates to a different emotion, expectancy and behaviour. To summarize, motivation begins with an outcome. If this outcome is negative, unexpected or important, a causal search is likely to be initiated. The results of this causal search are dependent on causal antecedents related to the individual's past history, general causal rules and information from others. Causal antecedents determine which available causes are chosen to explain the event and it is this dimensional analysis that gives the occurrence meaning or significance (Weiner, 1986).

The theory also included specific attribution dependent affects (Weiner, Russel & Lerman, 1978; 1979). Initially, an outcome is evaluated as either "good" or "bad", leading to either a general positive (happy) or general negative (sad/frustrated) response. Delving further,

each causal dimension can be related to specific emotions including but not limited to, pride, hope, shame, and guilt. Internal, stable ascription such as ability is linked to pride when the outcome is success, but also to shame in failure given that this cause is a personal one and not likely to change. Ascription to a controllable cause such as effort entails guilt in failure, while the stability dimension is linked to one's hope and expectancy for future success. The full schematic is conveyed in Weiner's (1986) path diagram (Figure 1).

While Weiner would not describe this theory as being about control per se, many have construed perceived control as a product of attribution to the extent that it serves as the basis of affect and expectancy (Weiner, 1986). The addition of the controllability construct has made the theory salient for some in explaining motivation (e.g. Perry, 1991). Specifically, in the academic context, it is argued that students' responses to loss of control often involve specific causal attributions that have major implications for subsequent performance (Perry & Magnusson, 1989; Perry, 1991). Success and failure in achievement situations is usually attributed to either effort or ability (see Van Overwalle & DeMetsenaere, 1989). Attributing to either cause does not pose a problem in terms of success expectancy as long as the causal conditions are unlikely to change. The belief that success is due to effort usually leads to continued effort and continued success. A belief that success is due to ability leads one to perceive that she will achieve further success given the same level of task difficulty. However in situations where the outcome is deemed to be unstable, only an effort ascription leads to sustained expectancy of success; unlike ability, effort can be increased or decreased depending on the task demands. In this manner, effort becomes

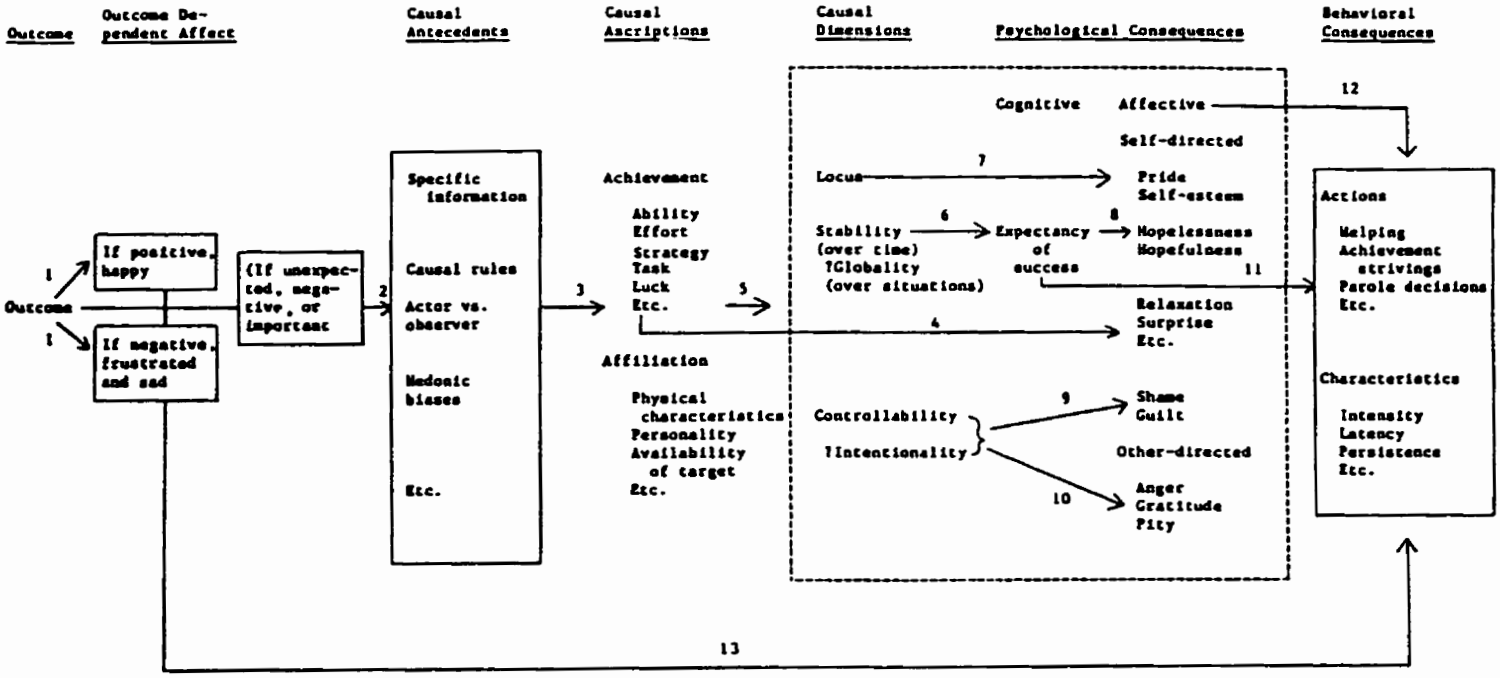


Figure 2. An attributional theory of motivation and emotion.

Figure 1. Weiner's (1986) schematic of the attribution process: a motivational sequence is initiated by negative, unexpected or important events, wherein attributions determine behaviour through the mediums of affect and expectancy.

more important in facilitating perceptions of control than ability, particularly when failure is encountered.

Consider the following example. A student fails a test which is evaluated as a negative, unexpected and important event. A causal search is initiated wherein the student determines that others did well on the test, and then recalls having done poorly on the last test also. From these cues, the student decides that the reason she failed the test is that she is stupid and lacking in ability. Evaluating this attribution in terms of its causal dimensions, one sees that lack of ability is internal in nature, stable over time and uncontrollable by the student. Given this explanation, the student would likely feel ashamed and have a little hope for future success. This would result in low motivation to study, a pattern that could easily culminate in continued failure. If, however, the student had explained this outcome as being due to lack of effort, an internal, unstable and controllable cause, she may initially feel guilty but decide that studying harder for the next exam would remedy the problem. This attribution would lead to an expectancy of future success and motivation to do better next time. Ultimately, this would induce the student to expend more time studying and lead to a better performance on the next exam. Hence, as in Ames' (1984) theory of achievement goals, motivation again appears to be contingent on the value one places on effort.

Self-Worth Theory

Our society embraces the work ethic, a perspective that is evidenced in the value teachers place on effort in the classroom. Weiner (1972) demonstrated that, while test outcome is the major determinant of classroom evaluation, students who are perceived as having expended effort are punished less in failure and rewarded more in success by their teachers. Further to this, such evaluations are independent of the student's ability. These results have been replicated numerous

times in a range of subject populations, including adults and university students (Weiner, Heckhausen, Meyer & Cook, 1972; Weiner & Kukla, 1970). Nonetheless, many students do not apply effort, or if they do, they attempt to hide it and refuse to admit studying a lot.

Covington's (1984) self-worth theory of achievement motivation reconciles this apparent paradox (see Figure 2) and is similar to Weiner's in that both involve maladaptive attributions for failure leading to affect/expectancy consequences that determine outcome. Self-worth theory, however, adds considerably to a fuller specification of the dynamic by bridging the cognitive tradition with its' emphasis on self-perceptions of causality (i.e. effort) and drive theory, born of Atkinson's (1957) need achievement model (described in detail in a later paragraph). The most important addition is an emphasis on the dynamic induced by a fear of failure (Covington, 1984, 1993; Covington & Beery, 1976). Self-worth proponents assert that a student's primary objective is to maintain a self-concept of high ability. Based on this premise, two assumptions are made: (a) that there is a tendency in society to equate ability with human value (Gardner, 1961) and (b) that self- aggrandizement is a major motivating force in human behaviour (Epstein, 1973). Thus, when possible, individuals will act to maximize success and avoid failure, which supports an ability orientation. Expending effort is a potential threat to the individual in that a combination of effort and failure fosters causal attributions to low ability (Kun & Weiner, 1973).

For this reason, effort has been dubbed "the double edged sword" (Covington, 1978; 1894). While teachers reward achievement through effort and punish a lack of effort, the

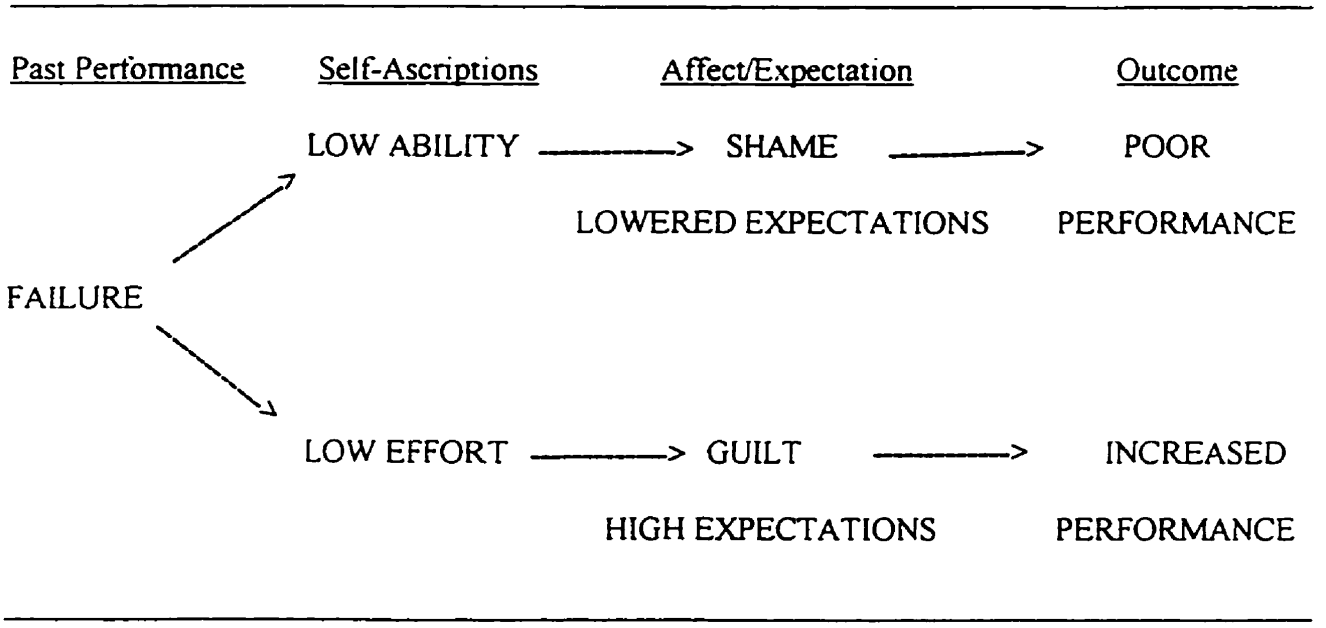


Figure 2. Self-worth model of achievement motivation. (Adapted from Covington, 1989).

expenditure of effort, when accompanied by the risk of failure, entails ego-threat. This position is based on the tenet that amount of effort is an important cue in the judgment of ability: to have applied effort and have failed is indicative of low ability, while failure without effort does not reflect on ability to the same degree. According to self-worth theory, this is the reason why students do not have the same appreciation as teachers for effort, and why a clear distinction exists between self-evaluation and the evaluation of others.

The theory has achieved substantial empirical support, with results indicating that high effort does indeed lead to more negative self-attributions of ability and likewise that students anticipate others will judge them lower in ability when failure is accompanied by high effort (Covington & Omelich, 1978). Based on these findings, it is asserted that "feelings of personal competency and efforts to preserve a sense of self-worth must be considered in any complete understanding of the dynamics of academic achievement behaviour" (Covington & Omelich, 1978; p. 78).

In this context, perceptions of success have been defined in terms of students' goal *approach* and *avoidance* tendencies, products of the learned-drive approaches to achievement motivation developed by Atkinson (1957, 1964) and McClelland (1958, 1961). As mentioned briefly in an earlier section, the theory suggests that the need for achievement is the outcome of conflict between the desire to *approach* success and the fear of failure resulting in the tendency to *avoid* potentially threatening situations. Like Weiner's (1986) and Dweck's (1984) theories, these researchers also described motives in emotional terms, with pride associated with approach, and shame associated with avoidance. The theory further posited, however, that individuals differ

in to extent to which they are motivated by these drives, which can have major consequences for motivation.

As an example, Covington (1993) presented the individual for whom a belief in the probability of success outweighs a fear of failure, as opposed to an individual for whom fear overpowers hope. In the former case, the conflict is not formidable and is usually overcome in the positive sense; the individual approaches the goal. In the latter situation, however, the situation is resolved in the negative direction; that is, an avoidance of opportunity occurs. He asserts, then, that individuals approach success both to benefit from the reward and to propagate their reputations for high ability. When success is perceived as unlikely, the priority becomes to avoid failure: that is to absolve oneself of the implication in failure that one is incompetent.

In a recent augmentation to self-worth theory based on the theoretically independent *approach* and *avoid* dimensions serving as "dynamic poles" in Atkinson's need achievement model, Covington (1993) suggested a 2 x 2 matrix for classifying students. Students can be either low or high on one or both of the approach and failure-avoiding dimensions; that is, one can be high approach/low avoid, high approach/high avoid, low approach/high avoid or low approach/high avoid. As the experimental basis for this suggestion, Covington & Omelich (1991) conducted experimental research confirming that indeed, the high approach/low avoid group related to a "*success-oriented*" profile and the high avoid/low approach group related to a "*failure-avoiding*" profile and further, that the two are behaviorally distinct.

In addition, two hybrid groups emerged reflecting students high in both approach and avoidance tendencies and students low in both tendencies. He labeled the former "*overstrivers*" and classified the latter group "*failure-acceptors*". In keeping with the original theoretical

framework, Covington (1993) explains these groups according to self-worth terms (see Figure 3). The addition of these critical gradations in the achievement motive dynamic is quite beneficial to the current study: specifically, it provides the theoretical basis for a more detailed look at individual differences in students' performance orientation in terms of the approach and avoidance of learning opportunities such as attributional retraining.

Similarities between Goal, Attribution and Self-Worth Theories

Despite the numerous parallels that exist between social-cognitive and personality theories, there is a scarcity in the literature of one approach referencing the other. Goals provide a means for a coordination of both bodies of research, and as such, can serve as a broader lens for recognizing the similarities and distinct contributions of each. The theories all see goal attainment as contingent on causal factors: both those within the person and those within the environment. Also, they share the consensus that causal attributions, as well as achievement outcomes, influence expectancy and emotion after the attainment or non-attainment of a goal. In addition, the theorists all view attributions to effort and ability as integral in the maintenance of achievement striving, particularly in the instance of failure where maladaptive attributions lead to specific affect-expectancy dynamics. Again, a consensus is reached in that motives are described in emotional terms with pride associated with goal approach, and shame associated with goal avoidance. In this manner, within each framework, a causal path exists whereby the ascription relates to specific emotions, which then determine expectancy and subsequent behaviour.

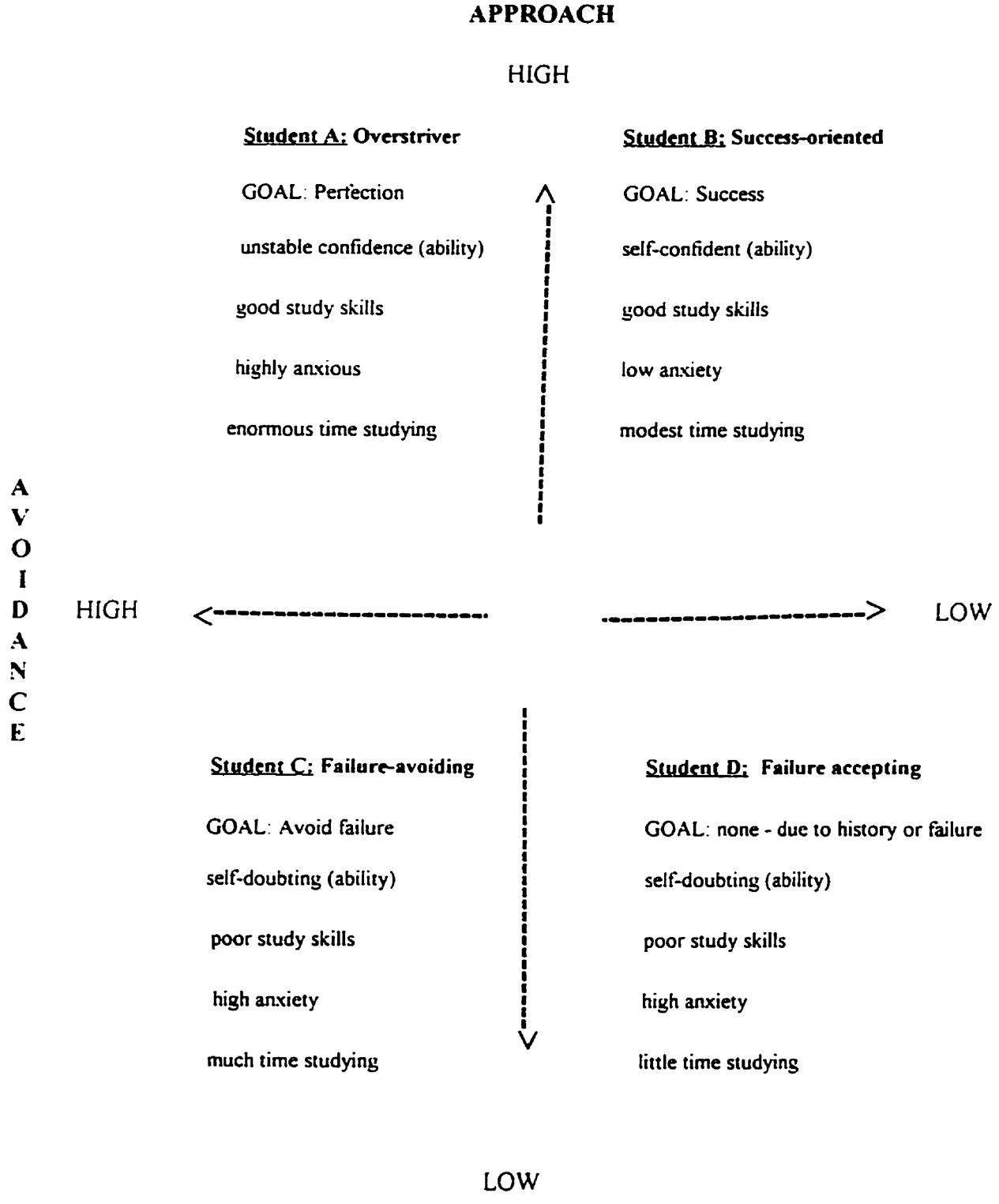


Figure 3. Quadripolar model of need achievement (adopted from Covington, 1993).

Ability in success leads to pride and hope for future success providing that the task difficulty does not change, while ability in failure produces shame and low success expectancies. Effort attribution in success fosters pride (for some students) and the expectancy of future success providing effort is maintained. Ability ascription in failure is linked to feelings of shame, while effort ascription in failure leads to guilt, but motivation to study in the hope of producing future success. However, while Weiner's (1985) attribution theory posits that individuals prefer to explain performance in terms of effort, based on the contention that this is the cause preferred by teachers in the classroom, Covington's (1984) self-worth theory suggests that students prefer to explain their performance as due to ability, in keeping with the self-worth motive.

Goal theory (Ames, 1984) reconciles this dichotomy with the hypothesis that students can prefer either *effort or ability*, depending on their achievement orientation: that is, mastery students prefer effort attributions and performance motivated students prefer ability attributions. An important difference is that Weiner does not adjust these preferences according to students' perceptions of their success, or perceived capacity for the task at hand. As such, all students, according to attribution theory, should all adopt a "mastery response" in goal terms, or a "success-oriented response" in self-worth terms, when effort is cited as the cause of failure. That is, this attribution should increase their success expectancy and motivate them to study harder.

Covington, however, believes that in the occurrence of failure, the majority of students are motivated to avoid citing effort as the cause, as to have expended effort, and failed, is a sign of low ability. Similarly, Ames and her colleagues indicate that only mastery-oriented students are receptive to effort attribution for outcome when failure occurs. Performance-oriented students see failure as indicating a lack of inherent ability and will act to deflect this ascription by citing

external and uncontrollable causes for their failure. Similarly, when success is perceived, only mastery-oriented students gain from explaining this outcome as due to effort: for performance-oriented students, possessing ability is integral to their self-worth, so ability is the preferred attribution. Effort is seen as undermining this perception, and has little value. However, performance-oriented students may modify their causal attribution preferences dependent on whether they are motivated to *approach* or *avoid* performance evaluation, as will be discussed in a later section. This latest branch of goal theory is similar to Covington's (1993) drawing in of Mclelland's (1957) and Atkinson's (1958) learned-drive approach to motivation, which suggests that the focus on ability and performance can be further delineated by degree.

Attributional Retraining

Identifying the conditions under which constructive responses to failure occur are important in that they may help to ensure persistence and continued achievement (Clifford, Kim & McDonald, 1988). If a failure is ascribed to an uncontrollable cause, a student will interpret academic outcomes as being noncontingent on his behaviour. Attributional retraining is an intervention technique based in large part on this tenet: that maladaptive attributions for performance made by students make them prone to helplessness and failure, but that *such patterns can be changed* (Weiner, 1986; 1988). The paradigm involves a theoretically based psychological technique designed to replace negative maladaptive causal explanations for success and failure with more adaptive ones: effort and ability attributions are advocated in the instance of success, with effort advocated in failure.

Pioneered by Wilson and Linville (1982; 1985), numerous researchers have found the technique capable of substantially improving college students' achievement motivation and

performance. Wilson & Linville's (1982) study involved the manipulation of the perceived stability of successful outcomes wherein students read information on attributions and performance and watched a videotape of a trained professional modeling the appropriate ascriptions. These authors proposed that illustrating that grades are at times lower than expected during one's first year and that GPA is apt to improve, provided information that academic performance is not stable. In support of this suggestion, these researchers found that the academic performance of students receiving the intervention improved as compared to a control group. Specifically, scores on GRE type items increased, attrition was lower, and GPA improved for students who had received attributional retraining. Subsequent studies have found that this intervention was related to a stable GPA in the second term compared to a decline in a control group (Jesse & Gregory, 1986-1987), and improved performance on a post-lecture laboratory achievement test (Menec et al., 1994) and on classroom achievement tests throughout the academic year (Perry & Struthers, 1994). The latter researchers reported that the intervention increased students' grade point average .5 points on a 7 point scale which is approximately equal to one-half or more of a letter grade (see also Perry & Penner, 1990; Van Overwalle & DeMetsenaere, 1990).

Most attributional retraining studies have adopted a paradigm similar to that of Wilson & Linville (1982; 1985) wherein a videotape portrays two senior students discussing the difficulties they encountered during their first year and describing how changing the way they explained these difficulties played a large role in their current success. Specifically, negative academic performances are presented as being unstable and controllable with outcome contingent on effort. Researchers have since elaborated on the basic videotape intervention; Jesse and Gregory

(1986-1987), for example, added a written handout to the process and found the method to be most effective when paired with a GPA-information videotape indicating failure as an unstable phenomenon. Their results were such that students who did not receive the intervention, but instead were exposed to a video of an irrelevant lecture, experienced a significant decline in their second term GPA. Noel, Forsyth and Kelley (1987) also found the videotape plus written handout to be effective. In this study, an attributional retraining videotape in which students discussed how failure is unstable was shown, after which subjects were given a handout highlighting the main points in the tape. Subsequently, both test and final grades improved after the intervention.

In light of the impact of just one attributional retraining session ("one-shot AR"), some researchers became interested in what subsequent sessions might accomplish. Menec et al. (1994), for example, examined the effect of administering multiple attributional retraining treatments. Although attributional retraining had significant effects on an achievement test performance when compared to a control group receiving no AR, of particular interest is that there was not a substantial increase in performance with additional sessions of attributional retraining. Hence, one session does seem to be sufficient in terms of instilling the "seed" for attributional change under some conditions.

In the attempt to discover the best mode of the intervention, Perry and Struthers (1994) varied the means by which attributional retraining was presented. Three forms of administration were undertaken consisting of a written handout only, a videotaped presentation only, and a videotaped presentation accompanied by a discussion of the videotape's contents. These researchers found that the latter condition was most conducive to facilitating the integration of the ascription styles presented during the session, with neither the videotape only nor the written

handout only producing effects. Similar to this, Van Overwalle (1990) and Van Overwalle & Demetsenaere (1989) had students describe in writing what they conceived to be the most salient aspects of the retraining session, finding this to be most effective in improving performance on in-class examinations. In explaining these outcomes, Perry & Struthers (1994) hypothesized a crystallization process to account for the improvements found in their videotape plus discussion group, wherein comprehension is improved through listening to other students discuss the concept. Similarly, in the former study, writing down the AR information may help to integrate the material into the cognitive schema.

Nonetheless, research suggests that attributional retraining involving only the videotape can be sufficient (Jesse & Greggor, 1986, 1987; Menec et al, 1994; Van Overwalle & DeMetseneare, 1990; Van Overwalle et al., 1989; Wilson & Linville, 1982, 1985). It is important to note, however, that in all of these studies subjects participated in some kind of activity following the attributional retraining. Thus it may be that attributional retraining accompanied by some other cognitively engaging procedure is required to produce significant improvements in achievement. To investigate this, Hunter (1997) manipulated the events occurring immediately following the videotape. Specifically, the experimental conditions occurring were (a) no treatment, (b) aptitude type test, (c) achievement lecture test, or (d) discussion. When compared to a control group, the condition producing the most significant effects was the videotape followed by the aptitude test, perhaps indicative that this conditions produces the most active form of cognitive engagement.

Attributional retraining has not been without it's sceptics; Block and Lanning (1984) brought to light evidence from a secondary analysis of data indicating that the GPA of students

who dropped-out in Wilson & Linville's (1982) study was actually higher than those who persisted. These authors contended that the improved performance of students in the retraining condition could be explained by other factors, such as regression toward the mean. However, numerous studies, including a replication by Wilson and Linville (1985) and those cited above, have substantiated the initial positive effects. Benefits have been exhibited both immediately following the intervention (Perry & Penner, 1990) and in longitudinal studies undertaken outside of the laboratory (Perry & Struthers, 1994). In sum, attributional retraining has been empirically demonstrated as a successful technique for improving the performance of at-risk students (see Perry et al, 1993, for a comprehensive review). An overview of the various methods of intervention and a summary of the respective outcomes for the attributional retraining studies appears in Table 3 (adopted from Hunter, 1997).

Goal Orientation and Attributional Retraining

The fact that attributional retraining works better under some conditions than others, and produces improvement in some but not all students (Menec et al, 1994; Perry & Penner, 1990), has provided the impetus for further investigations of the dynamic factors which combine to sustain or inhibit the effectiveness of the technique. As Thorkildsen and Nicholls (1998) have cautioned, it is dangerous to view achievement motivation as a global system revealed by aggregate data; personality and evolving identities also play an important role. Thus, for attributional retraining to be unequivocally recommended in the endeavor to assist students in achieving better performance, these individual difference factors must be identified.

Table 3

An Overview of Methods and Outcomes in Attributional Retraining.

Study	Method	Post AR Involvement	Outcome
Wilson & Linville, 1982; 1985.			
	Written report or Videotape	GRE test, written reason analysis	GPA increase, GRE increase, grade increase drop-out reduction
Noel, Forsyth & Kelly, 1987.			
	Videotape	Written summary	Test increase, grade increase, modest attributional change.
Van Overwalle and Demetsenaere, 1990.			
	Videotape	Students wrote about own experience, Group discussion	More "AR" students pass final exams than those in control
Perry & Struthers, 1994.			
	Three Conditions:		(AR) plus discussion improved performance for low perceived success students only, on an in-class test and final grade (more than one letter grade)
	(1) Videotape	none	
	(2) Videotape	small group discussion	
	(3) no video but	written information	
Menec et al., 1994.			
	Aptitude Test (success/failure) **or** MMCS (internal/external) Videotape (0, 1, 2 x)	none	Enhanced performance only for those who failed previously or were external in locus. Increased ascription to effort in externals only. No multiple effects.
Hunter (1997).			
	(1) Videotape	None	Improved motivation and perceived control for low-achieving students in the aptitude test and discussion conditions.
	(2) Videotape	Aptitude test	
	(3) Videotape	Lecture and achievement test	
	(4) Videotape	Discussion	

The differences may be reconciled, perhaps, through the identification of a common thread in the theories summarized thus far: some individuals value effort while others value ability. Students with different goals appear to use very specific inference rules in processing effort information (Dweck & Leggit, 1988). Augmenting motivation with attributional retraining requires enhancing students' valuing of effort and commitment to effort-based strategies; whether or not one is making the desired attributions prior to receiving the training would likely exert an effect on the amount of change the intervention induced. Mastery-oriented students already possess the desired attributional profile and hence would be unlikely to show much change, when compared to a control group (i.e. mastery-oriented students not receiving the intervention). Further to this, goal orientation may have implications for success outcomes as well as failure ones, in that for a performance-oriented individual, being informed that success is due to effort and not to inherent ability, may be a threat. This logic is more precisely delineated in Weiner's (1986) model with the attributional retraining added to the path (Table 4).

For performance-oriented students, outcome is based on the ability they believe they have displayed, whereas for mastery-oriented students, satisfaction with outcomes is based on the effort they have expended (Dweck, 1986). Hence, as illustrated, mastery-oriented "success" students are already making attributions for their achievement to effort and have sustained motivation, thus attributional retraining would not produce a substantial increase in their grades. Mastery-oriented "failure" students are also already making the "right" attributions for their performance; however attributional retraining may exert a small augmentation effect in providing support for the beliefs they already have, motivating them to study harder next time.

Table 4.

Weiner's (1986) Model Revised to Explain the Goal Orientation/Attributional Retraining Dynamic.

Goal	*Perceived Performance*	*Ascription*	*Motivation*	*Effect of AR*	*Outcome*
Mastery	Success	Effort	continued motivation	little effect	continued achievement
	Failure	Lack of Effort	increased motivation	small positive effect	improvement
Performance	Success	Ability	continued motivation (until failure is encountered)	negative effect	decline in confidence leading to poorer performance (ego threat)
	Failure	Lack of Ability	avoidance of situation and decreased motivation	large positive effect	improvement in that an alternative to the ability ascription is provided (ego protection)

For performance-oriented "success" students, attributional retraining may actually exert a negative effect in that it challenges their belief that a history of success is due to inherent ability. Telling them that they succeed not because they are smart but rather because they try hard, may be a threat to their self- worth, which is rooted in conceptions of ability. That is, this would lead to low confidence and decreased performance. Performance-oriented "failure" individuals, however, would potentially reap the maximal benefits of attributional retraining in that it gives them an alternative to avoidance. These individuals may be driven by an ego-protection motive to change their attributional patterns (i.e. make failure attributions to effort) instead of accepting that they lack ability (cf. Covington, 1997). In this manner, it is possible that attributional retraining will have differential effects on students, depending on whether the student is mastery-oriented or performance-oriented, and whether the student perceives him or herself as a failure or a success, academically.

Recent Research and Current Paradigm

Current research into achievement goals has added yet another dimension to this dynamic, making self-worth theory and students' success perceptions even more relevant. While empirical research has generally demonstrated that mastery goals are associated with an adaptive pattern of cognitions, affects and behaviours, and performance goals are associated with less adaptive patterns (e.g. Dweck & Leggitt, 1988), the findings concerning the latter type of goal have been inconsistent (e.g. Wolters, Yu & Pintrich, 1996). Some researchers suggest that it may be that the optimal outcome requires a balance between performance and mastery goals (Reisetter & Schraw, 1998). Performance goals can be beneficial in that they provide objective feedback about one's strengths and limitations. It is when the focus is primarily on proving one's adequacy

that this orientation becomes problematic in that an avoidance of learning opportunities and deteriorating performance in the face of challenge ensues (Eppler & Harju, 1997).

The performance-orientation may manifest itself in slightly different goals for different students (Skaalvik, Valas, & Sletta; 1994). Researchers have isolated two distinct latent constructs which closely parallel Covington's (1993) approach and avoidance components (Elliott & Harackiweicz; 1996; Skaalvic, 1997; Middleton & Midgely, 1997). Specifically, for some performance-oriented students, the goal is to be the best or to demonstrate superior ability or competence (approach component), while for others the goal is to avoid demonstrating incompetence, to avoid looking stupid and to prevent the anticipated negative reaction from others (avoidance component). The distinction has been proposed to result in a fuller and more accurate representation of the dynamics induced by one's goal orientation, wherein the avoidance component of performance goals relates to less adaptive outcomes than does the approach component (Middleton, Kaplan & Midgely, 1998). Elliott and Harackiewicz (1996) also connected these divergent objectives to McClelland's (1951), and Atkinson's (1957) theories of achievement, using the labels *performance-approach* and *performance-avoid* goals. Where Covington (1993) and the most recent goal theorists diverge, however, is that the former model assigns ability ascriptions in all four quadrants, whereas in the latter, performance and mastery orientations show distinct preferences for either ability *or* effort, as has been outlined throughout this paper.

While the goal of avoiding negative judgements from others may result in effort withdrawal (Covington, 1992), if one's perceived ability is high, it may also result in increased effort. Hence, the relation between approach and avoidance may be more a function of the

students' perceptions of their ability for the task. The qualitative difference between a mastery, performance-approach and performance-avoid motive, then, may be that while mastery-oriented students strive to learn and performance-approach students strive for success, performance-avoid students are driven by a fear of failure. Researchers (Elliott & Harackiewicz, 1996) have further speculated that while a performance-avoidance orientation has debilitating effects in that it interferes with task engagement, a performance-approach orientation can be functionally equivalent to a mastery goal in facilitating task engagement and intrinsic motivation. Specifically, both groups approach the task with motivation in that they expect success as an outcome, be it in terms of a grade or an increase in learning.

As of yet, researchers have not examined the impact of goal orientation on interventions designed to assist at-risk students. Applying the more current delineation of goals and integrating the theoretical dynamic induced by students' perceptions of success and failure allows these individual differences to be contextualized specifically. In keeping with the current research (e.g. Reisetter & Schraw, 1998), participants in this study are partitioned into four groups following Covington's (1993) model. These groups are construed as reflecting the mastery, performance-approach and performance-avoid (Elliott & Harackawicz, 1996) and failure-accepting (Covington, 1993) motives theorized in earlier sections, and the resulting hypotheses are generally presented in Table 5.

In sum, main effects of attributional retraining are not anticipated, given the theorized interaction with goal orientation and perceived success. Some main effects of goal orientation are expected, however, wherein mastery oriented students will exhibit the most adaptive profile as expressed in the dependent measures, followed by the performance-approach and then the

Table 5

Current Paradigm Involving the Four Classifications of Goals .

Goal	*Perceived Success*	*Ascription*	*Motivation*	*Effect of AR*	*Outcome*
Mastery	High	Effort	continued motivation	little effect	continued achievement
	Low	Lack of Effort	increased motivation	small positive effect	improvement
Performance Approach	High	High Ability	continued motivation (until failure is encountered)	negative effect	decline in confidence leading to poorer performance (ego threat)
	Low	Ability/Other	continued motivation	small positive effect	improvement by validating effort as cause of failure-preserves self-worth
Performance Avoid	High	Ability/Other	moderate motivation	large positive effect	validate effort ascription
	Low	Low Ability	low motivation	large positive effect	improvement in that an alternative to the ability ascription is provided (ego protection)
Failure Accept	High	Luck	low motivation	little effect	indifferent to both effort and ability information
	Low	Luck	low motivation	little effect	

performance-avoid groups. The failure-accepting group is expected to show the least adaptive profile. Main effects are hypothesized for perceived success also, where it is expected that those high in perceived success will exhibit a more adaptive profile. Also anticipated are interactions between goal orientation and perceived success, where these effects are expected to be more pronounced when perceived success is low. Further more, three-way interactions are hypothesized such that students receiving attributional retraining who are performance-avoid oriented and have low perceived success will exhibit more improvement relative to the control (no AR) than any other group.

More specifically, using goal orientation as a guide, it is anticipated that the mastery and performance-approach groups will show a more similar profile to one another than to the other groups. It is expected that mastery-oriented students will achieve a moderately high grade (not the highest, given low value for external reward), make a primary ascription to effort, score highest in perceived control and positive affect, and lowest in negative affect. Attributional retraining is expected to have little effect for these students (as compared to the dependent scores for the no AR group) and it is anticipated that these effects will occur in both low and high perceived success. Performance-approach students are expected to rate the ability ascription as highest. When perceived success is high, this group of students is expected to achieve the highest final grade, and score high in perceived control and positive affect. It is expected that attributional retraining will have a negative effect (as compared to the control) in this condition. When perceived success is low, performance-approach students are expected to achieve moderately in terms of final grade, to exhibit low perceived control, low positive affect and high

negative affect. In this condition, the intervention is expected to have a small positive effect on the dependent measures.

Performance-avoid oriented students are expected to make primary ascription to ability. When perceived success is high, this group is expected to have a high final grade (they have been successful in hiding their 'inability'), but low perceived control, low positive affect and high negative affect. When perceived success is low, these students will exhibit a low final grade, low perceived control, low positive affect and high negative affect. For this orientation, AR is expected to produce improved scores on the dependent measures (as compared to the control) for both low and high perceived success students, in that the intervention offers a more internal locus for success, but allows ego-protection in failure. Failure-accepting students are expected to show a preference for neither effort nor ability ascription as indicated by the lowest rating for both attributions. They are expected to have the lowest final grade, be lowest in perceived control, but moderate in both positive and negative affect (they *accept* their failures). Attributional retraining is expected to have little influence on this group when compared to the no AR group on most dependent measures and these effects are expected in conditions of both low and high perceived success.

Method

Subjects.

The complete sample consisted of 844 students recruited from various sections of an introductory psychology course at a large mid-western Canadian university. Based on their ratings of perceived success in their introductory psychology course, 358 students were removed from this larger sample (the reasons for this are discussed in detail under the measures section), leaving

a total number of 486 participants. Subsequently, 261 and 225 students comprised the control and attributional retraining groups respectively. It was expected that random assignment to these conditions would approximate demographic equality on variables other than those of selection. As a manipulation check, t-tests were computed, with no significant differences found to exist between the control and attributional retraining groups on goal orientation and perceived success prior to the intervention (i.e. similar scores on the other independent measures prior to AR).

Instrumentation and Measures.

All participants completed a prescreening questionnaire entitled "Attitudes Toward University Experience", hereafter referred to as BB'97(A). The questionnaire encompassed various scales addressing students' attitudes toward their post-secondary educational experience. The independent variables of goal orientation and perceived success were derived from these measures. Also utilized as a covariate was students' highschool GPA. The scales composing these measures appear in the BB '97 code book, found in Appendix A. Table 6 provides descriptive statistics (where applicable) for the independent variables.

Goal orientation. A likert-type scale was used consisting of eight items drawn from Pintrich, Smith & McKeachie's (1989) MSLQ (Motivation and Student Learning Questionnaire). Four items tap mastery-orientation (Intrinsic Goal Orientation, or IGO scale) and four tap performance-orientation (Extrinsic Goal Orientation, or EGO scale). The measure had adequate reliability (Chronbach's alpha = .75 for the mastery items and .78 for the performance items) and compared favorably to the MSLQ reported reliabilities for these scales (.76 and .80 respectively) in accordance with previous research in this domain (e.g. Nicholls et al., 1985). This scale appears on page 11 of the codebook as items #63 -#70.

Table 6

Specifics for the Experimental Groupings: Attributional Retraining, Goal Orientation and Perceived Success.

Measure	(n)				
Attributional Retraining					
Control	261				
Experimental	225				
Measure		Performance Score		Mastery Score	
Goal Orientation*					
	(n)	M	SD	M	SD
Mastery	162	18.73	3.65	21.48	2.19
Approach	243	25.58	1.77	22.14	2.52
Avoid	135	25.43	1.68	14.95	3.00
Accept	302	17.35	3.74	14.32	2.88
Measure					
Perceived Success					
	(n)	M	SD		
Low	218	2.02	.83		
High	268	7.86	.92		

Note. * (n)'s reported for goal orientation classifications do not include missing data (n=2) and are prior to removal of 358 students on the basis of their perceived success scores.

To create the goal orientation classifications outlined earlier, a method utilized by other researchers was adopted (e.g. Elliott & Harackiewicz, 1996; Reisetter & Schraw, 1998). For each of the mastery (M = 18.02, Mdn. = 18.00, SD = 4.61) and performance scales (M = 21.28, Mdn = 22.00, SD = 4.88), students were classified as either low (n = 439, M = 14.46) or high (n = 403, M = 21.89) in mastery, and low (n = 465, M = 17.83) or high (n = 379, M = 25.52) in performance on the basis of a median split. (Two students were missing values on MSLQ mastery items, therefore total (n) for the mastery measure = 842; the means reported do not include missing values in calculations.)

In this manner, it was possible to create four groups (i.e. high mastery/low performance; high mastery/high performance; high performance/low mastery and low performance/low mastery). The high mastery/low performance group was considered to reflect "Mastery Orientation" (n = 162, mastery score: M = 21.48, SD = 2.19; performance score: M = 18.73, SD = 3.65). The high mastery/high performance group constituted the "Performance-Approach Orientation" (n = 243, mastery score: M = 22.14, SD = 2.52; performance score: M = 25.58, SD = 1.77). The low mastery/high performance group was labeled as "Performance Avoid Orientation" (n = 135, mastery score: M = 14.95, SD = 3.00, performance score: M = 25.43, SD = 1.68). Finally, the low mastery/low performance group was assigned the "Failure Accept" title (n = 302, mastery score: M = 14.32, SD = 2.88; performance score: M = 17.35, SD = 3.74). Note that again, two students were missing data for the mastery items, hence the (n) = 842: adding the 2 cases of missing data, total (n) = 844. As well, The (n)'s reported for each of the four goal classifications are prior to the removal of 358 students on the basis of their perceived success score, as outlined below.

Perceived success. Perceptions of success were obtained from student's self-report in the form of a question worded as follows: "How successful do you feel you are in your introductory Psychology course so far this year?" This item appears in the code book as item #61 (M = 5.13, Mdn. = 5.00 SD = 2.45). The scale was likert in nature, with possible responses ranging from (1) - Very Unsuccessful to (10) - Very Successful. This item has been used in a number of previous studies as a measure of perceived success (see Perry & Magnusson, 1989; Perry & Penner, 1990; Perry, Menec, Hechter & Wienberg, 1993; Menec et al, 1994; Drewniak, 1997; Hunter, 1997).

Students were categorized as either low perceived successs, i.e. perceived "failure" (n = 218, M = 2.02) or high perceived success, i.e. perceived "success" (n = 268, M = 7.86) by dropping the second and third quartiles (Mdn = 5.00, SD = 2.45, n = 358). This procedure has been used by other researchers in the past (e.g. Menec et al, 1994) and had a dual purpose. Of practical significance, the groupings are intended to highlight perceived success as an individual difference variable by contrasting *at-risk* students with those who excel. Dropping the median differentiates these classifications more clearly. Empirical support for this procedure also exists in that Dai & Feldhausen (1998) report that regression analyses at three levels of perceived competence (i.e. low, median and high) reveal that effects take place only when a certain critical point is reached. Specifically, perceived success interacts with goal orientation only in the presence of a clearly defined failure perception (i.e. low perceived success) or success perception (i.e. high perceived success), which is best achieved by dropping scores surrounding the median.

Academic strategies questionnaire. To obtain "pre" measures of attributions to effort and ability and to make salient the attributional retraining information to follow, a 12 item survey, the ASQ (Pelletier, 1997) was administered to the experimental group at the beginning of the

laboratory session. In addition to containing two items identical to the post-measures of effort and ability, another ten items assessed students beliefs about the salience of effort and ability in failure and success situations pertaining to the academic context. Factor analysis revealed three distinct subscales precisely relating to the hypothesized constructs, but having higher reliability than the MSLQ scales (Pintrich, Smith & McKeachie, 1989). The ASQ items are, for this reason, used as a manipulation check (see pg. 26 of Appendix A).

The three factors were categorized by *effort explanations for outcome* (mastery orientation), consisting of 5 items with a Chronbach's alpha of .78; *ability explanations for success* (performance-approach orientation), consisting of 3 items with an alpha of .68; and *ability explanations for failure* (performance-avoid orientation), consisting of 4 items, and exhibiting an alpha reliability of .86. These groupings are theoretically driven and based on empirical research (Eppler & Harju, 1997; Skaalvik, 1997; Reisetter & Schraw, 1998) indicating that mastery-oriented students show a primary preference for an effort ascription, performance-approach students espouse an ability ascription for success, and performance-avoid oriented students primarily make an ability ascription in failure; that is, they explain poor performance as beind due to low ability.

Attributional retraining videotape. The intervention session utilized an eight minute videotape based on attribution theory and causal ascription. The videotape consisted of an introduction by a psychology professor explaining the importance of understanding the causes of achievement outcomes to the extent that the way in which these events are interpreted affects future outcomes. The videotape then shows two students discussing some of the reasons for their poor achievement during their first year of university, with an explanation of what they

subsequently did to improve performance. Specifically, a male student describes to a female student how he was initially distraught after performing poorly on a psychology test as he thought that the test was too difficult and that there was no way that he would be able to do well. He then explains that after discussing the experience with a friend, he discovered that the probable cause of his failure was the fact that he had been skipping classes and not putting in enough effort. He reports that increasing his effort allowed him to take control of his academic performance, and ultimately lead him to success.

The female student relates a similar story, describing how although she perceived that she had studied hard, she had still failed her first exam. She reveals that this had initially lead her to conclude she was stupid. Like the first student, in talking to a friend, she learned that many students do poorly on the first test in university but are able to improve their test-taking skills through practice, leading to success on later exams. The videotape ends with a professor reviewing the content of these conversations. The videotape has the copyright of the Motivation and Academic Achievement laboratory at the University of Manitoba, and has been used in other attributional retraining studies in our laboratory (Perry & Struthers, 1994; Menec et al, 1994; Hunter; 1997; Hladkyj et al, 1998).

Aptitude test. The Abstract Reasoning and Performance Test (ARPT, Perry & Dickens, 1984; 1987) was administered following the attributional retraining videotape. The test is composed of three sections: verbal analogy, quantitative, and sentence completion. The sections contain 10, 5 and 10 questions respectively and each has a time limit of 5 minutes. In order to ensure that some students experience failure, the test is designed to be relatively difficult. This test has also been used in conjunction with the retraining videotape in previous studies as an

achievement measure (Menec et al, 1994) and as a means to facilitate cognitive engagement (Hunter, 1997); in this study it served the latter purpose. This test appears in Appendix B.

Handout. A handout reviewing the information presented in the videotape was given upon completion of the attributional retraining session. The handout (see Appendix C), makes suggestions as to how students can change the way they think about negative experiences in their lives. For example, it states "rather than thinking a test was too difficult, try thinking in terms of tests appearing difficult when one is not well enough prepared", implying that one can study more for the next test.

All subjects completed a follow-up questionnaire (see Appendix A) in the second term of the year, hereafter referred to as BB'97(C). This questionnaire provided data for three of the dependent variables: perceived control, attributions, and affect. Table 7 provides an overview of the psychometric properties for all dependent variables.

Perceived control. This variable was measured by asking students to express their degree of agreement with 23 items assessing beliefs about experiences both in their psychology course and in life more generally. The scale was likert in nature, with responses ranging from (1) Strongly Disagree to (5) Strongly Agree; higher scores indicate more perceived control. The scale was composed of three factors reflecting *academic control* (10 items, Chronbach's alpha = .88), *desire for control* (seven items, Chronbach's alpha = .81) and *general control* (5 items, alpha = .63). Scores for the three factors were summed to provide an overall estimate of perceived control (Chronbach's alpha = .88). The complete scale has been used in previous years (Pelletier, Perry & Hladkyj, 1998; Perry, Hladkyj & Pekrun, 1998) and these items appear as #'s 1 - 24 in the code book, where **r** indicates the item has been reverse coded.

Table 7

Overview of Psychometric Properties for the Dependent measures.

Measure	# of items	Scale anchors	Chronbach's Alpha	Codebook Pg. #
Final Grade	1	1 = A+, 8 = F	n/a	n/a
Perceived Control	24	1 = strongly disagree 5 = strongly agree	.86	5
Attributions	2	1 = not at all 10 = very much so	n/a	27
Affect	4	1 = not at all 10 = very much so	.86	17
Manipulation Check:				
Attributions to Effort	*5*	*1 = not at all* *10 = very much so*	*.77*	*26*
Attribution to Ability Failure	*4*	*1 = not at all* *10 = very much so*	*.86*	*26*
Attribution to Ability Success	*3*	*1 = not at all* *10 = very much so*	*.69[a]*	*26*

Note: [a] It is likely that the lower reliability for this scale is a result of fewer students completing the *ability ascription for success* items.

Attributions. Ascriptions for performance to effort and ability were assessed using questionnaire item #'s 71, and 72, appearing on page 27 of the code book. The item wording was as follows "To what extent do each of the following factors influence your performance in your introductory psychology course?" The student indicated the influence of these factors on 10 point likert scale ranging from (1) - not at all to (10) very much so. These have been used successfully in previous research (e.g. Perry & Magnusson, 1989; Perry & Penner, 1990; Perry, Schonwetter, Magnusson & Struthers, 1994).

Affect. The affect measure consisted of two positive (hope and pride) and two negative (guilt and shame) emotions linked specifically to attributions according to Weiner's (1986; 1995) theory and relating to students' performance in their introductory psychology course. Students rated themselves as feeling each emotion: (1) - "not at all", to (10) - "very much so". These items constituted part of a larger scale on emotions (alpha = .86), which appears on page 17 of the codebook.

Performance. Students' final grades were obtained by permission from the professor at the end of the year. The scale for final grade is ordinal in nature, with grades assigned the following values: 8 = A+, 7 = A, 6 = B+, 5 = B, 4 = C+, 3 = C, 2 = D, 1 = F. Higher values then indicate a better grade. As a reliability check to determine whether different professors used diverging grading schemes, a Pearson correlation was done for all sections of introductory psychology between final grade and the students' cumulative percentage in their tests and assignments. A correlation of r = .97 indicates that final grade is a valid measure of achievement, generalizable from one class to another. Highschool GPA was used as a covariate in the analyses to control for random aptitude differences between the control and experimental groups.

Procedure.

The experiment involved a paradigm used in numerous previous studies (e.g. Perry & Struthers, 1994; Menec et al, 1994; Drewniak, 1997; Hunter, 1997), involving four phases (see Table 8): Phases 1 and 2 took place during the first semester, and Phases 3 and 4 occurred during the second semester. At Phase 1, the screening questionnaire, BB'97(A), was administered to both the control and experimental groups. This session provided the data on two of the independent measures: namely goal orientation and perceived success. The questionnaire was administered in a large classroom to groups of approximately 50 students by the same researchers, and took approximately 40 minutes to complete. All responses were indicated on two IBM sheets, which were then scanned by computer.

The attributional retraining intervention constituted the third independent variable (no intervention, intervention) and occurred at Phase 2. The experimental group first completed the Academic Strategies Questionnaire (ASQ) and then viewed the attributional retraining videotape. Immediately following the videotape, participants completed the Abstract Reasoning and Abilities Test. Finally, the information on the videotape was reviewed by the experimenter and the handout was given. The experimental session took one hour, and was administered to groups of approximately 20 students at once. Twenty sessions were held, and each was carried out by the same investigators in the same room. The control group did not participate in Phase 2. The decision not to include an alternate (non-attributional retraining) session was a practical one, based on numerous previous investigations performed in this laboratory wherein one group received attributional retraining, while the other received a non-retraining condition.

Table 8

Overview of Phases and Measures for the Control and Experimental Procedures.

PHASE	PROCEDURE	PARTICIPANTS	MEASURES OBTAINED
Phase 1:	Screening Questionnaire	Control and Experimental	Goal orientation Perceived success
Phase 2:	Attributional Retraining	Experimental only	AR vs No AR ASQ items for manipulation check.
Phase 3:	Follow-up Questionnaire	Control and Experimental	Perceived Control Attributions Affect
Phase 4:	Collection of Final Grades	Control and Experimental	Achievement

Only in the former condition did students exhibit the expected outcome, hence it has been sufficiently proven that the experimental manipulation is, in itself, capable of producing effects; it is not simply the "session" that creates the desired outcome (see Perry et al, 1993, for a review).

At Phase 3, all participants completed the BB'97 (C) follow-up questionairre, which provided data for the dependent measures. Administration was identical to that of Phase 1, except that students were debriefed in the form of a written handout upon completion of the survey. Phase 4 took place in April, and involved obtaining Final Grades and test marks.

Results

Rationale for Analyses.

The basic analytic model combined attributional retraining (No AR/AR) with goal orientation (failure-accept, performance-avoid, performance-approach, mastery) and perceived success (low perceived success/high perceived success) in a 2 x 4 x 2 factorial design. Achievement outcome (final course grade), perceived control, attributions to effort and ability, and affect were evaluated as dependent variables. As a manipulation check, a series of one-way analyses of variance were performed on the experimental group on attributions to effort, ability in success, and ability in failure at Phase 2 (ASQ items), to ensure that the groupings supported the theorized attributional profiles. These hypotheses are summarized below.

Specifically, if the classification for goal orientation was successful, the mastery group should rate the effort attribution highest of the four groups, the performance-approach group should rate the ability attribution for success highest, and the performance-avoid should rate the ability attribution for failure higher than the others. As a result of their indifference to ability and effort attribution for performance, it was expected that the failure-accept group would score

lowest on all three measures. As well, based on the hypothesis that the mastery and performance-approach groups are functionally equivalent to one-another (Elliott & Harackiweicz, 1996; 1998), it was expected that a-priori Bonferroni t -tests would not reveal significant differences between these groups (on the aforementioned factors). These findings are presented under the heading *preliminary analyses.*

Likewise, for the remainder of the dependent measures, the mastery and performance-approach orientations were expected to be again, more similar to one another than to the other two groups. This was tested where applicable by a-priori one-tailed Bonferroni t-tests ($p < .05$). Significant interactions were also probed with a-priori tests to determine if the interaction conformed to the predicted pattern. These results, in addition to those hypothesized in an earlier section, are presented under the heading *Main Analyses.* As well, in order to account for potential differences in cell sizes between Phase 1 and Phase 4, an attrition analysis was conducted to determine if the independent variables were linked to study drop-out.

Preliminary Analyses.

Attributional profiles. As a manipulation check, a series of one-way analyses of variance (see Table 9) were conducted on the three factors underlying the Academic Strategies Questionnaire (ASQ) to determine if the goal orientation groupings were valid indicators of the theorized profiles (see Table 10 for means and standard deviations). A-priori one-tailed multiple Bonferroni t-tests were used to confirm that the effects were in the anticipated direction, where critical $t_{(211)} = 1.96$ at $p < .05$. Note that only 212 participants completed the items for attribution to ability in success: this number is used for calculating critical *t*, as it provides the most conservative estimate.

Table 9

Analyses of Variance for Attribution to Effort, Attribution to Ability in Failure, and Attribution to Ability in Success.

Effort Attribution

Source	SS	df	MS	F
Between Groups	312.26	3	104.09	6.29***
Within Groups (error)	6177.42	373	(16.56)	
Total	6489.68	376		

Attribution to Ability in Failure

Source	SS	df	MS	F
Between Groups	1488.93	3	496.31	9.05***
Within Groups (error)	20387.27	373	(54.83)	
Total	20397.27	376		

Attribution to Ability in Success

Source	SS	df	MS	F
Between Groups	102.81	3	34.27	2.25*
Within Groups(error)	2775.81	208	(13.45)	
Total	2878.62	211		

Note. * $p < .05$ ** $p < .01$ *** $p < .001$
Values in parentheses represent mean square errors.

Table 10

Means and Standard Deviations for the Preliminary Analyses on Attributions to Effort, Ability in Failure and Ability in Success.

	Attribution								
	Effort			Ability in Failure			Ability in Success [a]		
Goal	M	SD	(n)	M	SD	(n)	M	SD	(n)
Mastery	34.17	3.23	70	15.85	7.57	70	23.27	3.44	40
Approach	34.04	3.93	109	19.20	7.44	109	24.01	4.09	57
Avoid	32.03	4.67	63	22.06	7.43	63	22.89	3.33	38
Accept	32.01	4.25	135	17.45	7.26	135	22.27	3.55	77

Note. Mastery = mastery-orientation

Approach = performance-approach

Avoid = performance-avoid

Accept = failure-accept.

[a] (n)'s differ for this measure because these items were not introduced until the latter part of the attributional retraining phase, and all participants did not complete them.

A main effect was found for *attribution to effort* ($F_{3, 376} = 6.29$, $p < .001$). Specifically, while the mastery group rated effort attribution highest, it did not differ significantly from the performance-approach group ($t = 0.21$), which exhibited the next highest score on this measure, although it differed significantly from the performance-avoid group ($t = 3.10$) and failure-accept groups ($t = 1.99$). The performance-avoid group scored lowest in attribution to effort.

A main effect occurred for *attribution to ability in failure* ($F_{3, 375} = 9.05$, $p < .001$) such that the performance-avoid group rated ability as most salient in failure, followed by the performance-approach group and then the failure-accept group. The mastery group was lowest on this measure. Significant differences were found between the performance-avoid and mastery groups ($t = 4.85$), and the performance-avoid and the performance-approach groups ($t = 2.44$) as well as the performance-avoid and failure-accept groups ($t = 4.04$).

Finally, a main effect occurred for *attribution to ability in success* ($F_{3, 211} = 2.60$, $p < .05$), wherein the performance-approach group rated ability attribution highest in success, followed by the mastery group, and then the performance-avoid group. The failure-accept group was lowest on this measure. No significant difference existed between the performance-approach and mastery ($t = 0.98$) or the performance-approach and performance-avoid ($t = 1.65$) groups on this measure although it did differ from the failure-accept group ($t = 2.72$).

Main Analyses.

Final grade. Attributional retraining (AR) did not have a main effect on final grade ($F_{1, 469} = 0.62$, $p > .05$), nor did goal orientation ($F_{3, 469} = 1.70$, $p > .05$). However, a main effect occurred for perceived success ($F_{1, 469} = 159.22$, $p < .001$) such that high perceived success students ($M = 6.05$, $SD = 1.50$) received significantly higher grades than low perceived success

students (M = 3.72, SD = 1.69). In terms of final grades, this means that students with high perceived success obtained an average of 76%, while those with low perceived success obtained an average of 46%.

As well, attributional retraining and goal orientation interacted ($F_{3, 469} = 2.95$, $p < .05$) such that performance-avoid students' final grade increased with AR compared to no AR ($t_{74} = 2.01$, $p < .05$), while mastery students' grade decreased for those who received AR compared to those who did not receive the intervention ($t_{101} = 2.17$, $p < .05$). In performance-avoid group, this translates to 59% in the control compared to 69% in the attributional retraining group, an increase approximately one letter grade. In the mastery group, students in the control had an average final grade of 70% while students in the AR group had an average final grade of 63%. Performance-approach ($t_{147} = 0.28$, $p > .05$) and failure-accept ($t_{156} = 1.00$, $p > .05$) students' final grades did not differ as a result of their attributional retraining condition (Figure 4). See Table 11 for a summary of the analyses of variance and Table 12 for the means and standard deviations for the dependent measures.

Perceived control. Attributional retraining (AR) had no main effect on perceived control. Goal orientation, however, exhibited a main effect such that mastery-oriented students (M = 93.44, SD = 7.92) reported the most perceived control followed by performance-approach (M = 92.95, SD = 8.80) students, and then performance-avoid students (M = 88.49, SD = 8.86) with failure-accept students (M = 87.46, SD = 8.73 reporting the least ($F_{3, 387} = 8.27$, $p < .001$). Bonferroni t tests revealed that the mastery and performance-approach groups did not differ significantly on perceived control ($t_{212} = 0.72$, $p > .05$), and that the performance-avoid and failure-accept groups also did not differ on perceived control ($t_{171} = 0.85$, $p > .05$). The

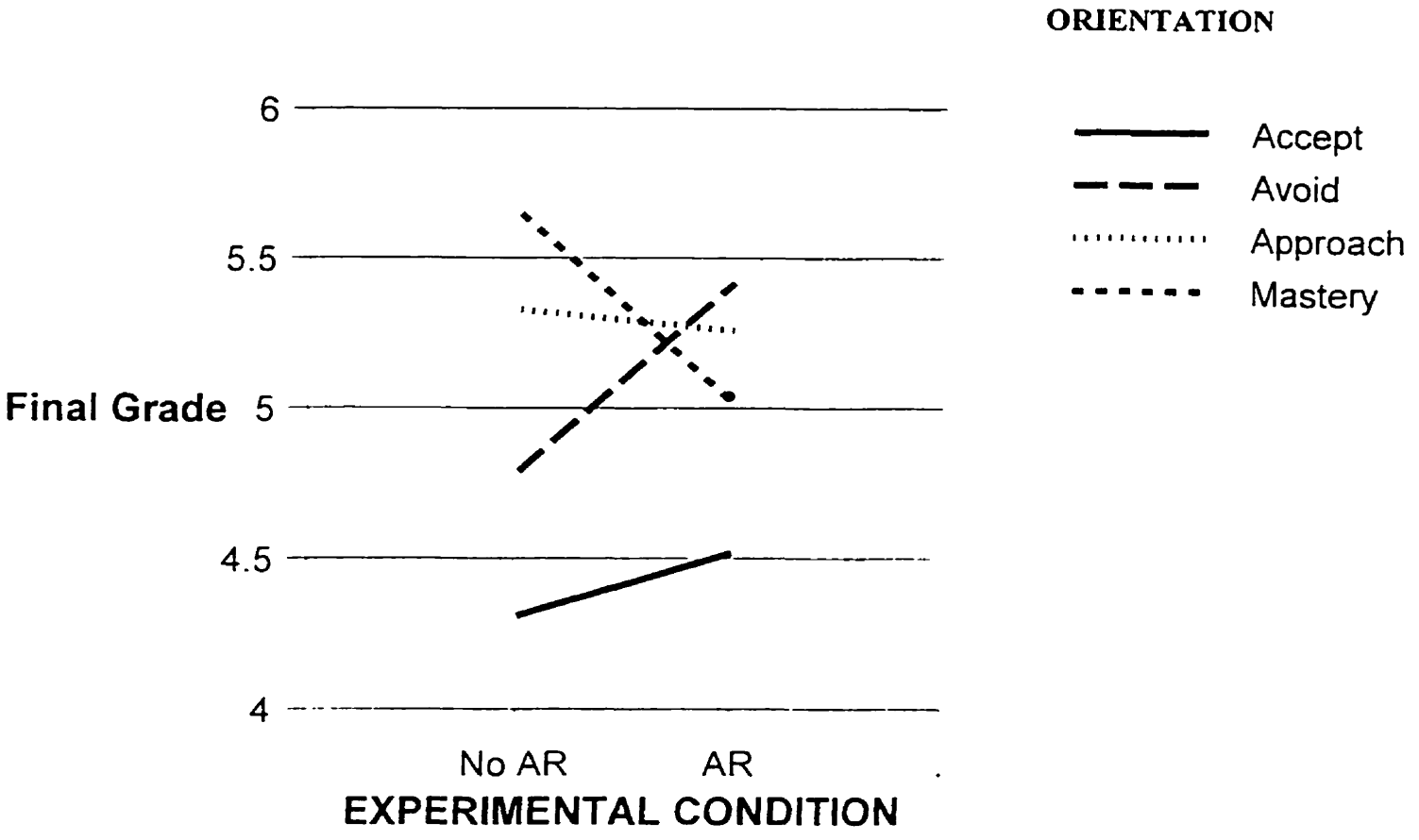


Figure 4. Attributional Retraining by Goal Orientation Interaction on Final Grade

Table 11.

The Analyses of Variance for Final Grade, Perceived Control, Attributions to Effort and Ability, and the Affect Measures.

Final Grade

Source	SS	df	MS	F
High school GPA (covariate)	150.71	1	123.21	54.92 ***
Attributional Retraining (A)	1.40	1	1.40	0.62
Goal Orientation (B)	11.42	3	3.81	1.70
Perceived Success (C)	357.24	1	357.24	159.22 ***
A x B	19.86	3	6.62	2.95 *
A x C	0.68	1	.68	0.30
B x C	7.75	3	2.58	1.15
A x B x C	7.83	3	2.61	1.16
error	1052.22	469	(2.24)	

Perceived Control

Source	SS	df	MS	F
Highschool GPA (covariate)	10.05	1	10.05	0.14
Attributional Retraining (A)	192.80	1	2.60	0.11
Goal Orientation (B)	1836.77	3	612.27	8.27 ***
Perceived Success (C)	469.17	1	469.17	6.33 ***
A x B	175.21	3	58.40	0.78
A x C	31.62	1	31.62	0.43
B x C	489.25	3	156.42	2.11 *
A x B x C	419.43	3	139.81	1.90
error	27395.77	370	(74.04)	

Effort Attribution

Source	SS	df	MS	F
Highschool GPA (covariate)	ns	ns	ns	0.00
Attributional Retraining (A)	5.73	1	5.73	1.36
Goal Orientation (B)	2.42	3	0.81	0.19
Perceived Success (C)	30.60	1	30.60	7.29 **
A x B	3.67	3	1.34	0.29
A x C	1.13	1	1.33	0.27
B x C	9.56	3	3.18	0.76
A x B x C	22.34	3	7.45	1.78
error	1594.74	380	(4.12)	

Table 11, Continued.

Attribution to Ability

Source		SS	df	MS	F	
Highschool GPA (covariate)		3.91	1	3.91	1.15	
Attributional Retraining	(A)	7.29	1	7.29	3.56	*
Goal Orientation	(B)	45.68	3	15.23	4.48	**
Perceived Success	(C)	30.16	1	30.16	8.04	**
A x B		7.62	3	2.54	0.75	
A x C		6.23	1	1.83	0.18	
B x C		6.34	3	2.13	0.62	
A x B x C		23.43	3	7.81	2.30	
error		1291.95	380	(3.40)		

Hope

Source		SS	df	MS	F	
Highschool GPA (covariate)		0.12	1	0.12	0.03	
Attributional Retraining	(A)	1.24	1	1.24	0.30	
Goal Orientation	(B)	30.95	3	10.31	2.52	*
Perceived Success	(C)	58.59	1	58.58	14.33	***
A x B		3.73	3	1.24	0.30	
A x C		0.67	1	0.67	0.16	
B x C		1.40	3	0.47	0.11	
A x B x C		8.93	3	2.98	0.73	
error		1533.62	380	(4.08)		

Pride

Source		SS	df	MS	F	
Highschool GPA (covariate)		3.98	1	3.98	0.73	
Attributional Retraining	(A)	2.41	1	2.41	0.46	
Goal Orientation	(B)	39.17	3	13.06	2.51	*
Perceived Success	(C)	339.54	1	339.54	62.66	***
A x B		12.11	3	4.04	0.74	
A x C		16.78	1	16.78	3.10	
B x C		8.40	3	2.80	0.52	
A x B x C		37.77	3	12.59	2.32	
error		2053.52	379	(5.14)		

Table 11. Continued.

Guilt

Source		SS	df	MS	F
Highschool GPA (covariate)		2.46	1	2.46	0.34
Attributional Retraining	(A)	60.91	1	60.91	9.77 **
Goal Orientation	(B)	5.23	3	1.75	0.28
Perceived Success	(C)	228.86	1	228.86	36.72 ***
A x B		7.13	3	2.38	0.38
A x C		18.26	1	18.26	2.93
B x C		10.03	3	3.34	0.54
A x B x C		16.29	3	5.50	0.87
error		2355.46	378	(6.23)	

Shame

Source		SS	df	MS	F
Highschool GPA (covariate)		9.32	1	9.32	1.71
Attributional Retraining	(A)	38.92	1	38.92	7.16 **
Goal Orientation	(B)	19.05	3	6.35	1.17
Perceived Success	(C)	239.91	1	239.91	44.13 ***
A x B		4.37	3	1.46	0.27
A x C		25.83	1	25.83	4.75 *
B x C		0.40	3	.13	0.02
A x B x C		12.36	3	4.12	0.76
error		2065.67	380	(5.43)	

Note. * $p < .05$ ** $p < .01$ *** $p < .001$

Table 12.

Adjusted Means and Standard Deviations for Final Grade, Perceived Control, Attributions and the Affect Measures.

	Low Perceived Success								High Perceived Success							
	Accept		Avoid		Approach		Mastery		Accept		Avoid		Approach		Mastery	
Measure	NAR	AR	NAR	AR	NAR	AR	NAR	AR	NAR	AR	NAR	AR	NAR	AR	NAR	AR
Final Grade																
M	3.59	3.83	3.86	4.67	4.03	3.48	3.86	4.00	5.94	6.14	5.55	6.80	6.04	6.41	6.24	5.57
SD	1.64	2.10	1.59	1.80	1.58	1.56	1.64	2.10	1.51	1.61	1.29	1.26	1.63	1.46	1.58	1.40
(n)	(44)	(46)	(15)	(28)	(30)	(25)	(15)	(15)	(39)	(29)	(18)	(15)	(55)	(39)	(45)	(28)
Perceived Control																
M	85.57	87.85	89.10	88.06	91.17	86.29	91.71	93.08	89.91	87.96	91.81	85.14	94.53	95.43	94.32	93.36
SD	9.32	9.54	11.69	8.29	8.36	8.16	11.22	9.17	5.95	8.85	9.79	8.76	8.16	8.65	7.01	6.56
(n)	(26)	(34)	(10)	(21)	(28)	(17)	(14)	(12)	(24)	(28)	(16)	(14)	(45)	(37)	(39)	(22)
Effort Attribution																
M	8.09	7.68	6.90	7.86	7.93	7.16	7.33	8.08	8.08	8.05	8.17	8.21	8.13	8.91	8.17	8.91
SD	1.88	2.31	1.96	1.91	2.28	2.61	2.84	2.27	2.06	1.25	2.01	2.39	2.19	1.42	1.78	1.99
(n)	(29)	(34)	(10)	(23)	(29)	(18)	(15)	(12)	(24)	(28)	(17)	(14)	(46)	(37)	(29)	(22)
Ability Attribution																
M	6.81	6.53	6.30	6.30	6.62	6.50	5.62	6.33	7.37	6.64	7.11	6.42	7.98	7.58	7.30	6.33
SD	1.87	1.84	2.16	1.97	1.44	2.03	2.18	2.31	1.34	1.66	1.86	2.34	1.91	1.74	1.28	2.12
(n)	(29)	(34)	(10)	(23)	(29)	(18)	(15)	(12)	(24)	(28)	(19)	(14)	(46)	(37)	(39)	(22)
Hope																
M	6.34	6.06	6.60	6.04	7.21	6.67	6.00	6.50	6.92	7.07	7.65	7.14	7.41	7.86	7.26	7.00
SD	2.06	1.86	1.17	1.97	2.26	1.68	1.51	2.81	1.74	1.76	1.00	2.44	2.53	2.07	2.17	1.48
(n)	(29)	(34)	(10)	(23)	(29)	(18)	(15)	(12)	(24)	(28)	(19)	(14)	(46)	(37)	(39)	(22)
← Pride																
M	4.72	3.59	5.10	4.17	5.50	3.83	4.33	5.42	5.92	6.39	6.12	6.71	7.07	7.35	6.90	6.55
SD	2.58	2.55	2.77	2.59	2.50	1.34	2.77	3.34	2.69	2.06	2.12	2.02	2.28	2.11	1.79	2.15
(n)	(29)	(34)	(10)	(23)	(29)	(18)	(15)	(12)	(24)	(28)	(19)	(14)	(46)	(37)	(39)	(22)

Table 12, Continued.

	Low Perceived Success								High Perceived Success							
	Accept		Avoid		Approach		Mastery		Accept		Avoid		Approach		Mastery	
	NAR	AR	NAR	AR	NAR	AR	NAR	AR	NAR	AR	NAR	AR	NAR	AR	NAR	AR
Measure																
								Guilt								
M	4.28	5.24	3.50	4.73	4.48	5.11	3.75	6.17	2.62	3.43	2.08	2.02	2.26	2.45	2.59	2.81
SD	2.48	3.28	2.55	2.45	2.65	2.40	2.55	2.72	2.41	2.67	2.08	2.02	2.26	2.45	2.33	2.02
(n)	(29)	(34)	(10)	(23)	(29)	(18)	(15)	(12)	(24)	(28)	(19)	(14)	(46)	(37)	(39)	(22)
								Shame								
M	3.76	4.74	3.20	4.52	3.52	4.00	2.67	4.67	2.33	2.50	2.06	1.71	1.72	2.14	1.82	1.95
SD	2.57	3.16	3.39	2.91	2.92	2.81	2.35	3.42	2.10	2.38	2.05	1.07	1.29	1.97	1.71	1.17
(n)	(29)	(34)	(10)	(23)	(29)	(18)	(15)	(12)	(24)	(28)	(19)	(14)	(46)	(37)	(39)	(22)

Note. NAR = no attributional retraining (control group)

AR = attributional retraining (experimental group)

performance-approach and performance-avoid groups, however, differed significantly from each other on this measure ($\underline{t}_{186} = 3.70$, $\underline{p} < .05$).

Perceived success also exhibited a main effect wherein high perceived success students ($\underline{M} = 92.42$, $\underline{SD} = 8.31$) reported more perceived control that low perceived success students ($\underline{M} = 88.47$, $\underline{SD} = 9.68$), $F_{1, 387} = 6.33$, $\underline{p} < .01$. As well, a two-way interaction occurred for perceived control involving goal orientation and perceived success ($F_{3, 370} = 2.11$, $\underline{p} < .05$). Specifically, mastery-oriented students reported high perceived control regardless of the level of perceived success ($\underline{t}_{85} = 0.81$, $p > .05$) and the performance-avoid ($\underline{t}_{59} = 0.19$, $\underline{p} < .05$) and failure-accept ($\underline{t}_{110} = 1.52$, $\underline{p} < .05$) students reported low perceived control regardless of perceived success. However, the performance-approach group reported high perceived control only when they had high perceived success as opposed to low perceived success ($\underline{t}_{125} = 3.76$). This interaction is illustrated in Figure 5.

Causal attributions. Neither attributional retraining nor goal orientation had a main effect on *effort attributions*, although once again, perceived success exerted an influence such that "success" students ($\underline{M} = 8.28$, $\underline{SD} = 1.87$) rated effort as higher than "failure" students ($\underline{M} = 7.17$, $\underline{SD} = 2.24$). $F_{1, 380} = 7.29$, $\underline{p} < .01$. No interactions were significant for effort.

The main effect of attributional retraining on *ability attribution* was significant ($F_{1, 380} = 3.56$, $\underline{p} < .05$) such that students in the attributional retraining group ($\underline{M} = 6.68$, $\underline{SD} = 1.94$) rated attribution to ability as lower than students not receiving attributional retraining ($\underline{M} = 7.07$, $\underline{SD} = 1.86$). A main effect of goal orientation also occurred ($F_{3, 380} = 4.48$, $\underline{p} < .01$), whereby performance-approach ($\underline{M} = 8.17$, $\underline{SD} = 2.14$) students rated ability attribution highest, followed by the failure-accept ($\underline{M} = 7.97$, $\underline{SD} = 1.93$), and then the mastery group ($\underline{M} = 8.05$, $\underline{SD} = 2.09$).

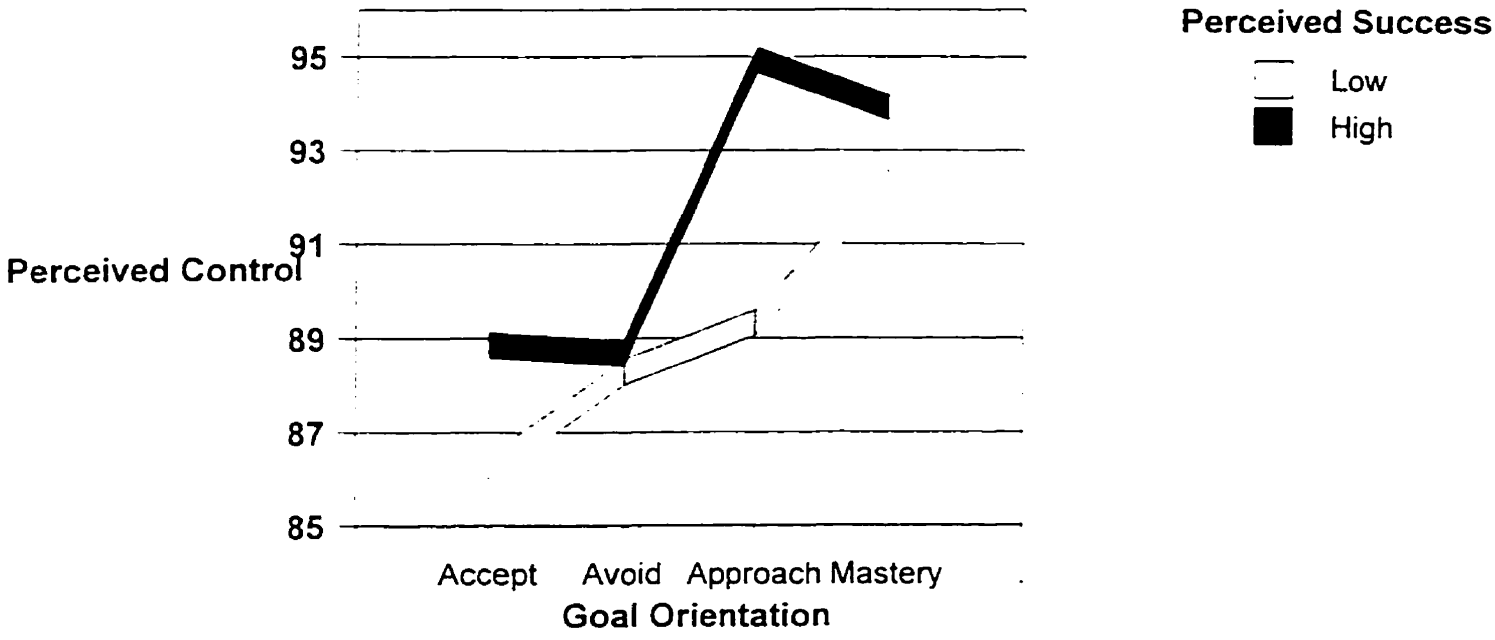


Figure 5. Goal Orientation by Perceived Success Interaction on Perceived Control

The performance-avoid group (M = 7.87, SD = 2.05) rated ability attribution as lowest. Bonferroni t tests revealed that mastery, performance-avoid and failure-accept groups did not differ significantly on this variable (all t 's < 1.00), while the performance-approach group scored significantly higher than the others (t_{216} = 3.34, p <.05). Perceived success also exerted a main effect whereby high-perceived success students (M = 7.19, SD = 1.75) rated ability attribution as higher than low perceived success students (M = 6.50, SD = 2.02). $F_{1, 380}$ = 8.04, p <.01. Values for the analyses of variance for ability attribution and the affect measures of pride and hope appear in Table 11 also. Again, means and standard deviations for these variables can be found in Table 12.

Affect measures. Attributional retraining did not exert a main effect on the *hope affect* ($F_{1, 380}$ = .30, p >.05). However, a main effect was found for goal orientation ($F_{3,380}$ = 2.52, p <.05) such that performance-approach students rated hope as highest (M = 7.39, SD = 2.25), followed by the mastery group (M = 6.88, SD = 2.04) and then the performance-avoid group (M = 6.80, SD = 1.86). The failure-accept group was lowest in hope rating (M = 6.56, SD = 1.89). Bonferroni tests revealed that the performance-approach group rated hope significantly higher than the other three groups (t_{216} = 1.82) although very close to the mastery group (t * = 1.96). The other groups did not differ significantly from each other (all t's < 1.28). As well, perceived success created a main effect wherein high perceived success students rated hope as higher than low perceived success students ($F_{1, 380}$ = 14.33, p <.01). No interactions occurred for this variable.

Again, attributional retraining did not create a main effect for *pride* ($F_{1, 379}$ = 0.46, p >.05), but goal orientation ($F_{3, 379}$ = 2.51, p <.05) and perceived success ($F_{1, 379}$ = 62.66, p <.001) did. For goal orientation, the performance-approach group (M = 6.36, SD = 2.63) rated pride as higher

than the mastery (M = 6.17, SD = 2.47), the performance-avoid (M = 5.39. SD = 2.55) and the failure-accept groups (M = 5.04, SD = 2.68). Bonferroni tests indicated that the performance-approach and mastery groups did not differ on this emotion ($t_{215} = .53$, $p > .05$), although both were significantly higher than the performance-avoid and failure-accept groups (lowest $t_{(159)} = .97$, $p > .05$). As well, high perceived success students (M = 6.74, SD = 2.17) rated pride as higher than low perceived success students (M = 4.49, SD = 2.58). $F_{1, 379} = 62.66$, $p < .001$. Again, interactions were non-significant for this variable.

For the *guilt affect*, attributional retraining produced a main effect such that those in the AR group (M = 4.08, SD = 2.78) rated guilt as higher than those in the no AR group (M = 3.25, SD = 2.48). $F_{1, 378} = 9.77$, $p < .01$). As well, those high in perceived success group (M = 2.85, SD = 2.31) rated guilt as lower than those in the low perceived success group (M = 4.69, SD = 2.73). $F_{1, 379} = 36.72$, $p < .001$. No interactions reached significance for this variable.

For the *shame affect*, attributional retraining again produced a main effect ($F_{1, 380} = 7.16$, $p < .01$) wherein students in the AR group (M = 3.24, SD = 2.73) rated shame as higher than student in the no AR group (M = 2.51, SD = 2.29). Perceived success also produced a main effect ($F_{3, 380} = 44.13$, $p < .01$) such that high perceived success students (M = 2.01, SD = 1.77) rated shame as lower than low perceived success students (M = 3.98, SD = 2.93). An interaction also occurred between attributional retraining and perceived success wherein shame was rated as higher for low perceived success students receiving the intervention (M = 4.52, SD = 3.02) when compared to the no AR group (M = 3.41, SD = 2.75), but not high perceived success students receiving AR (M = 2.14, SD = 1.85) as compared to no AR (M = 1.91, SD = 1.70). $F_{3, 380} = 4.75$, $p < .05$. The interaction is depicted in Figure 6.

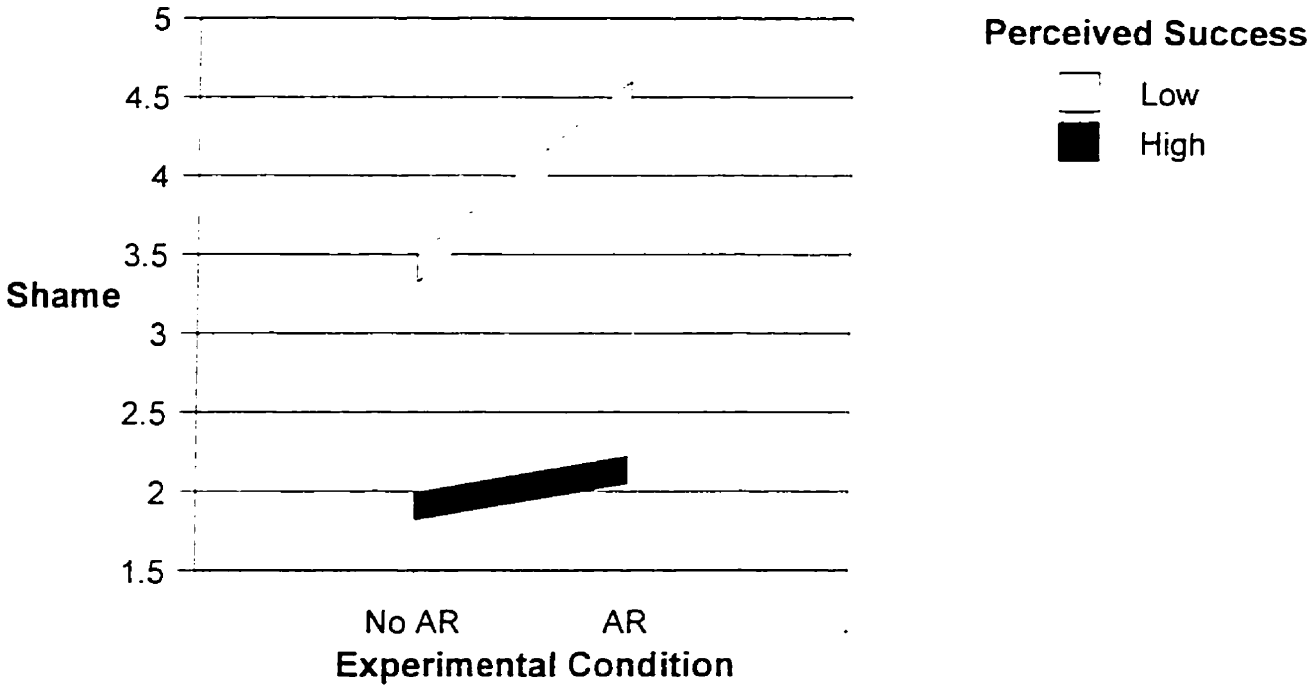


Figure 6. Attributional Retraining by Perceived Success Interaction on Shame Affect

Supplementary Analyses.

Attrition. Finally, an analysis was conducted in an attempt to explain differences in the number of students who participated in the first phases of the experiment but not the latter (i.e. Phase 3), despite having remained in their introductory psychology course. For this reason, the degrees of freedom for final grade are substantially larger than those for the dependent measures obtained at Phase 3, allowing one to examine the rate of attrition within each cell. As an overview, the group receiving attributional retraining lost 16% of its' participants as opposed to a 20% rate of attrition in no AR group. Looking at the rate of attrition as per each of the four goal orientation configurations, one sees that the largest attrition occurred in the failure-accept group (27%), followed by the performance-approach (18%) and then the mastery group (16%). performance-avoid group had the lowest rate of attrition (12%). Further, the high perceived success group lost only 16% of its' participants, compared to a 22% attrition rate in the low perceived success group.

To determine if the rates of attrition were significantly different according to the factorial groupings, Chi-square analyses were performed for both the attributional retraining condition and goal orientation under conditions of low versus high perceived success. When perceived success was low, attrition differed significantly by goal orientation in the group receiving no AR only: $x^2(3, N = 104) = 15.77, p < .001$. In the low-perceived success AR group, attrition did not differ as a result of goal orientation: $x^2(3, N = 114) = .45, p > .05$). Specifically, attrition ranged from (0) for the mastery group, to (15) for the failure-accept group in the no AR condition, as compared to (3) for the mastery group and (12) for the failure-accept group in the retraining condition. The same pattern emerged for high perceived success wherein attrition differed by

goal orientation for students in the no AR group: x^2 (3, N = 157) = 10.94, p <.05., but not for students receiving the intervention, x^2 (3, N = 111) = 4.99, p >.05. Attrition ranged from (1) in the performance-avoid group to (14) in the failure-accept group for students receiving no AR, as compared to a range from (1) in the failure-accept group to (6) in the mastery group in students receiving AR. This may suggest a buffering effect of AR on attrition that is independent of one's goal orientation.

Further to this, Chi-square analyses also revealed that in low perceived success students, attrition differed as a function of AR for performance-approach students only. That is, for the group receiving AR, attrition was 7, compared to 1 in the no AR condition: x^2 (1, N = 55) = 3.92, p <.05. For low-perceived success students in the other three goal orientation groups, whether or not one received the intervention did not appear to be linked to rate of attrition (all p's > .05). When perceived success was high, however, students in the performance approach group had a lower rate of attrition when receiving AR (2) as opposed to no AR (11): x^2 (1, N = 94) = 4.68, p <.01. Similarly, high-perceived success students in the failure-accept group also had a lower rate of attrition when receiving AR (1) as opposed to no AR (14): x^2 = (1, N = 68). Again, attrition was similar for mastery and failure-avoid students regardless of whether or not they received the intervention (all p's >.05). Numbers underlying the attrition analysis are presented in Table 13, with graphic representation of this dynamic appearing in Figure 7.

Discussion

To provide a framework for a fuller interpretation, the data are discussed first in general terms of goal orientation, and then in terms of the influence of the goal classifications and their associated academic consequences. Following this, an overview of the main effects for

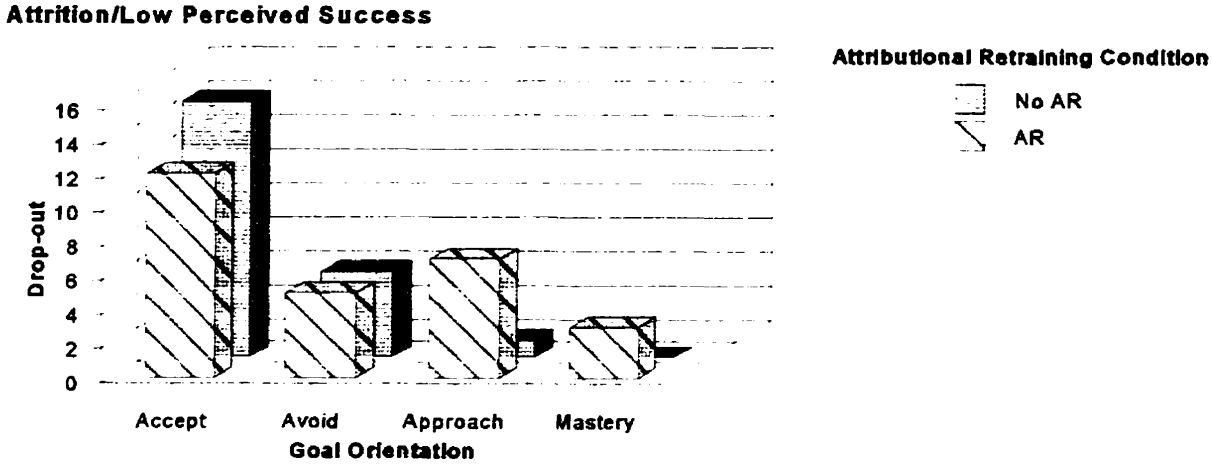
Table 13

Attrition Analysis for the Independent Variable Groupings.

	Low Perceived Success								High Perceived Success							
	Mastery		Approach		Avoid		Accept		Mastery		Approach		Avoid		Accept	
Attendance	AR	No AR	AR	No AR	AR	No AR	AR	No AR	AR	No AR	AR	No AR	AR	No AR	AR	No AR
Phase 3	12	15	18	29	23	10	34	29	22	39	37	46	14	17	28	24
Phase 4	15	15	25	30	28	15	46	44	28	45	39	55	15	18	29	39
Attrition	-3	0	-7	-1	-5	-5	-12	-15	-6	-6	-2	-11	-1	-1	-1	-14

Note: Total Attrition:

AR	n = 37	Mastery	n = 15	High Perceived Success n = 42
No AR	n = 53	Approach	n = 21	Low Perceived Success n = 48
		Avoid	n = 12	
		Accept	n = 42	



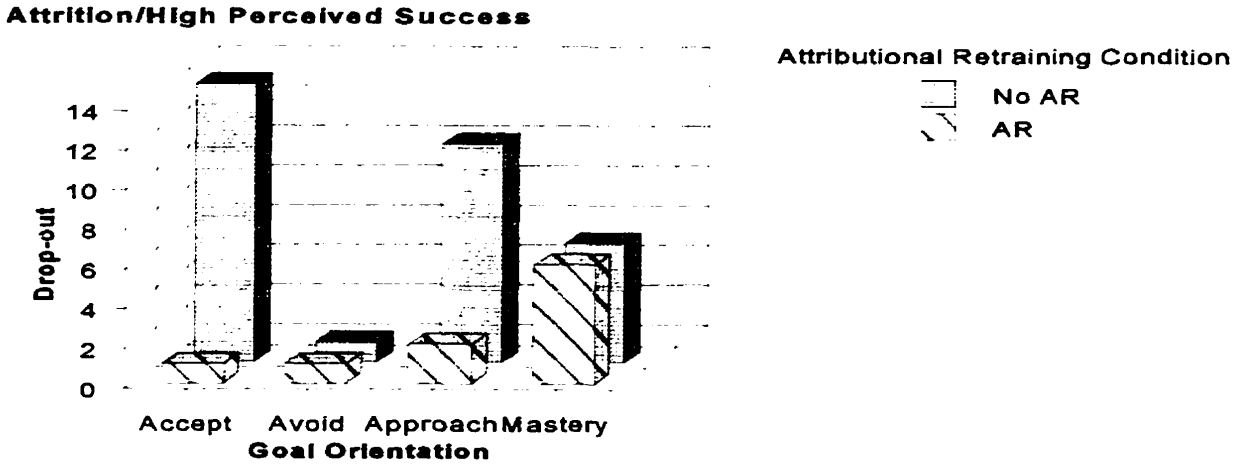


Figure 7. **Attrition Analysis.**

Total Attrition: **AR = 37** **No AR = 53**

Mastery = 15 **Approach = 21** **Avoid = 12** **Accept = 42**

High Perceived Success = 42 **Low Perceived Success = 48**

Chi-Square Results:

-For low perceived success students, drop out was highest in performance-approach students receiving AR.

-For high perceived success students, the performance approach and failure-accept students had a lower rate of attrition when receiving AR.

perceived success are addressed. The main effects and interactions occurring as a function of attributional retraining intervention and individual student characteristics (construed as goal orientation and perceived success) are also synthesized, and as part of a broader interpretation of the results, perceived success is again touched on in a brief look at the the three-way interactions. Finally, the paper concludes with a summary of limitations and the implications for the future of attributional retraining.

Goal Orientation.

In sum, the data provide evidence for both a qualitative and a quantitative distinction in achievement goals, supporting a quadripolar or multidimensional rather than a bi-dimensional definition of orientation. A-priori tests supported the hypothesis that mastery and performance-approach goals are similar and that both are adaptive in certain circumstances (e.g. Harackiewicz, Barron & Elliott, 1998). The outcome measures also indicated that the approach and avoid motives are, indeed, qualitatively distinct in terms of their motivational outcome (e.g. Skaalvic, 1998). As well, although not all of the anticipated results were realized, the data provide evidence that, in the least, one's goal orientation influences the outcome of attributional retraining.

Some intervention targeted variables were directly influenced by goal orientation (e.g. perceived control, ability attributions and feelings of hope and pride). As well, that a significant two-way interaction occurred between the intervention and goal orientation on final grade indicates the importance of this variable and potentially other individual student characteristics as well when defining the success of the intervention according to a "hard" criterion such as performance outcome. Further to this, most outcome measures were also affected by varying

interactions between the intervention, goal orientation and success perceptions. While the higher order hypotheses were not confirmed, a number of three-way interactions bordered on significance suggesting that a shortcoming exists not in the model, but rather with the fit of the data to this model.

Goal classifications. The goal orientation groupings appear to be valid, with the manipulation check revealing that the attributional partitioning of effort and ability in success and failure, as indicated by the Academic Strategies Questionnaire (ASQ), paralleled the factor delineations anticipated for the mastery, performance-approach and performance-avoid profiles respectively. As well, the data suggest that the fourth group (low mastery/low performance students) may be similar to Covington's (1993) "failure-accepting" students in that these individuals give low value to both effort and ability in explaining their performance outcomes.

Also important in the results for the preliminary analyses is that while the mastery group rated effort highest of the four groups and the performance-approach group rated ability as the cause of success highest, a-priori tests indicated that, as hypothesized, the two groups did not differ significantly from each other. This suggests, as Elliott & Harackiewicz (1996) contend, the two groups may, in fact, be functionally equivalent. A closer examination of the results reveals that the performance-approach group also did not differ significantly from the performance-avoid group in attribution to ability in failure, suggesting that, as was also hypothesized, a performance-approach motive is adaptive only until failure is encountered. With regard to the main hypotheses, a general summary of the predicted and actual results can be found in Table 14.

Table 14.

Summary of Hypothesized and Actual Results.

HYPOTHESIS	OUTCOME
For all effects, it was expected that the mastery and performance-approach groups would score closer to each other than to the performance-avoid or failure accept groups	***confirmed***
Preliminary Analyses	
MAIN EFFECTS	
Condition:	
Mastery orientation - highest in ASQ rating of effort attribution	confirmed
Performance-approach - highest in ASQ rating of ability/success attribution	confirmed
Performance-avoid-highest in ASQ rating of ability/failure attribution	confirmed
Failure-accept - lowest in ASQ ratings of effort and ability/success	confirmed
Main Analyses	
MAIN EFFECTS	
Condition:	
AR versus No AR - no main effects of the intervention	-partially confirmed: but main effect for ability, guilt and shame
Goal Orientation - main effects expected:	
Mastery - high effort rating, low ability rating, high perceived control high positive affects, low negative affects.	-partially confirmed: main effect for perceived control.
Approach-high ability rating,	-confirmed
Avoid - no main effects hypothesized	-partially confirmed, but rated lowest in ability attribution
Accept - lowest final grade, lowest in effort, lowest in ability, lowest in perceived control	-partially confirmed: lowest perceived control but not others
Perceived Success- Higher final grade, perceived control, attributions to both effort and ability, positive affect, and lower negative affect for high perceived success.	-confirmed
INTERACTIONS	
Condition.	
AR x Goal Orientation - No effects for mastery students, negative effect for performance-approach, positive effect for performance-avoid, no effect for failure accept.	-partially confirmed (see results)
AR x Perceived Success - More effects in conditions of low perceived success	
Goal Orientation x Perceived Success - No interaction for mastery or failure-accept, interaction for performance-approach and avoid	-largely confirmed (see results)
AR x Goal Orientation x Perceived Success - Above effects exacerbated when perceived success is low.	-marginally significant interactions.

Academic consequences. It was hypothesized that the mastery and performance-approach students would receive higher grades than the performance-avoid and failure accept students, however, the expected main effect of goal orientation did not occur. Based on the logic of earlier hypotheses regarding the adaptiveness of mastery and approach goals as opposed to avoid and accept motives, it was suspected that the two former groups would in fact achieve a significantly higher combined mean grade than the latter two groups. In support of this, a post-hoc t -test revealed that although one single group did not score significantly higher than the others, when the mastery/performance-approach groups were combined and contrasted with the performance-avoid/failure-accept groups, as expected, the former exhibited a significantly higher mean final grade than the latter ($t_{483} = 11.30$, $p < .01$).

Adopting a slightly different perspective, the attrition analyses can also be viewed as influential in providing support for the theorized dynamic. Specifically, referring back to the original hypotheses, it was anticipated that the intervention would have little effect for mastery-oriented students, who already possess the desired attributional profile. Attributional retraining was also expected to have little effect for failure-accept students, who do not value effort and would likely discount the AR information. Chi-square analyses were used to test these hypotheses, with results indicating that attrition did not differ as a function of whether or not students in either the mastery or the failure-accept groups received the intervention. In sum, this can be construed as indicating a lack of an effect for AR among these students.

Conversely, it was hypothesized that AR, compared to no AR, would have a positive effect for performance-avoid students who are given an alternative to a low ability explanation for failure. It was also hypothesized that the intervention would have a negative effect for

performance-approach students who perceive the AR information as an affront to their self-worth. Interestingly, the Chi-square attrition analysis showed that the lowest rate of drop-out was, in fact, in the performance-avoid group, suggesting that these students were more receptive of the AR information. As well, the highest rate of drop-out occurred in performance-approach students, which may indicate that this group was uncomfortable with the AR message. Also important is that, as hypothesized, these effects were exacerbated in the instance of low as opposed to high perceived success.

Looking at perceived control, as anticipated, mastery-oriented students had the highest scores. Again as hypothesized, the mastery and performance-approach groups did not differ significantly on this measure, further supporting the possibility that two are linked to similar outcomes. The fact that the performance-approach and avoid groups differed significantly from each other on this measure could also further support the hypothesis that the performance motive consists of two qualitatively distinct components (i.e. Middleton & Midgely, 1997), wherein one engenders perceptions of control to a greater extent than the other. As expected, failure-accept students reported the least perceived control, which is logical given that they do not pursue control directly through ability or effort based strategies: that is, they accept their outcomes and are resigned to their state, seeing no utility in either (Covington, 1993). Similarly, the performance-avoid group did not differ from the failure-accept group in perceived control. In sum, the low scores for these two groups further illustrate the debilitating effects of primary ascription to a lack of ability; both groups apparently ascribe to the entity theory of intelligence, which provides little hope for improvement. It should be noted however, that the absence of a path analysis precludes statements of directionality. It may be, for example, that

performance-oriented individuals ascribe ability for success when perceived control is high, and ability as the cause of failure when control is low. This tenet is, in part, supported by the main effect for success perception: when perceived success is high, perceived control is high as well.

Goal orientation interacted with perceived success to support the above argument where t - tests indicated (see results section for statistics) that mastery-oriented students reported high control regardless of success perception; this is logical given that effort is a controllable, unstable attribution, that allows the potential for change in low perceived success situations (Weiner, 1986). Similarly, performance-avoid and failure-accepting individuals had low control regardless of perceived success. The performance-approach group, however, had high control only when perceived success was high. When perceived success is low, as Weiner's (1986) theory states, only effort allows hope and the expectation for future success; ascription to ability, being a stable and uncontrollable "entity" for performance-oriented students, does not. Hence it may be that only high perceived success/performance-approach students fit the mastery profile in terms of outcome. When a performance-approach orientation is accompanied by low perceived success, perceived control is lost and a less adaptive profile emerges.

Goal orientation did not produce a main effect for effort ascription, although a-priori t-tests based on logic similar to that outlined for final grade revealed that while the four groups separately did not differ, the mastery and performance-approach groups' combined mean attribution to effort was higher than that of the performance-avoid and failure-accept groups' combined mean ($t_{395} = 1.90$, $p < .05$). This suggests that the mastery and approach students do, in fact, have a greater value for effort than the other two groups. In accordance, Resietter & Schraw (1998), in a qualitative comparison of the goal orientations, stated that in their sample of

university students, the high mastery/low performance (mastery) group "placed a primary emphasis on effort" and the high mastery/high performance (performance-approach) group placed value on "innate ability *enhanced* by effort". The low mastery/high performance (avoid) group valued "ability, with effort only applied in areas of innate ability" and the low mastery/low performance group valued "ability with selective effort". Based on these statements, the two former groups would appear to have a greater appreciation for effort, with the mastery group placing primary weight in this ascription and the performance-approach group seeing it as secondary to ability, but somewhat helpful nonetheless.

The main effect of goal orientation was also significant for the ability attribution, whereby as hypothesized, the performance-approach group rated the ability ascription highest. However, while the failure-accept group was expected to rate ability as lowest of the remaining groups, the performance-avoid group rated this attribution lowest. Although this may seem superficially counter-intuitive, recall that the performance-avoid group is motivated to *avoid ability ascription in failure.* It may be that this motive is so strong that it restricts their admittance of this cause in general. Also recall that the preliminary analyses indicated that this group scored highest on ability as the cause for failure, underscoring the hypothesis that the qualitative difference between avoid and approach students is that the latter believes that lack of ability causes their failure, while the former group believes that ability causes their success.

Looking at the influence of goal orientation on emotion, a main effect occurred for hope. Since hope is an effort-linked emotion (Weiner, 1985), one would have anticipated that the mastery-group would rate this affect higher than the other orientations. However, the performance-approach students were significantly higher on this measure than the other three

groups. A possible explanation for this may be that if mastery-oriented students were to perceive that they might not be able to apply continuous effort due to a heavy course load in other areas or extracurricular activities - a likely response during the first semester of one's freshman year - hope would not be constant. Performance-approach students, however, have such strong beliefs in ability as the cause of their success (an internal/stable ascription) that hope remains constant, surpassing that of mastery students whose success is contingent on continued effort, a somewhat more unstable and hence unpredictable cause than ability. It would follow from this logic that the effect would hold only when perceived success was high; however, no interactions were significant for this variable. Again, a-priori tests revealed that, as hypothesized, the mastery and performance-approach groups were very similar in reports of this emotion.

Goal orientation also exerted a main effect on pride, with the performance-approach group again rating pride as higher than the other three groups. Since pride has been empirically linked to ability (Weiner, 1985), this is not an unexpected result. The fact that the mastery group was lower in pride also lends credence to the argument that, in some academic situations, the performance-approach motive can be most adaptive (i.e. in situations of high self-efficacy, *cf.* Harackiewicz, Barron & Elliott, 1998). A-priori tests revealed no significant differences between the mean pride scores for these two groups, which once again supports the contention that the two are functionally equivalent (Elliott & Harakiewicz, 1998).

In general, main effect analyses indicated that of the four goal orientations, the mastery and performance-approach motives are similar in terms of outcome and adaptiveness, with the performance-avoid orientation producing the most maladaptive profile in terms of the dependent measures assess here. The failure-accept group evidenced a similarly maladaptive response,

although this group did score higher on a number of measures than the former group. The interactions, however, reveal a more complex dynamic, particularly in the case of the performance-approach student. Specifically, this group was similar to their mastery-oriented counterparts only when they also held perceptions of high success. Low perceived success students of this orientation were more similar to the performance-avoid group. As well, despite the fact that the performance-avoid group exhibited the most at-risk profile in terms of main effects, they were also the group of students who seemed to benefit most from the intervention. When compared with students of the similar orientation who did not receive AR, this group was substantially higher on the dependent measures and moreover, this difference was greater than that existing between the AR and no AR conditions for the other three groups. Thus in large part, the anticipated dynamic was realized: while a decline in the mastery group was unexpected, failure-accept students did not differ as a function of their AR grouping, performance-approach students exhibited a small decline in the AR versus no AR condition (non-significant) and the performance-avoid group benefited greatly.

Perceived Success.

Given it's widespread influence on the dependent measures, this section touches largely on the main effects of this variable with the higher order effects discussed as part of the overall dynamic. In terms of direct variance accounted for, high-perceived success students were by far those exhibiting the most adaptive motivational set. Specifically, this group received a higher final grade, scored higher in perceived control, rated higher on attributions for performance to both effort and ability, and indicated more hope and pride and less guilt and shame. In sum, high

perceived success entailed a positive outcome on virtually all dependent measures. This is convincing evidence for low perceived success as an indicator of students at-risk.

In addition, it's interaction with goal orientation, particularly in the instance of the performance-approach motive, is effective in serving as a manipulation check for the theorized dynamic (as outlined in Table 5) and also in provides empirical support for previous effects reported in other studies done within this laboratory. Specifically, similar to Menec et al (1994), Perry & Struthers (1994) and Perry, Schonwetter, Magnusson and Struthers (1994), while attributional retraining produced improvements on a number of measures for low perceived success students, it had no apparent beneficial effect for high perceived success students.

Attributional Retraining and Student Characteristics.

Evaluating the effects created by attributional retraining, the anticipated dynamic (Table 5) was evidenced in students' grades. Specifically, it was hypothesized that AR would not exert a main effect, given it's probable interaction with the other independent variables; the analyses proved this supposition as correct. Of most importance when looking at the achievement outcome measure, however, is the interaction between attributional retraining and goal orientation. As expected, students belonging to the performance-avoid group had a significantly higher grade when receiving AR as opposed to no AR, likely because effort ascription provides an attractive alternative to low ability as the explanation for their failure (ego-protection, *cf.* Covington, 1984). More importantly, it is a strategic attribution, since it should be causally connected to their subsequent achievement. Not surprisingly, then, the unstable/controllable causal profile advocated by AR also appears to pay off in increased motivation for this group, an interpretation that is augmented by the low rate of attrition in completing all phases of the study.

Mastery-oriented students, who were expected to show little change as a function of AR, had a somewhat lower grade when exposed to the intervention. This, although not hypothesized, is also in parallel with past findings. Perry & Struthers (1994) reported a decrease in achievement for high perceived success "mastery" students, however, this decrease was non-significant and linked only to classroom tests taken shortly after the AR intervention, effects which disappeared by the end of the academic term. To determine if a similar effect was occurring here, a secondary analysis was undertaken which looked at in-class test scores. The current data revealed the same pattern: high perceived success/mastery students in the AR condition experienced a sharp decline on the in-class test following intervention when compared with students in the no AR group (t_{72} = 3.00, p <.01), but this decline disappeared by the next in-class test (t_{72} = 1.60, p >.05). In the data for final grade, as hypothesized, performance-approach students receiving AR also showed a small decrease when compared with the control, although this decrease was non-signficant. As anticipated, failure-accept students had similar final grades regardless of whether or not they received the intervention. The pattern was similar for perceived control: although goal orientation exerted a main effect, AR did not.

Looking at the attributions as anticipated, AR did not produce a main effect for effort, although it was linked to lower ratings of the ability ascription. As Perry et al (1993) have stated in an extensive review of the literature, few studies in higher education have demonstrated changes in attributions following attributional retraining (but see also Menec et al, 1994). This finding then, is not unusual and is consistent with previous research in this domain. It is possible, however, that the intervention would also have been effective in increasing the effort attribution had there not been a severe restriction in range as revealed by the means for this variable (Table

12). The lower rating of the ability attribution may suggest that perceptions regarding ability are not as immutable as those regarding effort.

More specifically, it may be that while effort can be positively presented as the cause of both success and failure, the same cannot be said for ability. Only those who are still achieving according to their expectations will cite ability as the cause of their performance. Those who experience failure are more likely to cite another cause, or in the very least, lower their ascription to ability in this instance (the self-serving bias, *cf.* Miller & Ross, 1975). Supporting this possibility, is the main effect of perceived success wherein those who perceive themselves as successful rated ability higher than those who perceive themselves as low in success.

Turning to the affect measures, as expected, AR did not exert a main effect for hope. Similarly, the intervention had no main effect for pride. Looking at the affect data for both guilt and shame, AR produced a main effect as indicated by higher ratings of both when comparing this group to the no AR sample. While at first this may seem undesirable, the increase may not necessarily be a negative outcome. The AR intervention advocates attributions that evoke a sense of the determinability of one's performance in that effort is an unstable and controllable cause. If the ascription to ability is reduced and students realize their own instrumentality in determining outcome, it is probable that they would become more serious about their academic endeavors as they are no longer able to discount a poor performance as due to factors beyond their control. This increase in the negative affects may be a reflection of greater assumed responsibility for failure. If this is the occurring, guilt and shame, as Weiner (1995) has argued, could serve as a motivator in the long-run. Indeed, our past research (Pelletier, Perry & Hladkyj, 1998) suggests this may be the case. This interpretation is also substantiated by the two-way interaction between

attributional retraining and perceived success on shame, wherein shame increased with AR only for low perceived success students.

Broader Interpretations.

Three-way interaction. Since the three-way interactions did not reach conventional significance, they cannot be interpreted with any confidence. However, there is reason to give them some consideration. A-priori interaction t-tests probing for the hypothesized dynamic revealed some intriguing effects that provide support for the critical synthesis that follows. Looking at perceived control ($p = .12$), tests of the hypothesized relationship indicated that contrary to expectations, AR did not interact with the performance-approach motive to decrease perceptions of control when the student was high in perceived success. However, for high perceived success/performance-avoid students, AR was associated with a decrease in perceived control ($t_{29} = 2.81$, $p < .05$) compared to the no AR group. A possible explanation is that these students, who believe that ability is the cause of performance but do not have a stable conception of possessing this ability themselves, interpret the AR information as confirming that ability has not caused their prior success: that is, that the "A" grade was a fluke, an attribution that is not at all conducive to perceptions of control over future outcomes.

Also, contrary to what was expected, low perceived success/performance-approach students' control decreased with AR as compared to no AR ($t_{44} = 2.68$, $p < .05$), perhaps because these students truly believe that they possess ability, which they see as accounting for some previous successes. For these students, the AR information does not provide an ego-preserving alternative as they do not ascribe to ability explanations for failure; rather, they would perhaps explain setbacks as being due to external and uncontrollable causes such as bad luck. In this

case, AR threatens their self-worth by causing them to question their past positive performances as having been due to ability. The three-way interaction for pride supports this interpretation (p =.07). Specifically, AR, compared to no AR, lowered pride for low perceived success/ performance- approach students ($t_{45} = 3.48$, $p < .05$). The non-significant t -test for high perceived success/performance-approach students suggests that these individuals experience pride as long as they succeed. However, when failure is perceived, performance-approach students suffer declines which are apparently exacerbated by being exposed to AR, which again may be causing them to question their previous "A" performance as having been due to ability.

Critical Synthesis and Empirical Support.

In sum, it appears that the group most at-risk is also the group that benefits most from attributional retraining. While it was expected that the failure-accept group would exhibit the most maladaptive profile, main effects place the performance-avoid group last on more outcome measures. However, as anticipated, interactions indicate that this group also exhibited the greatest improvement when receiving AR, as compared to no AR. Little variance was found for the majority of dependent measures in mastery-oriented students as a function of whether or not they received the intervention: they already possess the desired motivational set. As well, the intervention (compared to no AR) produced little variance in the dependent measures for failure-accept students, who are resigned to their functional state. As predicted, the performance-approach group benefits little when students have high perceived success, with a slight decline evident in some measures occurring in the AR condition for students with low perceived success.

While this study is the first to look at goal orientations in combination with AR, the findings are consistent with previous work done in this laboratory. As mentioned in an earlier section, Perry and Struthers (1994) for example, found that only students with low perceived success benefited to any extent from AR. However, low perceived success in their study was not differentiated further according to goal orientations. Menec et al (1994) also found that attributional retraining was of no benefit to students who had performed well previously, or to low-success, internal locus students. What the current study does is further differentiate this group according to their achievement motives. It should be noted however, that potential overlap exists in the goal classification. Specifically, performance-approach students with a low perceived success would essentially appear to be performance-avoid students and performance-avoid students with high perceived success are remarkably similar in theory to performance-approach students. Other researchers as well have had difficulty making this clarification, and an unclear pattern of results exist in answer to this question.

One variable that may be critical for explanation is self-efficacy (c.f. Bandura, 1984). As stated earlier, performance-approach students believe they possess the necessary ability (that is, they have self-efficacy), while performance-avoid students believe they do not possess the necessary ability (they do not have self-efficacy). Middleton & Midgely (1997) and Skaalvik (1997) both found a negative relation between self-efficacy and performance-avoid goals. However, a number of studies have produced inconsistencies in the literature regarding the path from self-efficacy to performance-approach goals. Midgely et al. (1995), and Midgely and Urdan (1996) found a positive relation, but Anderman and Young (1994) reported a negative correlation.

A concrete example of the perceived success/performance-avoid student, can be found in the "impostor". The impostor phenomenon was first described by Clance and Imes (1978), emerging from their work with women in clinical settings and college classes. These researchers found that although these women were held in high regard for their professional and academic achievements, many reported that they did not perceive themselves as capable or bright, perceiving instead that they had fooled everyone who thought they were intelligent. Hence although they had low self-efficacy, they considered themselves successful in that they had avoided judgments of negative ability. Clance and Imes (1978) originally believed that this failure to internalize success (King & Cooley, 1995) was unique to females, but further research suggested that it may be just as prevalent among males (Topping & Kimmel, 1985). This example illustrates concisely that the high perceived success/performance-avoid student is, in fact, qualitatively distinct from the low perceived success/performance-approach student.

A possible reconciliation lies in the following logic, which is strengthened to a limited degree by the interaction t -tests for perceived control and pride discussed in the previous section. High perceived success/performance-approach students believe they possess ability and that they are successful in demonstrating their ability. Similarly, although high perceived success/ performance-avoid students believe that they do not posses ability, they feel successful in hiding their lack of ability. Conversely, low perceived success/performance-approach students believe that they possess ability though for whatever reason, they are unsuccessful in demonstrating it. Low perceived success/performance-avoid students, however, believe that their true lack of ability is obvious; that is, they have been unsuccessful in avoiding negative ability judgments. Hence within each of the performance-avoid and performance-approach constructs, there may

exist students with high, and students with low self-efficacy, which is largely dependent on whether they are successful or unsuccessful in demonstrating ability or hiding the lack thereof. The qualitative distinction is that while the perceived success/failure-avoid student just described fails to *internalize success*, the perceived failure/performance-approach student does not *internalize failure*.

This dynamic, as the current study suggests, may be further mediated by one's perception of the self as high success or low success, however this success is defined. The mastery-oriented group likely experiences a balance of both success and failures, wherein effort mediates the balance; motivation is not contingent on performance outcome and challenge is seen as a reward in itself (see also Dweck & Leggit, 1988). Referring back to Figure 3 and Covington's (1993) quadripolar model of achievement motivation, which provided the basis for the current goal delineations, the performance-approach group has good study skills (in theory) and probably experiences a much higher proportion of successes than failures. This group views their ability as high and stable with failure discounted as being due to external causes; motivation is high as when failure occurs, it is not seen as an indication that it will occur again (see also Weiner, 1985).

Conversely, in the performance-avoid group, which has poor study skills due in part to their avoidance of challenge and learning opportunities, the balance of success and failure is likely skewed toward the latter. This may lead to a view of their ability as low and stable, with success attributed to external factors. Since the source of success is external and the source of failure is internal, while motivation high, it is misdirected and mal-adaptive in that this group will avoid any situations in which success is not ensured (see also Skaalvic, 1988). Finally, in the failure-accept group, students likely experience a preponderance of failures leading to a view of

ability as low and stable, and effort as ineffectual. Like the performance-avoid group, failure is attributed internally and success is attributed externally. Since this group has accepted their status and does not attach value to either ability or effort, motivation is low. However, unlike the performance-avoid group, these students may not be as likely to experience low control and negative affects, as their ego is not tied to their ability (see also Reisetter & Schraw, 1998).

Limitations and Implications.

Several limitations to this study exist. The first, as would be indicated by the preceding argument, is that the design does not include a measure of academic self-efficacy (although perceived control is a similar). As such, self-efficacy cannot be evaluated as a possible mediator in the relationship between achievement goals, perceived success and outcome. A second limitation exists in that the control population was not given the Academic Strategies Questionnaire used in the experimental condition as a manipulation check, so the possibility exists that the four goal quadrants in the control group do not as precisely relate to the theorized profiles as the quadrants in the experimental group. Thirdly, a confound exists in that the control group was given the attributional retraining handout as part of their debriefing following the Phase 3 administration of the questionnaire. Since this was part of the attributional retraining paradigm, it could have had an effect in the control group is well, in that they received it in February with a good portion of the second term remaining. This is a potential reason why main effects of AR were not evidenced in some of the dependent measures.

What then, are the implications for attributional retraining? A key issue identified in Perry et al.'s 1993 review of the literature was the extent to which attributional retraining is effective for all types of college students. The intervention had a small positive effect in

mastery-oriented students on most measures (with the exception of final grade, which may be a function of the domain in that this group of students does not value extrinsic reward). Further tho this, AR had an overall positive effect on performance-oriented students when the approach and avoid motives are collapsed, with large advances made in performance-avoid students compared to small decrements in some dependent measures for performance-approach students *with low perceived success*. Given the overall positive influence of AR on most dependent measures, it does not appear that these effects should be sufficient to deter future administration of the intervention. Also important to keep in mind is that the intervention is intended to help students identified as being at-risk; neither the high perceived success/performance-approach nor the mastery students fall under this label.

Nonetheless, psychologists and educators who attempt to help at-risk students with this technique should be cognizant that a subset of the population exists which may be resistant to the attributional schemata being advocated to the extent that they may effectively react to the effort information in a somewhat "helpless" oriented profile. Perhaps, then, the en-masse administration that has always been a promising goal for attributional retraining is not the best medium for application. Supporting this contention is Hladkyj et al.'s (1998) finding that low "elaborators" may actually suffer academically from exposure to attributional retraining given in the natural classroom setting, where elaboration is construed as a meta-cognitive strategy involving the spontaneous and self-reflective integration of new material. Similar to the low perceived success/performance-approach group in the current study, these students reported lower positive expectations and lower perceived success when exposed to AR, than their counterparts in the control condition. Hladkyj et al (1998) explained this finding with the hypothesis that some

students are unable to elaborate the AR message to a sufficiently self-relevant depth, or are unable to incorporate the AR information into their existing self-schemas. The argument outlined in this paper further clarifies this dynamic by offering an explanation as to why these students are so resistant to attributional change. The question then becomes: do the risks outweigh the benefits?

It is this author's opinion that they do not. Given the positive implications for the majority of the population (i.e. low perceived success/mastery students, high perceived success/ performance-approach students and both low and high perceived success/performance-avoid students), it may actually be unethical to withhold such a beneficial treatment. A possible resolution to this problem may lie in the screening of students prior to the intervention, with different AR information being administered according to the students' profile. While effort encourages motivation for mastery and performance-avoid students, a different attribution may be more effective for performance-approach students. Rather than the unconditional advocation of effort, a statement such as "the grading gets easier", as suggested by Wilson and Linville (1983) and Weiner (1988), could be used to provide the external, unstable attribution that is adaptive in the instance of failure. The solution, then, may be no more complicated than the conscientious framing of effort information by therapists in a way that allows performance-oriented students to maintain their perception of ability as the cause of success, while integrating an external, unstable explanation for negative outcomes.

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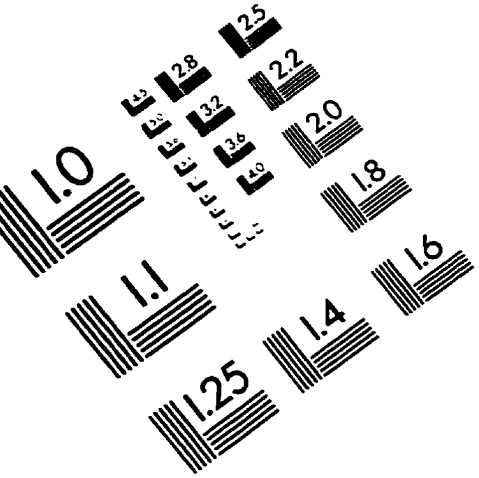
APPENDIX A

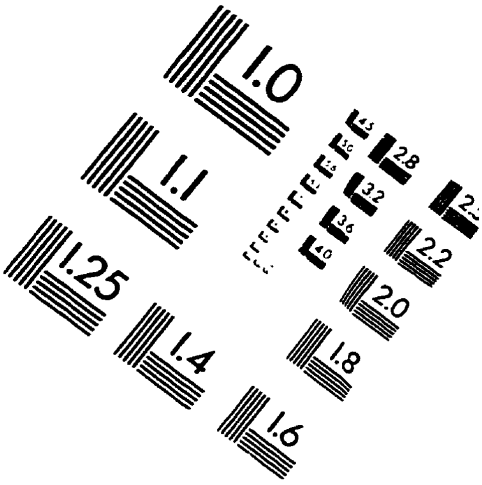
APPENDIX B

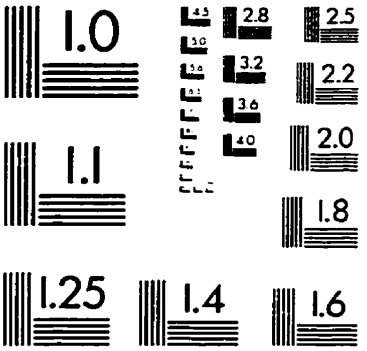
APPENDIX C

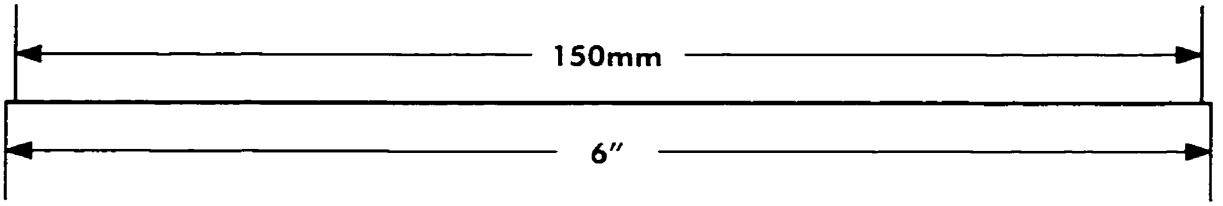
Appendix C

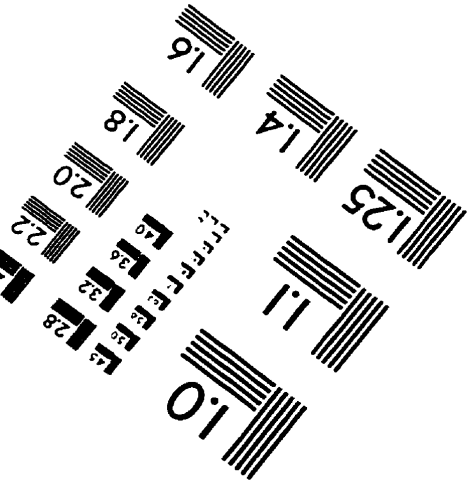
IMAGE EVALUATION
TEST TARGET (QA-3)

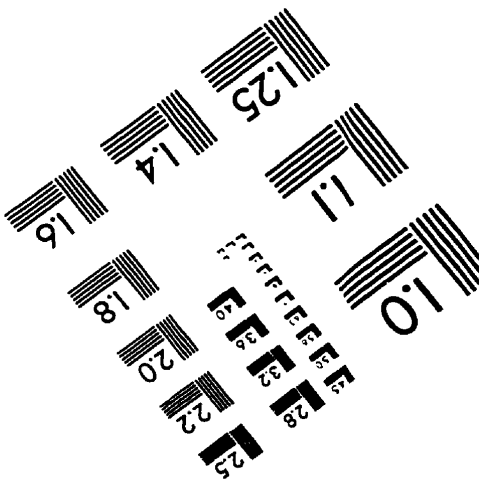












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Goal Orientation: Delineating Prerequisites for Sustained Achievement Motivation Within an Attributional Retraining Context

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This thesis is submitted to the Faculty of Graduate Studies in partial fulfillment of the requirements for the degree of Mastery of Arts

THE UNIVERSITY OF MANITOBA

FACULTY OF GRADUATE STUDIES

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GOAL ORIENTATION: DELINEATING PREREQUISITES FOR SUSTAINED ACHIEVEMENT MOTIVATION WITHIN AN ATTRIBUTIONAL RETRAINING CONTEXT

BY

SARAH T. PELLETIER

A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University of Manitoba in partial fulfillment of the requirements of the degree of

MASTER OF ARTS

THE UNIVERSITY OF MANITOBA

FACULTY OF GRADUATE STUDIES

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MASTER'S THESIS/PRACTICUM FINAL REPORT

The undersigned certify that they have read the Master's Thesis/Practicum entitled:

"Goal Orientation:
Delineating Prerequisites for Sustained Achievement Motivation
Within an Attributional Retraining Context"

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in partial fulfillment of the requirements for the degree of

Master of Arts

The Thesis/Practicum Examining Committee certifies that the thesis/practicum (and oral examination if required) is:

Approved

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☒ **Thesis**

☐ **Practicum**

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Abstract

Attributional retraining (AR) is an intervention for changing maladaptive causal attributions to adaptive ones (Wilson & Linville, 1982; 1984). While the therapy shows promise as a remedial technique for assisting at-risk students (Perry et al, 1993), differences exist in it's efficacy which appear to be due, in part, to individual student characteristics (Menec et al, 1994). Mastery and performance orientations (Ames, 1984) represent attributional preferences for explaining achievement as due to effort or ability respectively (Dweck, 1986), and can be construed as contributing to the effectiveness of the intervention. However, while mastery-orientation exists as a unidimensional motive, performance-orientation may consist of both approach and avoidance components (Elliott & Harackiewicz, 1996), linked to the student's success perceptions. College students (n = 328) were evaluated on their goal orientation and success perceptions at the beginning of the academic term, after which half of the sample received AR, with the other half serving as a control. Hypotheses were tested using an attributional retraining (no AR, AR) by goal orientation (failure-accept, performance-avoid, performance-approach, mastery) by perceived success (low, high) 2 x 4 x 2 factorial design. Dependent measures of final grade, perceived control, attributions and affect were assessed at the end of the year. Goal orientation and perceived success interacted with attributional retraining such that when compared to the control group, AR had little influence on the dependent measures for mastery-oriented students, and differential effects for the two performance-orientations depending on their perceived success. Discussion focused on acknowledging the self-worth and ego-protective motives as influential in the success of attributional retraining, with suggestions for reconciling the effort/ability dichotomy to make the therapy beneficial for the student population at large.

Goal Orientation: Delineating Prerequisites for Sustained Achievement Motivation Within an Attributional Retraining Context

"Psychologists should theorize not about what is, but what is perceived to be..."

(Asch, 1952).

The social-cognitive approach to human discourse implies that perception does not exist in stasis, where the individual is viewed as part of a larger context comprised of the self, and interactions with the task and other players in the situation (Pintrich & Schrauben, 1992). In this connection, measures of attitudes often serve as means to the construction of more accurate theories about the cognitive schemas used by students in the organization of their social experience (Ames, 1992; Schuunk, 1996). Personality theorists adopt a slightly different perspective (Thorkildsen & Nicholls, 1998), placing a triple emphasis on the (1) whole person, (2) motivation, and (3) individual differences. Here, the presumption is that individuals determine the nature of their experience, wherein achievement motivation is construed as an aspect of identity (Covington, 1992). While these approaches entail considerable overlap, a failure to consistently recognize the contributions of each has resulted in the absence of "filters" to guide inquiry in educational psychology (Thorkildsen & Nicholls, 1998).

One such filter may exist in goal theory (Ames, 1984). Researchers ascribing to this body of knowledge perceive that all actions are given direction, purpose and meaning by the goals individuals seek out, and that the intensity and quality of behaviour changes as a function of shifts in these goals (Covington, 1993). Indeed, common to both frameworks is the definition by researchers of adaptive motivational orientations as acting to promote the establishment, maintenance and attainment of achievement goals (Dweck, 1986).

A student's first year of college provides a prime opportunity for the manifestation of detrimental motivational patterns (Perry, 1991), with statistics indicating that a sizable number of students are ill equipped to meet the demands of the university classroom. More than 40% of entrants withdraw from their programs short of a degree (Tinto, 1987). It is not surprising then, that much effort has been given to finding methods for facilitating positive motivational tendencies in students and delineating a more precise specification of the associated cognitive patterns.

The past work of this laboratory has been firmly grounded in social-cognitive theory, with an attributional focus drawn from Rotter's (1966) locus of control theory, Covington's (1984) self-worth theory, and Weiner's (1986; 1995) theory of achievement motivation. Moving from this base, Perry (1991) found that a pattern of low perceived control, negative affect and poor performance is characteristic of failure-prone students and, further to this, that the pattern persists even in the presence of high quality teaching. Hence an unfortunate paradox arises in that those students most in need of assistance are unable to benefit from it in the classroom. More recent research by Perry and his colleagues (e.g. Perry & Penner, 1990; Menec et al, 1994; Perry & Struthers, 1994) has been directed at establishing interventions for assisting students identified as being at-risk for failure using a psychotherapeutic technique known as *attributional retraining* (Wilson & Linville, 1982, 1985; Forsterling, 1990).

The intervention is intended to increase students' perceptions of control over their academic outcome by changing stable and uncontrollable ascriptions for failure, such as ability, to unstable and controllable ones, such as effort (Perry, 1991). In the case of success, the intervention attempts to replace unstable and uncontrollable attributions for achievement, like

luck, with a stable and controllable one, such as study strategy. The current focus of this laboratory (e.g Drewniak, 1997; Hladkyj, Hunter, Maw & Perry, 1998; Hunter, 1997) is an exploration of the role of individual difference variables in the success of this intervention, with the aim being to determine which students, under what conditions, will benefit most.

Goal theorists contend that the type of goal a student pursues is largely responsible for their attributional preferences (c.f. Ames, 1984). *Mastery-oriented* students are motivated to increase their capability for a task and see effort as a positive and pivotal force in reaching this goal. Conversely, *performance-oriented* students are motivated to demonstrate their ability relative to others, where effort is seen as undermining this perception and irrelevant to their goal. In this connection, goal orientation can be construed as creating a predisposition for the success or failure of attributional retraining in establishing the desired pattern. The present study continued the focus of our laboratory by attempting to determine whether the salience of achievement goals could account for variance in the success of attributional retraining (see Perry et al., 1993 for a review). In addressing this hypothesis, several overlapping approaches to motivation and achievement striving were considered using goal theory as a unifying construct. A framework for this dynamic and the underlying theories will be discussed in detail.

Classic Achievement Goal Theory

The study of goals during the last decade has achieved the standing previously held only by motivation as an umbrella construct (Weiner, 1992) in that goals provide the means for the theoretical coordination of behavioural patterns (Ames & Archer, 1988), cognition (Schacter, Copper & Delaney, 1990) and affect (Emmons, 1989) as an interactive system. According to past research, motivation is determined in part by personal commitment to a specific goal and by

one's mental attitude toward possible barriers to this goal (Bandura, 1982). People's judgment of their capacity to deal effectively with a given situation becomes most salient in the thought patterns affecting action, where these self-percepts are the basis for choices involving how much effort to invest in pursuing a goal, how long to sustain this effort in the face of disappointing results, and whether or not goal pursuit is iniated with confidence. Individuals use their past history and cues within the environment to anticipate the likely consequences of their actions, setting goals for themselves in relation to probable outcomes in ways that are often "not only ineffective, but potentially detrimental as well" (Bandura, 1986; pp. 19-20).

Essentially, goal orientations are described as creating conditions that relate to two specific motivational directives: those focused on demonstrating one's ability and those aimed at increasing one's competence at a given task (Ames & Archer, 1988). Research in this area was spurred by the documentation of two contrasting reactions to failure outcomes wherein some students, despite previous success on a task, quickly began to attribute their failures to low ability, to display negative affect, and subsequently to experience deterioration in performance (Diener & Dweck, 1978; 1980). In contrast, those with a so-called "mastery" response pattern did not focus on failure when encountering negative outcomes, instead exhibiting solution oriented strategies, constant or increased positive affect, and sustained or improved performance. In the first group of students, failure elicited a reaction indicating that these individuals felt they had received a reprimand with regard to their ability, while the latter group expressed a reaction suggesting they felt this feedback was useful to learning and mastery.

Elliott and Dweck (1988) characterized these responses as reflecting two major goals prevalent in achievement situations. To recapitulate, *performance-oriented* individuals are

characterized by a preoccupation with ability and concern with being judged able. These students seek both to maintain positive judgments of their ability and avoid negative evaluations. Most desired is success with ease: that is, success with little or no apparent effort. Students with this orientation are motivated by external reinforcements in terms of grades which serve to validate their perception of performance as contingent on ability. In sum, individuals pursuing this goal value ability ascriptions, with the primary focus on demonstrating one's ability by outperforming others. *Mastery-oriented* individuals, on the other hand, attach importance to the development of new skills. It is the process of learning itself that is pursued, with mastery seen as dependent and contingent upon effort. Unlike a performance orientation, in which learning is only a means to the end of achieving relative success, for a mastery-oriented student learning is an end unto itself. The focus of attention is on the task, rather than on an extrinsic reward (Nicholls, 1984), and value is placed on improving one's ability through applying effort rather than on the actual performance outcome.

Elliott & Dweck (1988) further proposed that each goal could be viewed as creating its own set of concerns and as generating a framework for the processing of new information, which could account for the contrasting reactions to failure. Under a mastery-orientation, even individuals with low self-evaluations of their current ability exhibit a mastery rather than a helpless profile, as they are not focused on judgment of their current ability: errors are not seen as failure and low current ability makes skill acquisition even more salient. To provide empirical support for this contention, these investigators experimentally manipulated goals (performance versus mastery) and perceptions of ability (low or high), with results revealing that indeed, achievement goals were critical determinants of this pattern. When performance goals were

dominant and students perceived they had low ability, they responded to feedback about mistakes in a characteristically maladaptive manner, making attributions for failure to low ability, responding with negative affect and experiencing decreases in motivation. These same individuals under high perceived ability manipulations responded in a mastery-like pattern: in the face of obstacles they persisted and did not make ability attributions for failure or display negative affect. However, these students were unable to risk failure and gave up the opportunity to increase their skills on a task that involved potential public mistakes.

In contrast, when a mastery goal was pursued, perceived ability did not influence achievement behaviour. Students sought to increase their competence by choosing challenging tasks and seizing opportunities to learn new skills, even when failure was a possibility. In fact when these students did encounter failure, their problem-solving strategies improved. Hence, the specific goals by which a student is motivated have important implications for approaching tasks. Individuals with mastery goals persist and maintain strategic behaviour longer in the face of failure and have more positive affective responses to both success and failure than do performance-oriented individuals. A schematic representing these goal orientations is presented in Table 1.

The two orientations are best understood in terms of the entity and incremental theories of intelligence each reflects (Ames, 1992). Those with a performance-orientation ascribe to *entity theory*, in which attributes are fixed and uncontrollable and the goal is to create positive judgments of these attributes. These individuals do not see the utility of effort as a means for increasing ability, which they view as immutable; rather they see it as revealing to

Table 1

Goal Orientation, Attribution Valence, Perceived Success and Outcome

ORIENTATION	VALENCE, VALUE AND REWARD	ASCRIPTION	PERCEPTION	RESPONSE	OUTCOME
Mastery	Interest, Effort and Intrinsic Elements	High Effort	Perceived Success	Maintain Effort	Positive
		Low Effort	Perceived Failure	Increase Effort	Positive
Performance	Competition, Ability and External Elements	High Ability	Perceived Success	Effort not viewed as necessary	Positive until failure encountered
		Low Ability	Perceived Failure	Reduction of effort and withdrawal from learning situation	Negative

others that they lack ability. The associated behaviour pattern is low initiation and persistence toward functional change (Dweck & Leggitt, 1988). Students having a mastery-orientation however, are characterized by *incremental theory* which holds that attributes are malleable. The developmental goal is one of understanding and improving these attributes, and the associated behaviour pattern in this instance is mastery-oriented goal pursuit (Dweck & Leggitt, 1988). The goal dynamic can then be construed to entail major implications for perceptions of control over events, as evidenced in Table 2.

Attribution Theory

Inherent to attribution theory is the tenet that goal attainment is caused by factors within the person or within the environment. This categorization was also fundamental to Rotter's (1966) locus of control theory which postulates that some individuals perceive an event to be contingent upon their own behaviours (internal locus), while others have the opposite perspective, namely that outcomes are independent of one's own actions (external locus). While Rotter advanced attribution analysis to a degree, some researchers felt that the internal/external dichotomy did not allow a sufficient description of causality and in an expansion of this theory, Weiner (1972) reconceptualized "locus". Specifically, while Rotter's theory advocated the locus of control as being a function of forces perceived as existing within or outside of a person, Weiner's (1972) modification defined locus in terms of the nature of the causes themselves, calling this dimension the *locus of causality*. The distinction between the two is that Weiner saw the "external" and internal" differentiation as just one dimension of a cause, which could also be classified along other causal dimensions.

Table 2

Perceptions of Control as a Function of Theory.

THEORY	PERCEIVED ATTRIBUTE LEVEL	PERCEPTIONS OF CONTROL OVER EVENTS
ENTITY: (attributes are fixed or uncontrollable)	High	Control is possible.
	Low	Control is not possible, outcomes will be negative or determined by chance.
INCREMENTAL: (attributes are controllable)	High	Control is possible.
	Low	Control is possible although requiring more time and effort.

The modification allowed a second dimension which described whether the locus of an event was constant or variable in nature. This distinction was termed *stability*, wherein an event is classified as being either stable or unstable over time. A third dimension of causality was introduced by Rosenbaum (1972) who recognized that causes, though internal-stable, external-stable, internal-unstable or external-unstable, could be further classified as being either subject to or independent of volitional control. Weiner (1979) incorporated this dimension into his theory under the label *controllability*, wherein an event is considered to be either controllable or uncontrollable by the attributor.

Weiner's complete theory of achievement motivation and emotion (1986; 1995) suggests that all attributions can be categorized along the dimensions of locus, stability and controllability. These properties were initially conceived to exist as a bipolar continuum, but for simplification purposes Weiner's model delineates causes as falling into discrete categories constituting a 2 x 2 x 2 taxonomy into which behaviours can be classified. Each cell relates to a different emotion, expectancy and behaviour. To summarize, motivation begins with an outcome. If this outcome is negative, unexpected or important, a causal search is likely to be initiated. The results of this causal search are dependent on causal antecedents related to the individual's past history, general causal rules and information from others. Causal antecedents determine which available causes are chosen to explain the event and it is this dimensional analysis that gives the occurrence meaning or significance (Weiner, 1986).

The theory also included specific attribution dependent affects (Weiner, Russel & Lerman, 1978; 1979). Initially, an outcome is evaluated as either "good" or "bad", leading to either a general positive (happy) or general negative (sad/frustrated) response. Delving further,

each causal dimension can be related to specific emotions including but not limited to, pride, hope, shame, and guilt. Internal, stable ascription such as ability is linked to pride when the outcome is success, but also to shame in failure given that this cause is a personal one and not likely to change. Ascription to a controllable cause such as effort entails guilt in failure, while the stability dimension is linked to one's hope and expectancy for future success. The full schematic is conveyed in Weiner's (1986) path diagram (Figure 1).

While Weiner would not describe this theory as being about control per se, many have construed perceived control as a product of attribution to the extent that it serves as the basis of affect and expectancy (Weiner, 1986). The addition of the controllability construct has made the theory salient for some in explaining motivation (e.g. Perry, 1991). Specifically, in the academic context, it is argued that students' responses to loss of control often involve specific causal attributions that have major implications for subsequent performance (Perry & Magnusson, 1989; Perry, 1991). Success and failure in achievement situations is usually attributed to either effort or ability (see Van Overwalle & DeMetsenaere, 1989). Attributing to either cause does not pose a problem in terms of success expectancy as long as the causal conditions are unlikely to change. The belief that success is due to effort usually leads to continued effort and continued success. A belief that success is due to ability leads one to perceive that she will achieve further success given the same level of task difficulty. However in situations where the outcome is deemed to be unstable, only an effort ascription leads to sustained expectancy of success; unlike ability, effort can be increased or decreased depending on the task demands. In this manner, effort becomes

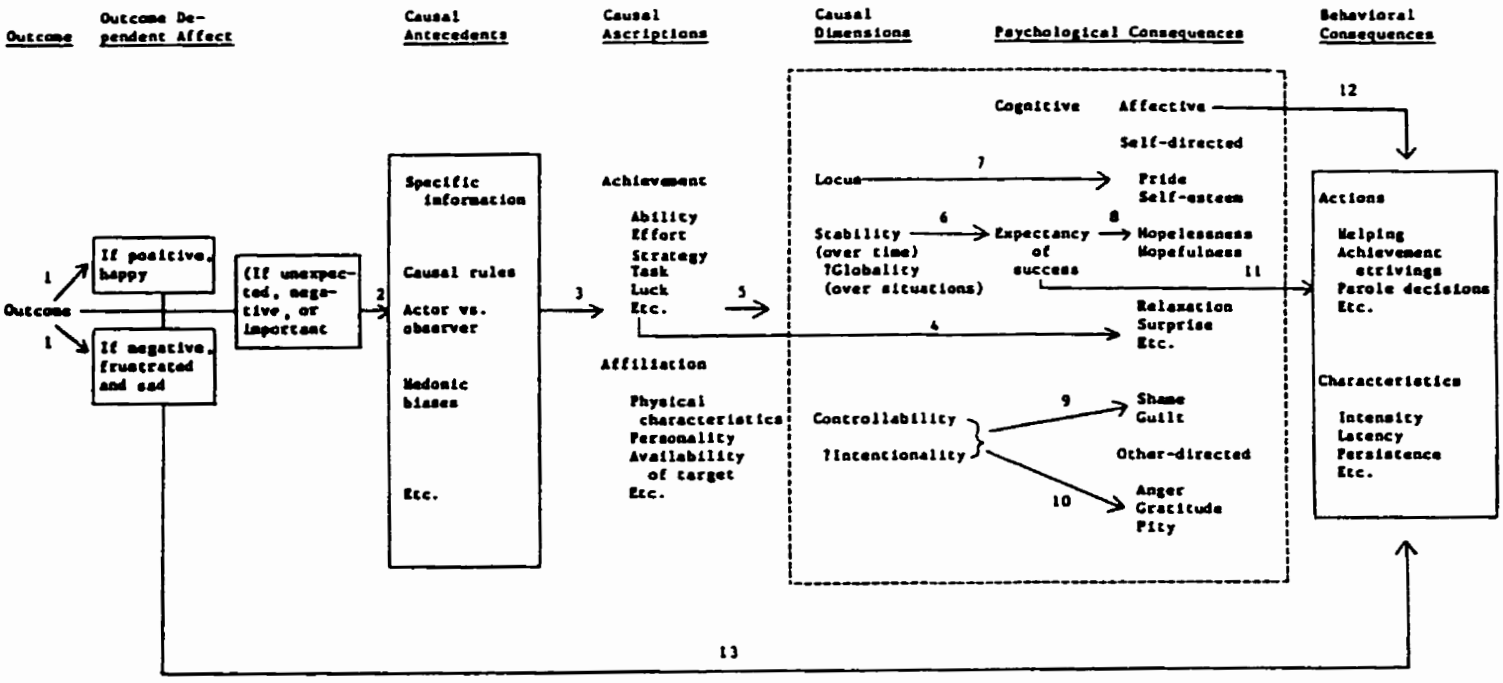

Figure 2. An attributional theory of motivation and emotion.

Figure 1. Weiner's (1986) schematic of the attribution process: a motivational sequence is initiated by negative, unexpected or important events, wherein attributions determine behaviour through the mediums of affect and expectancy.

more important in facilitating perceptions of control than ability, particularly when failure is encountered.

Consider the following example. A student fails a test which is evaluated as a negative, unexpected and important event. A causal search is initiated wherein the student determines that others did well on the test, and then recalls having done poorly on the last test also. From these cues, the student decides that the reason she failed the test is that she is stupid and lacking in ability. Evaluating this attribution in terms of its causal dimensions, one sees that lack of ability is internal in nature, stable over time and uncontrollable by the student. Given this explanation, the student would likely feel ashamed and have a little hope for future success. This would result in low motivation to study, a pattern that could easily culminate in continued failure. If, however, the student had explained this outcome as being due to lack of effort, an internal, unstable and controllable cause, she may initially feel guilty but decide that studying harder for the next exam would remedy the problem. This attribution would lead to an expectancy of future success and motivation to do better next time. Ultimately, this would induce the student to expend more time studying and lead to a better performance on the next exam. Hence, as in Ames' (1984) theory of achievement goals, motivation again appears to be contingent on the value one places on effort.

Self-Worth Theory

Our society embraces the work ethic, a perspective that is evidenced in the value teachers place on effort in the classroom. Weiner (1972) demonstrated that, while test outcome is the major determinant of classroom evaluation, students who are perceived as having expended effort are punished less in failure and rewarded more in success by their teachers. Further to this, such evaluations are independent of the student's ability. These results have been replicated numerous

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