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THE EFFECTS OF IMPLICIT THEORIES OF LEADERSHIP ABILITY ON GOAL ORIENTATION, ATTRIBUTIONAL PROCESSES, AND LEARNING OUTCOMES

by

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A dissertation submitted to the Graduate Faculty in Psychology in partial fulfillment of the degree of Doctor of Philosophy, The City University of New York

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Abstract

THE EFFECTS OF IMPLICIT THEORIES OF LEADERSHIP ABILITY ON GOAL ORIENTATION, ATTRIBUTIONAL PROCESSES, AND LEARNING OUTCOMES

by

Melanie Gorenflo-Gilbert

Advisor: Professor Edwin P. Hollander

This study examined the generalizability of the Implicit Theory model of achievement motivation (Dweck, 1990) to young adults in a military academy. The model is intended to explicate the manner in which individuals' underlying inferences regarding the malleability of the attributes necessary for success impact the type of goal chosen, as well as the information processing, attributional processes, affect, and learning outcomes in achievement situations.

Participants in this study consisted of 292 junior level cadets who were enrolled in a leadership training course. During the first week of the course, the cadets completed questionnaires which measured their implicit theory of leadership, academic goal orientation, and perceived leadership ability. Upon completion of the course, cadets completed another questionnaire, which measured their attributions regarding their performance in the course, as

well as their prognosis for future success at the Academy and in future leadership roles. Additionally, cadet grades for the leadership course, as well as their superior assigned leadership grades for the semester were collected as performance criteria.

As described in the Implicit Theory model (Dweck & Leggett, 1988; Elliot & Dweck, 1988), it was expected that implicit theory would be a significant predictor of goal orientation. However, this prediction was not supported.

Furthermore, it was expected that goal orientation would interact with perceived ability, leading to the attributional and performance patterns described by the model. Differences in the perceived controllability and stability of leadership ability were also expected between learning and performance oriented cadets. However, the attributional patterns described by the model were not found in this study.

Finally, cadets with a learning goal were expected to outperform performance goal oriented cadets, particularly those who perceived themselves as low in leadership ability. Though this prediction was partially supported, it was also found that cadets with a strong performance goal orientation did well.

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INTRODUCTION

The latest trend in theory development in the field of motivation is shifting away from unilateral theories and toward integrative models. Research has focused on motivational processes which underlie goal directed behaviors. This class of theories has been dubbed self-regulation theory, since these cognitive processes are self-governed. Self-regulation theory incorporates aspects from several areas of psychology including self efficacy (Wood & Bandura, 1989); attributional processes (Weiner, 1985); control processes (Kanfer & Ackerman, 1989); goal setting (Locke & Latham, 1990); implicit theory (Lord et al, 1986); and social cognitive theory (Dweck & Leggett, 1988).

The social-cognitive approach to motivation emphasizes the role of individual's cognitive information processing, rather than a pure reliance on external contingencies and global internal states in understanding behavior and psychological response patterns (Dweck, 1986). A social-cognitive model, the Implicit Theories model, has been developed by Dweck and her colleagues. This model explicates the manner in which underlying personality variables translate into dynamic motivational processes to produce patterns of cognition, affect and behavior (Dweck & Leggett, 1988). According to this model, a major determinate of cognition, affect, and behavior in achievement situations stems from an individual's beliefs concerning the malleability of the attributes necessary to achieve

successful performance. These beliefs color the way in which information regarding performance is processed, impacting goal orientation, attributional processes, and performance.

Although parts of Dweck's model have been empirically supported (Dweck, 1991; DeBacker & Schraw, 1995), the majority of the research has been conducted with children and young adolescents. Furthermore, the model has never been tested in its entirety. The goal of this research is to examine the applicability of the full model to adults. Additionally, this research will further clarify the application of implicit theory to the domain of leadership (Schwager, 1997). The paper will begin with a brief review of theory and research findings in the areas of motivation falling under the self-regulational framework. Next, an overview of the research conducted by Dweck and her colleagues will be presented. Based on the results of this research, several hypotheses will be proposed concerning the application of the model to adults. A description of the experimental procedures and results will follow. Finally, the implications of this study will be discussed.

OVERVIEW OF SELF REGULATIONAL THEORIES OF MOTIVATION

Control Processes and Self-Efficacy

Research in the area of control processes focuses on the maintenance and modification of behavior based on

comparisons to an internalized standard (Kanfer, 1987). The sources for these standards may be internally driven (e.g. how well you think you can do) or externally driven (e.g. others' expectations concerning your performance). In its simplest form, this process has been conceptualized as a "feedback loop", in which an input is perceived by the sensor, which then sends a signal to the comparator, where it is tested against a standard (Klein, 1989). When a discrepancy between our actual and desired performance exists, we are motivated to reduce that discrepancy by one of several methods. For example, we may increase our level of effort, change our strategy, reduce our expectations, or withdraw from the situation (Kanfer & Ackerman, 1989).

Dweck's social cognitive theory fits nicely within this framework. Under a learning goal orientation, a discrepancy between actual and desired performance is likely to lead to a greater expenditure of effort, or a change in strategy. However, under a performance goal orientation, this discrepancy is likely to result in withdrawal, or a helpless response.

Another important influence on control processes is perceived self-efficacy. Self efficacy refers to "...people's beliefs in their capabilities to mobilize the motivation, cognitive resources, and courses of action needed to exercise control over events in their lives" (Wood & Bandura, 1989, p. 87). These authors propose that self-efficacy determines whether or not failure experiences

result in withdrawal or increased motivation. When perceived efficacy is high, the discrepancy between actual and desired performance results in increased motivation; whereas withdrawal behavior is likely to result when self-efficacy is low.

Dweck and Leggett (1988) describe an interaction between perceived ability level (self-efficacy) and goal orientation. Under a learning goal orientation, initial failure leads to increased effort or strategy change regardless of perceived ability. However, under a performance goal orientation, initial failure leads to a helpless response when self-efficacy is low.

Attribution Theory

One of the most recognized names in the field of achievement related attributions is Bernard Weiner. Weiner's research has focused on the perceived causes of success and failure, as well as on the properties of these causes, as perceived by the individual. Research has revealed that the most common causal attributions indicated by subjects in achievement settings are: ability, effort, task difficulty, luck, and other persons (Weiner, 1985). Furthermore, effort and ability are the most often cited causes for performance.

Weiner has built on the theory of his predecessors in describing the properties of these common causal attributions (Heider, 1958; Rotter, 1966; both cited in

Weiner, 1985). Three primary properties of attributions have been identified as follows: locus of causality, stability, and controllability. The first dimension by which attributions may be classified is termed "locus of causality", and indicates whether the attribution is internal or external to the individual (e.g. ability is typically internal, while task characteristics are external). The second dimension concerns the stability of the attribution, since some factors may fluctuate over time (ex. effort). The final dimension concerns the volitional controllability of the attribution. For example, mood may be perceived as not under volitional control, while effort typically would be viewed as controllable.

As originally conceived of, these perceived properties were believed to be consistent for each type of attribution across individuals. For instance, it was believed that all people viewed ability as inherently internal, stable, and uncontrollable. However, revisions of the theory have allowed for individual differences in the classification of attributions along the three dimensions.

Weiner has also developed a theory relating these causal dimensions to expectancy theory and affective responses. Weiner (1985) refers to many studies which illustrate that the property of stability has the most profound impact on expectations. Research has revealed that when the outcome of an event is ascribed to a stable cause, that outcome will be anticipated with a higher degree of

certainty in the future. In contrast, when an outcome is attributed to an unstable cause, the degree of certainty for that outcome being repeated may remain unchanged; or the future may be anticipated to hold different outcomes than did the past.

Weiner has also found that the causal properties have different effects on the affective responses to an outcome. Specifically, he has found that feelings of self esteem or pride result when a successful outcome is attributed to an internal cause; while self esteem may be reduced when an unsuccessful outcome is attributed to the self. Furthermore, Weiner has found that feelings of anger, pity, gratitude, guilt and shame all stem from the perceived controllability of the attribution. When an unfavorable outcome is attributed to a controllable cause, anger or guilt and shame may result. In contrast, when an unfavorable result is attributed to an uncontrollable cause, pity may result. For example, we feel sorry for the person who shows up late because their car broke down, while we feel anger for the person who merely slept late. Finally, hopelessness may result when negative outcomes are attributed to stable causes.

In her research with children, Dweck has incorporated Weiner's theory in explaining differential patterns of achievement among children with the same ability level. Dweck and Leggett (1988) report that children who attribute failure to ability, and conceptualize ability as stable and

uncontrollable are at risk for a helpless response characterized by performance decrements and withdrawal. In contrast, children who attribute failure to a lack of effort or ability, but conceive of ability as controllable and unstable, tend to respond with increased effort and performance improvement.

Goal Setting Theory

The fundamental tenet underlying goal setting theory is that intentions are the immediate precursors of behavior (Ryan, 1970). Goals may be thought of as a type of intention, and serve to increase motivation through a variety of mechanisms, including the direction of attention and action, as well as the promotion of strategy development. Indeed, research has shown that goal setting is one of the most effective means of increasing motivation and performance in a variety of settings (Pinder, 1984).

Research on goal setting has revealed that certain types of goals are more effective in increasing effort and performance. Specifically, higher or harder goals increase performance, and specific goals increase effort (Locke et al, 1981). Furthermore, incentives (such as money, feedback, or competition) will only affect behavior if they lead to the setting or acceptance of specific, difficult goals.

Though goals are an integral part of Dweck's social cognitive theory of motivation, they are treated differently

than in the traditional goal setting framework. While traditional goal setting emphasizes the difficulty and specificity of goals, Dweck focuses on the type of goal pursued (e.g. learning or performance). Furthermore, traditional goal setting theory considers competition to be a motivator, which leads to increased effort and performance. However, Dweck has found that competition triggers a performance goal orientation, which may actually lead to performance decrements after initial failure.

Despite these differences, there are parallels between Dweck's conception of goal orientation and traditional goal setting theory. Both theories acknowledge that a goal need not be in conscious memory at all times to influence behavior. Likewise, both theories emphasize the role of feedback. In traditional goal setting theory, feedback is necessary to the process of goal attainment; merely setting a specific, difficult goal is not sufficient to affect behavior. Dweck also emphasizes the role of feedback in goal directed behavior, however social cognitive theory does not assume that feedback always leads to increased effort. As mentioned in the discussion of self-efficacy, negative feedback under a performance goal orientation may lead to withdrawal behaviors rather than increased effort.

Implicit Theory of Leadership

Lord, De Vader, and Alliger (1986) have defined

implicit leadership theories as, "...widely shared beliefs about leader behaviors and traits that guide perceiver's encoding of relevant information, their formation of leadership perceptions, and their reconstructive recall of leadership information" (p. 403). Lord and his colleagues propose that people hold cognitive schema, or prototypes consisting of leader traits (Cronshaw & Lord, 1987; Lord, De Vader, and Alliger, 1986). When followers are exposed to a leader, they match that individual's traits up with their cognitive prototype of a good leader. If the leader's traits match their prototype, the followers then perceive that individual as a leader. Leadership perceptions have been correlated with traits such as masculinity, intelligence, and dominance (Cronshaw & Lord, 1987).

While Lord suggests that humans share a general leadership prototype, other social cognitive researchers have examined individual differences in implicit theories (Leggett & Dweck 1988). Rather than emphasizing the particular traits themselves, Dweck and her colleagues have examined people's perceptions of the malleability of the traits and the consequences of these perceptions. Moreover, Lord's Implicit Leadership Theory has only been examined in the context of perceiving others as leaders, while Dweck has examined the impact of implicit theories on self perceptions, as well as perceptions of others (Hong, Chiu & Dweck, 1997).

THE DEVELOPMENT OF THE IMPLICIT THEORIES MODEL

Background

Dweck's implicit theories model stems from research in several areas including personality theory (Kelly, 1967 social perception (Heider, 1958); clinical psychology (Seligman, & Maier, 1967); and attribution theory (Weiner, 1974).

Kelly's (1967) personality theory states that a major component of personality involves personal constructs or naive assumptions about the self and social reality. According to Kelly, these implicit models guide the processing of information concerning the self and others. This concept is also included in Heider's (1958) theory of social perception, which maintains that people's latent theories of personality influence the way that the self and others are perceived. Since these implicit theories are largely unconscious, or automatic, it is difficult to define them and understand their impact on information processing. Dweck and her colleagues have taken this notion of implicit theories and attempted to clarify them and their impact on information processing by focusing on individuals' perceived malleability of personal attributes, such as intelligence

(Dweck, Chiu, & Hong, 1995).

One's beliefs concerning the malleability of personal attributes has an impact on how one interprets and responds to success and failure. The learned helplessness model (Abramson, Seligman, & Teasdale, 1978) posits that if individuals attribute negative events to global, stable, and uncontrollable factors, they are unlikely to attempt action to change things. Rather, this attributional pattern leads to depressive and hopeless responses to negative events. Weiner's (1974) attributional theory also suggests that an individual's causal attribution for events determines their reactions to those events, as well as their expectations about future events. For example, a failure that is attributed to a lack of ability will lead to different responses and expectations than a failure attributed to a lack of effort.

Dweck and her colleagues began by examining responses to failure in achievement situations (Dweck & Reppucci; 1973, Dweck, 1975; Diener & Dweck, 1978). Two distinct response patterns were revealed: helpless and mastery oriented. Next, Dweck and her colleagues investigated why these different patterns occurred. They proposed that helpless and mastery oriented children were pursuing different goals; helpless children chose performance goals, while mastery oriented children chose learning goals (Dweck & Elliott, 1983; Dweck & Leggett, 1988; Elliott & Dweck, 1988). Finally, an examination of the underlying causes of

these differential goal choices revealed differences in conceptualizations of ability and intelligence (Bandura & Dweck, 1985).

Responses to Failure in Achievement Situations

In their initial research, Dweck and her colleagues had children work on concept formation tasks (Diener & Dweck, 1978). The children were placed into two groups based on their attributional responses to the Intellectual Achievement Responsibility Scale (Crandall, Katkovsky, & Crandall, 1965); a helpless group and a mastery oriented group. The children succeeded on the first eight problems, but failed on the next four. While working on the tasks, children were asked to verbalize their hypothesis testing strategies, as well as their thoughts and feelings. Despite the fact that the two groups were equivalent on initial performance, two distinct patterns emerged after failure.

The helpless children quickly offered negative ability attributions for their poor performance. The low ability attributions were accompanied by a negative prognosis for their future performance on the task. The verbalizations of the helpless children also revealed negative affect in the form of boredom and anxiety. In addition, the helpless children engaged in task irrelevant verbalization, which led to deterioration in their problem solving strategies.

In contrast, the mastery oriented children offered

fewer attributions for their poor performance; and when they did make attributions, they concerned effort or external and uncontrollable factors (ex.: a mean experimenter) rather than ability. Rather than view negative feedback as indicative of failure, mastery oriented children took it as a cue for increased effort or a change in strategy. The verbalizations of these children showed positive affect and expectations of success on future trials, as well as a greater amount of self instruction. This response pattern was accompanied by an improvement in problem solving strategies.

In summary, the helpless children were quick to perceive themselves as failing, attributed their failure to a lack of ability, and showed performance decrements. In contrast, the mastery oriented children viewed failure as a learning opportunity, adjusted effort and strategy, and improved their performance. The next stage of Dweck's research attempted to explain why these patterns emerged. Specifically, it was hypothesized that the two groups of children were pursuing different types of goals (Dweck & Elliott, 1983; Elliott & Dweck, 1988), and that goal choice set the framework they used to interpret and react to events (Dweck & Leggett, 1988).

Goals

Dweck and Elliott proposed that individuals can pursue

two types of goals in achievement situations: *performance goals*, in which the aim is to gain favorable judgments of their ability and avoid negative ones; and *learning goals*, in which the aim is to increase competence through learning or mastery. They tested the hypothesis that the different goal orientations set the stage for the differing response patterns by both manipulating goal orientation and measuring naturally occurring goal orientation.

In their experimental study, Elliott and Dweck (1988) manipulated children's goal orientation by highlighting either performance goals (by emphasizing the evaluative aspects of the situation), or learning goals (by emphasizing the value of the material to be learned). In addition, children's perceived ability for the task was manipulated by the provision of bogus feedback on a pretest. Their prediction was that performance goals would foster the helpless pattern to a greater degree when perceived ability was low, and that learning goals would foster the mastery oriented response regardless of perceived ability.

Their hypothesis was confirmed; performance oriented children who perceived themselves as low in ability demonstrated the helpless pattern (negative self attributions, negative affect, and strategy deterioration), while children in the other three groups displayed the mastery oriented pattern (constructive self instructions, positive affect, and effective strategies). Furthermore, although children with performance goals and high perceived

ability were mastery oriented, they differed from the children pursuing learning goals in their challenge seeking behavior. When offered the chance to learn a new skill involving the risk of failure and confusion, performance oriented children declined while mastery oriented children took the challenge.

In subsequent studies (Ames & Archer, 1988; Dweck, 1991; Dweck & Leggett, 1988), children's naturally existing goal orientations and ability perceptions were measured, and similar patterns emerged. Ames and Archer (1988) questioned 176 junior high school students about their perceptions of the goal orientation in their classroom, as well as their strategies for learning, task choices, attitudes and causal attributions. They found that students who perceived an emphasis on a learning goal orientation also reported using more effective strategies (ex. self monitoring), preferred challenging tasks, had a more positive attitude toward the class, and had a stronger belief that success stems from effort rather than ability. In contrast, students who perceived an emphasis on a performance goal tended to focus on their ability as the primary determinate of failure in class. Ames and Archer concluded that encouraging a learning goal in the classroom may play an important role in fostering adaptive motivational strategies in students. Though this study illustrated the motivational processes involved in goal orientation, no external criterion measures were collected.

A 1991 study conducted by Hayamizu and Weiner proposed that there are actually three types of goal orientations rather than two. In addition to the learning goal, these researchers identified two classes of performance goals; one concerned with gaining others' approval (PGap) and another concerned with advancing in school (PGad). Using a questionnaire designed to measure achievement goal tendencies in Japanese students (Hayamizu et al, 1989), 123 undergraduate students were surveyed regarding their goals for an introduction to psychology course. Students were also given a questionnaire which asked them to rate the perceived qualities of various causes for achievement according to the taxonomy put forth by Weiner (e.g.: stable vs. unstable; controllable vs. uncontrollable and internal vs. external).

A factor analysis on the Achievement Goals Tendencies measure revealed the existence of 3 factors, as identified in their hypotheses. However, while neither performance goal was correlated with a learning goal, the two performance goals were highly correlated with each other (r=.44), suggesting that the two classes of performance goals overlap to a fair extent. Additionally, the number of subjects used was rather low. In order to perform a factor analysis on the 20 item scale, the minimum sample number should have been 10 subjects per item, 200 total (Crocker & Algina, 1986). Finally, because the Achievement Goals Tendencies questionnaire was developed for Japanese high school students, generalizability of this instrument to a sample of

American university students is questionable.

In the second part of their study, Hayamizu & Weiner examined the correlations between the 3 goal orientations and the perceived characteristics of causes. Consistent with Dweck's theory, the strongest correlation was found between a learning goal and the perceived stability of ability ($r=-.25$, $p<.01$). That is, students with learning goals perceived ability to be unstable. However, contrary to Dweck's theory, performance goals were also significantly correlated with the perceived stability of ability ($r=-.18$, $p<.05$), though to a lesser degree. Additionally, performance goals were also correlated with the perceived controllability of ability ($r=.25$, $p<.01$), in direct contrast with what Dweck would predict.

A closer look at the methodology in this study reveals that attributions were primed using negative phrases. That is, subjects were asked to rate lack of effort and ability, bad luck, difficult tasks and poor instruction. No rationale was given for the negative phrasings as opposed to using positive phrasings or allowing subjects to generate their own attributions. It is possible that these constraints affected the correlations.

In explaining the process underlying the impact of goal orientation, Dweck (1991) proposed that the goals create a framework within which information is processed and interpreted. Within a performance goal orientation,

information is processed in terms of its relevance for measuring or judging ability. Therefore, failure is interpreted as a lack of ability, and is prevented by avoiding challenging or difficult tasks. Within a learning goal orientation, information is processed in terms of its relevance to task mastery. In this context, failure merely provides a cue to increase effort or change strategy. Indeed, effort itself is conceived of differently by the two groups. For children with performance goals, effort is seen as an indication of low ability (i.e., "If you have to work very hard at something, you must not be very good at it"). In contrast, children with learning goals view effort as activating ability (i.e., "Even geniuses have to work hard for their achievements") (Dweck, 1991).

The next step in Dweck's research was to explain what prompted children to emphasize different goal orientations. Bandura and Dweck (1985) hypothesized that children with different goals might have different implicit theories regarding the nature of intelligence.

Implicit Theories of Intelligence

Bandura and Dweck (1985) proposed that some children might regard intelligence as a fixed trait not under their control; while others might view it as a malleable quality, amenable to development through effort. Bandura and Dweck refer to the former view as an "entity theory", since it

treats intelligence as a static characteristic; and the latter view as an "incremental theory", since intelligence is treated as a dynamic, changeable characteristic. These theories carry different motivational consequences. Bandura and Dweck predicted that children holding an entity theory of intelligence would be more likely to chose a performance goal, since their belief in intelligence as a static quality would lead to their concern with its documentation rather than its development. In contrast, children with an incremental theory were predicted to be oriented toward learning goals, as their concern would be with developing intelligence rather than documenting existing levels of it.

Several studies were conducted to test the hypothesis that children's theory of intelligence would predict their achievement goals (Bandura & Dweck, 1985; Dweck & Leggett, 1988). In some studies, children's implicit theories were measured using a questionnaire; while other studies manipulated children's theories by having them read passages that espoused an entity or incremental view. In all studies, children's theories were a significant predictor of their goal choice on an upcoming achievement task. As predicted, children with entity theories chose performance goals; while children with incremental theories chose learning goals.

In a study by Leggett and Dweck (1988), 82% of the entity theorists chose performance goals by selecting tasks that would gain them favorable ability judgments. Furthermore, 50% of the entity theorists chose easy tasks

that allowed them to avoid the possibility of negative judgments at the expense of learning. In contrast, 61% of the incremental theorists chose learning goals, and only 10% chose the easy task. Thus, the research supported the view that children's theories of intelligence, whether preexisting or manipulated, influence their goal choice.

The Nature of Implicit Theories

Dweck conceptualizes the implicit theories of individuals not as rigid determinants of behavior, but as general frameworks which guide perceptual processes and increase the likelihood of certain types of reactions (Dweck, Hong, & Chiu, 1995). Thus, an individual's response to a situation is a function of both the contribution of internal factors (implicit theory) and external cues that increase the salience of a goal orientation. For example, one might naturally have an incremental theory of intelligence, yet be in a highly competitive situation which overrides the tendency toward learning goals in favor of performance goals. Furthermore, an individual's implicit theory may not be the same across all personal attributes (Dweck & Leggett, 1988). For instance, one could have an entity view of intelligence, and an incremental view of leadership skills.

Some researchers suggest that it is possible to hold both an entity and an incremental theory at the same time

for a given domain (Anderson, 1995; Schunk, 1995). Which goal orientation will emerge may be a function of construct accessibility; the readiness for retrieval of a cognitive construct (Bargh, 1989). Construct accessibility is influenced by factors such as recency and frequency of recall. Dweck concedes that it may be possible to hold both theories simultaneously, however one theory is typically dominant over the other (Dweck, Chiu & Hong, 1995)..

Finally, Dweck (et al, 1995) points out that neither view is the "correct" one. Rather, each theory is an alternate way of constructing reality, with its own benefits and drawbacks. The entity view, with its static conceptualizations, yields a reality that is stable and understandable. However, the entity view may also lead to global trait judgments that can foster helpless responding. In contrast, the incremental view implies a constantly changing reality, but fosters persistence and challenge seeking.

By way of summary, Table 1 illustrates the differential patterns revealed by Dweck and her colleagues.

Theories, Goals, and Behavior

Theory of intelligence	Goal orientation	Confidence in present ability	Behavior pattern
Entity Theory (Intelligence is fixed)	**Performance goal** (Gain positive judgments/ avoid negative judgments of competence)	**High**	**Mastery oriented** Seek challenge High persistence
		Low	**Helpless** Avoid challenge Low persistence
Incremental theory (Intelligence is malleable)	**Learning Goal** (Increase competence)	**High or low**	**Mastery oriented** Seek challenge High persistence

Note. From "Motivational Processes Affecting Learning" by C. Dweck (1986), American Psychologist, 41(10), p. 1040.

Implications of Implicit Theories and Goals for Learning

The implicit theory of intelligence one adopts has important consequences for the congruence between self esteem and self development (Dweck, 1991). When children were asked when they felt smart (Dweck & Bempechat, 1983), entity theorists reported the highest esteem levels when they were in situations which allowed for positive performance goals: when the task was easy, when they didn't have to try too hard to succeed, when they made no errors, etc. In contrast, incremental theorists felt greater esteem in learning situations: while working on something hard, when they overcame a challenge, when they figured out something new, etc.

The implication of the entity theory is that it puts self esteem at odds with learning; what must be done to learn (face challenges, make mistakes) is not what makes entity theorists feel smart (easy successes). In contrast, an incremental theory is highly congruent with self development. Thus, implicit theories and goal orientations have enormous impact on learning outcomes.

Implications of Implicit Theories and Goals for Intrinsic Motivation

Intrinsically motivated behavior is defined as, "behavior that is performed for its own sake, rather than for the purpose of acquiring any material or social rewards" (Pinder, 1984 p.58). Motivation researchers regard intrinsic motivation as the ideal model for learning, because it leads an individual to feel competent and self determining (Deci, 1975), greater satisfaction with learning outcomes and fuller integration of learned materials (Deci, et al, 1981).

A learning goal orientation is highly congruent with intrinsic motivation, as the individual focuses on mastery for its own sake. However, performance goals may undermine intrinsic motivation since the individual tends to be focused on external judgments. For performance oriented individuals, concern over goal attainment may hinder task interest and make persistence difficult (Dweck, 1986).

All this is not to imply that a performance goal

orientation is always dysfunctional, or that extrinsic motivation impedes learning. In reality, performance goals may be a prerequisite to learning goals, in that obtaining an objective evaluation of our skills and abilities can help us decide where to concentrate our efforts. Furthermore, extrinsic rewards can be incorporated into this framework, if they are contingent upon mastery and challenge seeking behavior, and mistakes are not punished.

Applications of the Model to Training and Organizations

Training

In 1985, Farrell and Dweck conducted a study designed to assess the impact of goal orientation on transfer of training. It was hypothesized that performance goals would be less conducive to transfer of training since they are associated with preferences for less challenge, a lack of persistence in effective strategy formation, and a reduction of effort in the face of difficulty. In this study, eighth grade children were pre-tested on their mathematical ability. Children were then given a behavioral choice measure to assess their goal orientation. Training was conducted by means of self instructional packets, and a post test was administered to assess transfer.

As predicted, the mean transfer score for children with learning goals (72%) was significantly higher than transfer for children with performance goals (50%) when initial

ability was controlled for. Furthermore, children with learning goals produced significantly more writing in their solution processes, implying a more active and persistent role in learning. Note that in this study, significant differences occurred between the two groups as a whole, irrespective of ability perceptions. This is a slightly different effect than that found previously by Dweck, where only performance oriented children with low perceived ability showed performance decrements. Farrell and Dweck concluded that focusing on performance goals, with heightened concern for ability judgments, precludes children from engaging all of their cognitive resources into the learning process.

Field study

In 1988, Manz, Adsit, Campbell and Mathison-Hance examined self regulation and perceptual differences between high and low performing managers concerning performance hindrances. Managers were classified as high or low performers based on a combination of self reports and peer reviews. Managers were then questioned regarding the factors they perceived as hindering them at their current jobs. Differences in attributions between the two groups were then contrasted. Though this study was not a direct test of Dweck's theory, the variables are similar enough to provide useful information for the theory.

Results of the contrasts between the attributions of

high and low performing managers were highly congruent with patterns found by Dweck and her colleagues (Dweck, Chiu & Hong, 1995; Dweck, Hong & Chiu, 1993; Dweck & Leggett, 1988). Specifically, lower performing managers tended to attribute failure to internal skill deficiencies such as an inability to handle stress; while higher performing managers attributed failure to external factors outside of their control, such as organizational policies.

Importantly, the attributional patterns revealed in these studies (Dweck, Chiu & Hong, 1995; Dweck, Hong & Chiu, 1993; Dweck & Leggett, 1988; Manz et al, 1988) are somewhat contrary to attributional patterns described in traditional attribution theory literature (i.e., Jones & Nisbett, 1972; Weiner et al, 1971; Weiner, 1985). Traditional theory suggests that most individuals tend to attribute success to internal causes and failure to external/uncontrollable causes (e.g., self serving bias, see Brown & Rogers, 1991). This view would lead to the prediction that low performing managers would attribute failure to external/uncontrollable causes; while high performers might focus more on internal development. In fact, just the opposite pattern has been found. Manz et al (1988) concluded that dwelling on personal deficiencies (e.g., learned helplessness attributional style; see Seligman et al, 1979) leads to poor performance due to detrimental impacts on self efficacy and personal control perceptions.

On a related note, the notion that incremental and

entity theorists differ in their perceptions of the controllability of attributes (such as ability) is inconsistent with Weiner et al's initial (1971) classification of ability as an inherently stable and uncontrollable entity. However, later revisions of Weiner's taxonomy allow for individual differences in beliefs concerning the controllability of traits (Weiner, 1985). Implicit theory, with its social-cognitive emphasis, also indicates a shift in focus away from global norms and toward individual differences in attributional styles and the external factors (i.e., goal salience) which influence them. In fact, Dweck and Leggett (1988) suggest that implicit theories may be the precursors to attributional styles; with an entity theory encouraging global, stable, dispositional attributions, and an incremental theory encouraging situationally specific attributions.

THE CURRENT STUDY

Purpose

Though Dweck's theory has been empirically proven in children and young adolescents, applications to adults have not been published. Furthermore, studies have only tested parts of the model; no study has tested the model in its

entirety. The main goals of this study are to determine the applicability of the full model to adults, as well as to the leadership domain. Examining the impact of implicit theories on learning outcomes for young adults in an academic setting also serves to benefit the field of industrial and organizational psychology in terms of both training and motivation issues. Each year, organizations spend millions of dollars on training for their employees, and it is important to ensure these funds are not wasted. One way to maximize the benefits of training is to understand the psychological and motivational processes that underlie learning. Implicit theory is one psychological variable that may impact the outcome of training.

Several characteristics of today's world of work further emphasize the need for effective training programs. First of all, demographic changes in the composition of the workforce will increase training needs across organizations. Research shows that the growth rate of the new workforce is decreasing due to the small number of individuals between the ages of sixteen and twenty four entering the workforce (Goldstein, 1993). The data also reveal that the entry level workforce will be lacking in many basic skills due to mediocre educational institutions and economic disadvantages. With many jobs to fill , but fewer qualified people to fill them, maximizing employee potential will become critical to the functioning of organizations.

With this increased need for training and employee

competence, it is crucial to understand the motivational and psychological factors that influence learning and transfer of training. The work of Dweck and her colleagues shows that individual implicit theory and goal orientation are important factors in learning and transfer of learning in children. The current study assesses the importance of these factors on learning outcomes for young adults in an academic setting.

This study also contributes to the field of motivation, specifically in the area of intrinsic motivation. Research efforts in this area have focused on the impact of intrinsic motivation on learning processes and outcomes (Lepper, 1981; Nicholls, 1984). The study adds to our understanding of the way in which the goal orientation one adopts influences information processing during learning, and subsequently, learning outcomes.

Because Dweck's model is based on clinical and social psychology paradigms, its integration into the field of I/O serves to create a more comprehensive, cross disciplinary model of motivation. The model also incorporates several elements already existing in the field of motivation, such as goal setting, self regulation, and social learning. Researchers in the field of motivation have suggested that no one theory is enough to explain the complexity of work motivation (Katzell and Thompson, 1990; Mitchell, 1982). Though Dweck's model is not a comprehensive model of motivation, its incorporation of theory from different

fields of psychology increases its value to the field of motivation.

Prior research linking implicit theory to the domain of leadership has identified impact on outcome variables such as superleadership (Schwager, 1996) and satisfaction with leadership (Gorenflo-Gilbert, 1997). The current study assesses the impact of implicit theory to leadership achievement.

This study measures implicit theory, goal orientation and perceived ability, and examines the impact of these variables on performance and attributions. Several hypotheses were developed, based on those tested by Dweck and others (Ames, 1984, Ames & Archer, 1988; Elliott & Dweck, 1988; Farrell & Dweck, 1985)

Hypotheses

Dweck (1991)has proposed that children with an incremental theory are likely to adopt a learning goal, while children with an entity theory are likely to adopt a performance goal. The current study examines whether or not implicit theory predicts goal choice in young adults.

H1: Cadets with an incremental theory of leadership ability will adopt a learning goal, while cadets with an entity theory of leadership ability will adopt a performance goal.

In their studies with children, Dweck and her colleagues have identified several outcomes associated with implicit theory and goal orientation (see table 1). Children with learning goals have outperformed children with performance goals, regardless of initial ability perceptions (Dweck & Leggett, 1988). The current study assesses whether this holds true for adults in an academic setting.

H2: Cadets with a learning goal will attain higher grades (both PL300 and leader development) regardless of perceived ability, than will cadets with a performance goal and a low perceived leadership ability. This will be evidenced by an interaction effect between a performance goal orientation and perceived ability.

In her research with children, Dweck has found differences in attributional patterns between children with an entity theory and children with an incremental theory. This study examines the extent to which these differing attributional patterns hold in a young adult population.

H3: Cadets with an incremental theory of leadership ability will attribute learning outcomes to effort, while cadets with an entity theory will attribute learning outcomes to ability. Moreover, cadets with an incremental theory will perceive ability to be both less stable and more controllable than will cadets with an entity theory.

Dweck has found that children with a learning goal tend

to exhibit more confidence in future success, regardless of perceived ability, than do children with an entity theory who regard themselves as low in ability. The current study examines this tendency in a young adult population.

H4: Cadets with an incremental theory or a learning goal orientation will have greater confidence in future success, regardless of perceived leadership ability, than will cadets with an entity theory or performance goal orientation and low perceived leadership ability.

Subjects and Setting

In choosing the subjects and setting for this study, several factors were considered. Ideally, an organizational setting would have been preferred to maximize generalizability to the "real world". The ideal setting for this study would be an organization that has a vested interest in training, and a willingness to provide the necessary resources to study the training process.

In an effort to compromise, the study was conducted at the United States Military Academy at West Point. Though the Academy is an academic setting, the cadets have many duties and responsibilities, including leadership roles, which are comparable to those found in organizations.

A preliminary power analysis indicated that a sample of 200 cadets from the Academy would be necessary to adequately test the hypotheses at an alpha level of .05 and a power

level of .80. This figure was calculated based on the sample size tables for analysis of variance in Cohen's 1988 Statistical power analysis for the behavioral sciences. With alpha set to .05, three degrees of freedom, a medium effect size (.25), and a desired power level of .80, there must be 45 subjects per cell. Therefore, with four cells, a minimum of 180 subjects was needed. In this study, surveys were administered to 500 cadets in their Junior year who were enrolled in a leadership training course (PL300) during the Spring of 1998. With a response rate of sixty percent, the final sample size was 292 Cadets, consisting of 239 males and 53 females.

PL300 is a course in military leadership which is mandatory for all cadets in their junior year. Areas of instruction in PL300 include theories of organizational behavior encompassing individual, group, leadership and organizational processes.

Method

Overview

Procedure: Before the semester began, cadets' leadership ratings for the Fall of 1997 by their Tactical Officers (TACs) were gathered to ensure there were no preexisting differences in leadership ability by implicit theory. On the first day of class, the cadets were asked to complete a questionnaire measuring their implicit theory of leadership, their goal orientation for the class, and their

confidence in their existing leadership ability. This questionnaire also contained an informed consent form (see Appendix A).

At the end of the term, shortly after the cadets received their PL300 grades, they were asked to complete another questionnaire, regarding their attributions for the grade they received, as well as their confidence in their future ability to succeed as a leader.

The implicit theory of leadership measure was also re-administered at term end to examine the test-retest reliability of the instrument. Their PL300 grades, as well as their TAC assigned leadership grades were used as performance criteria.

Variables and Measures

Appendix B contains all questionnaire measures for this study. Briefly, these measures may be described as follows.

Implicit theory of leadership: Cadets' implicit theories were measured with a modified version of the four item questionnaire originally developed by Dweck and her colleagues (Schwager, 1997). The measure contains only four items, since implicit theory is a unitary idea, and multiple rephrasings could lead to boredom on the part of the respondents. One potential pitfall of using such a brief measure is low reliability, however an alpha coefficient of .85 has been reported by Dweck and her colleagues (1995).

Moreover, the construct validity of the implicit theory questionnaire has been demonstrated in several studies conducted by Dweck and her colleagues (Dweck, Chiu, & Hong, 1995).

The four items in the implicit theory of leadership measure are (a) "Leadership ability is something very basic about an individual, and this ability can't be changed very much"; (b) "Training or development for leadership can teach individuals new things, but they are unlikely to change the fundamental nature of leadership ability"; (c) "Not everyone is born with the same ability for leadership, and these differences will persist throughout an individual's life"; (d) "Whether individuals are leaders or not is deeply ingrained in their personality". Respondents were asked to indicate their agreement with these statements on a 6 point scale ranging from one (strongly disagree) to six (strongly agree).

To create an overall implicit theory score, responses on the four items were summed. Cadets were then divided into two groups using a median split. Cadets who averaged fourteen or more on this scale were classified as entity theorists; cadets who averaged less than fourteen were classified as incremental theorists. Traditionally, cadets whose scores lie at the midpoint of the scale are dropped from the analyses, to produce two more distinct groups. However, this procedure would have resulted in an unacceptable drop in sample size for this study.

Goal Orientation: Goal orientation was measured using an adaptation of an instrument developed for this purpose by Roedel, Schraw and Plake (1994): the Goals Inventory. The Goals Inventory consists of 18 statements regarding academic goals (e.g. "I enjoy challenging school assignments"). Subjects were asked to indicate how true each statement is for them using a five point Likert scale ranging from one (never true) to five (always true).

This instrument has been evaluated in terms of reliability (test-retest = .74; Cronbach's alpha = .78) and validity (convergent and discriminant validity established by correlations of this measure to other measures; factor analysis revealing that two uncorrelated factors account for 64% of the variance in responses).

The Goals questionnaire may be scored in two ways. The learning and performance goal items may be averaged separately, so that each subject receives both a learning goal score and a performance goal score. A second scoring method is similar to that used for the implicit theory scale. All items may be averaged together, so that higher scores are associated with a performance goal orientation, and lower scores with a learning orientation. Both scoring methods were used in this study, and separate analyses conducted where sample size permitted.

Perception of existing leadership ability: Perceptions

of leadership ability were measured by asking cadets to respond to three questions using a Likert type scale. The questions focused on ranking of their own leadership ability in comparison to others, their self confidence in their leadership ability, and their expected performance in PL300.

Performance in PL300 was the main dependent variable of interest. However, several other dependent measures were used to provide an adequate test of Dweck's model, as well as to enhance understanding of the underlying causes of the performance outcomes.

Performance criteria 1:PL300 Grades. Performance was operationalized in two ways. First, instructor assigned cadet grades for the PL300 course was used. PL300 is a course in military leadership, which is mandatory for all cadets in their junior year at the academy. By this time, cadets have had enough experience as both leaders and subordinates to provide a framework for the theories taught in this course. Instructors of PL300 teach cadets to apply a method termed the "Intellectual Procedure" which is described as the application of scientific inquiry to leadership (McNally, Gerras & Bullis, 1996). In class, cadets are presented with case studies and asked to identify the problem, use theory and analytical skill to account for it, and formulate and apply leadership actions to correct the problem. Cadets are instructed in a wide range of organizational behavior theories encompassing individual,

group, leadership and organizational processes. The PL300 instructors hold Ph.D.'s in a relevant area (e.g. I/O psychology, social psychology) and are experienced, senior level military officers.

PL300 grades are based on three examinations plus a comprehensive final exam. All exams are essay format, presenting challenging leadership scenarios and requiring cadets to resolve the situation by applying the Intellectual Procedure.

Performance criteria 2:Leader Development Grades. The second measure of leadership performance was the leadership development grades the cadets are assigned by their superiors. These leadership grades are calculated by a weighted average of grades assigned by several leaders in the cadet's chain of command. The grade assigned by their Tactical Officer (TAC) makes up 50% of the final leadership grade, while the remaining 50% comes from other first, second and third level superiors. A forced distribution is used, so that no more than 20% of cadets may receive an "A", no more than 40% can receive a "B", and no more than 40% can receive a "C". This procedure requires the Tactical Officers to rank order their cadets and introduces the cadets to the type of evaluation they will be exposed to in the Army.

The typical procedure for the assignment of these grades is for the Tactical Officer to have a sit down meeting with the chain of command cadets to discuss each cadet being graded. General leadership criteria such as

military bearing and duty motivation are reviewed, as well as the fulfillment of requirements specific to the duty position of the cadet being evaluated.

Leader development grades and PL300 grades serve to complement each other, to provide a comprehensive view of cadet performance as a leader. The PL300 grade is a reflection of the cadet's understanding of leadership theory, as well as their analytical skill at solving leadership challenges. The leader development grade is an evaluation of that cadet's actual performance in a leadership role, based on the observations of those in the cadet's chain of command.

Attributions: Attributions for performance in PL300 were measured using the revised Causal Dimension Scale (CDS II) (McAuley, Duncan & Russell, 1992). The Causal Dimension Scale was expressly designed to overcome the bias in attribution research stemming from assumptions regarding the interpretation of the meaning of the subject's causal attributions (Russell, 1982). The CDS is based on Weiner's (1985) classification of attributions into three causal dimensions; locus, stability and controllability.

The revised CDS II corrects for the problem of low reliability for the controllability subscale on the original CDS by adding an extra controllability subscale. The coefficient alphas for the four subscales of the CDS II are

as follows: locus of causality, .67; stability, .67; personal control, .79; and external control, .82 (McAuley, Duncan & Russell, 1992). Evidence for the construct validity of the CDS II was obtained through a confirmatory factor analysis conducted by McAuley et al, which showed the proposed four factor structure to provide an excellent fit to the data (GFI= .958).

The CDS II incorporates an open ended format, to prevent priming effects. Respondents are asked to make a causal attribution concerning some type of performance. Next, respondents classify their attribution by rating a series of 12 items containing statements that reflect the four causal dimensions. The total scores for each dimension are obtained by summing the items corresponding to each dimension.

The use of the CDS II requires content coding. According to Weiner (1985), the most common achievement related attributions are: effort, ability, task difficulty, quality of instruction and luck. Responses were coded into one of these 5 categories prior to the analysis of the causal dimensions.

Predictions for future performance: Subjects were asked to indicate their level of agreement with statements concerning their expected future performance as a student, as well as a leader. High scores indicated an optimistic outlook, and low scores indicated a pessimistic outlook for

future success.

RESULTS

Preliminary Analyses

Although care was taken to choose measures which have been shown to be reliable and valid in prior research, descriptive statistics were used to ensure the measures captured variability (see Table 2). Reliability analyses were also conducted on each scale and subscale of the questionnaires using Cronbach's alpha (see Table 3). Additionally, the test- retest reliability was calculated.

Table 2

Descriptive Statistics

Variable	n	M	SD	Min	Max
Attributional measures					
external control	250	14.5	5.58	3	27
locus of cause	250	17.23	6.32	3	27
personal control	250	18.47	5.78	3	27
stability	250	13.74	5.2	3	27
Goal orientation	276	3.61	0.93	2	5
learning goal	276	4.08	0.73	2	5
performance goal	276	3.34	1.13	1	5
Implicit theory -term start	275	14.88	3.78	4	23
Item 1	275	3	1.31	1	6
Item 2	275	3.5	1.3	1	6
Item 3	275	4.29	1.27	1	6
Item 4	275	4.09	1.29	1	6
Implicit theory -term end	250	15.5	4.03	5	24
Item 1	250	3.29	1.43	1	6
Item 2	250	3.65	1.37	1	6
Item 3	250	4.35	1.22	1	6
Item 4	250	4.23	1.22	1	6
Perception of leadership ability	275	3.87	0.72	1	5
confidence in my leadership ability	275	3.71	0.77	1	5
expected PL300 performance	275	3.97	0.7	1	5
ranking of my leadership skills	275	3.91	0.7	1	5
Predictions for future performance	251	3.95	0.73	1	5
grades for Fall 1998	251	3.92	0.7	1	5
leader development grade for Fall 1998	251	3.65	0.86	1	5
leadership performance in the Army	251	4.28	0.64	1	5
Performance Variables					
PL300 grade	291	2.92	0.62	1	4
Fall 1997 Leader Development Grade	292	3	0.62	1	4
Spring 1998 Leader Development Grade	291	2.94	0.64	0	4

Measures collected at term start

Implicit theory questionnaire: Overall, the cadets at West Point tended toward an entity orientation (Grand M=14.88). The incremental group consisted of 128 cadets, while the entity group was slightly larger with 147 cadets.

The distribution of cadet scores on the implicit theory measure were somewhat different than those previously reported by Dweck. Response patterns indicated a rather homogenous group, closely gathered around the mean, rather than two distinct groups.

There were no significant differences between males and females in terms of implicit theory of leadership. However, there was a significant difference between the average implicit theory score measured at the start of the semester, and the score measured at the end of the semester (M_{start}= 14.88 versus M_{end}= 15.5). A T-test revealed that cadets became more entity oriented after taking PL300 ($t = 2.65$, $df = 225$, $p = .009$).

The internal consistency of the measure was acceptable, with an average alpha coefficient of .72. The test-retest reliability of the measure was significant ($r= .54$, $p<.01$), but much lower than that previously reported by Dweck et al (1995). However, the test-retest time period was also much greater in the current study: four months versus two weeks. Table 3 illustrates the inter-item correlations between term start and term end for the implicit theory measure.

Table 3

Inter-item Correlations

Item	1-1	1-2	1-3	1-4	2-1	2-2	2-3	2-4
1-1	1							
1-2	0.61	1						
1-3	0.32	0.31	1					
1-4	0.34	0.33	0.4	1				
2-1	0.38	0.42	0.28	0.29	1			
2-2	0.32	0.49	0.23	0.22	0.66	1		
2-3	0.16	0.26	0.36	0.29	0.4	0.37	1	
2-4	0.17	0.32	0.2	0.47	0.35	0.4	0.54	1

Note. n = 226, all correlations significant $p<.01$

Goal orientation: Table 4 contains the item level descriptive statistics for the goal orientation scale. Goal orientation was calculated in two ways. First, it was calculated by averaging the responses to all items, after reverse coding the performance goal items. This produced a general goal orientation score, with higher scores being associated with a learning goal and lower scores with a performance goal. The mean for this score revealed the cadets had a slight tendency to be more learning goal oriented.

A second scoring method was used to examine goal orientation in greater detail. The learning and performance items were averaged separately, to yield both learning and performance goal scores for each cadet. Again, it was found that the mean for learning goal scores was higher than that for performance goal scores. Interestingly, the standard

deviations for the performance goal items were larger than those for the learning goal items. It is possible that the learning goal items were more compelling, or harder to disagree with than the performance items for this group of subjects. Also, the effect of social desirability may be at work here. Furthermore, the Goals Inventory was expected to yield two uncorrelated scores. However, learning goal score and performance goal score were significantly correlated in this sample ($r = .30$, $p = .01$).

The alpha coefficient for general goal orientation was low (alpha = .63), however the alpha coefficients for each goal orientation were much higher when calculated separately. The alpha for the learning goal scale was .81, and the alpha for the performance goal scale was .80.

Table 4

Descriptive Statistics for Goal Orientation Items

	n	M	SD	Min	Max
Learning Goal Items					
item 1	278	3.77	0.84	1	5
item 3	278	4.14	0.79	2	5
item 5	278	4.24	0.8	2	5
item 6	278	4	0.8	2	5
item 8	278	3.38	1.09	1	5
item 9	278	4.54	0.63	2	5
item 11	278	3.95	0.87	1	5
item 12	278	4.32	0.76	2	5
item 14	278	3.98	0.86	1	5
item 15	278	3.9	0.79	2	5
item 17	278	4.49	0.7	2	5
item 18	278	4.19	0.67	3	5
Performance Goal Items					
item 2	278	3.6	1.11	1	5
item 4	278	3.26	1.07	1	5
item 7	278	3.35	1.16	1	5
item 10	278	3.69	1.04	1	5
item 13	278	3.19	1.14	1	5
item 16	278	2.95	1.16	1	5

Perception of existing leadership ability: Overall, cadets indicated an "above average" level of confidence in their leadership ability. This is not surprising, considering the setting. No significant differences were found between males and females on this variable (M_{males} = 3.72 , $M_{females}$ = 3.65). The reliability of this scale was acceptable, with an alpha coefficient of .64.

Measures collected at term end

Attributional measures: The attributional measure consisted of two parts. The first part asked respondents to state the most important cause for their grade in PL300. These responses were then content coded into one of six categories. Table 5 presents the frequencies for each attributional category. The most frequent performance attribution was effort. Specifically, most cadets indicated either time constraints or a lack of interest in the course material limited their level of effort.

Table 5

Summary of The Attributions for Performance in PL300

Attribution	Frequency	Percent
Effort	138	55
Ability	58	23.1
Task Difficulty	11	4.4
Teacher	27	10.8
Luck	2	0.8
Other	15	6
Total	251	100

The second part of the attributional measure asked respondents to rate their attribution on several causal dimensions. These items were then summed to create four separate scores: external control, locus of cause, personal

control, and stability. Table 6 presents the reliability coefficients for each of these scales.

Table 6

Reliability Coefficients for the Subscales of the CDSII

Scale	Alpha
External Control	0.8
Locus of Cause	0.77
Personal Control	0.86
Stability	0.7

Note. N= 251

Predictions for future performance: Cadets expectations for their fall 1998 grades, fall 1998 leader development grades, and leadership performance in the Army indicated that cadets had slightly above average expectations for future success. The reliability of this scale was acceptable, with an alpha coefficient of .61.

Leadership performance criteria:

The primary performance criterion was cadet grades in the PL300 course. The average grade attained by cadets was a "B". Interestingly, an ANOVA revealed that female cadets achieved significantly higher PL300 grades than did male cadets ($F=4.9$, $p=.02$, $df= 1,289$). Table 7 shows the breakdown of PL300 grades by sex.

Table 7

PL300 Grades Distributed by Sex

PL300 Grade	Males	Females	Total
A	11	3	14
A-	32	9	41
B+	32	13	45
B	52	11	63
B-	46	8	54
C+	33	4	37
C	20	3	23
C-	9	1	10
D	3	0	3
F	1	0	1
Total	239	52	291

To check for preexisting significant differences in leadership ability between experimental groups, an analysis of variance was conducted on the superior assigned leader development grades for the previous semester (Fall 1997). As it turned out, there was a significant difference in leader development grades by implicit theory of leadership ($F= 13.66$, $p=.00$, $df=1,286$). Specifically, cadets with an incremental theory of leadership achieved higher leader development grades than did cadets with an entity theory of leadership. Due to the pre-existing differences in leadership ability by implicit theory, an ANCOVA procedure was used in the tests of the hypotheses to control for this difference.

The second performance criterion was cadet leader development grades for the Spring of 1998. The average leader development grade was a 2.9 (B/B-). Unlike the PL300 grades, no significant differences were found between male and female cadets on their leader development grades. Additionally, there were no significant differences found between the Fall 1997 and Spring 1998 Leader Development grades. The correlation between Spring 1998 Leader Development grades and the PL300 grades was significant ($r = .24$, $p = .00$, $n = 288$). Table 8 presents the frequencies for the Spring 1998 leader development grades.

Table 8

Spring 1998 Leader Development Grades Distributed by Sex

Spring 1998 Leader Grade	Males	Females	Total
A	24	5	29
A-	29	4	33
B+	37	7	44
B	45	7	52
B-	46	13	59
C+	23	6	29
C	34	7	41
F	1		1
Total	239	49	288

Leadership performance criteria were all significantly intercorrelated (see Table 9). Interestingly, cadet

performance in PL300 was more highly correlated with the leader development grade from the prior semester (Fall 1997), than with the leader development grade from Spring 1998.

Table 9
Correlations Between Performance Criteria

	Fall 1997 Leader Grade	Spring 1998 Leader Grade	PL300 Grade
Fall 1997 Leader Grade	1		
Spring 1998 Leader Grade	.43**	1	
PL300 Grade	.30**	.24**	1

Note. N= 288

Tests of the Hypotheses

The majority of the analyses included a combination of analysis of variance as well as Crosstabulations with a Chi-Square Test of Association, and regression. Two ANOVAs were run, with one using implicit theory and perceived ability as independent variables and the other using goal orientation and perceived ability as independent variables.

Hypothesis 1: Implicit Theory and Goal Orientation

It was expected that implicit theory of leadership would predict goal orientation, however only partial support

was found for the first hypothesis. A linear regression revealed that implicit theory predicted learning goal score, but not performance goal score ($t=-2.12$, $p=.035$ $n=277$). Moreover, the amount of variance in learning goal score accounted for by implicit theory was minimal ($R^2 = .016$, $n=277$).

Correlations were also run to further assess the relationship between goal orientation and implicit theory. As predicted, implicit theory had a significant negative correlation with learning goal score ($r= -.14$, $p=.035$, $n=277$). That is, as the strength of an entity orientation increased, the learning goal score decreased. It was expected that a positive correlation would be found between implicit theory and performance goal score. However, implicit theory was not significantly correlated with performance goal score.

As an additional variable of interest, perceived ability was correlated with goal orientation. Surprisingly, this revealed a significant positive relationship between perceived ability and learning goal orientation, but not between perceived ability and performance goal orientation. Table 10 contains the correlation matrix for implicit theory, perceived ability, and goal orientation.

Table 10

Correlations Between Implicit Theory of Leadership, Perceived Ability and Goal Orientation

	Implicit Theory	Perceived Ability	Learning Goal	Performance Goal
Implicit Theory	1			
Perceived Ability	-.08	1		
Learning Goal	-.14*	.34**	1	
Performance Goal	.02	.09	.30**	1

Note. ** Correlation is significant at the .01 level.
* Correlation is significant at the .05 level. N=277

Hypothesis 2: Goal Orientation, Perceived Leadership Ability, and Learning Outcomes.

PL300 grades as a criterion

It was expected that cadets with a learning goal orientation, despite perceived ability, would outperform cadets with a performance goal orientation and low perceived leadership ability. To test this hypothesis, a 2x2 ANOVA was

conducted using the uniscale version of goal orientation (learning = high/ performance = low) and perceived leadership ability (low/high) as independent categorical variables.

Additionally, cadets' fall 1997 leader development grades were entered as a covariate to control for preexisting differences in leadership ability. Results showed significant main effects for goal orientation as well as perceived ability. As predicted, cadets with a learning goal orientation attained higher PL300 grades than cadets with a performance goal orientation. Additionally, cadets with greater confidence in their leadership ability outperformed cadets with low confidence in their ability. However, the predicted interaction between goal orientation and perceived ability was not confirmed, though the cell means were in the hypothesized directions. Specifically, the mean for the low perceived ability/ performance goal group was lower than that for any other group.

Table 11 contains the ANOVA results, as well as the cell means, for the test of this hypothesis.

Table 11

ANOVA Results and Cell Means for Goal Orientation and Perceived Leadership Ability on PL300 Grades.

Source		SS	df	MS	F
Covariate:	Fall 97 Grade	8.43	1	8.43	25.12**
Main Effects:	Perceived Ability	3.63	1	3.63	10.81**
	Goal Orientation	0.96	1	0.96	2.88*
2-Way Interaction	Perceived Ability x Goal Orientation	0.38	1	0.38	1.14
Residual		89.59	267	0.34	
Total		103.348	271	0.381	

Note. * p < .05, ** p < .01, N= 272, covariate entered first.

Cell Means: Pl300 Grades			
		Performance Goal	Learning Goal
Low Ability	M	2.59	2.9
	n	57	53
High Ability	M	2.98	3.04
	n	68	96

To further examine the relationships between goal orientation, perceived ability and PL300 grades, a 2x2x2 analysis of variance was used. The three independent categorical variables included: learning goal orientation

(hi/low), performance goal orientation (hi/low), and perceived leadership ability (hi/low). Median splits were used to divide the cadets into the two categories. Additionally, cadet's fall 1997 leadership development grades were entered as a covariate, in an attempt to control for pre-existing differences found in leadership ability revealed by preliminary analyses. The dependent variables used were cadet grades in PL300, as well as their Spring 1998 leader development grades.

It was expected that the ANOVA would reveal a significant main effect for learning goal score, as well as an interaction effect between performance goal score and perceived ability. However, examinations of the number of subjects per cell raised some doubts about the robustness of the ANOVA. Half of the cells had less than the specified number of 45 subjects per cell. Additionally, no interactions were found between learning goal score and performance goal score, therefore separate 2x2 ANOVAS were conducted for learning goal orientation and performance goal orientation.

All of the main effects and interactions were significant in the ANOVA for learning goal score by perceived ability (see Table 12). As expected, cadets with a stronger learning goal orientation achieved higher grades in PL300, as did cadets with a high level of perceived ability. Moreover, the interaction between learning goal and ability was significant; cadets who were low in both learning goal

orientation and perceived ability received lower PL300 grades than did all other groups of cadets.

Table 12

ANOVA Results and Cell Means for Learning Goal Score and Perceived Leadership Ability on PL300 Grades.

Source		SS	df	MS	F
Covariate:	Fall 97 Grade	8.83	1	8.83	27.61**
Main Effects:	Perceived Ability	2.43	1	2.43	7.62**
	Learning Goal	3.46	1	3.46	10.83**
2-Way Interaction	Perceived Ability * Learning Goal	1.94	1	1.94	6.16**
Residual		84.72	265	0.32	
Total		103.03	269	0.38	

Note. ** = $p<.01$, * = $p<.05$ $N= 270$ Covariate entered first

Cell Means: PL300 Grades		Low Learning Goal	High Learning Goal
Low Ability	M	2.51	3.05
	n	64	43
High Ability	M	2.93	3.06
	n	58	105

The ANOVA for performance goal score by perceived ability revealed main effects for both independent categorical variables, however no interactions were found (see Table 13). Contrariwise to expectations, cadets with a stronger performance goal orientation attained higher PL300 grades than did cadets with a weak performance goal

orientation.

Table 13

ANOVA Results and Cell Means for Performance Goal Score and Perceived Leadership Ability on PL300 Grades.

Source		SS	df	MS	F
Covariate:	Fall 97 Grade	8.83	1	8.83	26.53**
Main Effects:	Perceived Ability	3.46	1	3.46	10.39**
	Performance Goal	1.79	1	1.79	5.37*
2-Way Interaction	Perceived Ability * Performance Goal	0.15	1	0.15	0.44
Residual		88.18	265	0.33	
Total		103.03	269	0.38	

Note. * p < .05, ** p < .01, N= 270, covariate entered first.

Cell Means: PL300 Grades

		Low Performance Goal	High Performance Goal
Low Ability	M	2.62	2.86
	n	56	51
High Ability	M	2.91	3.08
	n	65	98

As an additional variable of interest, implicit theory was also used as an independent variable in supplemental analyses. Though no hypotheses were specified for implicit theory, it was expected that a similar pattern of results to those found for goal orientation would emerge. However, no

significant effects were found for implicit theory.

Finally, a regression analysis was run to allow a test of the variables as continuos scores. However, the pattern of results remained essentially unchanged. Perceived ability was the best predictor of PL300 grade, followed by learning goal orientation and then performance goal orientation.

Spring 1998 leader development grades as a criterion

Cadet leader development grades for the Spring 1998 term were not as closely related to implicit theory or goal orientation as were the Fall 1997 leader development grades or the PL300 grades. However, relationships were consistent with the hypothesis. Cadets with a learning goal orientation outperformed cadets with a performance goal orientation. Interestingly, perceived leadership ability (a strong factor in PL300 grades) was non-significant in relation to the leader development grades.

A 2x2x2 ANOVA using learning goal orientation, performance goal orientation and perceived leadership ability revealed only a significant main effect for learning goal orientation. As before, a strong learning goal orientation was related to a higher spring 1998 leader development grade ($F = 6.44$, $p = .01$, $df=1,264$).

Finally, separate 2x2 ANOVAs for learning goal and performance goal scores by ability were run as before, due

to the low number of subjects per cell. However, the pattern of results did not change. Table 14 contains the ANOVA results for learning goal by perceived ability.

Table 14

ANOVA Results and Cell Means for Learning Goal Score and Perceived Leadership Ability on Spring 1998 Leader Development Grades.

Source		SS	df	MS	F
Main Effects	Learning Goal	2.70	1	2.70	7.18**
	Perceived Ability	.32	1	.32	.84
2- way interaction	Learning Goal x Perceived Ability	.11	1	.11	.30
Residual		100.21	267	.375	
Total		103.96	270	.385	

Note. * $p < .05$, ** $p < .01$, $N = 270$

Cell Means: Spring 1998 Leader Development Grades

		Low Learning Goal	High Learning Goal
Low Ability	M	2.83	2.98
	n	64	44
High Ability	M	2.86	3.10
	n	58	105

Supplemental analyses were also run to examine the

effect of implicit theory as an independent variable. A 2x2 ANOVA using implicit theory and perceived ability as categorical factors revealed no significant effects.

A linear regression analysis was also run; as before, the pattern of results did not differ than those found with the ANOVA. Only learning goal score was a significant predictor of leader development grade.

Hypothesis 3: Implicit Theory and Performance Attributions.

To examine differences in attributional patterns between groups, a combination of Crosstabulation and Chi-Square Tests of Association were used. It was expected that the entity group would make more ability related attributions than the incremental group; and that the incremental group would make more effort related attributions than the performance group.

The most frequently chosen attribution, despite implicit theory, was effort (see Table 15). As predicted, cadets with an incremental theory of leadership tended to attribute their performance in PL300 to effort rather than ability. However, so did cadets with an entity view of leadership. As expected, more entity oriented cadets chose an ability attribution than did incremental cadets. However, though the Chi-Square coefficient was close to reaching significance, it failed to do so (Chi-Square = 11.55, df =

5, p = .160).

Table 15

Crosstabulation of Causal Attributions by Implicit Theory

Implicit Theory	Effort	Ability	Total
Entity	64	35	99
Incremental	74	22	96
Total	138	57	195

The entity and incremental groups were also expected to differ on their ratings of ability on the causal dimensions of controllability and stability. Specifically, the incremental group was expected to rate ability as more controllable and unstable than the entity group. A one-way ANOVA was used to determine whether or not the two groups differed significantly in their perceptions of the controllability and stability of ability. However, no significant differences were found in the perception of either the controllability or stability of ability between the two implicit theory groups. One possible explanation for this lack of results is the low sample size for this analysis. Once limiting the analysis to only those cadets who had chosen "ability" as their attribution, the sample size was reduced to only 57.

Hypothesis 4: Implicit Theory and Expectations for Future Success

ANOVA results for prognosis for future success were expected to show a significant theory by ability interaction effect. It was predicted that cadets with an incremental theory of leadership would have higher expectations for their future academic and military leadership performance than would cadets with an entity theory and a low level of confidence in their leadership ability. However, only perceived leadership ability achieved statistical significance ($F=46.45$, $p < .001$, $df= 1,230$). Cadets with a high level of perceived leadership ability had better expectations for their future ability to succeed.

Further analyses were done using goal orientation rather than implicit theory as an independent variable, with better results. A 2x2 ANOVA using perceived ability and learning goal score as independent variables showed significant main effects, as well as a significant interaction (see Table 16). Cadets with a strong learning goal orientation had higher expectancies for future success than did cadets with a weaker learning goal orientation. This effect was particularly strong for cadets with a high level of perceived leadership ability. Moreover, cadets with a weak learning goal orientation and a low perceived ability

had the lowest expectations for future success.

Table 16

ANOVA and Cell Means for Learning Goal and Perceived Ability on Expectations for Future Success.

Source		SS	df	MS	F
Main Effects:	Perceived Ability	7.64	1	7.64	39.54**
	Learning Goal	1.76	1	1.76	9.12**
2-Way Interaction	Perceived Ability * Learning Goal	1.06	1	1.06	5.49*
Residual		44.04	228	0.19	
Total		56.5	231	0.25	

Note. * $p < .05$, ** $p < .01$, $N = 232$

Cell Means: Future Success			
		Low Learning Goal Orientation	High Learning Goal Orientation
Low Ability	M	3.58	3.93
	n	51	37
High Ability	M	4.1	4.17
	n	53	91

The ANOVA for performance goal score by perceived ability had similar results, except that no interaction was found between performance goal score and perceived ability. Again, cadets with a strong performance goal orientation had higher expectancies for future success than those with a weak performance goal orientation. Table 17 contains the ANOVA results, as well as the cell means for this analysis.

Table 17

ANOVA for Performance Goal Orientation and Perceived Ability on Expectations for Future Success.

Source		SS	df	MS	F
Main Effects:	Perceived Ability	8.56	1	8.56	42.83**
	Performance Goal	0.94	1	0.94	4.68*
2-Way Interaction	Perceived Ability * Performance Goal	0.35	1	0.35	1.77
Residual		45.57	228	0.2	
Total		56.5	231	0.25	

Note. * p < .05, ** p < .01, N= 232

Cell Means: Future Success

		Low Performance Goal Orientation	High Performance Goal Orientation
Low Ability	M	3.62	3.85
	n	47	41
High Ability	M	4.1	4.17
	n	55	89

Finally, a linear regression analysis was run. In this case, results differed slightly from the ANOVA results. Perceived ability was the best predictor of expectations for future success, followed by learning goal orientation. However, performance goal orientation failed to make a significant contribution to the equation once perceived ability and learning goal score were entered.

DISCUSSION

Overall, goal orientation proved to be a more salient predictor variable in determining outcomes than did implicit theory of leadership. Many of the hypothesized relationships between implicit theory and goal orientation, attributions, and expectations for the future failed to be supported.

The results for the independent variable of goal orientation were much more encouraging, though slightly different than expected. Both a strong learning goal orientation and a strong performance goal orientation were associated with effective performance outcomes, as well as with higher expectations for the future.

It is possible that the implicit theory model as developed by Dweck on children does not fully generalize to an adult population. Further research on implicit theory with an adult population is needed.

Implicit Theory

One interesting and unexpected finding concerns the fact that cadets became more entity oriented *after* taking the PL300 leadership course, opposite to the effect hoped for by the PL300 instructors. Discussions with military officers have hinted at a possible explanation for this.

Though the Academy aims to develop leadership ability, the culture is one that assumes leaders are born, not made. One Lieutenant Colonel indicated that the Tactical Officers for these cadets might be relaying this type of message, perhaps even discounting what is taught in PL300. It would be interesting to question cadets in further detail both before and after PL300 to gain further insight into this issue.

Implicit Theory and Goal Orientation

The expected predictive relationship between implicit theory of leadership and goal orientation was not fully supported in this study. Although implicit theory was associated with a learning goal orientation, the relationship was slight. No relationship was found between implicit theory and performance goal orientation.

There are several possible explanations for the lack of association between these two variables, one of which concerns the measures of the variables. In past experiments, where strong relationships between implicit theory and goal orientation were revealed, goal orientation was operationalized in a different manner. Typically, the researcher asked the subjects to choose a hard task (learning goal), or an easy task (which made them look smart- performance goal) (Dweck, 1991). Though the Goals Inventory was designed with implicit theory in mind, it is possible that the instrument simply does not capture the

relationship between goal orientation and implicit theory as measured by the implicit theories questionnaire.

Another possible explanation for the lack of results concerns the homogeneity in response pattern to the implicit theory measure. In prior research with implicit theory, the middle group of respondents are typically dropped from the analyses. However, this would have resulted in a loss of almost have of the subjects in this study. Therefore, limited variance in responses may have prevented a test of the full model.

An additional possible explanation for the lack of a relationship between implicit theory and goal orientation concerns characteristics of the sample. This sample had a high level of confidence in their leadership ability, and it is possible that this confidence left little room for the effects of implicit theory. In fact, an ANOVA using perceived leadership ability as the independent variable and goal orientation as the dependent variable revealed a strong main effect, indicating that perceived ability is a significant predictor of goal orientation. Therefore, replication in a setting where ability perceptions may be more variable is recommended.

Ultimately, it may be that the implicit theory portion of the model does not generalize well from the realm of intellectual ability to the realm of leadership ability.

Implicit Theory and Performance Attributions

It was expected that cadets with an entity theory would choose ability attributions to account for their performance in PL300, and that incremental cadets would choose effort related attributions. However, the majority of cadets chose effort related attributions, regardless of implicit theory. Specifically, cadets revealed that severe time constraints cut down the amount of effort they could put into the course. This factor may have been so strong that it overshadowed other types of attributions.

Another possible explanation concerns cadet perceived leadership ability. As stated previously, this group perceived themselves as fairly strong in leadership ability. Because of this, and the assumption that all cadets are leaders, they might have seen no reason to list ability as a cause for behavior.

Finally, it was predicted that cadets with an entity theory would perceive ability as stable and uncontrollable, while cadets with an incremental theory would perceive ability as malleable and unstable. Though the relationships were in the right direction, none reached significance. This may be due to the low sample size for this analysis, which resulted from including only those cadets who had indicated an ability attribution.

Implicit Theory and Expectations for Future Success

It was expected that cadets with an entity theory plus a low confidence in their leadership ability would have lower expectations for their future leadership performance. However, no significant relationships were found between implicit theory and future expectations. Supplemental analyses revealed that perceived leadership ability and goal orientation were, however, significantly related to expectations for future success. Cadets with a higher level of confidence in their leadership ability had higher expectations for the future. Additionally, cadets who had a strong learning goal orientation or a strong performance goal orientation also had higher expectancies for future success. This finding will be discussed in further detail in a later section.

Goal Orientation and Performance Outcomes

PL300 grades

It was predicted that a strong learning goal orientation would be associated with higher PL300 grades, while a strong performance goal orientation paired with a low perception of leadership ability would result in lower PL300 grades. In fact, cadets with a strong learning goal

orientation did outperform cadets with a strong performance goal orientation by a slight margin. However, it was revealed that both a strong learning goal orientation and a strong performance goal orientation were associated with higher PL300 grades. Furthermore, learning goal orientation was found to interact with perceived ability rather than performance goal orientation.

It is possible that this is a result of the setting. The Military Academy is a very competitive setting which may require one to focus on performance goals as well as learning goals in order to be successful. Alternatively, it may be that the model itself needs to be changed to reflect that a performance goal orientation may also be effective. This proposed change to the model is supported by similar patterns of results found in regular college settings (personal correspondence with Teresa Roedel, October 1998).

Finally, it is possible that the high level of perceived leadership ability held by the cadets acted as a confound, preventing the model from being tested in its entirety. That is, even the performance goal/low ability group had a fairly strong level of confidence in their leadership ability.

Spring 1998 leader development grades

The use of Spring 1998 leader development grades as a criterion produced a very different pattern of results than did the PL300 grades. The only factor which was

significantly related to leader development grades was learning goal orientation. As predicted, cadets with a strong learning goal orientation outperformed cadets with a strong performance goal orientation. Neither performance goal orientation nor perceived leadership ability played a significant role in predicting leader development grades.

It is not surprising that the pattern of results differed for the two performance criteria, as the PL300 grades are more academic in nature while the leader development grades are more practical. This pattern of results may indicate that leader development grades are a more accurate measure of leadership, as higher leader development grades are attained through a mastery orientation rather than by showing off. Additionally, it would seem that leadership ability as measured by leader development grades is independent of cadet perceptions of their leadership ability, making for a more objective criterion.

PL300 Grades versus Leader Development Grades

Further investigation was conducted to examine the differences between the two leadership performance criteria in an effort to gain a deeper understanding of why they differed in their relationships with goal orientation. Interviews with Tactical Officers, Army personnel, and cadets were used in conjunction with information provided by

Army Research Institute Technical Reports to clarify what the two types of grades actually measure.

In their 1996 Technical Report, Schwager and Evans describe the relationship between leader development grades and the Cadet Performance Report (CPR). Regression analyses revealed that the most significant predictors of leadership grades were the CPR dimensions of duty motivation, military bearing, and planning and organizing. These factors are related to activities such as effort, task accomplishment, and perseverance, and are conceptualized as a self management component of leadership. Likewise, one of the most important factors cited by the Tactical Officers in determining leader development grades was the effort the cadets put into meeting their duty requirements. Within this framework, it is understandable that a learning goal orientation, which is based on these same types of activities, would be correlated with the leader development grades.

Further consideration of this issue offers a possible explanation as to why performance goal orientation was a factor in PL300 grades but not in leader development grades. In calculating leader development grades, the Tactical Officer considers input from cadets who have virtually constant contact with the cadets being graded, not to mention the fact that they, too, are being graded. It may be

that these circumstances limit the influence of performance goal tactics such as impression management and ingratiation.

In contrast, PL300 grades are given by instructors who may not have extensive contact with cadets outside of class. It is easier to use performance goal orientated behaviors effectively when dealing with only one person whom you interact with for a few hours per week than it is to use them on a group of people with whom you have much contact.

Goal Orientation and Expectations for Future Success

Implicit theory was predicted to relate to expectations for future success, however goal orientation proved to be the most significant predictor after perceived ability. As with PL300 grades, both a strong learning goal and a strong performance goal were associated with high expectations for future success as a leader.

It may be that the rephrasing of the implicit theory questionnaire somehow masked the relationship between implicit theory and expectations for the future. The lack of impact of implicit theory on future expectancies may also indicate that the model needs to be reworked to reflect the importance of goal orientation.

Goal Orientation and Perceived Leadership Ability

An interesting finding concerns the relationship between perceived ability and goal orientation. A fairly strong relationship between learning goal orientation and perceived ability was indicated; however no such relationship between performance goal orientation and perceived ability was found.

It may be that a mastery approach acts to enhance perceptions of ability over time, through the experience of overcoming challenges through perseverance. In contrast a performance orientation, with its external focus characterized by trying to impress others, has little impact on how a person truly perceives their own ability.

CONCLUSIONS

Overall, the results of this study indicate that the implicit theory model needs to be reexamined in the context of an adult population. Some basic tenets of the model failed to hold up, and other types of relationships between the variables in the model were revealed.

Conceptualizations of a performance goal orientation as maladaptive need to be reexamined, since both a strong learning and a strong performance goal orientation can lead to success depending on the environment and the specific

performance criteria. Specifically, criteria which are amenable to impression management might allow more room for performance goal orientation to influence outcomes. Future research should attempt to clarify the circumstances under which a performance goal orientation impacts outcomes. For example, it would be interesting to see if a performance goal orientation is more useful to emerging leaders rather than to established leaders.

These results indicate that it is the absence of a strong learning goal orientation, rather than the presence of a strong performance goal orientation which impacts performance. In all analyses, learning goal orientation had the strongest effects on criterion variables. This implies that encouraging a learning goal orientation in training situations should serve to enhance performance. This could be accomplished through emphasizing the importance of effort and providing a climate which is conducive to risk taking, as well as downplaying the influence of ability.

The results of this study provide good news for training situations in organizations. While most organizations say that the goal of training is to learn, what they really want to see is performance. This study shows that those with both strong learning and strong performance goals will achieve the most satisfactory outcome.

Additionally, the relationship between implicit theory and goal orientation should be explored in future studies

which vary measures of both variables. A new measure of implicit theory is being developed, which uses neutral question stems rather than phrasing the questions from an entity perspective (personal correspondence with Dweck, April 1998). This change may help to overcome possible priming effects from phrasing the questions from an entity perspective.

Taken together, these results suggest that the implicit theory model provides some valuable guidance for structuring learning situations, as well as many possible avenues of further research to clarify the links between the variables in the model.

Appendix A

INFORMED CONSENT
(as required by the Privacy Act of 1974)

I agree to participate in this leadership research study.

I understand the following:

1. This study is being conducted by an Army Research Institute Research Fellow in the Center for Leadership and Organizations Research.

2. The purpose of this project is to examine the impact of leadership beliefs and academic goals on performance. The results of the study will be shared with the Academy in order to increase the understanding of leadership development at West Point.

3. My participation in this study involves the completion of the following brief questionnaire, as well as a brief questionnaire at the end of the Spring 1998 Term.

4. The data collected will be used for research purposes only, and responses will be combined with other project data.

5. Any information I provide will be treated confidentially. Only the researcher collecting and preparing information for analysis will have access to completed questionnaires or data that identifies individuals in any way. Social security numbers will be destroyed once the data are aggregated. There will be no release or reporting of any information that identifies any individual.

6. There is no physical harm foreseen in this research. The confidentiality of results also prevents personal harm.

7. My participation in this survey is voluntary. Failure to respond to any question will not result in any penalty. Furthermore, I may withdraw at any time without penalty. However, participation is encouraged to ensure the data will be complete and representative.

_____
(social security number)

_____ _____

(signature) (date)

Appendix B

Questionnaire Measures

SSN:_____ SEX: M / F

Items 1-4 describe beliefs that you could have about the **NATURE OF LEADERSHIP IN GENERAL**. Indicate your agreement with each belief statement as it describes your view of **THE GENERAL NATURE OF LEADERSHIP.**

Indicate your agreement by using the following scale:

A	B	C	D	E	F
Strongly disagree	**Disagree to some extent**	**Disagree to a small extent**	**Agree to a small extent**	**Agree to some extent**	**Strongly agree**

Write your choice in the space to the left of each statement.

___1. Leadership ability is something very basic about an individual, and this ability can't be changed very much.

___2. Training or development for leadership can teach individuals new things, but they are unlikely to change the fundamental nature of leadership ability.

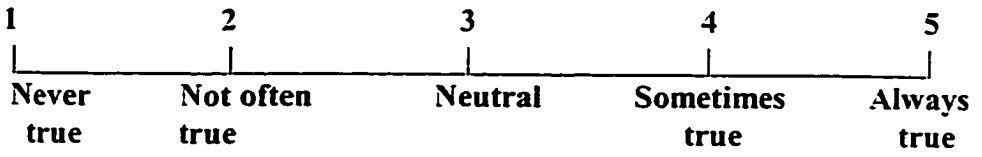
___3. Not everyone is born with the same ability for leadership, and these differences will persist throughout an individual's life.

___4. Whether or not an individual is a leader is deeply ingrained in their personality.

The Goals Inventory

Items 5-22 are statements describing **GENERAL ACADEMIC GOALS AND BEHAVIORS.**

Please indicate how true each statement is for you by using the following scale:



Write your choice in the space to the left of each statement.

___5. I enjoy challenging school assignments.
___6. It is important to me to get better grades than my classmates.
___7. I persevere even when I am frustrated by a task.
___8. I like others to think I know a lot.
___9. I try even harder after I fail at something.
___10. I adapt well to changing circumstances.
___11. It bothers me the whole day when I make a mistake.
___12. I work hard even when I don't like a class.
___13. I am very determined to reach my goals.
___14. I feel angry when I do not do as well as others.
___15. Personal mastery of a subject is important to me.
___16. I work very hard to improve myself.
___17. It is important to me to always do better than others.
___18. I am naturally motivated to learn.
___19. I prefer challenging tasks, even if I don't do as well at them.
___20. Other's opinions of my academic ability and performance are very important to me.
___21. I feel most satisfied when I work hard to achieve something.
___22. I give up too easily when faced with a difficult task.

Items 23-25 are statements describing **YOUR OPINION ABOUT YOUR LEADERSHIP ABILITY.**

Please **CIRCLE** the statement that best reflects **your** feelings about each statement.

23. In comparison to other Cadets, I would rank **MY** leadership skills as:

Way below average Below average Average Slightly above average Way above average

24. Right now, I am _____ confident in my leadership ability.

Not at all Not very Fairly Considerably Extremely

25. I expect to perform _____ in PL300 this semester.

Way below average Below average Average Slightly above average Way above average

The Revised Causal Dimension Scale: CDS II

What do you see as the primary cause for your grade in PL300 this term?

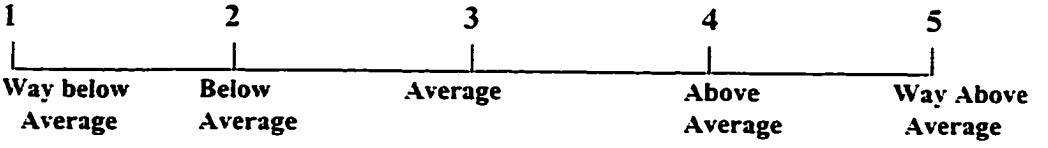
Think about the reason you have identified above. The items below concern your impressions or opinions of this cause of your performance. Please circle one number for each of the following questions.

Is the cause something:

1. That reflects an aspect of yourself	9 8 7 6 5 4 3 2 1	reflects an aspect of the situation
2. Manageable by you	9 8 7 6 5 4 3 2 1	not manageable by you
3. Permanent	9 8 7 6 5 4 3 2 1	temporary
4. You can regulate	9 8 7 6 5 4 3 2 1	you cannot regulate
5. Over which others have control	9 8 7 6 5 4 3 2 1	over which others have no control
6. Inside of you	9 8 7 6 5 4 3 2 1	outside of you
7. Stable over time	9 8 7 6 5 4 3 2 1	variable over time
8. Under the power of other people	9 8 7 6 5 4 3 2 1	not under the power of other people
9. Something about you	9 8 7 6 5 4 3 2 1	something about others
10. Over which you have power	9 8 7 6 5 4 3 2 1	over which you have no power
11. Unchangeable	9 8 7 6 5 4 3 2 1	changeable
12. Other people can regulate	9 8 7 6 5 4 3 2 1	other people cannot regulate

Predictions for Future Performance

The following statements concern your **performance expectations** for the **future**. Please indicate your anticipated level of performance using the following scale:



Write your choice in the space to the left of each statement.

___1. Next semester, I expect my grades to be _____.

___2. I expect my TAC assigned leadership grades for next year to be_____.

___3. I expect my future performance as a leader in the Army to be_____.

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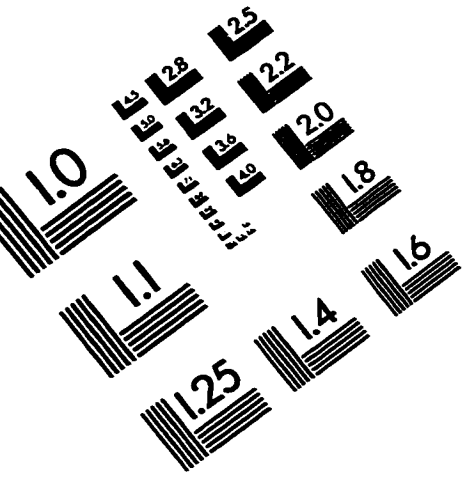

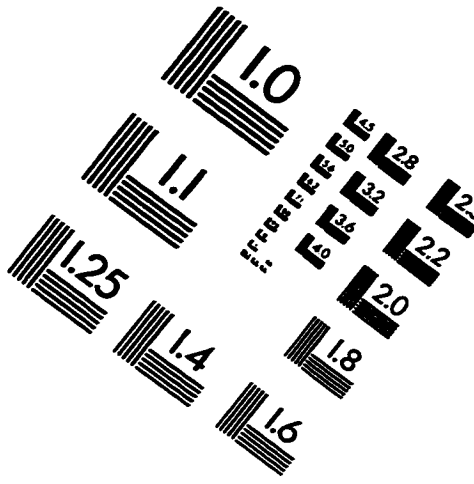

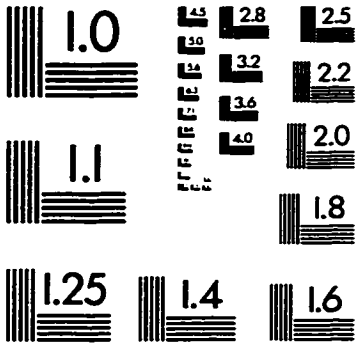

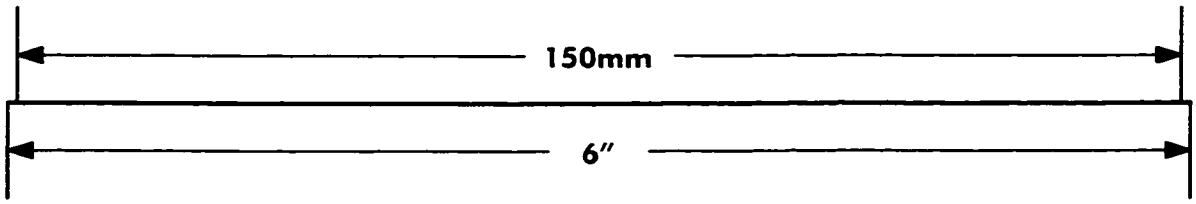

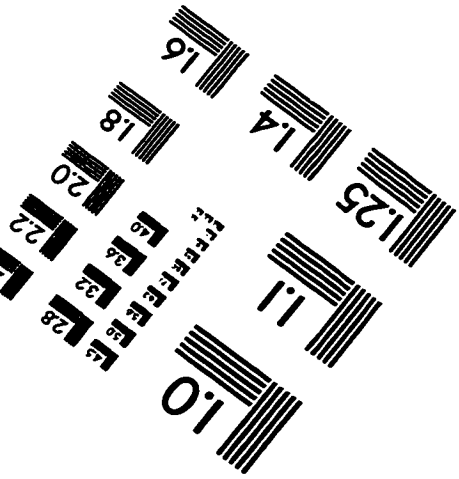

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