# LEARNING AND PERFORMANCE GOAL ORIENTATIONS' INFLUENCE ON THE GOAL SETTING PROCESS: IS THERE AN INTERACTION EFFECT?

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(ABSTRACT)

The present study set out to examine the role of learning and performance goal orientation on goal setting and self-efficacy. More specially, the present study attempted to verify the results of the effects of learning goal orientation and to clarify the role of performance goal orientation. In addition, the role of self-efficacy and the possibility of an interaction between learning goal orientation and performance goal orientation were also examined.

While the present study did not find a significant impact of dispositional goal orientation on any motivational variables examined, relatively strong support was found for the impact of situational learning and performance goal orientation on both goal choice and self-efficacy. As expected, learning goal orientation was a predictor of goal choice and self-efficacy, in that individuals who display a strong learning goal orientation set higher goals and demonstrate increased levels of self-efficacy. Contrary to past research, performance goal orientation was found to be an extremely strong, positive predictor of both goal choice and self-efficacy. The presence of this positive relationship could indicate the possibility of a potential task moderator.

Although strong support was found for the independent effects of goal orientation on goal choice and self-efficacy, partial mediation by self-efficacy of learning goal orientation and goal choice was not found. Similarly, the results obtained in the present study did not provide evidence of an interaction between the two goal orientation dimensions in predicting either goal choice or self-efficacy. Taken as a whole, the present study does provide support for the importance of learning and performance goal orientation in the formation of self-set goals and one's level of self-efficacy.

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TABLE OF CONTENTS

# LIST OF TABLES

# INTRODUCTION

One of the more popular theories of work motivation and task performance over the past three decades is Goal Setting Theory as proposed by Locke and Latham (1990). The central tenet of this theory is that goals are an immediate regulator of human action, guiding the direction, intensity, and persistence of task related behavior. In providing this direction, intensity, and persistence, performance goals are proposed to enhance performance on a given task, especially for goals that are specific and difficult (Locke & Latham, 1990).

Evidence for the validity of this proposition concerning the impact of specific, difficult goals on performance (termed the "goal-difficulty effect") comes from the findings of over 200 studies that have almost unanimously demonstrated that specific, difficult goals lead to higher levels of performance than easy, vague, or do-your-best goals (Locke and Latham, 1990). In fact, a review of the goal setting literature by Locke and Latham (1990) indicates that well over 90% of the studies conducted to that point had supported the goal difficulty effect for a variety of different task types (e.g., simple vs. complex) and for both assigned and self-set goals (Locke, Shaw, Saari, & Latham, 1981; Mento, Steel, & Karren, 1987). Further evidence of the positive impact of specific, difficult goals has been obtained from two large scale meta-analytic reviews of the goal setting literature. Wood, Mento, and Locke (1987) found that individuals assigned difficult performance goals outperformed individuals given easy goals, do your best goals, or no goals by more than one half of a standard deviation (d=.58), while Tubbs (1986) found that individuals given difficult goals outperformed individuals given easy or vague goals by more than three quarters of a standard deviation (d = .82). Thus, based

upon both the primary and meta-analytic research conducted in this area, it appears that there is strong support for the propositions of Goal Setting Theory concerning the positive impact of specific, difficult goals on performance.

However, despite the large number of studies conducted to assess this goal difficulty effect, the field of work motivation still holds a relatively limited knowledge of the goal setting process. More specifically, due to a number of important limitations in this research literature, it appears that both researchers and practitioners do not have a complete understanding of the goal setting process as it is likely to occur in an organizational setting. Perhaps the primary limitation present in this research literature is that the vast majority of the studies conducted to examine the impact of goals on performance have focused on the effects of assigned goals, rather than self-set goals (Campion & Lord, 1982; Klein, 1989). While research examining the impact of assigned goals on performance has clearly provided the field of work motivation with a number of useful findings, a focus on such goals presents a very restricted perspective on the goal setting process. To provide a more complete picture of goal setting, research needs to be conducted to examine the role of personal goal setting (i.e., goals that are set by the individuals, rather than by a third party), rather than maintaining a simple focus on assigned goal setting (Bandura, 1986; Phillips & Gully, 1997). The need for this research on self-set goals is highlighted by the fact that many organizations are beginning to implement self-management programs in the workplace that involve personally derived goals on the part of the employee (e.g. joint goal setting, management by objectives, self-managed learning; Pinder, 1998). In addition, a number of researchers have demonstrated that the effects of assigned goals on performance are likely to be

partially mediated by the personal goals that an individual sets in a given situation (Earley & Lituchy, 1991; Locke & Latham, 1990; Meyer & Gellatly, 1988). That is, even when individuals are assigned specific performance goals, they demonstrate considerable variability in the goals that they set for themselves. In fact, Locke & Latham (1990) found a mean weighted correlation between assigned goals and personal goals of .52, suggesting that only a relatively small proportion of the variance in self-set goals can be accounted for by the goals that individuals are assigned by a third party. Based upon this research, along with the increased use of personally derived goals in organizations, it becomes clear that an examination of both the determinants and effects of self-set goals is both an important and necessary step in the validation of Goal Setting Theory as a theory of work motivation.

Determinants of Personal Goals

As noted previously, there is relatively little research that has been conducted to explicitly examine the role of personal or self-set performance goals. However, a small number of recent studies have begun to examine the role of such goals in worker motivation, with a focus on the determinants of self-set performance goals (e.g., Phillips & Gully, 1997; VandeWalle, Brown, Cron, & Slocum, 1999). This line of research has identified a number of individual difference variables that may influence the goal setting process, including ability, self-efficacy, and characteristics of the individual's personality such as conscientiousness and need for achievement.

Previous performance and ability. The existence of a relationship between ability and/or past performance and self-set goals is logical in that it is unlikely that individuals that perceive they are low in task-relevant ability (and therefore see high levels of task

performance as unlikely) will set difficult performance goals for themselves, since such goals would likely result in goal failure. Similarly, it is also unlikely that individuals that are extremely high in ability would set very easy goals for themselves (assuming that task performance was a valued activity), since such goals would be unlikely to result in valued outcomes, such as high levels of task performance. In support of these ideas, numerous studies have demonstrated the importance of previous task performance and task relevant ability in determining one's level of self-set goals (Locke & Latham, 1990), indicating that an individual's initial goal level is positively related to both the individual's ability and previous performance (e.g., Campion & Lord, 1982; Hollenbeck & Brief, 1987; Locke, Frederick, Lee, & Bobko, 1984; Wood & Locke, 1987; Yukl & Latham, 1978). For example, Campion and Lord (1982) found a moderate, positive correlation between goal difficulty and past performance ($r = .37$), and goal difficulty and ability ($r = .29$). Similarly, Hollenbeck and Brief (1987) found objective goal difficulty to be positively associated with ability ($r = .34$). Thus, it appears that one important determinant of self-set performance goals is the individual's perceptions of his or her own task relevant capabilities.

Self-efficacy. An increasingly popular and important component of goal-setting theory is the construct of self-efficacy (Bandura, 1986, 1991; Phillips & Gully, 1997; Thomas & Mathieu, 1994). According to Bandura (1986), self-efficacy is "people's judgements of their capabilities to organize and execute courses of action required to attain designated types of performances. It is concerned not with the skills one has but with the judgements of what one can do with whatever skills one possesses" (p. 391). As noted by Bandura (1986), self-efficacy is likely to be partially determined by one's

past performance on a given or similar task. However, he differentiates self-efficacy from simple perceptions of past performance by noting that self-efficacy is also likely to be determined by a number of additional non-performance factors, including vicarious learning, physiological arousal, persuasion, and social modeling (Bandura, 1986). As evidence of this differentiation, a number of research studies have demonstrated that both self-efficacy and past performance make independent contributions to an individual's choice of goal level (Locke, Frederick, Lee, & Bobko, 1984; Phillips & Gully, 1997, Wood & Locke, 1987).

According to Bandura (1986, 1991, 1997), self-efficacy is likely to influence an individual's goal choice such that individual's high in self-efficacy will be likely to set more difficult or challenging task performance goals than individuals low in self-efficacy. In general, the research conducted to test the self-efficacy/performance goal relationship has found strong support for this positive relationship (e.g., Hollenbeck & Brief, 1987; Klein, 1991; Locke, Frederick, Lee, & Bobko, 1984; Mathieu & Button, 1992; Phillips & Gully, 1997; Wood & Locke, 1987). As further evidence of the important of self-efficacy in the personal goal setting process, a review of the literature conducted on this relationship by Locke and Latham (1990) found an average correlation of .39 between self-efficacy and level of goals chosen by individuals, holding factors such as assigned goals and past performance constant. Based upon such findings, it appears that self-efficacy represents a second determinant of an individual's goal choice, over and above the effects of ability and past performance.

Personality factors. In recent years, a number of researchers have proposed that there is likely to be a significant relationship between personality and various

motivational processes, particularly the process of goal setting (e.g., Brett & VandeWalle, 1999; Campbell, 1982; Cropanzano, James, & Critera 1992; Kanfer, 1994). In one of the earliest attempts to link personality to the goal setting process, Campbell (1982) suggested that personality factors could affect several aspects of goal-setting behavior: (1) the propensity to set goals; (2) the content of the goals set; (3) the stability of set goals over time; (4) the typical specificity of goals set; and (5) the typical difficulty of goals set. More recently, Cropanzano et al. (1992) conceptualized a goal hierarchy model of personality and motivation in which personality is proposed to direct the way the individual uses goals to focus and organize their behavior. Within this goal hierarchy, individual's are proposed to hold different levels of goals that interact with one another to govern various motivational processes. At the top of the hierarchy are abstract direction orientations, such as a tendency to approach positive stimuli or avoid negative stimuli. These abstract direction orientations are mapped on to distinct response styles, or self-regulation tactics, which determine the types of goals that individuals will set at other levels of the goal hierarchy (e.g, values, self-identities, personal projects). At the base of this goal hierarchy are performance oriented goals that refer to specific behaviors that ultimately serve to attain important values and desired self-identities. As such, this framework proposes that the specific performance goals chosen by an individual in a given situation are likely to be partially determined by his or her dispositional orientation (i.e., their personality).

In addition to these models suggested by Campbell (1982) and Cropanzano et al., (1992), Kanfer (1994) developed a heuristic framework that proposes a similar model of the relationship between personality and motivation. Drawing on the initial work of Lee,

Locke and Latham (1989), Kanfer (1994) argues that "distal" constructs, such as personality, do not directly affect behavior. Instead, these distal constructs influence more "proximal" constructs, such as performance goals, which in turn influence behavior.

Based upon these various theoretical propositions, recent researchers have recognized that incorporating personality variables into the goal setting literature allows for a more complete understanding of the determinants of goal-choice (e.g. Button, Mathieu, & Zajac, 1996; Phillips & Gully, 1997; Phillips, Hollenbeck, & Ilgen, 1996; VandeWalle et al, 1999). Within this recent research literature several personality variables have been identified as potential determinants of personal goals including: need for achievement (e.g. Phillips & Gully; 1997; Singh, 1972; Yukl & Latham, 1978), conscientiousness (Barrick & Mount, 1991; Barrick, Mount, & Strauss, 1993), and locus of control (Phillips & Gully, 1997; Yukl & Latham, 1978).

In addition to these personality factors, researchers have recently begun to examine the construct of goal orientation as an individual difference variable that is likely to be involved in the construction of self-set goals (Button et al., 1996; Phillips & Gully, 1997; VandeWalle et al., 1999). Briefly, the construct of goal orientation refers to an individual's tendency to approach task performance situations from either a learning perspective or a performance perspective (Dweck, 1989). The main objective of approaching a task from a learning goal perspective is to increase one's level of task competence. In contrast, approaching a task with a performance goal orientation is characterized by a desire to do well and to be positively evaluated by others (Farr, Hofmann, & Ringenbach, 1993). Based upon these brief definitions, it becomes apparent that the way in which an individual approaches a given task can greatly alter the personal

goals they set (Farr et al., 1993). The purpose of the present study is to provide a closer examination of the role goal orientation takes on in the goal-setting process.

## Goal Orientation

Early work by Dweck and colleagues with children in achievement settings (e.g. Diener & Dweck, 1978; Dweck, 1989) led to the identification of two behavioral response patterns that emerged when children were faced with challenging tasks. The first of these behavioral patterns, characterized by maladaptive responses, was termed a "helpless" pattern. Children adopting a helpless behavior pattern tended to avoid challenging tasks and decreased their level of performance when confronted with a difficult situation. The second behavioral pattern, characterized by adaptive responses, was termed a "mastery-oriented" pattern. In contrast to a helpless pattern, mastery-oriented children sought out challenging tasks and showed an increase in effort when faced with failure (Diener & Dweck, 1978). In an attempt to understand the basis for these different behavioral patterns, these researchers (e.g., Dweck & Elliot, 1983) looked into the goals these children were pursuing in achievement contexts. From this research, they classified these individuals into two distinct categories based upon the types of goals they were striving towards: a) performance goal oriented individuals, whose primary objectives were to avoid task failure and to gain favorable judgments from others concerning their competence, and b) learning goal oriented individuals, who were primarily concerned with increasing their competence level for a given task, overcoming task difficulties, and mastering challenging activities. According to these researchers, these different goals were responsible for the different behavioral patterns observed in the children in achievement settings; performance oriented goals foster a maladaptive,

helpless response pattern in challenging situations, while learning oriented goals lead to a more adaptive, mastery-oriented pattern. As noted by Dweck and Leggett (1988), "individuals adopting different goals can be seen as approaching a situation with different concerns, asking different questions, and seeking different information" (p.260). As such, the pursuit of these distinct goal types is likely to influence the goals they set, their persistence toward that goal, their reaction to failure, the level of effort they exert, and their expectations of performance (Dweck, 1989; Fisher & Ford, 1998).

The tendency for these children to pursue one of these types of goals (performance oriented vs. learning oriented), and demonstrate the response pattern associated with such goals was subsequently labeled goal orientation (Dweck and Leggett, 1988). As originally conceptualized, Dweck and colleagues viewed goal orientation as a relatively stable dispositional variable that assumed one of two distinct forms that resided on opposite ends of a continuum; individuals either held a performance goal orientation or a learning goal orientation. Since the time of these early propositions, a number of additional studies have been conducted to examine the characteristics that are likely to be displayed by individuals with either a performance goal orientation or a learning goal orientation. Although a complete discussion of the behaviors displayed by individuals within each of these categorizations is beyond the scope of the present paper, the primary characteristics associated with these orientations will be briefly discussed.

Performance goal orientation. As mentioned previously, performance goal oriented individuals primarily seek to gain favorable judgments or avoid negative judgements of their competence, via their current level of task performance, (Dweck,

1986; Dweck & Leggett, 1988; Elliott & Dweck, 1989; Farr et. al, 1993). According to Dweck and colleagues, individuals with a performance goal orientation view challenging situations as chance for an ability judgement, instead of a learning opportunity (Dweck, 1986; Dweck & Leggett, 1988; Elliott & Dweck, 1988). This focus on competence judgments is thought to create a vulnerability to a helpless pattern of cognitions, affect, and behavior (Dweck & Leggett, 1988). Individuals displaying a strong performance goal orientation also display a tendency to avoid challenging situations. As such, these individuals tend to select easier tasks that will permit them to achieve success and avoid judgements of incompetence (Elliot & Dweck, 1988), and tend to avoid learning situations, which might be accompanied by errors and perceptions of incompetence on the part of others (Dweck, 1989). In addition, performance goal oriented individuals often respond to task failure with negative affect, negative ability attributions (Bandura & Dweck, 1985, Leggett & Dweck, 1986), and low levels of task persistence (Farr et al., 1993). Experiencing failure or high effort exertion is seen as a direct threat to self-esteem and further documentation of their inadequate ability (Dweck & Leggett, 1988). As such, these individual will often use self-handicapping techniques to buffer a possible failure, in that they will make excuses for poor performance prior to performing the task or give up altogether.

Learning goal orientation. In contrast to individuals that hold a strong performance goal orientation, individuals demonstrating a learning goal orientation are not concerned with validating their competence, but rather at improving their understanding of the task at hand (Dweck, 1986; Dweck & Leggett, 1988; Elliott & Dweck, 1988; Farr et. al, 1993). By viewing challenging situations as an opportunity to

learn, a learning goal oriented individual displays cognitions, affect, and behaviors that are more adaptive for goal attainment. According to Dweck (1989), individuals displaying a learning goal orientation are more likely to seek challenging situations, regardless of their perceived level of ability or expectations of success. Even when faced with failure, learning goal oriented individual view the situation as a learning opportunity for personal growth (Bandura & Dweck, 1985). In this context, failure is seen as useful feedback simply meaning that the current strategy is insufficient for the particular task and that more effort and ingenuity is needed for mastery (Elliot & Dweck, 1988). In contrast to performance goal orientation, high effort in a learning goal framework does not engender cognitive or affective distress. Instead, effort is seen as a means to increasing ones ability to master a particular task, which leads to increased persistence towards their performance goal (Dweck, 1989).

Dimensionality of goal orientation. As noted previously, Dweck and colleagues (e.g., Diener & Dweck, 1978, 1980; Dweck & Legget, 1988) conceptualized these two goal orientations as occupying opposite ends of a single continuum. That is, individuals could either hold a strong learning goal orientation, a strong performance goal orientation, or be somewhere in the middle of these two dimensions. However, more recent researchers have proposed that these two orientations are two entirely independent constructs that do not necessarily correlate with one another (e.g., Button et al., 1996; Thorkildsen, 1988). In other words, it is entirely possible that individuals may be high in both learning goal orientation and performance goal orientation, low in both orientations, etc. In one of the first attempts to empirically address this issue of dimensionality (one bipolar dimension vs. two independent dimensions), Button et al. (1996) found strong

support for a two-factor model of goal orientation and little support for the single, bipolar dimension proposed by early researchers. Their results also consistently indicated low correlations between the dimensions across a series of four studies, indicating that these dimensions appear to be relatively independent of one another. Subsequent research has tended to confirm this view of goal orientation as being composed of two independent dimensions (e.g., Donovan, 1998; Phillips & Gully, 1997). for example, Phillips and Gully (1997) found a correlation of -.10 between these two dimensions, while Donovan (1998) found these two dimensions to be only weakly correlated ($r = -.11$). As a result of the work by Button et al. (1996) and other researchers, learning and performance goal orientations are currently viewed as two independent dimensions in the research literature.

Performance and Learning Goal Orientation in Organizational Research

Although much of the research conducted on the construct of goal orientation has come from the educational domain utilizing children in classroom settings as participants, recent research in the field of work motivation has begun to empirically examine the role of this construct in organizational settings. More specifically, recent research has begun to examine the role of goal orientation in the process of goal establishment.

Learning goal orientation. In perhaps the first study to empirically assess the relationship between goal orientation and goal setting, Phillips and Gully (1997) examined the impact of goal orientation on the goal establishment process utilizing a sample of college students enrolled in introductory management and psychology courses. Individuals in this study were asked to complete two experimental sessions. In the first session, dispositional goal orientation was assessed along with a number of other

personality factors, such as need for achievement. In a follow up session, a measure of task self-efficacy was collected and individuals were asked to set a percentage and a grade goal for their upcoming exam in either their introductory management or psychology class. The results of this study indicated that an individual's learning goal orientation was positively associated with task self-efficacy ($r = .19$) and subsequent performance goals ($r = .14$). These results demonstrate the positive impact of learning goal orientation on two important variables in the goal setting process (self-efficacy, and goal choice), indicating that individuals with a strong learning goal orientation are likely to set higher goals and exhibit higher self-efficacy than individuals with a weak learning goal orientation.

Similar results regarding the relationship between learning goal orientation and self-set goals were found in a recent field study by VandeWalle et al. (1999) examining the influence of goal orientation on self-regulation tactics (goal setting, intended planning, intended effort) and sales performance across a three-month span. Participants were salespeople working for a medical supplies distributor participating in a product promotion offered by the organization in conjunction with the supplier. The results of this study indicated that learning goal orientation was positively related to sales performance through its effects on goal setting and effort (VandeWalle et al., 1999); individuals holding a strong learning goal orientation were more likely to set higher goals ($r = .30$) and expend more effort ($r = .33$) in pursuing those goals than individuals with a weak learning goal orientation.

In a somewhat different setting, Donovan (1998) examined the impact of learning goal orientation on task self-efficacy and self-set performance goals utilizing a sample of

track and field athletes competing in an eight week track and field season. In line with Phillips and Gully (1997) and VandeWalle et al. (1999), Donovan (1998) found a positive relationship between learning goal orientation and task self-efficacy ($r = .34$), as well as the level of goals set by these individuals ($r = .19$). Once again, individuals with a strong learning goal orientation were more efficacious and tended to set more difficulty performance goals than individuals with a weak learning goal orientation.

Returning to the classroom setting, Donovan and Swander (2000) examined the impact of learning goal orientation on students' self-efficacy and goal choice during the course of a full academic semester. Once again, learning goal orientation demonstrated a positive relationship with class-related self-efficacy ($r = .36$). However, the results of this study indicated that learning goal orientation was not significantly correlated with the level of goals set by individuals ($r = .05$). Although such findings seem to contradict previous research concerning this relationship, supplemental analyses conducted by Donovan and Swander (2000) revealed the absence of a relationship between these two variables was primarily due to range restriction on the goal choice exhibited by individuals.

In general, the results of these studies have been rather consistent with those found in the early work of Dweck and colleagues conducted in the lab or utilizing children as participants; individuals with a strong learning goal orientation tend to seek challenges (i.e., set challenging performance goals for themselves) and perceive that challenging tasks are not insurmountable (i.e., demonstrate high self-efficacy). Therefore, based upon this research and the propositions of past goal orientation

researchers, it is hypothesized that learning goal orientation will be positively related to both an individuals self-set performance goals and their self-efficacy.

Hypothesis 1a: Learning goal orientation will be positively related to the level of goals set by individuals.

Hypothesis 1b: Learning goal orientation will be positively related to the individuals level of self-efficacy.

Performance goal orientation. In contrast to the relatively consistent findings concerning the impact of learning goal orientation on goal establishment and self-efficacy, the findings from research examining the impact of a performance goal orientation on these variables has been much less clear. Based upon the findings of Dweck and colleagues, one would expect that individuals with a strong performance goal orientation would be more likely to set easy goals for themselves and exhibit lower levels of self-efficacy. However, while Phillips and Gully (1997) found some support for this notion, subsequent studies have not supported such propositions.

In their study of goal setting within an academic domain, Phillips and Gully (1997) found performance goal orientation to be negatively associated with task self-efficacy ($r = -.15$) and performance goals ($r = -.11$). Individuals displaying strong performance goal orientations were more likely to exhibit lower levels of efficacy with respect towards their upcoming exam and set lower grade goals on this exam than individuals displaying a weak performance goal orientation. In contrast to these results, VandeWalle et al.'s (1999) study on the motivational processes utilized by salespeople

actually found a positive (albeit weak) relationship between performance goal orientation and goal level (r = .11) and effort (r = .07); individuals in this study with strong performance goal orientations tended to set slightly more challenging goals and exert more effort than individuals with a weak performance goal orientation.

Further adding to the confusion, two additional studies have found virtually no relationship between performance goal orientation and both self-efficacy and level of goals set. In his study of track and field athletes, Donovan (1998) found no relationship between performance goal orientation and self-efficacy (r = -.01) and performance goals (r = .02). Similarly, in a study conducted in a classroom setting, Donovan and Swander (2000) found no relationship between performance goal orientation and self-efficacy (r = -.07) and performance goals (r = -.01).

Based upon this review of the literature, the conclusions that should be drawn concerning the relationship between performance goal orientation and various motivational variables are a little unclear. The correlations surrounding performance goal orientation and self-efficacy and performance goals have fluctuated from study to study, with this research finding both positive and negative correlations across various samples. Given such inconsistencies, as well as the generally weak nature of the correlations between performance goal orientation and these motivational variables (average correlation with self-efficacy = -.07, average correlation with goal choice = .00), it is it is expected that there will be no significant relationship between performance goal orientation and self-efficacy and goal choice in the present study. However, since it is inappropriate to propose a research question that is essentially testing the null hypothesis

(Cook & Campbell, 1979; Pedhazur & Schmelkin, 1991), no formal hypothesis is offered for this relationship.

Self-efficacy's role in the Goal-Setting Process

While the research reviewed in previous sections has discussed the relationships demonstrated by goal orientation with both self-efficacy and level of self-set goals as if such relationships were independent of one another, recent researchers have suggested this perspective may be inaccurate. More specifically, Phillips and Gully (1997) proposed that the relationship between goal orientation and self-set goals is fully mediated by self-efficacy. That is, the impact of an individual's goal orientation on his or her goal choice is entirely due to the impact of this goal orientation on the individual's self-efficacy. To support this proposition, Phillips and Gully (1997) tested a structural model based upon this mediated model and found support for the hypothesized relationships, observing good model fit relative to several other competing models. However, these researchers did not test for the possibility of a partially (rather than fully) mediated model in which goal orientation would exhibit both direct and indirect (through self-efficacy) effects on an individual's goal choice. Nonetheless, Phillips and Gully (1997) concluded that "goal orientation does not appear to have a direct effect on goal level, only an indirect effect through self-efficacy" (p. 797).

However, subsequent studies have provided evidence that suggests that the conclusions drawn by Phillips and Gully (1997) may be a little premature. For example, in contrast to the findings of Phillips and Gully, a study by Donovan (1998) conducted on collegiate athletes failed to find support for the fully mediating role of self-efficacy in the relationship between goal orientation and personal goals. Learning goal orientation

scores accounted for approximately three percent of the variance in personal performance goals when self-efficacy was held constant, indicating the absence of a completely mediated relationship (Baron & Kenny, 1986). Similarly, the results from a study conducted by Donovan and Swander (2000) suggest that a partially mediated relationship may be more appropriate than the fully mediated relationship proposed by Phillips and Gully (1997). The results of this study indicated that learning goal orientation accounted for an additional three percent in the variance in goal choice when self-efficacy was held constant, leading one to conclude that the relationship between a learning goal orientation and goal choice is only partially mediated by self-efficacy.

Thus, rather then demonstrating a completely mediated relationship as proposed by Phillips and Gully (1997), the results of these study appear to provide tentative support for a partially mediated model whereby learning goal orientation exhibits both direct and mediated (via self-efficacy) influences on the level of performance goals set by individuals. Therefore, it seems more plausible to propose that self-efficacy partially mediates the relationship between self-set goals and goal orientation.

Hypothesis 2: Self-efficacy will partially mediate the relationship between learning goal orientation and the level of goals set by the individuals.

Performance Goal Orientation X Learning Goal Orientation Interaction

Although there has been quite a bit of recent research conducted to examine the independent effects of the two goal orientation dimensions, there have been no studies to date looking at the potential interactions among these two dimensions in predicting either

goal choice or self-efficacy in a performance context. While researchers have repeatedly mentioned the possibility of an interaction between the two goal orientation dimensions, it appears that these same researchers have been content to simply focus on the independent effects of a performance goal orientation and learning goal orientation on such variables. However, such a simplistic view may portray an inaccurate perspective on how the construct of goal orientation relates to the goal setting process. As noted by a number of statistical texts (e.g., Cohen & Cohen, 1983; Jaccard, Turisi, & Wan, 1990) interpretation of the main effects of two independent variables may be inappropriate in the presence of a significant interaction between the two variables under consideration. In addition, given that these two goal orientation dimensions are independent from one another and are likely to be present together in all performance situations (i.e., individuals have a certain level of both performance and learning goal orientation), it becomes quite clear that research in the domain of goal setting should begin to examine the potential interaction of these two variables in influencing both self-efficacy and goal choice. The present study represents the first formal attempt to examine such an interaction.

It has been proposed that adaptive individuals effectively coordinate performance and learning goals (Dweck & Legget, 1988). Button et al. (1996) state that "it is possible for people to be simultaneously high or low on both dimensions. Those who are highly learning goal and performance goal oriented are likely to exhibit both a concern for high performance and a desire to improve their competence over time. Alternatively, those who exhibit a low level of both orientations may display a general apathy or may be particularly susceptible to situational demands" (p. 40). Farr et al. (1993) go on to suggest that the maladaptive aspects associated with a performance goal orientation are

most likely to occur when there are low levels of learning goal orientation present. As such, these researchers suggest that it is possible that learning goal orientation may buffer the potentially negative impact of performance goal orientation on self-set goals. This interaction could occur such that increasing levels of performance goal orientation could lead to higher self-set goals when accompanied by high levels of a learning goal orientation. Such individuals would be likely to set a high level goal out of both their desire to improve their competence, and their concern for high performance. In fact, the failure of past research to establish any consistent relationship between performance goal orientation and either self-set goals or self-efficacy (e.g., Phillips & Gully, 1997; VandeWalle, 1999) could be a result of failing to take this potential interaction between performance goal orientation and learning goal orientation into account. That is, the various levels of learning goal orientation may have been canceling out the effects of performance goal orientation on self-set goals. This could potentially explain why VandeWalle et al. (1999) found a positive relationship between performance goal orientation and self-set goals, while Phillips and Gully (1997) found a negative relationship between these variables; individuals in these studies may have been substantially different from one another in terms of their average level of learning goal orientation. Unfortunately, due to the fact that these studies utilized different measures of these goal orientation dimensions, a formal test of this proposition is not possible. Nonetheless, these conflicting findings provide some initial information regarding the possibility of an interaction among the two goal orientation dimensions.

Based upon past propositions of goal orientation researchers, as well as the conflicting findings observed in the organizational research literature on goal orientation,

it is hypothesized that learning goal orientation and performance goal orientation will interact with one another in predicting an individual's level of self-set performance goals. The nature of this interaction is proposed to be such that individuals with a weak learning goal orientation will demonstrate a negative relationship between performance goal orientation and self-set goals, while individuals with a strong learning goal orientation will demonstrate a positive relationship between performance goal orientation

> Hypothesis 3: Learning goal orientation and performance goal orientation will interact to predict an individual's goal choice. Individuals with a weak learning goal orientation will demonstrate a negative relationship between performance goal orientation and goal choice, while individuals with a strong learning goal orientation will demonstrate a positive relationship between performance goal orientation and goal choice.

# Method

## Participants

Subjects in this study were 160 undergraduate students enrolled in Psychology courses at Virginia Polytechnic Institute and State University. Individuals participating in the study received course credit in return for their voluntary participation. Although 160 participants completed the study, an inspection of participant responses revealed that five subjects had incomplete goal and/or self-efficacy measures. Given that these variables were the central focus of the present study, these five subjects were removed from the data set, resulting in a final sample size of 155 participants. According to the power analysis conducted utilizing the procedures outlined in Jaccard, Turisi, and Wan (1990), a sample size of 135 participants would be required to achieve a power level of .80 to detect the proposed LGOxPGO interaction using an alpha level of .05. Therefore, in light of the fact that 155 participants were utilized in the present study, it appears that there should be sufficient power to detect the presence of this interaction effect.

## Procedure

Participants were run in groups of approximately 10-15 participants. Upon arriving, participants were informed that they were participating in a study looking at how well students are able to perform a particular computer-based task in a group environment. Following this explanation, individuals were asked to complete a 12-minute cognitive ability test, followed by a dispositional measure of performance and learning goal orientation. Once these measures were completed, the researcher introduced the participants to the task they would be performing in the study. To familiarize the participants with this task, the researcher first presented a series of written

instructions to the participants and briefly discussed these instructions. Following this discussion, individuals were asked to direct their attention to the projection screen at the front of the room in which displayed the task to be performed (as controlled by the experimenter's computer station). At this point, the researcher demonstrated the proper methods for task performance, allowing students to ask questions or clarify the written instructions they received. Following this brief tutorial, individuals were given the opportunity to complete three practice trials lasting 5 minutes each. Upon completion of the third practice session individuals were asked to complete a series of questions assessing performance goals for the next performance trial, 2 measures of self-efficacy relating to this performance goal, and a measure of situational goal orientation. Once these questionnaires had been completed, individuals performed another five-minute performance trial on the study task. After they completed this performance trial, individuals were informed that they would be performing one more performance trial on the task, and were asked to provide information concerning their goal for the upcoming performance trial, as well as their self-efficacy for this upcoming trial. However, once this information has been collected, the individuals were informed that they would not be performing a final trial, and were then debriefed by the researcher.

Task

The task used in the present study was the TEAMS/TANDEM PC-based naval radar simulation task (Kozlowski, 1996; Weaver, Bowers, Salas, & Cannon-Bowers, 1995). Within this task, participants gathered information from their radar screens by selecting ("hooking") a target, gathered information about that target, and made decisions

concerning the disposition of that target. Since some targets were more threatening than others, strategic decisions about which targets to engage in first had to be considered.

For each target "hooked," four decisions were made. First, subjects must make a decision regarding the target's "Type:" Aircraft, Submarine, or Surface vessel. This distinction was made by using target speed, target communication time, and signal strength as cues. Second, subjects decided if the target was civilian or military, this was referred to as the "Class" decision. Critical cues in this decision were direction of origin, maneuvering pattern, and intelligence. Third, the target's "Intent," peaceful or hostile, was assessed by using countermeasures, threat level, and response cues. Once subjects identified the Type, Class, and Intent of the target, the final engagement decision of shooting the hostile targets or clearing the peaceful targets was made.

Targets that were correctly identified and/or acted upon appropriately (e.g. firing on a hostile target) before entering the inner perimeter were worth 100 points. For each target that crossed the inner perimeter the subject lost 10 points. In addition, a 100 deduction was made on all incorrectly identified targets. The subject's total number of points accumulated for trial 4 was used as their performance score.

Pilot Study

Given the relatively complex nature of the task utilized in this study, a potential concern is that participants scores on this task may change simply as a function of becoming more familiar with the specific mechanics of the task (i.e., learning). Since the purpose of this study was to examine motivational processes rather than learning, a pilot study was conducted to determine the number of trials that were necessary for participants to become sufficiently familiar with the task (i.e., the point at which

participant performance tended to level off or reach an asymptote). 30 graduate and undergraduate students were asked to complete four trials of the task used in the present study to examine the performance trends that emerged on this task. The results from this pilot study indicated that task performance leveled off at about the third performance trial, and that there were no significant performance differences exhibited between the average scores on the third performance trial and the fourth performance trial. Based upon this pilot study it was concluded that participants should receive three practice trials on the task to allow them to become sufficiently familiar with the task, and that scores on the third trial could be utilized as an indicator of task ability.

Measures

Learning and performance goal orientations. Learning and performance goal orientations were assessed using the two 8-item scales developed by Button et al. (1996). Reliabilities for this measure range from about .70 - .80 across samples. In the current study the reliabilities for this measure were consistent with past research with an alpha of .78 for both scales. Examples of Learning Orientation Scale items were: “I prefer to work on tasks that force me to learn new things” and “The opportunity to learn new things is important to me.” Examples of Performance Orientation Scale items included: “I like to work on tasks that I have done well on in the past” and “ I feel when I can do something better than most other people”. All responses to these statements were made on a 5 point Likert-type scale (1 = strongly disagree to 5 = strongly agree).

Situational goal orientation. Because recent research has highlighted the potential role of situational goal orientation as a determinant of self-regulation strategies, a measure of this orientation was also collected in the present study. Situational goal

orientation was assessed by adapting a nine-item measure developed by Klimoski and Boyle (1995) designed to measure goal orientation specific to a classroom setting. For each of these items, individuals were presented with a statement (e.g., "I am eager to prove to others how good I am at the content of this class") and asked to rate their disagreement with each statement on a scale from 1 (Strongly disagree) to 5 (strongly agree). These items were modified by removing the references to 'this class' and inserting references to the task being performed in the present study (e.g., "I am eager to prove to others how good I am at performing this task). Within these nine items, four items assessed situational learning goal orientation and five items assessed situational performance goal orientation. The reliability for the learning goal orientation items was .79 and .84 for the performance goal orientation items.

Cognitive ability. Due to the heavy cognitive demands of the task performed in this study (and the impact of such cognitive demands on performance), a measure of general cognitive ability was obtained through the use of the Wonderlic Personnel Test, Form A (WPT; Wonderlic, 1983). The WPT is a 12 minute, self-administered paper and pencil test that consists of 50 items. A number of authors (Dodrill, 1981; Dodrill, 1983; Dodrill & Warner, 1988; McKelvie, 1989) have demonstrated the favorable psychometric properties as well as the practical utility of this test. This measure is scored in terms of the number right out of 50.

Task ability. Given the previous discussion demonstrating that task related ability is likely to influence an individual's goal choice, a measure of task related ability was collected by measuring the participants' task performance during their practice trials. Because performance on the first two trials may not be indicative of the individual's true

level of task relevant ability, performance on the third practice trial was used as the indicator of task ability.

Self-Efficacy. As recommended by recent researchers (Bandura, 1997; Phillips, personal communication, October, 1999), self-efficacy was assessed utilizing two distinct methods. First, general task self-efficacy was assessed using a 10-item Likert scale. The items used in this scale were adapted from Phillips and Gully (1997), and were written so as to follow Bandura's (1991) suggestion that self-efficacy scales must be domain specific and assess the multifaceted ways in which efficacy beliefs operate in that particular domain. Items contained in this scale included: "I feel confident in my ability to perform well on the upcoming task trial" and "I don't feel that am as capable of performing as well on this trial as other students." Responses to this measure will be made on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). In the current study the reliabilities for this measure were .84 at time 1 and .87 at time 2.

As recommended by Lee and Bobko (1994), self-efficacy was also assessed utilizing a composite measure that measures both self-efficacy magnitude and strength. Within this measure, participants were presented with 14-point levels (100 points – 1400 points), and then were asked to indicate their confidence in their ability to achieve each level (on a scale ranging from 0% confident, to 100% confident). Using this approach, self-efficacy was computed by summing the individual's confidence ratings for all performance levels.

Unfortunately, this second measure of self-efficacy proved to be problematic in that individuals appeared to have difficulties responding to this scale in an appropriate manner. More specifically, individuals were found to be consistently assigning

confidence values of "0" to point levels they had easily surpassed on the previous 3 trials. In addition, several individuals exhibited response patterns that were logically inconsistent (e.g., indicating that they were 0% confident that they could achieve a score of 100 points or better, while indicating that they were 100% confident that they could achieve a score of 200 or better). Due to these problematic response patterns, the strength and magnitude measure of self-efficacy was not utilized in the present study. Instead, the ten item Likert scale described previously was utilized as the sole measure of self-efficacy for all analyses conducted in the present study.

Self-Set Goals. Individuals' personal goals were measured after trial 3 and again after trial 4. Subjects were asked "How many points are you trying to attain on the upcoming trial's 'total score' (fill in the blank) _____."

Performance. Performance on the TEAMS/TANDEM task was assessed using the methods detailed earlier. Targets that were correctly identified before entering the inner perimeter were worth 100 points. For each target that crossed the perimeter the subject lost 10 points. Incorrect identification resulted in a deduction of 100 points. The subjects' total number of points accumulated for trial 4 was used as their performance score.

Supplemental Measures. Because the goal orientation measures utilized in the present study are relatively new, and the distinctiveness of these measures from other related personality constructs has not yet been demonstrated, six eight-item personality facet measures from the NEO-PI-R (Costa & McRae, 1992) were used to conduct exploratory analyses examining the unique contribution of goal orientation after accounting for these facets of personality. The following is a list of the facets utilized in

the present study: E6 (Extraversion: Positive Emotions, alpha = .79), O5 (Openness: Ideas, alpha = .81), C4 (Conscientiousness: Achievement Striving, alpha = .82), O4 (Openness: Actions, alpha = .60), N4 (Neuroticism: Self-Consciousness, alpha = .63), C5 (Conscientiousness: Self-Discipline, alpha = .83).

## Results

### Initial Analyses

The sample means and standard deviations of the relevant study variables as well as their intercorrelations are shown in Table 1. An examination of the goals at time 1 ($\underline{M}$ = 951.75) and time 2 ($\underline{M}$ = 976.43) revealed that the participants were setting goals at a relatively challenging level, providing some indication that they were engaged and interested in the task used in the study. In fact, out of the 155 participants, 56% where setting goals higher than the mean at time 1, while 60% were setting goals above the mean at time 2. In addition, g($\underline{b}$ = 10.3 $\underline{\beta}$ = .110, $\underline{p}$ > .70, $\underline{\Delta R^2}$ = .012)oals set at time 1 were significantly related to self-efficacy (time 1) [$\underline{r}$ (154) = .51, p < .001], situational learning goal orientation [$\underline{r}$ (154) = .19, p < .05], situational performance goal orientation [$\underline{r}$ (152) = .30, p < .001], interaction between situational learning and performance goal orientation [$\underline{r}$ (152) = .28, p < .001], cognitive ability level [$\underline{r}$ (153) = .26, p < .01), and task ability level [$\underline{r}$ (154) = .78, p < .001]. Goals set at time 2 were also significantly related to the individuals self-efficacy (time 2) [$\underline{r}$ (154) = .56, p < .001], situational learning goal orientation [$\underline{r}$ (154) = .19, p < .05], situational performance goal orientation [$\underline{r}$ (152) = .29, p < .001], interaction between situational learning and performance goal orientation [$\underline{r}$ (152) = .27, p < .01], cognitive ability level [$\underline{r}$ (153) = .18, p < .05), and task ability level [$\underline{r}$ (154) = .66, p < .001].

In order to determine the impact of goals on performance, hierarchical regression analysis was used. To examine this relationship, performance was regressed on cognitive ability, task ability, and self-efficacy (time 1) at Step 1 of the regression equation, with goal choice (time 1) entered at Step 2. The results of this analysis are presented in Table 2. As expected goal choice was a significant predictor of performance ($\underline{b}$ = .265, $\underline{\beta}$ = .232, $\underline{p} < .05$, $\underline{\Delta R^2}$ = .019), accounting for two percent of the variance in performance. These results provide further support for the influence of goals on one's level of performance.

Hypothesis 1a and 1b

Hierarchical regression analysis was used to test Hypotheses 1a and 1b concerning the impact of learning goal orientation on self-set goals and self-efficacy, above and beyond the effects of ability and past performance. Separate regression equations were run for goal choice (time 1 and time 2) and self-efficacy (time 1 and time 2).

To test Hypothesis 1a, the effects of learning goal orientation on goal choice, goal choice at time 1 was regressed on cognitive ability and task ability at Step 1 of the regression equation, with learning goal orientation entered at Step 2. The results for these analyses are presented in Table 3. Hypothesis 1a proposed that learning goal orientation would be positively related to goal level. Contrary to Hypothesis 1a, learning goal orientation was not a significant predictor of goal level at time1 ($\underline{b}$ = 7.84, $\underline{\beta}$ = .083, $\underline{p} > .10$), accounting for less than one percent of the variance in goal choice ( $\underline{\Delta R^2}$ = .007). For goal choice at time 2, learning goal orientation once again did not reach significance ($\underline{b}$ = 10.3 $\underline{\beta}$ = .110, $\underline{p} > .70$, $\underline{\Delta R^2}$ = .012). These results do not provide support for

Hypothesis 1a: Learning goal orientation was not a significant predictor of goal level at either time 1 or time 2.

Hypothesis 1b proposed that learning goal orientation would be positively related to one's level of self-efficacy. To test this hypothesis, self-efficacy was regressed on cognitive ability and task ability at Step 1 of the regression equation, with learning goal orientation entered at Step 2. The results for these analyses are presented in Table 4. Results indicated that learning goal orientation was not a significant predictor of self-efficacy at time 1 ($\underline{b}$ = 7.84, $\underline{\beta}$ = .083, $\underline{p}$ > .10, $\underline{\Delta R^2}$ = .010), or at time 2 ($\underline{b}$ = .124, $\underline{\beta}$ = .75, $\underline{p}$ > .30, $\underline{\Delta R^2}$ = .006). Thus, Hypothesis 1b was not supported for either self-efficacy at time 1 or time 2.

An examination of the responses to the dispositional goal orientation measures (both performance and learning goal orientation) indicated that the majority of subjects were endorsing alternatives at the high end of the scale, raising the possibility of range restriction. For the dispositional learning goal orientation measure, the mean was 32.1, with a standard deviation of 3.2, indicating that the participants in the present study were very high on this personality dimension, relative to the normative data provided by Button et al. (1996; $\underline{M}$ = 27.86). In fact, out of the 155 participants, 66% scored 30 or higher on a scale ranging from 8-40. Similar results were also found for the performance goal orientation measure, with participants obtaining a mean score ($\underline{M}$= 32.8, $\underline{SD}$ = 4.1) that was substantially higher than the normative data provided by Button et al. (1996; $\underline{M}$ = 25.96). Once again, approximately 66% of the subjects scored 30 or higher on this scale which can range from 8-40. Based upon these findings, it could be suggested that the null results found for Hypothesis 1a and 1b may be due to this extreme range

restriction on the learning goal orientation measure. In light of this possibility, additional analyses were conducted utilizing the measure of situational learning goal orientation obtained in the present study (which exhibited a more reasonable mean level and score distribution) to test the relationships proposed in Hypothesis 1a and 1b.

The results of the regression analyses examining the effects of situational learning goal orientation on goal level are presented in Table 5. When situational learning goal orientation was entered into Step 2 of the regression equation, it was a significant predictor of goal choice at time 1 ($b$ = 13.5, $\beta$ = .106, $p < .05$), accounting for an additional one percent of the variance, over and above the effects past performance and cognitive ability ($\Delta R^2 = .011$). For goal choice at time 2, learning goal orientation approached significance ($b$ = 14.8, $\beta$ = .116, $p > .06$), with a change in $R^2$ of .013. The above analyses indicated that situational learning goal orientation exerted a significant, positive influence on level of goal set at time 1 but not time 2. However, it is worth noting that the variance accounted for by situational learning goal orientation in these two analyses were virtually identical ($\Delta R^2 = .011$ vs. 013). Nonetheless, the results of these additional analyses provide only partial support for Hypothesis 1a.

The results of the regression analyses examining the influence of situational learning goal orientation on self-efficacy at time 1 and time 2 (Hypothesis 1b) are presented in Table 6. As proposed, situational learning goal orientation was a significant predictor of self-efficacy at time 1 ($b$ = .528, $\beta$ = .274, $p < .001$), accounting for seven percent of the variance in self-efficacy ($\Delta R^2 = .073$). At time 2, situational learning goal orientation was once again a significant predictor of self-efficacy ($b$ = .485, $\beta$ = .216, $p < .01$), accounting for five percent of the variance in self-efficacy ($\Delta R^2 = .045$). Thus,

when utilizing a situational measure of goal orientation, Hypothesis 1b was fully supported; learning goal orientation was positively associated with levels of self-efficacy exhibited by participants.

Influence of Performance Goal Orientation

Although no formal hypotheses were proposed for the relationships between performance goal orientation, self-efficacy, and goal choice, these relationships were examined in the hopes of providing some insight into the confusion surrounding the role of this personality dimension in goal establishment. The results of the regression analyses for the effects of dispositional performance goal orientation on goal choice are presented in Table 7. Using the dispositional performance goal orientation measure, performance goal orientation was not found to be a significant predictor of goal choice at time 1 ($\underline{b}$ = -1.508, $\underline{\beta}$ = -.018, $\underline{p}$ > .70, $\underline{\Delta R^2}$ = .000), or time 2 ($\underline{b}$ = -4.971, $\underline{\beta}$ = -.060, $\underline{p}$ > .30, $\underline{\Delta R^2}$ = .004), accounting for virtually none of the variance in goal choice at both times. Thus, as with the dispositional learning goal orientation measure, no relationship was found between dispositional performance goal orientation and goal choice.

The regression results for the analyses looking at the relationship between performance goal orientation and self-efficacy are presented in Table 8. Dispositional performance goal orientation was not a significant predictor of self-efficacy at time 1 ($\underline{b}$ = .045, $\underline{\beta}$ = .036, $\underline{p}$ > .60, $\underline{\Delta R^2}$ = .001). At time 2, however, performance goal orientation was a significant predictor of self-efficacy ($\underline{b}$ = .229, $\underline{\beta}$ = .158, $\underline{p}$ < .05), accounting for almost three percent of the variance in self-efficacy ($\underline{\Delta R^2}$ = .025).

Although these analyses conducted on dispositional performance goal orientation were largely unsupportive of the potential role this variable may play in goal

establishment, this lack of significant relationships may be due to the range restriction problem discussed previously. That is, the results of the analyses presented above may be a function of the extremely high scores obtained by participants on the dispositional measure of performance goal orientation. As such, these analyses were also conducted utilizing the situational performance goal orientation measure obtained in the present study.

The results of these analyses using situational performance goal orientation (presented in Table 9) were substantially different from the results obtained when examining dispositional goal orientation. At time 1, situational performance goal orientation was a significant predictor of goal choice ($\underline{b} = 16.9$, $\underline{\beta} = .165$, $\underline{p} < .01$), accounting for three percent of the variance ($\underline{\Delta R}^2 = .026$). Similarly, at time 2, situational performance goal orientation was a significant predictor of goal choice ($\underline{b} = 18.7$, $\underline{\beta} = .185$, $\underline{p} < .01$), once again accounting for three percent of the variance in goal choice ($\underline{\Delta R}^2 = .032$). These additional analyses indicate that an individual's performance goal orientation, when measured from a situational perspective, is positively related to the level of goals set by that individual.

The results for the regression analyses examining situational performance goal orientation as a predictor of self-efficacy are presented in Table 10. Situational performance goal orientation was a significant predictor of one's level of self-efficacy at time 1 ($\underline{b} = .523$, $\underline{\beta} = .339$, $\underline{p} < .001$), accounting for an additional eleven percent of the variance in self-efficacy over and above the influence of past performance and cognitive ability ($\underline{\Delta R}^2 = .11$). Even stronger results were found at time 2 ($\underline{b} = .673$, $\underline{\beta} = .374$, $\underline{p} < .001$), with performance goal orientation accounting for nearly thirteen percent of the

variance in self-efficacy ($\Delta R^2$ = .133). These results provide strong support for a positive relationship between performance goal orientation and one's level self-efficacy. Individuals with a strong performance goal orientation demonstrated higher levels of task self-efficacy.

Hypothesis 2

Hypothesis 2 proposed that self-efficacy partially mediates the relationship between learning goal orientation and the level of goals set by the individuals. To test for partial mediation, the mediated regression method recommended by Baron and Kenny (1986) was used. In these analyses, three regression equations were run to determine if partial mediation is present. First, goal choice was regressed on learning goal orientation. Second, self-efficacy was regressed on learning goal orientation. Finally, goal choice was regressed on both learning goal orientation and self-efficacy. Partial mediation could be inferred if : a) learning goal orientation was significantly related to both goal level and self-efficacy, b) self-efficacy was significantly related to goal level, and c) the relationship between learning goal orientation and goal level (examined through the regression coefficient for learning goal orientation) decreased in magnitude (while remaining significant) when self-efficacy was entered into the regression equation (Baron & Kenny, 1986).

Since no significant relationships were found with goal level when using the dispositional learning goal orientation measure, it would be inappropriate to test for mediation with this measure. Therefore, the situational learning goal orientation measure was used in conducting the analyses that follow. The results of the regression analysis for the mediating effects of self-efficacy at time 1 are presented in Table 11.

Examination of learning goal orientation at Step 3 (b = 7.56, β = .059, p > .20) does show a reduction in absolute size from Step 2 (b = 12.9, β = .101, p < .05). However, the regression weight for learning goal orientation did not remain significant after self-efficacy was entered into the regression equation (p > .20) at Step 3, indicating the presence of a fully mediated relationship. At time 2, learning goal orientation was not a significant predictor of goal level (p > .05), and therefore, according to the procedures outlined by Baron and Kenny (1986), it was inappropriate to continue with the test for mediation. Based upon these results, Hypothesis 2 was not supported. The results for time 1 indicated that self-efficacy fully mediated the relationship between learning goal orientation and goal choice.

Self-Efficacy as a Mediator of the Performance Goal Orientation/Goal Level Relationship

In addition to the above analyses, supplemental analyses were conducted to determine if self-efficacy partially mediated the relationship between situational performance goal orientation and goal choice. The results of this analysis are presented in Table 12. These analyses revealed that self-efficacy did partially mediate the relationship between performance goal orientation and goal choice at time 1, with a drop in absolute size from Step 2 (b = 16.86, β = .165, p < .01) to Step 3 (b = 12.58, β = .123, p < .05), and the regression coefficient remaining significant at Step 3. At time 2, however, there was a drop in absolute size from Step 2 (b = 17.9, β = .177, p < .01) to Step 3 (b = 5.59, β = .055, p > .40), but the regression weight at Step 3 was not significant, indicating a fully mediated relationship. Thus, these analyses provide some support for the proposition that self-efficacy partially mediates the relationship between performance goal orientation and goal choice.

Hypothesis 3

Hypothesis 3 concerning the interaction of learning and performance goal orientation in predicting goal choice was tested using moderated multiple regression analysis. In this analysis, goal choice was regressed on ability and past performance at Step 1, followed by the two dispositional orientation dimensions at Step 2, with the goal orientation interaction term entered at Step 3. A significant product term at Step 3 indicates the presence of the proposed interaction.

The results for the analysis examining the moderating effects of learning goal orientation on the relationship between performance goal orientation and goal choice are presented in Table 13 for the dispositional measures and Table 14 for the situational measures. Examination of the product term at Step 3 indicated that dispositional learning goal orientation did not have a significant moderating effect on the relationship between dispositional performance goal orientation and goal choice at time 1 ($b$ = .696, $\beta$ = .350, $p$ > .50, $\Delta R^2$ = .001), or time 2 ($b$ = .532, $\beta$ = .270, $p$ > .60, $\Delta R^2$ = .001). Similar results were found with the situational goal orientation measure for goal choice at time 1 ($b$ = -.729, $\beta$ = -.188, $p$ > .50, $\Delta R^2$ = .001), and time 2 ($b$ = -.973, $\beta$ = -.253, $p$ > .40, $\Delta R^2$ = .002). Thus, Hypothesis 3 was not supported for either goal choice at time 1 or goal choice at time 2.

Supplemental Analyses

As noted previously, research has yet to demonstrate the distinctiveness of the currently utilized measures of goal orientation from other related personality constructs, such as several of the personality facets that are a part of the Big Five personality taxonomy. In order to determine if goal orientation accounts for unique variance in goal

choice over and above various personality facets, supplemental analyses were run with six facets of the NEO-PI (Extraversion: Positive Emotions, Openness: Ideas, Conscientiousness: Achievement Striving, Openness: Actions, Neuroticism: Self-Consciousness, and Conscientiousness: Self-Discipline) that were selected based upon the similarity of the items contained in these facets with those present on the goal orientation measures.

Prior to conducting such analyses, regression analysis was used to determine which of these six facets had a significant relationship with goal level. At Step 1, cognitive ability and task ability were entered into the regression equation, followed by one of the facets. Of the six, only the Positive Emotions facet of the Extraversion scale and the Ideas facet of the Openness scale had a significant relationship with goal choice. At time 1, Positive Emotions was found to have a significant negative relationship with goal choice ($\underline{b}$ = -9.310, $\underline{\beta}$ = -.139, $\underline{p}$ < .01), accounting for nearly two percent of the variance ($\underline{\Delta R}^2$ = .018). However, the Positive emotions facet was not a significant predictor of goal choice at time 2 ($\underline{b}$ = -6.568, $\underline{\beta}$ = -.099, $\underline{p}$ > .10, $\underline{\Delta R}^2$ = .09). The Ideas facet produced a significant relationship with goal level at time 1 ($\underline{b}$ = 9.214, $\underline{\beta}$ = .131, $\underline{p}$ < .05, $\underline{\Delta R}^2$ = .017), but not at time 2 ($\underline{b}$ = 5.429, $\underline{\beta}$ = .079, $\underline{p}$ > .20, $\underline{\Delta R}^2$ = .006). Because none of the personality facets utilized in the present study significantly predicted goal choice at time 2, it was unnecessary to conduct additional analyses to determine the incremental variance in goal choice accounted for by the goal orientation dimensions over and above these personality facets at time 2. Since the Ideas and Positive Emotions facets were both significantly related to goal choice at Time 1, these personality facets were used to conduct hierarchical regression analyses examining the incremental

prediction of the goal orientation dimensions over and above these conceptually similar personality dimensions.

The results for these analyses are presented in Table 15. At Step 1, cognitive ability and task ability were entered into the regression equation, followed by the Ideas and Positive Emotions personality facets at Step 2 and either situational learning or performance goal orientation at Step 3. Examination of Step 3 indicates that learning goal orientation ($\underline{b}$ = 9.077, $\underline{\beta}$ = .072, $\underline{p}$ > .10, $\underline{\Delta R^2}$ = .004) did not remain significant when the two personality facets were entered into the regression equation but that situational performance goal orientation was still a significant predictor of goal choice ($\underline{b}$ = 14.163, $\underline{\beta}$ = .137, $\underline{p}$ < .05), accounting for nearly two percent of the variance ($\underline{\Delta R^2}$ = .016) over and above the effects of these personality facets. Therefore, the results of these regression analyses provide some support for the proposition that the goal orientation construct captures unique variation in goal choice beyond that accounted for by more traditional personality measures.

Similar analyses were also run with self-efficacy as the criterion variable to determine if the goal orientation dimensions accounted for unique variance in self-efficacy over and above the variance accounted for by the personality facets measured in the present study. Initial analyses revealed that the only significant relationship between these personality facets and self-efficacy was the relationship between the Ideas facet and self-efficacy at time 2 ($\underline{b}$ = .217, $\underline{\beta}$ = .173, $\underline{p}$ < .05, $\underline{\Delta R^2}$ = .031). Therefore, the hierarchical regression analysis conducted to assess the incremental variance accounted for by the goal orientation dimensions was only conducted for self-efficacy at time 2, and only the Ideas facet was entered into this regression equation to examine this incremental

validity. The results of these analyses are presented in Table 16. At Step 3, learning goal orientation was found to be a significant predictor of self-efficacy ($b$ = .418, $\beta$ = .189, $p$ < .05, $\Delta R^2$ = .031), over and above the Ideas personality facet. Similarly, performance goal orientation was also found to be a significant predictor of self-efficacy ($b$ = .585, $\beta$ = .329, $p$ < .001) when the Ideas facet was entered into the regression equation at the previous step, accounting for an additional nine percent of the variance ($\Delta R^2$ = .094). Taken together, these results provide support for the unique contribution of both learning and performance goal orientation to the prediction of self-efficacy.

## Discussion

The present study set out to further explain the impact of dispositional goal orientation on the goal-setting process and self-efficacy. Past researchers have found main effects of dispositional learning goal orientation on goal choice and mixed results concerning performance goal orientation. In addition to verifying the results of a main effect of learning goal orientation on goal choice and clarifying the role of performance goal orientation in this process, the present study attempted to explain the role of self-efficacy and test the possibility of an interaction between the two dispositional goal orientations. This was the first study to specifically investigate a partially mediated hypothesis of self-efficacy and an interaction between the two dimensions of goal orientation.

Contrary to the findings of past researchers, absolutely no support was found for Hypothesis 1a and 1b, which both investigated the impact of dispositional goal orientation on goal choice and self-efficacy. However the null results of Hypothesis 1b could be the result of the conservative nature of the analyses. Since self-efficacy is

largely derived from past performance, holding task ability constant is very restrictive. Therefore, ability could have accounted for a large portion of the variance in self-efficacy making it difficult to find a relationship between goal orientation and self-efficacy.

As a result of these null findings concerning the main effects for dispositional goal orientation, no support was found for the partially mediating role of self-efficacy (Hypothesis 2), since partial mediation cannot occur if an initial relationship is not already established. In addition, Hypothesis 3, which proposed an interaction between dispositional performance and learning goal orientation in predicting goal choice, was not supported. It should be noted that the null results concerning Hypothesis 1b could be the result of the

It is interesting that no support was found for dispositional goal orientation, although this may be due to the problems with range restriction mentioned earlier or the conservative nature of the analyses for Hypothesis 1b. These findings raise the possibility that, as suggested by past researchers (e.g., Fishbein & Azjen, 1975), broad (and somewhat generic) dispositional measures are unlikely to exhibit a strong relationship with other more specific situational variables such as self-efficacy and goal choice. The presence of weak findings in past research that has examined the impact of dispositional goal orientation on goal choice provides some evidence that these general dispositional constructs are somewhat lacking as predictors of more specific behavioral and motivational variables.

For example, Phillips and Gully found only relatively weak correlations between dispositional learning goal orientation and self-efficacy ($\underline{r}$ = .19), and goal choice ($\underline{r}$ = .14). Similarly weak correlations were found between dispositional performance goal

orientation and self-efficacy ($r$ = -.15), as well as goal choice ($r$ = -.11). In addition, research conducted since Phillips and Gully (1997) has repeatedly found weak correlations between dispositional learning and performance goal orientation and various motivational variables (e.g. Donovan, 1998; Donovan and Swander 2000; VandeWalle, 1999). Taken as a whole, these findings indicate that our current levels of prediction of goal choice and self-efficacy utilizing these dispositional measures are somewhat weak. These findings also suggest that the prediction of these various motivational variables could potentially be enhanced by moving away from the use of broad, dispositional measures of goal orientation, and moving towards the use of more specific, situational measures of learning and performance goal orientation.

Preliminary support for this possibility of increased prediction through the use of more specific measures of goal orientation was obtained in the present study. While the present study found dispositional goal orientation did not significantly impact any of the motivational variables examined, relatively strong support was found for the impact of situational learning goal orientation on both goal choice and self-efficacy (see discussion below). In line with these findings, Button et al. (1996) acknowledged the potential power of situational characteristics in determining the impact of dispositional goal orientation, suggesting that situational characteristics could cause individuals to adopt different response patterns for a particular situation. Taken together, the weak findings present in both past research and the present study concerning dispositional goal orientation, as well as the suggestions by Button et al. (1996), indicate that perhaps this dispositional measure is of limited utility in explaining individual differences in motivation.

Support for the Role of Situational Goal Orientation in Goal Establishment

In contrast to the results obtained using the dispositional goal orientation measures, the results obtained utilizing the situational measures of learning and performance goal orientation demonstrated relatively strong support for the relationship between these personality dimensions and goal choice as well as self-efficacy. In fact, support was found for the independent effects of both learning and performance goal orientation on both goal choice and self-efficacy.

Learning goal orientation. The findings concerning learning goal orientation were consistent with past research (Donovan, 1998; Phillips & Gully, 1997; VandeWalle et al., 1999) that has shown a positive relationship between learning goal orientation and goal choice as well as self-efficacy. The presence of a positive relationship is also in line with the early work of Dweck and colleagues (e.g., Dweck & Elliot, 1983), which conceptualized individuals adopting a strong learning goal orientation as having a tendency to seek challenges (i.e., setting higher performance goals), and to perceive these challenges as accomplishable (i.e., demonstrating high self-efficacy).

A positive relationship between learning goal orientation and self-efficacy is not only consistent with past findings but also extremely likely in the present study. The complex and strategic nature of the task utilized in this study required participants to make calculated decisions about which target to engage first. Accordingly, in order for participants to improve at the task, they first had to have the desire to understand the components of the task and the basis of the strategy, thus fostering a learning goal orientation. However, due to the nature of the feedback (points), it was essential that participants adopt a performance goal orientation in order to increase their score from

trial to trial. Therefore, in the present study, impact of learning goal orientation may have decreased as participants began to focus on score.

Performance goal orientation. While the findings concerning learning goal orientation were consistent with past research, the findings concerning performance goal orientation were somewhat surprising. In the current study, performance goal orientation was found to have a relatively strong, positive relationship with both goal choice and self-efficacy. This finding directly contradicts past research, which found performance goal orientation to be negatively related to the level of goals set (Phillips & Gully, 1997), weakly related (VandeWalle, 1999), or not related at all (Donovan, 1998; Donovan & Swander, 2000). In fact, almost all researchers have argued that either individuals displaying a strong performance goal orientation are more likely to set less difficult performance goals or that there is no apparent relationship between this goal orientation dimension and goal choice (e.g., Donovan & Swander, 2000). The present study found that individuals displaying a strong performance goal orientation were more likely to set higher goals than an individual with a weak performance goal orientation. These results also counter the conceptualizations made by Dweck and Leggett (1988), which suggest that individuals displaying a strong performance goal orientation also display a tendency to avoid challenging situations (i.e., setting higher performance goals).

Of particular interest, when examining relationships exhibited with performance goal orientation, are the findings associated with self-efficacy. Performance goal orientation was an extremely strong predictor of self-efficacy at time 1 and time 2, demonstrating a significant positive relationship with self-efficacy and accounting for more than 13 percent of the variance in this variable. Like self-set goals, the

relationships that have been reported in the literature and in past research findings have generally been negative (Phillips & Gully, 1997; Donovan & Swander, 2000), suggesting that individuals displaying strong levels of performance goal orientation exhibit low levels of efficacy. In the present study, individuals adopting a performance goal orientation were more likely to set higher goals and to have increased levels of self-efficacy at time 1 and time 2.

Interestingly, these relationships with performance goal orientation were found to be stronger than those between learning goal orientation and self-set goals and self-efficacy. To illustrate, at time 2 for goal choice, the amount of variance accounted for by performance goal orientation ($\underline{\Delta R}^2 = .032$) was more than double the amount accounted for by learning goal orientation ($\underline{\Delta R}^2 = .013$). The increase was even more striking when looking at self-efficacy at time 2, where performance goal orientation accounted for almost three times the variance ($\underline{\Delta R}^2 = .133$) accounted for by learning goal orientation ($\underline{\Delta R}^2 = .045$). These findings are somewhat surprising, given that much of the past research in this domain has generally shown learning goal orientation to be the "dominant" dimension of goal orientation (e.g., Phillips & Gully, 1997; VandeWalle et al., 1999), typically accounting for more variance and demonstrating better levels of prediction than performance goal orientation.

Although it could be argued that the present findings are an aberration, close examination of past research conducted in this domain suggests that the different relationships observed in past research (as compared to the present study) may partially be a function of the types of studies that were conducted to examine the role of performance goal orientation. In other words, the results obtained in the present study

may be more likely to occur than one would expect based upon the conclusions and inferences drawn by past researchers. Past researchers may have mistakenly underestimated the role of performance goal orientation due in part to the settings of previous research.

A majority of the goal orientation literature has been derived from research that was conducted in a classroom setting (Button et al., 1996; Donovan & Swander, 2000; Phillips & Gully, 1997). In a classroom setting, learning is not only facilitated but also stressed. To a teacher, the acquisition of the curriculum (learning goal orientation) is the goal rather than grades (performance goal orientation). In addition, teachers often give developmental feedback and strategies for improvement, which could imply that they are conveying a learning goal orientation to their students. Although students are likely to adopt their own goal orientations, these situational factors (i.e., the classroom environment) are likely to influence the adoption of a goal orientation for this situation.

The presence of these situational influences in past research is important, given that a learning endorsed environment (and the subsequent change in goal orientation that may accompany such situational influences) might not be an accurate depiction of how goal orientation is likely to operate in the workplace. In an organizational context, individuals must be concerned with performing and meeting performance standards (Farr et al., 1993), potentially at the cost of learning. Often, a manager is most concerned with the end product: how much is produced, how much is sold, profits gained, profits lost, etc. In other words, a performance goal orientation may be somewhat necessary to be successful in such an environment. In support of the importance of a performance goal orientation, the only study to look at goal orientation in an actual organizational setting

found a positive (albeit weak) relationship between performance goal orientation and goal choice and effort (VandeWalle et al., 1999).

These results, along with the arguments presented above, suggest that the results obtained with an organizational sample are likely to be different than the results obtained in a classroom study. Although it is clearly not a direct representation of the typical workplace environment, the current task (with its mixture of strategy and performance feedback) could be a more direct representation of the tasks faced by employees in an organizational setting or at least more realistic than a classroom. Therefore, based upon the results of the present study, it appears that performance goal orientation might play a more important role in the goal-setting process than previous researchers have concluded.

Mediating Effects of Self-Efficacy

In an attempt to understand the role of self-efficacy in the context of goal orientation and self-set goals, Hypothesis 2 proposed that self-efficacy would partially mediate the relationship between learning goal orientation and goal level. Support was not found for this hypothesis. When self-efficacy was entered into the regression equation, the regression coefficients for learning goal orientation did not remain significantly different from zero, therefore indicating the presence of full mediation. A fully mediated relationship between learning goal orientation and goal choice by self-efficacy provides support for Phillips and Gully's (1997) findings and implies that learning goal orientation does not directly affect goal choice; all effects of learning goal orientation are filtered through self-efficacy. However, it is important to note that this observed mediated relationship only occurred when examining situational rather than dispositional goal orientation. Based upon these findings, it appears that a situation or

task that facilitates the adoption of a learning goal orientation will increase one's level of self-efficacy, which in turn raises the level of self-set goals.

Supplemental analyses for Hypothesis 2 revealed that self-efficacy partially mediated the relationship between performance goal orientation and goal choice at time 1, while support for a fully mediated model was found at time 2. Thus, some level of support was found for the partial mediation proposition of self-efficacy on the relationship between performance goal orientation and goal choice, and partial support was also found for Phillips and Gully's (1997) fully mediated model. These findings suggest that performance goal orientation not only affects the level of self-efficacy exhibited by individuals but also directly influences the goals set by those individuals, indicating that, as suggested previously, performance goal orientation may play a more prevalent role in the goal-setting process than originally anticipated (i.e., it directly influenced both self-efficacy and goal choice).

The presence of partial mediation of performance goal orientation at time 1 raises an interesting question. Does performance goal orientation still have a direct effect on goal choice or was the partial mediation found for goal choice at time 1 simply an aberration? While it is entirely possible that this finding is simply an anomaly, it is important to point out that the results from the mediational analyses for both learning and performance goal orientation at time 1 and 2 demonstrated a drop in the regression coefficient magnitude for the goal orientation variables from Step 2 to Step 3 (where self-efficacy was entered into the regression equation), partially satisfying the criteria for partial mediation proposed by Baron and Kenny (1986). According to Baron and Kenny

(1986), the regression coefficient must also remain significantly different from zero in order to imply partial meditation.

As noted earlier, this second criteria was not satisfied for most of the analyses conducted in the present study. However, Hoyle and Kenny (1999) have recently pointed out that it is difficult to satisfy both of these criteria in the typical regression equation due to problems associated with measurement error, statistical power, and the magnitude of the various components of the mediated relationship being tested (i.e., differences in the magnitude of the paths from goal orientation to self-efficacy and from self-efficacy to goal choice make the detection of partial mediation somewhat more difficult). Accordingly, they classify the Baron and Kenny (1986) methods as an extremely conservative test for partial mediation. Therefore, although the analyses in the present study did not find support for a partially mediated relationship, the possibility that this relationship existed still remains.

Comparison of Results Concerning Goal Establishment with Phillips & Gully (1997)

Although research on the goal orientation construct has been in existence for several decades, researchers have only recently begun to explore the role played by this construct in the goal establishment process. One of the primary studies within this recent research movement is that of Phillips and Gully (1997). Given that the present study tested many of the same relationships as Phillips and Gully (1997), a comparison of the different results obtained in these two studies could provide some insight into the relationship between goal orientation and the motivational constructs examined in these two studies. More specifically, two distinct differences in the results obtained in the two studies warrant some discussion.

First, although Phillips and Gully (1997) found support for a fully mediated model with a dispositional measure of goal orientation, the current study did not find support for this model utilizing the same dispositional measures of goal orientation. While these contradictory results may bring into question the robustness of the model provided by Phillips and Gully (1997), such discrepancies in results and conclusions may also point to the importance of assessing goal orientation in a more specific, situational manner. When such measures of goal orientation were utilized in the mediated regression analysis, some level of support was found for a fully mediated model, thereby demonstrating the importance of viewing goal orientation not only from a trait perspective but also as a state. As noted previously, if the influences of situational characteristics are strong, dispositional characteristics could change to match the demands of a particular situation.

Second, in contrast to Phillips and Gully (1997), who found a weak negative relationship between performance goal orientation and self-efficacy, the current study found a relatively strong positive relationship between performance goal orientation and self-efficacy. Although this difference is interesting in and of itself, it becomes even more important when one considers the contradictory practical implications that might be drawn from these two studies. Based on their findings, Phillips and Gully (1997) argue that a successful intervention to increase self-set goals through self-efficacy would consist of enhancing an individual's probability of adopting a higher learning goal orientation and lower performance goal orientation. However, based upon the results of the current study, it could be argued that an intervention of this nature would most likely decrease one's level of self-efficacy and lower their self-set goals since performance goal

orientation was positively related to self-efficacy and subsequent goals. In fact, performance goal orientation was the strongest predictor of self-efficacy beyond task performance in the present study, suggesting that any organizational intervention designed to increase the difficulty of goals set by individuals, as well as their self-efficacy, should concentrate on enhancing both a performance goal orientation and a learning goal orientation.

Taken together, the disparity among the results of these two studies demonstrates not only how little we really know about the goal orientation construct but also that this construct may display many different relationships with motivational variables depending on: a) the task being performed, b) the task performance environment, and c) the manner in which goal orientation is measured (state vs. trait). Although the present study makes an important contribution to the literature on goal orientation, it is clear that we have much to learn about how this variable influences motivational processes in organizational settings.

Interaction Effect

Previous research has generally found that learning and performance goal orientation exhibit independent effects on goal choice. However, the strength and direction has fluctuated from study to study. For instance, Phillips and Gully (1997) found learning goal orientation to be positively associated with performance goals ($r$ = .14), while a correlation of -.11 was found between performance goal orientation and goal choice. In a field study, VandeWalle (1999) found both learning goal orientation ($r$ = .30) and performance goal orientation ($r$ = .11) to be positively correlated with goal choice. In an attempt to explain these inconsistent findings, Hypothesis 3 proposed that

learning and performance goal orientation would interact to predict an individual's goal choice. More specifically, it was suggested that individuals with a weak learning goal orientation would demonstrate a negative relationship between performance goal orientation and goal choice, while individuals with a strong learning goal orientation would demonstrate a positive relationship between performance goal orientation and goal choice, such that individuals would set higher goals due to their desire to improve their competence (learning goal orientation) and their concern for high performance (performance goal orientation). Although the idea of an interaction makes sense conceptually, absolutely no empirical support was found for this hypothesis, suggesting that although learning and performance goal orientation have independent effects on goal choice, these dimensions do not interact to predict goal choice.

Even though empirical support was not found for this interaction, these findings may partially be a function of the situational demands of the task. However, in situations where task demands are high and clear (such as in the present study - see above discussion), the possibility of detecting or observing an interaction between these two dimensions may be somewhat reduced. Nonetheless, no support was found for this interaction using either dispositional or situational goal orientation measures.

Distinctiveness of Goal Orientation

Past research has yet to differentiate goal orientation from other related personality constructs, such as several facets of the Big Five personality dimensions. In an effort to demonstrate the distinctiveness of goal orientation, exploratory analyses were run to examine the impact of the goal orientation dimensions on goal choice and self-efficacy after controlling for two facets of the Big Five personality dimensions (Positive

Emotions from the Extraversion dimension and Ideas from the Openness dimension). The results of these analyses largely indicated that the goal orientation dimensions acted as significant predictors of both goal choice and self-efficacy after the effects of these other personality variables were controlled for. Therefore, these results suggest that the goal orientation dimensions examined in the present study are somewhat distinct from several well-established facets of the Big Five personality dimensions.

These results are important to the establishment of the overall construct validity of the goal orientation scales, indicating that these dimensions do seem to be independent, unique personality dimensions, not subsumed by the Big Five personality dimensions. Although additional research is clearly needed to further test the distinctiveness of the goal orientation construct from other already established personality variables, these results appear to support continued research on the personality variable of goal orientation and its effects on motivational processes.

Study Limitations

Although the findings of the present study are informative and potentially valuable, two limitations of this research should be noted.

First, the sample consisted of undergraduate college students performing an artificial task which held no real consequences or personal implications, bringing into question the generalizability of the results obtained in this study to actual organizational settings. The task did, however, simulate the complex physical performance, information processing, and decision-making demands that may be characteristic of real jobs in which individuals are performing fast-paced, critical tasks. More specifically, to perform the simulation, participants needed to learn how to operate the task and develop strategies for

effective task performance, requiring that participants gather information about objects on the screen, make decisions, and take action based on the information gathered. Therefore, one could argue that the task utilized in this study may actually be a better representation of the typical workplace than tasks utilized in past research (e.g., classroom performance). Nonetheless, one should be careful in generalizing the results obtained in this study to the work environment.

The second limitation of the present study concerns that nature of the feedback given to participants (i.e., their performance score). Given that individualized developmental feedback was not available for the current task, the nature of the task could have promoted a performance goal oriented environment, leading to the exaggerated importance of performance goal orientation on goal choice and self-efficacy. However, this increase in performance goal orientation prediction may also indicate that the type of task being performed may act as a moderator of the relationships between performance goal orientation and self-efficacy and possibly goal choice. The presence of a task moderator does not seem apparent for learning goal orientation since the strength and direction of the relationship between this dimension and self-efficacy and goal choice have remained relatively constant across various tasks and samples utilized in past research. The presence of a task moderator could not only change the strength of the relationship between performance goal orientation and self-efficacy/goal choice but also the direction. Therefore, the results obtained utilizing the present task should be viewed cautiously until further research examines the possibility of this moderator of task type.

Study Implications

The results of the present study have three important implications for future research. First, the conflicting results concerning performance goal orientation obtained in this study compared to past research suggest that there may be boundary conditions or moderators operating which influence the relationship between performance goal orientation and the goal setting variables of self-efficacy and goal choice. For example, the presence of the task type moderator discussed above could explain the inconsistent relationships found with performance goal orientation in past research. That is, the reason for the inconsistencies obtained in past research may have been a function of the type of task being utilized in the research. Therefore, future researchers should attempt to identify these boundary conditions and moderators in the hopes of obtaining a clearer picture of how this performance goal orientation personality dimension influences motivational processes.

Second, given the relatively restricted samples that have been used in past research and the fact that student samples are likely to exhibit range restriction on one or both of the goal orientation dimensions, future research also needs to begin to utilize more heterogeneous samples with respect to this personality construct. Organizations are dynamic systems, and in order to understand the effects of goal orientation on the goal-setting process, samples consisting of actual workers from a variety of organizational backgrounds are clearly needed.

Finally, given that past researchers have only examined goal orientation in a single task, single goal environment, future researchers should begin to investigate how learning and performance goal orientations influence goal setting when individuals are

faced with multiple tasks that need to be performed simultaneously, therefore creating competing, multiple goals. A research design of this type, implementing multiple goals, would clearly be more representative of the typical work environment than the traditional single task environments that are used in most current studies.

## Conclusion

In conclusion, the present study set out to examine the role of dispositional learning and performance goal orientation on goal setting and self-efficacy. When using a dispositional measure of goal orientation, support for Hypothesis 1-3 was not found. While the present study did not find a significant impact of dispositional goal orientation on any motivational variables examined, relatively strong support was found for the impact of situational learning and performance goal orientation on both goal choice and self-efficacy. As expected, learning goal orientation was a predictor of goal choice and self-efficacy, in that individuals who display a strong learning goal orientation set higher goals and demonstrate increased levels of self-efficacy. Contrary to past research, performance goal orientation was found to be an extremely strong, positive predictor of both goal choice and self-efficacy. The presence of this positive relationship could indicate the possibility of a potential task moderator. Although strong support was found for Hypothesis1, Hypothesis 2 was not supported because partial mediation by self-efficacy of learning goal orientation and goal choice was not found. However, partial support was found for the partial mediation of performance goal orientation and goal choice by self-efficacy. Similarly, Hypothesis 3 was also not supported since an interaction between the two goal orientation dimensions was not apparent in the present study. Taken as a whole, the present study does provide support for the importance of

learning and performance goal orientation in the formation of self-set goals and one's level of self-efficacy.

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# APPENDIX A

# DISPOSTIONAL GOAL ORIENTATION MEASURE

Goal Orientation Measure (Button, Mathieu, and Zajac, 1996)

| ① | ② | ③ | ④ | ⑤ |
|---|---|---|---|---|
| Strongly disagree | Disagree | Neutral | Agree | Strongly agree |

Performance goal orientation

I prefer to do things that I can do well rather than things that I do poorly.
I'm happiest at work when I perform tasks on which I know that I won't make errors.
The things I enjoy the most are the things I do the best.
The opinions others have about how well I can do certain things are important to me.
I feel smart when I do something without making any mistakes.
I like to be fairly confident that I can successfully perform a task before I attempt it.
I like to work on tasks that I have done well on in the past.
I fell smart when I can do something better than most other people.

Learning goal orientation

The opportunity to do challenging work is important to me.
When I fail to complete a difficult task, I plan to try harder the next time I work on it.
I prefer to work on tasks that force me to learn new things.
The opportunity to learn new things is important to me.
I do my best when I'm working on a fairly difficult task.
I try hard to improve on my past performance.
The opportunity to extend the range of my abilities is important to me.
When I have difficulty solving a problem, I enjoy trying different approaches to see which one will work.

# APPENDIX B

# SITUATIONAL GOAL ORIENTATION MEASURE

Taken from:

Boyle, K. A., & Klimoski, R. J. (1995, May). Toward an understanding of goal orientation in a training context. Paper presented at the 10th Annual Meeting of the Society for Industrial and Organizational Psychology, Orlando, FL.

This measure was slightly altered to conform to the task used in the study.

| ① | ② | ③ | ④ | ⑤ |
|---|---|---|---|---|
| Strongly disagree | Disagree | Neutral | Agree | Strongly agree |

Learning goal orientation

1. I intend to learn as much as I can while performing this task.
2. I want to really understand the material and procedures for this task.
3. I look forward to mastering the challenges of this simulation.
4. If I don't understand the components of the task right away, I will keep trying until I do understand it.

Performance goal orientation

1. I am eager to prove to others how good I am at this task
2. I wonder how my score on the next trial will compare with peoples scores.
3. I am eager to show how much I know about the materials and procedures for this task.
4. I want to appear competent on the upcoming task.
5. I want to do better than others on the next trial

# APPENDIX C

# GENERAL TASK SELF-EFFICACY MEASURE

## General Task Self-Efficacy Measure

Think about the number of targets that you are trying correctly identify on the upcoming trial and indicate the extent to which you agree with the following statements.

| ① | ② | ③ | ④ | ⑤ |
|---|---|---|---|---|
| Strongly disagree | Disagree | Neutral | Agree | Strongly agree |

___1. I feel confident in my ability to perform well on the upcoming trial.
___2. I think that I can eventually identify a satisfactory number of targets correctly.
___3. I am not confident that I will do as well on this trial as I would like.
___4. I don't feel that I am capable of performing as well on this trial as other students.
___5. I am a fast learner for these types of games, in comparison to other people.
___6. I am not sure I can ever do well on this trial, no matter how much I practice.
___7. I would have to practice for a long time to be able to do well on this trial.
___8. I think that my performance will be adequate on this trial.
___9. I am sure that I can learn the techniques required for the next trial in a short period of time.
___10. On average, other individuals are probably not as capable of doing as well on this trial as I am.

# APPENDIX D

# GOAL AND STRENGTH / MAGNITUDE SELF-EFFICACY MEASURE

Please fill in the blank for each of the following questions. DO NOT mark these answers on your computer scoring sheet.

How many points are you trying to attain on the upcoming trial's "total score"?

_____

Based upon your previous practice trials, please indicate how confident you are (from 0%-100%) that you can achieve each of these point levels for your total score. Please make confidence ratings for all point values.

I am _____% confident that I can get **100 points** on the next trial.

I am _____% confident that I can get **200 points** on the next trial.

I am _____% confident that I can get **300 points** on the next trial.

I am _____% confident that I can get **400 points** on the next trial.

I am _____% confident that I can get **500 points** on the next trial.

I am _____% confident that I can get **600 points** on the next trial.

I am _____% confident that I can get **700 points** on the next trial.

I am _____% confident that I can get **800 points** on the next trial.

I am _____% confident that I can get **900 points** on the next trial.

I am _____% confident that I can get **1000 points** on the next trial.

I am _____% confident that I can get **1100 points** on the next trial.

I am _____% confident that I can get **1200 points** on the next trial.

I am _____% confident that I can get **1300 points** on the next trial.

I am _____% confident that I can get **1400 points** on the next trial.

# APPENDIX E

## NEO-PI ITEMS

## (N4, E6, O4, O5, C4, and C5)

NEO-PI-R Form S items

Neuroticism Facet

N4: Self-Consciousness

In dealing with other people, I always dread making a social blunder.
I seldom feel self-conscious when I'm around people. R
At times I have been so ashamed I just wanted to hide.
It doesn't embarrass me too much if people ridicule and tease me. R
I often feel inferior to others.
I feel comfortable in the presence of my bosses or other authorities. R
If I have said or done the wrong thing to someone, I can hardly bear to face them again.
When people I know do foolish things, I get embarrassed for them.

Extraversion Facet

E6: Positive Emotions

I have never literally jumped for joy. R
I have sometimes experience intense joy or ecstasy.
I am not a cheerful optimist. R
Sometimes I bubble with happiness.
I don't consider myself especially "light-hearted." R
I am a cheerful, high-spirited person.
I rarely use words like "fantastic!" or "sensational!" to describe my experiences. R
I laugh easily.

Openness Facets

O4: Actions

I'm pretty set in my ways. R
I think it's interesting to learn and develop new hobbies.
Once I fend the right way to do something, I stick to it. R
I often try new and foreign foods.
I prefer to spend my time in familiar surroundings. R
Sometimes I make changes around the house just to try something different.
On a vacation, I prefer going back to a tried and true spot. R
I follow the same route when I go someplace. R

O5: Ideas

I often enjoy playing with theories or abstract ideas.
I find philosophical arguments boring. R
I enjoy solving problems or puzzles.
I sometimes lose interest when people talk about very abstract, theoretical matters. R
I enjoy working on "mind-twister"-type puzzles.
I have little interest in speculating on the nature of the universe or the human condition. R
I have a lot of intellectual curiosity.

I have a wide range of intellectual interests.

Conscientiousness Facets

C4: Achievement Striving

I am easy-going and lackadaisical. R
I have a clear set of goals and work toward them in an orderly fashion.
When I start a self-improvement program, I usually let it slide after a few days. R
I work hard to accomplish my goals.
I don't feel like I'm driven to get ahead. R
I strive to achieve all I can.
I strive for excellence in everything I do.
I'm something of a 'workaholic."

C5: Self-Discipline

I'm pretty good about pacing myself so as to get things done on time.
I waste a lot of time before settling down to work. R
I am a productive person who always gets the job done.
I have trouble making myself do what I should. R
Once I start a project, I almost always finish it.
When a project gets too difficult, I'm inclined to start a new one. R
There are so many little jobs that need to be done that I sometimes just ignore them all. R
I have a lot of self-discipline.

Table 1

Means, Standard Deviations, and Intercorrelations Among Major Variables of Interest

| Variable | M | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Ability | 27.63 | 4.44 | -- | | | | | | | | | | | | | | |
| 2. Task Ability | 782.90 | 341.54 | .23** | -- | | | | | | | | | | | | | |
| 3. Performance | 810.06 | 371.74 | .18* | .55** | -- | | | | | | | | | | | | |
| 4. Goal 1 | 951.75 | 326.71 | .26** | .78** | .53** | -- | | | | | | | | | | | |
| 5. Goal 2 | 976.43 | 323.09 | .18* | .66** | .77** | .76** | -- | | | | | | | | | | |
| 6. SE 1 | 37.94 | 4.98 | .15 | .47** | .31** | .51** | .43** | (.84) | | | | | | | | | |
| 7. SE 2 | 37.60 | 5.80 | .12 | .44** | .61** | .47** | .58** | .68* | (.87) | | | | | | | | |
| 8. LGO | 32.11 | 3.45 | -.08 | -.07 | -.07 | .03 | .06 | .07 | .05 | (.78) | | | | | | | |
| 9. PGO | 31.83 | 4.11 | .08 | -.04 | .004 | -.04 | -.09 | -.02 | .10 | -.06 | (.78) | | | | | | |
| 10. LGOxPGO | 1020.48 | 168.64 | .02 | -.08 | -.03 | -.02 | -.03 | .02 | .11 | .60** | .76** | -- | | | | | |
| 11. Sit. LGO | 14.61 | 2.58 | -.03 | .13 | .10 | .19* | .19* | .30** | .25** | .38** | .11 | .33** | (.79) | | | | |
| 12. Sit. PGO | 18.10 | 3.19 | .18* | .17* | .25** | .30** | .29** | .40** | .43** | .13 | .26** | .29** | .65** | (.84) | | | |
| 13. Sit. LGOxPGO | 269.09 | 84.46 | .09 | .18* | .20* | .28** | .27** | .40** | .39** | .29** | .23** | .36** | .90** | .90** | -- | | |
| 14. E6 | 29.95 | 4.87 | -.18* | -.01 | .07 | -.15 | -.10 | -.001 | .02 | .08 | .20* | .21** | .19* | .06 | .16* | (.79) | |
| 15. O5 | 29.71 | 4.73 | .07 | .10 | .08 | .21* | .15 | .21* | .24** | .38** | -.14 | .14 | .33** | .27** | .35** | .03 | (.81) |

Note. N = 140-155. Values on the diagonal represent scale reliabilities. Ability = Wonderlic. Task ability = score on trial 3. Performance = score on trial 4. Goal 1 = goal set at time 1 . Goal 2 = goal set at time 2. SE 1 = likert self-efficacy scale (time 1). SE 2 = likert self-efficacy scale (time 2). LGO = dispositional learning goal orientation. PGO = dispositional performance goal orientation. LGOxPGO = interaction term for dispositional learning goal orientation and performance goal orientation. Sit. LGO = situational learning goal orientation. Sit. PGO = situational performance goal orientation. Sit. LGOxPGO = interaction term for situational learning goal orientation and situational performance goal orientation. E6 = positive emotion, extraversion facet of the NEO-PI. O5 = ideas, openness facet of the NEO-PI. * denotes a correlation that is significant at the .05 level. ** denotes a correlation that is significant at the .01 level.

Table 2

Influence of Goals on Performance

Performance:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | 4.275 | .049 | .308 | .308 | 22.07** |
| | Task ability | .555** | .510** | | | |
| | SE 1 | 4.426 | .059 | | | |
| 2 | Goal 1 | .265* | .232* | .327 | .019 | 4.282* |

Note. N = 153 for performance. b = unstandardized regression coefficient. β = standardized regression coefficient. $R^2$ = proportion of variance accounted for by all predictors in the regression equation. $\Delta R^2$ = the incremental variance accounted for by the predictor variables entered at each step. $F_{change}$ = F ratio assessing the significance of the incremental variance accounted for. * denotes a statistics that is significant at the .05 level. ** denotes a statistic that is significant at the .01 level.

Table 3

Influence of Dispositional Learning Goal Orientation (LGO) on Goal Level

Goal 1:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | 5.430 | .071 | .610 | .610 | 116.823** |
| | Task ability | .727** | .761** | | | |
| 2 | LGO | 7.837 | .083 | .617 | .007 | 2.635 |

Goal 2:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | 1.344 | .018 | .439 | .439 | 58.251** |
| | Task ability | .624** | .658** | | | |
| 2 | LGO | 10.332 | .110 | .451 | .012 | 3.246 |

Note. N = 152 for goal 1 and goal 2. b = unstandardized regression coefficient. β = standardized regression coefficient. $R^2$ = proportion of variance accounted for by all predictors in the regression equation. $\Delta R^2$ = the incremental variance accounted for by the predictor variables entered at each step. $F_{change}$ = F ratio assessing the significance of the incremental variance accounted for. * denotes a statistics that is significant at the .05 level. ** denotes a statistic that is significant at the .01 level.

Table 4:

Influence of Dispositional Learning Goal Orientation (LGO) on Self-Efficacy

Self-Efficacy 1:

| Step | Variable(s) entered | B | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | .046 | .042 | .225 | .225 | 21.747** |
| | Task ability | .007** | .463** | | | |
| 2 | LGO | .144 | .100 | .235 | .010 | 1.937 |

Self-Efficacy 2:

| Step | Variable(s) entered | B | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | .017 | .013 | .191 | .191 | 17.315** |
| | Task ability | .007** | .433** | | | |
| 2 | LGO | .124 | .075 | .196 | .006 | 1.009 |

Note. N = 153 for self-efficacy and 150 for self-efficacy 2. b = unstandardized regression coefficient. β = standardized regression coefficient. $R^2$ = proportion of variance accounted for by all predictors in the regression equation. $\Delta R^2$ = the incremental variance accounted for by the predictor variables entered at each step. $F_{change}$ = F ratio assessing the significance of the incremental variance accounted for. * denotes a statistics that is significant at the .05 level. ** denotes a statistic that is significant at the .01 level.

Table 5:

Influence of Situational Learning Goal Orientation (Sit. LGO) on Goal Level

Goal 1:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | 5.473 | .071 | .615 | .615 | 119.583** |
| | Task ability | .728** | .764** | | | |
| 2 | Sit. LGO | 12.898* | .101* | .625 | .010 | 3.945* |

Goal 2:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | 1.298 | .017 | .441 | .441 | 59.241** |
| | Task ability | .622** | .660** | | | |
| 2 | Sit. LGO | 14.512 | .115 | .454 | .013 | 3.515 |

Note. N = 153 for goal 1 and goal 2. b = unstandardized regression coefficient. β = standardized regression coefficient. $R^2$ = proportion of variance accounted for by all predictors in the regression equation. $\Delta R^2$ = the incremental variance accounted for by the predictor variables entered at each step. $F_{change}$ = F ratio assessing the significance of the incremental variance accounted for. * denotes a statistics that is significant at the .05 level. ** denotes a statistic that is significant at the .01 level.

Table 6:

Influence of Situational Learning Goal Orientation (Sit. LGO) on Self-Efficacy

Self-Efficacy 1:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | .046 | .042 | .228 | .228 | 22.287** |
| | Task ability | .007** | .466** | | | |
| 2 | Sit. LGO | .502 | .261** | .294 | .067 | 14.144** |

Self-Efficacy 2:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | .017 | .013 | .194 | .194 | 17.805** |
| | Task ability | .007** | .437** | | | |
| 2 | Sit. LGO | .463** | .207** | .236 | .042 | 8.076** |

Note. N = 154 for self-efficacy and 151 for self-efficacy 2. b = unstandardized regression coefficient. β = standardized regression coefficient. $R^2$ = proportion of variance accounted for by all predictors in the regression equation. $\Delta R^2$ = the incremental variance accounted for by the predictor variables entered at each step. $F_{change}$ = F ratio assessing the significance of the incremental variance accounted for. * denotes a statistics that is significant at the .05 level. ** denotes a statistic that is significant at the .01 level.

Table 7:

Influence of Dispositional Performance Goal Orientation (PGO) on Goal Level

Goal 1:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | 5.480 | .071 | .615 | .615 | 118.759** |
| | Task ability | .728** | .764** | | | |
| 2 | PGO | -1.508 | -.018 | .615 | .000 | .123 |

Goal 2:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | 1.274 | .017 | .441 | .441 | 58.847** |
| | Task ability | .622** | .660** | | | |
| 2 | PGO | -4.971 | -.060 | .445 | .004 | .949 |

Note. N = 152 for goal 1 and goal 2. b = unstandardized regression coefficient. β = standardized regression coefficient. $R^2$ = proportion of variance accounted for by all predictors in the regression equation. $\Delta R^2$ = the incremental variance accounted for by the predictor variables entered at each step. $F_{change}$ = F ratio assessing the significance of the incremental variance accounted for. * denotes a statistics that is significant at the .05 level. ** denotes a statistic that is significant at the .01 level.

Table 8:

Influence of Dispositional Performance Goal Orientation (PGO) on Self-Efficacy

Self-Efficacy 1:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | .048 | .043 | .228 | .228** | 22.122** |
| | Task ability | .007** | .466** | | | |
| 2 | PGO | .045 | .036 | .229 | .001 | .249 |

Self-Efficacy 2:

| Step | Variable(s) entered | B | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | .013 | .010 | .195 | .195 | 17.835** |
| | Task ability | .007** | .439** | | | |
| 2 | PGO | .229* | .158* | .220 | .025 | 4.600* |

Note. N = 153 for self-efficacy and 150 for self-efficacy 2. b = unstandardized regression coefficient. β = standardized regression coefficient. $R^2$ = proportion of variance accounted for by all predictors in the regression equation. $\Delta R^2$ = the incremental variance accounted for by the predictor variables entered at each step. $F_{change}$ = F ratio assessing the significance of the incremental variance accounted for. * denotes a statistics that is significant at the .05 level. ** denotes a statistic that is significant at the .01 level.

Table 9:

Influence of Situational Performance Goal Orientation (Sit. PGO) on Goal Level

Goal 1:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | 5.335 | .070 | .610 | .610 | 115.798** |
| | Task ability | .728** | .762** | | | |
| 2 | Sit. PGO | 16.856** | .165** | .636 | .026 | 10.466** |

Goal 2:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | 1.230 | .016 | .439 | .439 | 57.974** |
| | Task ability | .625** | .659** | | | |
| 2 | Sit. PGO | 18.708** | .185** | .472 | .032 | 9.018** |

Note. N = 151 for goal 1 and goal 2. b = unstandardized regression coefficient. β = standardized regression coefficient. $R^2$ = proportion of variance accounted for by all predictors in the regression equation. $\Delta R^2$ = the incremental variance accounted for by the predictor variables entered at each step. $F_{change}$ = F ratio assessing the significance of the incremental variance accounted for. * denotes a statistics that is significant at the .05 level. ** denotes a statistic that is significant at the .01 level.

Table 10:

Influence of Situational Performance Goal Orientation (Sit. PGO) on Self-Efficacy

Self-Efficacy 1:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | .038 | .035 | .231 | .231 | 22.370** |
| | Task ability | .007** | .472** | | | |
| 2 | Sit. PGO | .523 | .339** | .340 | .109 | 24.422** |

Self-Efficacy 2:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | .011 | .008 | .193 | .193 | 17.509** |
| | Task ability | .007** | .438** | | | |
| 2 | Sit. PGO | .673** | .374** | .326 | .133 | 28.559** |

Note. N = 152 for self-efficacy and 149 for self-efficacy 2. b = unstandardized regression coefficient. β = standardized regression coefficient. $R^2$ = proportion of variance accounted for by all predictors in the regression equation. $\Delta R^2$ = the incremental variance accounted for by the predictor variables entered at each step. $F_{change}$ = F ratio assessing the significance of the incremental variance accounted for. * denotes a statistics that is significant at the .05 level. ** denotes a statistic that is significant at the .01 level.

Table 11:

Mediating Effects of Self-Efficacy (SE) on the Relationship Between Situational Learning Goal Orientation (Sit. LGO) and Goal Level

Goal 1:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | 5.473 | .071 | .615 | .615 | 119.583** |
| | Task ability | .728** | .764** | | | |
| 2 | Sit. LGO | 12.898* | .101* | .625 | .010 | 3.945* |
| 3 | Sit. LGO | 7.556 | .059 | .641 | .017 | 6.954** |
| | SE 1 | 10.251** | .155** | | | |

Goal 2:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | 1.920 | .025 | .447 | .447 | 59.340** |
| | Task ability | .629** | .661** | | | |
| 2 | Sit. LGO | 14.976 | .119 | .460 | .014 | 3.722 |
| 3 | Sit. LGO | 6.244 | .050 | .547 | .087 | 27.783** |
| | SE 2 | 18.922** | .337** | | | |

Note. N = 153 for goal 1, 150 for goal 2. b = unstandardized regression coefficient. β = standardized regression coefficient. $R^2$ = proportion of variance accounted for by all predictors in the regression equation. $\Delta R^2$ = the incremental variance accounted for by the predictor variables entered at each step. $F_{change}$ = F ratio assessing the significance of the incremental variance accounted for. * denotes a statistics that is significant at the .05 level. ** denotes a statistic that is significant at the .01 level.

Table 12:

Mediating Effects of Self-Efficacy (SE) on the Relationship Between Situational Performance Goal Orientation (Sit. PGO) and Goal Level

Goal 1:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | 5.335 | .070 | .610 | .610 | 115.798** |
| | Task ability | .728** | .762** | | | |
| 2 | Sit. PGO | 16.856** | .165** | .636 | .026 | 10.466** |
| 3 | Sit. PGO | 12.576* | .123* | .646 | .010 | 4.175* |
| | SE 1 | 8.188* | .124* | | | |

Goal 2:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | 1.853 | .024 | .445 | .445 | 58.079** |
| | Task ability | .632** | .660** | | | |
| 2 | Sit. PGO | 17.894** | .177** | .474 | .030 | 8.137** |
| 3 | Sit. PGO | 5.585 | .055 | .546 | .071 | 22.365** |
| | SE 2 | 18.272** | .325** | | | |

Note. N = 151 for goal 1 and 148 for goal 2. b = unstandardized regression coefficient. β = standardized regression coefficient. $R^2$ = proportion of variance accounted for by all predictors in the regression equation. $\Delta R^2$ = the incremental variance accounted for by the predictor variables entered at each step. $F_{change}$ = F ratio assessing the significance of the incremental variance accounted for. * denotes a statistics that is significant at the .05 level. ** denotes a statistic that is significant at the .01 level.

Table 13:

Moderating Effects of Dispositional Learning Goal Orientation (LGO) on the Dispositional Performance Goal Orientation/Goal Level Relationship

Goal 1:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | 5.437 | .071 | .610 | .610 | 115.633** |
| | Task ability | .727** | .761** | | | |
| 2 | LGO | 7.968 | .083 | .617 | .007 | 1.375 |
| | PGO | -1.307 | -.016 | | | |
| 3 | LGOxPGO | .696 | .350 | .618 | .001 | .384 |

Goal 2:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | 1.320 | .017 | .439 | .439 | 57.862** |
| | Task ability | .624** | .658** | | | |
| 2 | LGO | 10.489 | .110 | .454 | .016 | 2.080 |
| | PGO | -4.553 | -.055 | | | |
| 3 | LGOxPGO | .532 | .270 | .455 | .001 | .160 |

Note. N = 151 for goal 1 and goal 2. b = unstandardized regression coefficient. β = standardized regression coefficient. $R^2$ = proportion of variance accounted for by all predictors in the regression equation. $\Delta R^2$ = the incremental variance accounted for by the predictor variables entered at each step. $F_{change}$ = F ratio assessing the significance of the incremental variance accounted for. * denotes a statistics that is significant at the .05 level. ** denotes a statistic that is significant at the .01 level.

Table 14:

Influence of an Interaction Between Situational Learning Goal Orientation (Sit. LGO) and Situational Performance Goal Orientation on (Sit. PGO) Goal Level

Goal 1:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | 5.335 | .070 | .610 | .610 | 115.798** |
| | Task ability | .728** | .762** | | | |
| 2 | Sit. LGO | -.650 | -.005 | .636 | .026 | 5.201* |
| | Sit. PGO | 17.204* | .169* | | | |
| 3 | Sit. LGOxPGO | -.729 | -.188 | .637 | .001 | .390 |

Goal 2:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | 1.230 | .016 | .439 | .439 | 57.974** |
| | Task ability | .625** | .659** | | | |
| 2 | Sit. LGO | -1.126 | -.009 | .472 | .032 | 4.485* |
| | Sit. PGO | 19.311* | .191* | | | |
| 3 | Sit. LGOxPGO | -.973 | -.253 | .474 | .002 | .486 |

Note. N = 151 for goal 1 and goal 2. b = unstandardized regression coefficient. β = standardized regression coefficient. $R^2$ = proportion of variance accounted for by all predictors in the regression equation. $\Delta R^2$ = the incremental variance accounted for by the predictor variables entered at each step. $F_{change}$ = F ratio assessing the significance of the incremental variance accounted for. * denotes a statistics that is significant at the .05 level. ** denotes a statistic that is significant at the .01 level.

Table 15:

Influence of Situational Learning Goal Orientation (Sit. LGO) and Performance Goal Orientation (Sit. PGO) Over and Above Supplemental Personality Measures

Goal 1:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | 3.207 | .041 | .642 | .642 | 119.194** |
| | Task ability | .758** | .789** | | | |
| 2 | Positive emotions | -9.296* | -.125* | .673 | .031 | 6.242** |
| | Ideas | 9.424** | .134** | | | |
| 3 | Sit. LGO | 9.077 | .072 | .677 | .004 | 1.716 |

Goal 1:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | 3.103 | .039 | .642 | .642 | 119.194** |
| | Task ability | .759** | .790** | | | |
| 2 | Positive emotions | -9.327* | -.126* | .673 | .031 | 6.232** |
| | Ideas | 9.434** | .134** | | | |
| 3 | Sit. PGO | 14.163* | .137* | .689 | .016 | 6.789* |

Note. N = 137 for goal 1 (LGO) and 136 for goal 1 (PGO). b = unstandardized regression coefficient. β = standardized regression coefficient. $R^2$ = proportion of variance accounted for by all predictors in the regression equation. $\Delta R^2$ = the incremental variance accounted for by the predictor variables entered at each step. $F_{change}$ = F ratio assessing the significance of the incremental variance accounted for. * denotes a statistics that is significant at the .05 level. ** denotes a statistic that is significant at the .01 level.

Table 16:

Influence of Situational Learning Goal Orientation (Sit. LGO) and Performance Goal Orientation (Sit. PGO) Over and Above Supplemental Personality Measures

Self-Efficacy 2:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | .001 | .001 | .200 | .200 | 16.576** |
| | Task ability | .008** | .446** | | | |
| 2 | Ideas | .217* | .173* | .229 | .029 | 5.022* |
| 3 | Sit. LGO | .418* | .189* | .260 | .031 | 5.438* |

Self-Efficacy 2:

| Step | Variable(s) entered | b | β | $R^2$ | $\Delta R^2$ | $F_{change}$ |
|---|---|---|---|---|---|---|
| 1 | Ability | -.005 | -.004 | .203 | .203 | 16.774** |
| | Task ability | .008** | .451** | | | |
| 2 | Ideas | .217* | .173* | .232 | .029 | 5.021* |
| 3 | Sit. PGO | .585** | .329** | .326 | .094 | 18.179** |

Note. N = 136 for self-efficacy 2 (LGO) and 135 for self-efficacy 2 (PGO). b = unstandardized regression coefficient. β = standardized regression coefficient. $R^2$ = proportion of variance accounted for by all predictors in the regression equation. $\Delta R^2$ = the incremental variance accounted for by the predictor variables entered at each step. $F_{change}$ = F ratio assessing the significance of the incremental variance accounted for. * denotes a statistics that is significant at the .05 level. ** denotes a statistic that is significant at the .01 level.

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**EDUCATION**

May 2001 — **M.S., INDUSTRIAL / ORGANIZATIONAL PSYCHOLOGY**
Virginia Tech, Blacksburg, Virginia
*Thesis:* Learning and Performance Goal Orientations' Influence on the Goal Setting Process: Is there an Interaction Effect?
3.79 QCA

August 1998 — **B.S., PSYCHOLOGY, Magna Cum Laude, Phi Beta Kappa**
Virginia Tech, Blacksburg, Virginia
3.66 overall QCA, 3.84 in-major QCA

**PROFESSIONAL EXPERIENCE**

Jan 2001 - Present — *Instructor*, Department of Psychology, Virginia Tech, Blacksburg, Virginia
Responsible for all facets of teaching labs in motivational psychology, including lecture preparation and grading assignments.

Aug 2000 - Dec 2000 — *Research Assistant*, Center for Organizational Research (COR), Department of Psychology, Virginia Tech, Blacksburg, Virginia
Assisted with the execution of an exit interview program in order to determine causes of turnover for a large retail organization.

Aug 2000 - Dec 2000 — *Graduate Teaching Assistant*, Department of Psychology, Virginia Tech, Blacksburg, Virginia
Assisted professor in the administration of class and the grading of assignments and tests for two social psychology classes.

Aug 1998 - Dec 1999 — *Recitation Instructor*, Department of Psychology, Virginia Tech, Blacksburg, Virginia
Responsible for all elements of teaching three introductory to psychology recitations, including lecture preparation and grading of tests and essays.

Aug 1996 - May 1998 — *Undergraduate Research Assistant*, Dr. E. Scott Geller, Virginia Tech, Blacksburg, Virginia
Assisted with data collection, entry, and analysis for a grant from the National Institutes for Alcohol Abuse and Alcoholism and the National Institutes for Health. Evaluated community-based interventions to increase safety belt and designated driver use.

**TECHNICAL REPORTS**

McBride, N.L., Hauenstein, N.M., Swartz, D.E., Bess, T.L., Lemmond, G., Breland, B.T., Hollander, E., Robson, V.E., & O'Shea, P.G. (2001). Report on Exit Surveys of Distribution Employees of Advance Auto Parts.

Hauenstein, N.M., McBride, N.L., Swartz, D.E., Bess, T.L. Lemmond, G., Breland, B.T., Hollander, E., Robson, V.E., & O'Shea, P.G. (2000). Report on Exit Surveys of Retail Employees of Advance Auto Parts**.**

**CONFERENCE PRESENTATIONS**

Wiegand, D.M., Williams, J.H., Lee, D.F., & Breland, B.T. (May, 1998). Increasing Safe Behaviors in an Industrial Setting: Global versus Specific Feedback. Paper presented at the 24th Annual Convention of the Association for Behavior Analysis, Orlando, Florida.

Breland, B.T., & DePasquale, J.D. ( April, 1997). Behavior-based safety: Is industry getting the message? Poster presented at the 17th Annual Convention of the Florida Association for Behavior Analysis, Sarasota, Florida.

**HONORS**

Phi Beta Kappa Society, Psi Chi – National Honor Society in Psychology, Golden Key National Honor Society, Who's Who Among Students in American Universities and Colleges, Best Poster: 17th Annual Meeting of the Florida Association for Behavior Analysis

**PROFESSIONAL AFFILIATIONS**

Society for Industrial and Organizational Psychology (Student Member), American Psychological Association (Student Affiliate)

**RELATED COURSES**

Quantitative Topics in Applied Psychology, Multiple Regression, Applied Structural Equation Modeling, Psychometric Theory, Psychological Measurement, Statistics in Research, Seminar in Tests and Measurements, Research Methods, Industrial Psychology, Organizational Psychology, Social Psychology, and Personality Processes

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SPSS, SAS, BILOG (application of Item Response Theory), Word, Excel, and PowerPoint