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REACTIONS TO NEGATIVE FEEDBACK: THE INFLUENCE OF GOAL ORIENTATION, SELF-EFFICACY, AND PUBLIC OR PRIVATE FEEDBACK DELIVERY ON TASK CHOICE AND CHANGES IN SELF-EFFICACY

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REACTIONS TO NEGATIVE FEEDBACK: THE INFLUENCE OF GOAL ORIENTATION, SELF-EFFICACY, AND PUBLIC OR PRIVATE FEEDBACK DELIVERY ON TASK CHOICE AND CHANGES IN SELF-EFFICACY

By

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ABSTRACT

REACTIONS TO NEGATIVE FEEDBACK: THE INFLUENCE OF GOAL ORIENTATION, SELF-EFFICACY, AND PUBLIC OR PRIVATE FEEDBACK DELIVERY ON TASK CHOICE AND CHANGES IN SELF-EFFICACY

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How and why people react to negative feedback is this study's focus. More specifically, this study examined the influences of situational conditions (task instructions and public or private feedback delivery) with personal characteristics (self-efficacy) on reactions to negative performance feedback. The reactions investigated were (a) the desire to choose more challenging tasks and (b) changes in self-efficacy.

Hierarchical regression and multiple planned-comparison tests were the primary data-analytic tool. Numerous significant direct and interaction effects on task choice were found. The hypothesized influences on changes in self-efficacy, however, were not significant.

To Rebecca, Samuel, Kestell, and Olivia. In my life, you are all new and all loved.

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Thanks.

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INTRODUCTION

Adversity reveals genius, prosperity conceals it. Horace

Only those who dare to fail greatly can ever achieve greatly. Anonymous

You cannot fail at anything. Everything you do produces a result. It is what you do with the results that counts. Wayne Dyer (1995, p. 96)

From ancient Roman poets to today's self-help gurus, themes of failure and the individual's reaction to it are catalysts for much reflection and writing. The consequences of this failure may be felt by many of those dependent on the person's performance but, most directly, they are felt by the person him- or herself. Typically, the performer learns of failure, or any level of past performance, through some form of performance feedback. How and why the person reacts to negative feedback is the subject of this dissertation. This study will examine the influences of situational conditions (task instructions and public or private feedback delivery) and personal characteristics (self-efficacy) on peoples' reactions to negative performance feedback. The reactions to negative feedback investigated are the desire to choose challenging future tasks and the resilience (or resistance to change) of the individual's self-efficacy.

Performance feedback can be viewed as an example of the general communication process (Ilgen, Fisher, & Taylor, 1979). More specifically, it can be defined as information given to individuals about the quantity, quality, or adequacy of their past performance (Ilgen, et al., 1979; Fairbank & Prue, 1982). Directly descending from this definition, within my study, negative feedback is

viewed as information communicating low levels of performance quantity, quality, or adequacy about an individual's past performance.

Poor performance occurs across the spectrum of peoples' experience, from those of a novice to the later experiences of the seasoned expert. However, the early stages of learning a new skill, whether coming into a new job or acquiring new skills within an existing job, are times when poor performance is most likely. Since feedback is a major managerial intervention for improving performance (Larson, 1984), receiving negative feedback about one's performance during these early phases of acquiring new skills is to be expected. Newcomers, or persons learning a new task, need to be able to cope with negative feedback resulting from their poor performance. Indeed, all individuals, regardless of the newness of the task, need to contend with negative feedback.

Messages in both the popular (Carlson, 1987; Covey, 1991; Peters & Austin, 1985; Peters & Waterman, 1982; Senge, 1990) and academic literatures (Bandura, 1989; Garvin, 1993; Sitkin, 1992) note failure as a natural part of employees' learning process and a frequently valuable outcome of necessary organizational risks. Highlighting this point, Peters (1987, p. 259) states "There's little that is more important to tomorrow's managers than failure. We need more of it."

Peters' "failure" and subsequent negative feedback, however, create two dilemmas. First, the individual's failure may be very costly from the organization's point of view. These costs could be in terms of lost time, low quality products, and dissatisfied customers. Organizations are often intolerant

of these outcomes. Anticipating this potential intolerance, employees often pursue risk-avoidant behavior, frequently sacrificing new challenges and potential learning opportunities.

The second dilemma is that if one assumes the primary goal of feedback indicating poor performance is to lead to better outcomes in the future, the widely divergent reactions to negative feedback are problematic. Some do well after receiving negative feedback, others do poorly. For certain individuals, negative feedback can precede the adaptive responses of greater effort (Carver & Scheier, 1981), improved performance (Podsakoff & Farh, 1989), higher quality problem-solving strategies (Elliott & Dweck, 1988), greater strategy processing (Wofford & Goodwin, 1990), higher self-set goals (Podsakoff & Farh, 1989), task persistence (Sandelands, Brockner, & Glynn, 1988), pursuit of challenging tasks (Elliott & Dweck, 1988), and other positive responses (see Nicholls, 1984). For others, however, receiving feedback indicating poor performance can have a harmful effect on a wide-ranging array of responses (see Bandura, 1986; Brockner, 1988; Dweck, 1989) such as failing to accept the feedback (Ilgen, et al., 1979), lower self-efficacy and self-set goals (Baron, 1988), avoidance of challenging tasks (Elliott & Dweck, 1988), increased self-criticism (Karoly & Decker, 1979), decreased task persistence (Shrauger & Sorman, 1977), and impaired performance (Bandura & Jourden, 1991; Feather, 1966; Shrauger & Rosenberg, 1970).

One of the reasons that negative feedback may result in divergent responses is that merely receiving negative feedback does not mean that people

realize what behaviors need to change. Additionally, they may not be motivated to improve performance. In the former case, if a behavior is known to be unacceptable (after receiving negative feedback), the necessity to change may be understood but the replacing actions may be unknown. The person may drop the inappropriate past behaviors but take up equally ineffective—or even less effective—behaviors in the future.

With respect to motivation, the receipt of negative feedback may induce attempts to withdraw from the performance situation in some manner (Carver & Scheier, 1981; Kluger & DeNisi, 1996). Thus, in contrast to positive feedback—which is frequently perceived as promoting continuation of past behaviors (Thorndike, 1927), negative feedback often invokes a discontinuation of past behaviors with a wide range of possible replacement behaviors; some good, some bad. Since it is unclear which of these two opposing directions will emerge when negative feedback is received, clarity on this issue would be valuable (Silver, Mitchell, & Gist, 1995). The present study will primarily focus on reactions to negative feedback since it is this type of feedback for which the nature of the response is less certain.

Consequences of Negative Feedback

Although a large number of responses to negative feedback have been investigated, this research study will examine reactions falling into two categories; choice of future tasks and changes in self-efficacy. First, although performance feedback occurs in response to past behaviors, much interest in the nature of reactions to the feedback is directed toward the future. Though

much effort has been put into scrutinizing immediate behavior following receipt of the feedback, my interest is in what that feedback implies about behavior at some time in the future. There are certainly some jobs for which task demands are largely unchanging and static (e.g., a factory worker on a production line of a long-term product). Conversely, there are many jobs with multiple duties and, to varying degrees, latitude for choice on future courses of action. These future courses may be viewed as either less, equally, or more challenging compared to previous efforts and assignments.

Since performance feedback is a widely used employee-improvement intervention and some level of lower performance—at least occasionally—is common in work projects, a reaction by the individual receiving negative feedback to avoid future challenging assignments and other opportunities to advance his or her skills creates a potential loss for both the employee and the organization. This avoidance is particularly detrimental since recent technological changes and greater productivity demands are driving forces behind an increasing emphasis for on-going continuous learning within the work force (Kozlowski & Farr, 1988). Thus, aside from impacting immediate behaviors, performance feedback can also influence choices of future tasks made by the individual that can have long-term impact. Bandura (1989) views task choice as an important influence on a person's future development since the chosen tasks and environment made at one point in time "continue to promote certain competencies, values, and interests long after the decisional determinant has rendered its inaugurating effect. Thus, seemingly inconsequential determinants

can initiate selective associations that produce major and enduring personal changes."

In addition to the previous behavioral category, the second significant category of reactions to negative feedback within this research addresses the person's view of him- or herself. Self-esteem, self-efficacy, and a number of other self-concept constructs have appeared in the literature. These constructs share the notion that peoples' beliefs about their own competency and worth affect their attitudes and behaviors in performance settings. Shared among these constructs is the idea that the self-concept is shaped by some relatively permanent view of self as well as a more temporary, situationally-specific influence largely affected by very recent performance experiences on the task in question. The various self-concept constructs differ significantly in the role that general or specific influences have on their stability over time and over performance situations. Nevertheless, these differences should not detract from the fact that all see the performance-focused self-concept affecting and being affected by many important behaviors and beliefs at work.

The present research will focus on self-efficacy as the self-concept of interest. Self-efficacy is defined as the perception that one has the capacity to perform well on a particular task (Bandura, 1977). It is a dynamic construct, capable of changing over time with the addition of new information and experiences (Gist & Mitchell, 1992). Self-efficacy is this study's self-concept focus since it is largely dependent on experience with the task (Bandura, 1977; Silver, Mitchell, & Gist, 1995). More specifically, this construct is chosen since

performance feedback—a primary issue within this study—provides a primary source of information on which individuals either base their self-efficacy at a certain point in time or cause self-efficacy to change over a period of time (Gist & Mitchell, 1992). My research will examine the influence that performance feedback—given certain circumstances—has on self-efficacy.

A primary reason for my interest in the self-efficacy construct is that much recent research has shown its important role as an independent variable affecting various aspects of task motivation and subsequent performance (see Bandura, 1989). For example, self-efficacy has been shown to consistently influence diverse topics such as coping with difficult career-related tasks (Stumpf, Brief, & Hartman, 1987), goal level and goal commitment (Locke, Frederick, Lee, & Bobko, 1984), work-related performance (Taylor, Locke, Lee, & Gist, 1984), and adaptivity to new technology (Hill, Smith, & Mann, 1987). Additionally, Bandura (1989; 1994) notes its influential role in individuals' selection of future activities and environments, a primary topic within my research.

Self-efficacy's role—as both influencing behavior as well as being influenced by various factors such as performance feedback—causes it to be particularly relevant in negative-feedback situations. In its influencing role within this research, self-efficacy is expected to affect choices of future tasks as negative feedback is received. Additionally, the level of self-efficacy as well as its resilience, or resistance to change, are anticipated to be influenced by the negative performance feedback. Indeed, Gist and Mitchell (1992) recently voiced

the need for research on characteristics of feedback that may influence changes in self-efficacy, specifically the influence of negative feedback.

It may be easy to assume that people perform tasks to do well on them and that the goal of good performance is nearly universal. Certainly, good performance is central, yet recent work, primarily in the educational literature, suggests that performance tasks involve two general types of objectives. One is the traditional objective: performing tasks in order to demonstrate competence via high performance. The other objective is toward learning the task for future improvement. When learning is the focus, high performance on the outcomes may still be of interest but not as important as learning and progress over time.

An example of the contrast between the two purposes could be that of a golfer playing a round of golf under conditions where top priority was given to either (a) the adequacy of the final score, or (b) gaining consistency and comfort with an improved grip, stance, or swing. In the latter case, the final score may not be unimportant, but it is more likely to be viewed as a progress check compared to past scores (or as a standard for future scores). The final score is seen in the context of what is learned rather than the only outcome of interest.

In the literature, these two different approaches to tasks are commonly labeled either "performance-goal orientation" or "learning-goal orientation" (Dweck, 1986). These two motivations for pursuing the activity are briefly described below with greater elaboration in later sections.

Goal Orientation

Under a performance-goal orientation, the focus is on how well or poorly

the person perceives he or she has done or is doing on the task (Dweck & Elliott, 1983). There is little concern for other issues aside from whether the person can *demonstrate* high ability and *appear* competent—often in relation to others. Performance goals lead people to frequently place a greater emphasis on evaluating and documenting their competence, gaining favorable judgments (Dweck, 1989), and performing better than their peers (Jagacinski, 1992).

In contrast to performance goals, those with a learning-goal orientation emphasize development, seeking improvement and progress over time—not an immediate demonstration of competence. The priority is with learning, desiring to develop skills, and striving to master the task (Butler, 1987; Dweck, 1986).

Related to my proposed research, a key finding within the goal orientation literature is that feedback indicating poor performance is consistently interpreted very differently by someone with a performance-goal orientation versus a learning-goal orientation (Ames, 1992; Dweck, 1986). These differing interpretations and subsequent reactions are particularly pronounced with the additional consideration of self-efficacy.

Self-efficacy and Goal Orientation. Understanding the contrasting orientations' differing interpretations of negative feedback—and subsequent responses—is greatly aided by consideration of the individual's level of self-efficacy (see Dweck, 1989). There is much empirical evidence that shows low self-efficacy has greater detrimental effects on individuals performing under a performance-goal orientation than those with a learning-goal orientation (see Ames, 1992). This evidence suggests that low self-efficacy for future

performance is highly threatening to people with a performance goal due to their overarching desire to demonstrate competence. Individuals having learning goals, however, are proposed to have less vulnerability to the perceptions of low self-efficacy since, under this orientation, development and improvement are the reasons for performance, not the need to appear competent on the immediate task. Thus, low self-efficacy would be less harmful.

Various investigations and reviews have found support for these propositions (e.g., Dweck, 1989; Elliott & Dweck, 1988; Nicholls, 1984; Nicholls, et al., 1989). The current study uses the goal orientation literature as the foundation to explore individuals' differing responses to negative feedback and will also directly manipulate and examine self-efficacy since, from a goal-orientation perspective, it is influential in responses to negative feedback.

If differing goal orientations affect responses to negative feedback, identifying the origin of these orientations is important in any attempt to better understand and minimize detrimental effects. Various sources which may create the differing goal orientations are outlined next.

Sources of Goal Orientation. Achievement settings and tasks are those that involve issues of competence (Dweck, 1989) in which focus is given to an individual's performance (Sansone, 1986). Approaching achievement tasks with either a learning-goal or performance-goal orientation is believed to be influenced by one of two sets of variables. One set is the task performer's own predispositions. Alternatively, various characteristics of the situation and task can lead to differing goal orientations (Dweck, 1989; Nicholls, 1984). Whereas

my research focuses on the situational influences of goal orientation, both sources of the differing goal orientations are briefly discussed below with greater elaboration occurring in future sections of this dissertation.

Empirical support shows that an individual's dispositional preferences can be the catalyst for the choice of goal orientation in achievement tasks (Diener & Dweck, 1980; Nicholls, Patashnick, & Nolen, 1985). In fact, early efforts in the topic area of goal orientation's relationship to negative feedback viewed it singularly as a steady, dispositional trait (see Diener & Dweck, 1978; 1980). This early research used questionnaires to identify consistent tendencies by the individuals to view task settings and outcomes as highly evaluative, requiring stable and innate ability (performance-goal oriented) or as events in which the outcomes can be changed and improved with differing levels of effort (learning-goal oriented). These differing methods of assessing dispositional tendencies will be further clarified in a later section.

Attributes of the task shown to influence an individual's choice of goal orientation include the reward structure, task instructions, as well as characteristics of the feedback (Ames, 1992; Butler, 1993; Dweck, 1989; Nicholls, 1984). Briefly, competitive reward structures create a focus on a win/lose evaluation of one's performance. In competition, success and receiving rewards are based on comparisons with others. Thus, evaluation is contingent on others' performance (Ames, 1992). This competitive reward system can directly elicit a performance-goal orientation since the appearance and demonstration of high ability is paramount and is best done by beating the

competition. In contrast, rewards based on individual improvement, or just participation, diminish the need to focus on others' performance. This improvement/participation reward structure is more likely to promote reactions associated with learning goals (Ames, 1984).

Aside from reward structures, task instructions can also create a similar focus on one goal orientation over the other within achievement settings. Instructions highlighting the evaluative nature of task involvement can promote a performance-goal orientation. Alternatively, directions depicting the purpose for the activity as gaining and developing knowledge or skills frame the task setting consistent with a learning goal (Elliott & Dweck, 1988; Graham & Golan, 1991; Nicholls, 1984).

Regarding feedback's influence on goal orientation, Butler (1987; 1988) found evaluative feedback highlighting comparative standing elicited behaviors and other responses consistent with performance goals. Non-comparative, less evaluative feedback, however, was more likely to result in reactions consonant with learning goals.

Task instructions, reward systems, and feedback characteristics influence the adoption and salience of differing goal orientations. These three issues can be viewed as ways in which an underlying construct of stress and pressure for high performance can be either manifested or minimized within the achievement setting. If the pressure is toward immediate high performance and evaluation, the situation promotes a performance-goal orientation and downplays one of

learning. Pressure for high performance may arise under either a learning- or performance-goal orientation but is more likely in the latter.

Receiving feedback indicating poor performance can be stressful to some individuals and add pressure for higher future performance within their work setting. This negative feedback must be delivered to people in some manner, and the way that it is delivered may affect the amount of pressure felt.

Feedback Delivery

The present research, with its focus on negative feedback, will examine two types of feedback delivery anticipated to differ in the amount of pressure put upon the performer; private and public feedback. The distinction between the two modes of delivery is that the public feedback becomes known to others in the organization whereas private feedback does not (Balcazar, Hopkins, & Suarez, 1986). Level of privacy is a feedback characteristic previous authors have viewed influential in subsequent behaviors (Northcraft & Ashford, 1990; Balcazar, et al., 1986; Fairbank & Prue, 1982; Nordstrom, Lorenzi, & Hall, 1991).

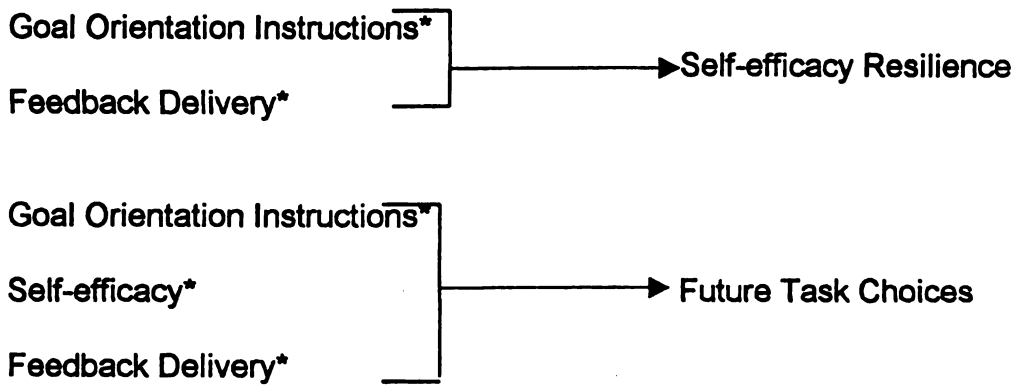
The expectation that the performance feedback will become publicly known, thus able to be compared to other's performance, could induce pressure for the feedback recipient. This pressure may be particularly highlighted if he or she is doing poorly and/or anticipating poor future performance (e.g., low self-efficacy). The threatening nature of the expectation of this low performance becoming public could potentially elicit many of the negative, maladaptive responses associated with a performance-goal orientation (Ames, 1992).

Past reviews on the effects of publicly-posted feedback interventions have led to ambiguous conclusions that may be aided in clarification by goal-orientation issues. For example, a recent review of public posting of performance feedback in the work setting (Nordstrom, Lorenzi, & Hall, 1991) concluded with what I assert to be an overly simplistic and generalized affirmation that the public-posting feedback intervention is a useful motivator in the work setting. This conclusion is congruent (albeit moderately) with the review of *group-level* posting of performance feedback in which individuals' levels of performance are aggregated. This aggregation minimizes individual accountability. Critical analysis of the conclusion that public posting is effective (which I outline in later sections), however, reveals that many of the studies cited which looked at posting of *individual-level performance* showed inconclusive results. In this thesis, I assert that the unaccounted variables of the individual's salient goal orientation and level of self-efficacy can be helpful in explaining these mixed findings at the individual level. This study will closely examine this issue.

Contributions

Feedback is a commonly employed intervention to improve performance. Greater clarity is needed on why responses to negative feedback vary across situations and people. The present study contributes to enhanced understanding of how specified task characteristics, feedback features, and self-efficacy influence reactions to negative feedback. Specifically, this research will focus on (a) the task instructions directing individuals to differing goal orientations, (b) the privacy level of performance feedback, and (c) the level of the person's self-

efficacy that may influence one critical choice and one critical belief of individuals in achievement settings. The critical choice is an individual's selection of more (or less) challenging future tasks. The critical belief is the resilience, or resistance to change, of an individual's self-efficacy. Figure 1 depicts the expected influences on these two critical issues and may assist with understanding the proposed research and the following literature reviews, hypotheses, and methods sections.



* Both direct and interaction effects

FIGURE 1. Anticipated Influences on Self-efficacy Resilience and Task Choice

In addition to clarity on the influence of the managerial interventions of (a) type of task instructions (emphasizing performance or learning) and (b) feedback-delivery intervention (public or private), this study has four additional objectives. First, this research extends the goal orientation literature beyond children and into an adult population. The vast majority of the inquiry done in the area of goal orientation has focused on children in the educational setting (Butler, 1992; Button, Mathieu, & Zajac, 1996; Farr, Hofmann, & Ringenbach, 1993). There has, however, been recent recognition of the topic's potential value

with adults in a variety of organizational spheres of study (Bobko & Colella, 1994; Colquitt & Simmering, 1998; Farr, Hofmann, & Ringenbach, 1993; Kanfer, 1990; Phillips & Gully, 1997; Sujan, Weitz, & Kumar, 1994; VandeWalle & Cummings, 1997).

Second, this research will attempt to clarify findings from past research on publicly-posted feedback. Results may distinguish among settings and individuals that could benefit from the potentially motivating public posting of performance feedback and those that may not benefit.

Third, in spite of the widespread acceptance of the importance of self-efficacy and the fact that it is affected by performance feedback, little is known about how it changes over time as a function of feedback generally and negative feedback specifically (Gist & Mitchell, 1992). This research investigates conditions that may cause some individuals greater vulnerability to the detrimental influence of negative feedback than others. This vulnerability would show if certain individuals, very soon after receipt of the negative feedback, experience diminished self-efficacy while others, receiving the identical negative feedback, are more resilient and able to maintain higher levels of self-efficacy over a longer time period. Thus, resilience of individuals' self-efficacy in response to negative feedback is examined.

Finally, greater clarity is important on situational conditions that can influence workers' task choices and decisions to undertake challenging, though possibly ego-threatening, assignments. This is valuable clarification, especially in organizations and professions where continuous professional development is

becoming increasingly necessary. Decision-makers within these organizations need to make efforts to create an environment encouraging employees' professional development (Rosow & Zager, 1988; Senge, 1990). Kozlowski and Farr (1988, p. 6) state that "there has been little systematic, theoretically based research" on factors influencing individuals' choices for developmental activities. My research uses Dweck and associates' (1986; 1989; Dweck & Elliott, 1983; Dweck & Leggett, 1988; Elliott & Dweck, 1988) goal orientation as a theoretical foundation providing clarity on the choices individuals make regarding their future developmental task choices.

My research seeks to highlight theory-based characteristics of the task and/or feedback—largely under the organization's control—that influence employees' future choices to undertake developmental tasks even though these tasks involve greater risk for poor performance. To the extent that there is enhanced understanding of the task context's influence on individuals, there can be greater success in advancing the acquisition of adaptive responses to negative feedback such as greater maintenance of self-efficacy and task choices congruent with growing demands for continuous learning in the work setting.

Before giving specific hypotheses within this research, I will first provide an overview of the literature on performance feedback. The purpose of the discussion of general feedback issues is not to provide an exhaustive review of these large volumes of research, but to more selectively target the domains as they predict and affect responses to negative feedback. Next, the impact and relevance of the research and foundation of the goal-orientation literature will be

highlighted. Emphasis will be given to its usefulness in clarifying reactions to performance feedback and, more specifically, negative feedback. In this review section, the important role of the individual's self-efficacy in relation to the predominant goal orientation will be articulated. In addition, past research on self-efficacy and task choice will be selectively highlighted.

Finally, hypotheses are advanced to examine the impact of—and anticipated relationships between—negative feedback, goal-orientation instructions, self-efficacy, and the public or private nature of the feedback on individuals' choices for future tasks and resilience of self-efficacy.

Performance Feedback

Performance feedback has long been perceived as a valuable ingredient in assisting future performance by motivating individuals as well as directing them toward improved performance strategies (Ammons, 1956; Kopelman, 1982; Vroom, 1964). The provision of feedback is one of the most frequently adopted interventions for shaping employee behavior (Larson, 1984). Feedback's enduring image is typified by assertions such as "... the positive effect of feedback interventions on performance has become one of the most accepted principles in psychology" (Pritchard, Jones, Roth, Stuebing, & Ekeberg, 1988; p. 338).

Though performance feedback may be perceived as valuable, agreement on its effectiveness is far from universal (Balcazar, Hopkins, & Suarez, 1986; Kluger & DeNisi, 1996; Ilgen, et al., 1979; Locke & Latham, 1990; Salmoni, Schmidt, & Walter, 1984). In their 1979 article, Ilgen, et al. stated that despite

decades of research on the topic "... generalizations about the effects of feedback on individuals are few" (p. 349).

Compared to research prior to the early 1980s, recent meta-analyses are much less likely to assert that feedback plays an important role in affecting performance. In a meta-analysis of theories containing expectancies, feedback was a weak contributor to performance (r = .07; Harris & Rosenthal, 1985). This study found other variables (e.g., climate, r = .41) to be more important. Examining the Job Characteristics Model, a meta-analysis by Fried & Ferris (1987) indicated knowledge of results had a minimal impact with performance (r = .09), yet a stronger impact on factors such as job satisfaction (r = .43).

A meta-analysis of 131 studies by Kluger and DeNisi (1996) found an overall moderate effect for feedback on performance (d = .41). They did, however, note that nearly 40% of the studies indicated *reduced* performance in response to the feedback intervention. Similarly, a different meta-analysis of 98 studies covering eleven types of worker productivity interventions indicated a moderate effect size (d = .35) for appraisal feedback—*below* the .44 average effect size for all interventions (Guzzo, Jette, & Katzell, 1985).

Though feedback's effectiveness is unclear, Ilgen, et al. (1979) identified several characteristics of the feedback situation that may influence feedback's impact. Most notably, they emphasized that performance feedback is an elaborate combination of the feedback source with characteristics of the feedback message itself. These authors also concluded that individual characteristics of the performer affected his or her response to feedback. These

three issues—feedback source, characteristics of the feedback itself, and characteristics of the feedback recipient—are examined in the next section.

Feedback Source

The primary sources of feedback that have been identified and studied include the organization, supervisor, peers, self, and task (Herold & Parsons, 1985). Although there has been some inconsistency in the number of sources identified and the rankings of research directly comparing the various sources, findings have generally indicated feedback created in the process of performing the task (self and task sources) are used more frequently and perceived as highly credible and more useful than feedback from more distal sources such as the organization or supervisor (Beckler & Klimoski, 1989; Herold & Greller, 1977; Ilgen, et al., 1979; Northcraft & Earley, 1989).

As computers have become more plentiful in the work setting, research has recently addressed reactions to feedback given by the computer (an example of self- or task-generated feedback). Compared to the same feedback coming from a manager, Earley (1988) found computerized feedback to be more trusted, leading to higher self-efficacy and better performance. For Kluger and Adler (1992), computer-mediated feedback created during task engagement was sought more frequently than person-mediated feedback. These findings support Greller and Herold's (1975) contention that employees most favorably view feedback sources that are more immediate, having less chance of involving other motives besides pure reflection of performance.

Feedback Characteristics

Past research shows individuals have a preference for feedback that is specific rather than vague, delivered promptly after performance (Ammons, 1956; Ilgen, et al., 1979), and considerate in tone (Baron, 1988). Indeed, receiving criticism that is general, delayed, and/or inconsiderate in tone has been shown to lower recipients' level of job-related motivation (Ilgen, Mitchell, & Frederickson, 1981), increase negative attitudes toward their supervisor and appraisal procedures (Ilgen, Peterson, Martin & Boeschen, 1981), and lower self-set goals, self-efficacy, and task performance while increasing interpersonal conflict with the person giving the feedback (Baron, 1988).

Aside from these feedback characteristics, the sign of the performance feedback (Brockner, 1988; Fedor, 1991; Ilgen, et al., 1979) as well as its privacy (Balcazar, Hopkins, and Suarez, 1986; Fairbank & Prue, 1982; Nordstrom, et al., 1991) have been identified as factors influencing responses. Since these are main issues within this study, greater elaboration is given to these two topics.

Feedback Sign. Following propositions derived from the Law of Effect (Thorndike, 1927), feedback perceived as positive leads individuals to repeat past behaviors—assuming the conditions under which the behaviors are performed remain relatively similar. This feedback conveys a message to the performer that what was done was good and that, in the future, he or she should continue to do the same types of things to continue to be seen as performing well. If the performance feedback is interpreted as negative, the implicit, if not explicit, message to the recipient is to change his or her behavior.

As written earlier, responses to the negative feedback are inconsistent; some helpful and adaptive, some adverse and maladaptive. Herold and Parsons (1985) note the importance of the feedback's sign and advocate greater research be devoted to clarify the impact of negative feedback on performance, motivation, and affective responses. Other researchers concur that negative feedback issues need further study (Fedor, 1991; Ilgen, et al., 1979; Landy & Farr, 1983; Podsakoff & Farh, 1989; Silver, Mitchell, & Gist, 1995).

In a review of both cybernetic and behavioral research, Cusella (1987) related positive feedback with favorable feedback or praise and negative feedback with unfavorable feedback or criticism. This appears to be too simplistic, however. As Fedor (1991) appropriately points out, for feedback to be on some form of 'favorable—unfavorable' continuum, there needs to be a reference point. One common referent used is comparison to others (Festinger, 1954). Indeed, Goodman (1977) views comparing ourselves to others as one of the most "pervasive phenomena in our organizational" lives (p. 97).

In his theory on social comparison, Festinger (1954) postulates that people have a desire to evaluate their abilities and that, absent of clear objective standards, this desire is pursued by comparing abilities and opinions with the abilities and opinions of others. Festinger states that individuals prefer these comparisons be done with similar others and prefer these comparisons to reflect positively upon the individual.

Within these preferences, Festinger highlighted two motives for comparison; (a) evaluating the particular opinion or ability in relation to others

(self-evaluation), and (b) the desire for this comparison to be enhancing to ones' self-image (self-validation). Greater early emphasis in social comparison theory was on the self-evaluative motive.

Recent researchers and theorists, however, have further developed the self-validation motive and extended the motive to include self-preservation (Goethals & Darley, 1987). With the self-validation motivation, individuals want to see themselves as competent. This motive is private, with concern about one's *self* opinion. The separate motive for self-preservation, however, can occur in situations where the desire exists to preserve—or even enhance—one's 'face' *in the eyes of others*. Settings in which the performance will be public or other people will be aware of the performance are especially potent in eliciting this face-saving motive (Goethals & Darley, 1987).

Festinger (1954) views social comparison as a natural process. Similarly, Brickman & Bulman (1977) regard social comparison as an almost inevitable outcome of social interaction and, if the comparison is unfavorable, the resulting feelings of inferiority can be thought of as having both a private and public component. Privately, expecting a negative comparison, the individual needs to cope with the potential damage to one's self-image. This private component is related to the motive of self-validation. The public aspect of inferiority is relevant when there is anticipation of an unfavorable comparison and distress at having to deal with other's reactions to this comparison (self-preservation).

Relevant to both self-validation and self-preservation motives, Brickman and Bulman (1977, p. 149) conclude, "People have a desire to avoid social

comparison" when the outcome promises to be unfavorable to the self. Thus social comparison theory provides an important basis for self evaluation (Goethals, 1986) and a standard for interpreting the sign of the performance feedback; positive if the resulting comparison is perceived to be flattering compared to others and negative if the feedback indicates a lower-than-desired comparison.

Feedback indicating unflattering comparisons to others can be threatening to the individual's self-validation (the desire to perceive self as competent) and self-preservation (the desire to be perceived as competent in other people's eyes). Thus feedback's privacy—whether it is anticipated that others will become aware of one's performance level—may be an important factor when trying to understand or predict reactions to performance feedback, especially feedback implying negative comparisons. In my research, the anticipation of public feedback is expected to directly elicit the self-preservation motive. This issue of public and private feedback is the topic of the next section.

Feedback Privacy. Individuals anticipating unfavorable comparative feedback are averse to putting themselves in situations where this is likely to occur (Brickman & Bulman, 1977). If forced to be in situations in which this negative feedback is both expected and anticipated to become known to others, it is unclear what pattern of reactions may occur. Examples of the divergent outcomes are highlighted below.

In a study of feedback seeking, Northcraft and Ashford (1990) found that publicness of both the individual's feedback requests and delivery of the

performance feedback were important in predicting feedback inquiry. When feedback was to be delivered publicly, feedback seeking was extremely low for individuals having low performance expectations.

Previously mentioned findings indicated lower perceptions of trust, lower self-efficacy, and lower performance level when feedback was given by a supervisor versus a computer (Earley, 1988). These findings lead to the consideration that public performance feedback can have greater negative influences than identical evaluative performance feedback given by a computer. Findings that computer-mediated feedback were sought more frequently than feedback from a person (Kluger & Adler, 1992) support this observation.

One potential explanation for this desire to avoid performance feedback from people is grounded in the anticipated "loss of face" (Ashford & Cummings, 1983) or the desire for self-preservation (Goethals & Darley, 1987). In a study supportive of this notion, Karabenick and Knapp (1988) found 86% of subjects sought information from a computer after a series of failures. When it was believed that a person was giving them the feedback through a computer network, only 36% sought the information.

The Earley (1988), Kluger and Adler (1992), and Karabenick and Knapp (1988) studies mentioned above are not examples of publicly-posted feedback in which numerous others can become aware of the target individual's performance level. They do, however, serve as clean examples of totally private feedback compared to performance feedback in which another person is aware—or at least believed to be aware. The self-preservation motive appears to show

influence in this transition from zero to just one other person gaining awareness of the performance feedback. I believe this motive of self-preservation will also be present and influence responses when a larger number of individuals are anticipated to be able to view the performance feedback.

In dramatic opposition to the suggestion that private feedback can be more effective than public feedback, a narrative review by Nordstrom, et al. (1991) concludes that *publicly* posting performance feedback was an intervention *effective* in improving productivity in the work setting. These authors viewed public posting as occurring when an employee's performance data was able to be viewed by other organizational members.

I view Nordstrom, et al.'s (1991) assertion that public posting enhanced productivity as misguided and vague. In these authors' review, 11 studies were cited and briefly summarized. Of these eleven, only three involved individual-level feedback. One of these three examined the impact of performance feedback graphs on the tardiness of one business owner (Gaetani, Johnson, & Austin, 1983). Though this n=1 study indicated improvement, Gaetani, et al. did not clarify if the feedback charts were visible to anyone other than the target individual.

Of the remaining two individual-level studies, one involved anonymous posting of the feedback (Wikoff, Anderson, & Crowell, 1983). Although the supervisor was aware of each individual's performance level (n=56), the posted feedback's anonymity decreased the salience of the self-preservation motive; removing the threat of embarrassment and negative evaluation from others.

Though there was an overall increase in efficiency (3.5%) with this anonymous posting, Nordstrom, et al. (1991) appropriately expressed concern over the wide variability among the four departments. One difficulty in using this study to defend individual-level public posting is that the dependent variable was the aggregated efficiency increase *per department* (n=4). This is also the case with the remaining study on individual-level public posting. In four wards of a state institution for mentally impaired children, Panyan, Boozer, & Morris (1970) posted employee names and the number of patient sessions conducted by each employee (n=34). The authors also posted a ranking of the four departments' performance according to the aggregated number of sessions. Panyan, et al. (1970) found this intervention effective in increasing the number of patient sessions. However, once again the dependent variable reported for analysis and comparison was the number of sessions at the group level (ward level, in this study; n=4), not at the individual employee level. Again, both studies just mentioned failed to report data for individuals.

Due to (a) only three studies being pertinent, (b) anonymity of the feedback, (c) aggregated data for analysis, and (d) small sample sizes within the studies, the Nordstrom, et al. (1991) review does not clarify the influence of publicly posting an individual's performance feedback has on individual employees' behavior. The authors' statement that "These eleven studies demonstrate the generally positive impact of public posting of performance data ..." (p. 108) is misdirected and much too strong. Not only were the three studies'

results inconclusive, but the remaining eight studies which provided group-level posting were far from clear in their support for the intervention's effectiveness.

Although the authors acknowledge that meaningful improvements were not found in all of the studies, stronger statements of limitations were in order. First, disentangling the mix of individual-level and group-level manipulations and dependent variables would have been helpful. Clarity could also have been gained by identifying whether the feedback could be attached to a specific person or if it was anonymous. In addition, it would have been useful to acknowledge the dangers of drawing conclusions from studies with low numbers of subjects (either individuals or departments). Furthermore, I think it was inappropriate to include the study in which the original authors did not clearly indicate whether the business owner's posted graphs of tardiness were available for others to see or just a personal and private tool.

In another review, Balcazar, et al. (1986) examined ten years of the performance feedback literature and found 61 public-feedback studies in which performance feedback for an individual or group was available to other members of the organization. Of these studies, 53% found mixed results with another 8% showing a negative impact for the public feedback intervention. Unfortunately, this review was of a very global nature and (a) did not distinguish whether the feedback or criteria were individual-level or group-level, (b) did not clarify the level of feedback anonymity, or (c) did not identify the adequacy of the sample sizes. Though this lack of clarity certainly influences the specificity of conclusions able to be drawn from the review, the fact that nearly two-thirds of

the studies found either mixed or negative results supports the assertion that there is a lack of certainty in predicting responses to public feedback.

All reactions to feedback discussed to this point have been due to its source, characteristics of the feedback message, or in terms of the way it is delivered. Another important ingredient in understanding responses to performance feedback is due to the purpose that an individual brings to a specific achievement situation. More importantly for this research, the salient purpose also guides reactions to negative feedback. The next section will examine topics related to the two previously introduced types of motives or goals an individual may have within an achievement setting; learning goals and performance goals.

Goal Orientation

People do not work on performance tasks in a vacuum; there is often a reason or purpose for their efforts. The purpose, or reason, that individuals bring to a specific achievement situation affects the way they interpret and react to the feedback received and is an influential factor in understanding reactions to performance feedback (Anderson & Slusher, 1986; Butler, 1993; Dweck, 1986; Nicholls, 1984).

The predominant theory used as a basis for this study is Dweck's Goal Orientation (Dweck, 1986; 1989). As briefly mentioned in an earlier section, this theory postulates two alternative underlying purposes for achievement. These goals are either (a) learning goals, in which the desire is to gain competence and strive toward mastery, or (b) performance goals, where individuals seek to

document and gain positive judgments—or avoid negative evaluations—of their competence (Dweck, 1986; Dweck & Elliott, 1983). Although both purposes may exist for the person involved within a task, one or the other tends to be emphasized at a particular point in time (Dweck, 1989).

This broad dual-goal framework has guided many studies in the educational literature and provided strong supportive evidence that the desire to demonstrate high ability and the desire to develop mastery represent dissimilar goal states. At the most basic level, different types of questions are asked when viewing the task with a performance goal rather than a learning goal. For instance, the primary, driving questions for those with performance goals are "Will I look smart?," "Will I reveal my ignorance?," and "How did I do compared to others?" A learning orientation is related to questions such as "How can I do it?," "What will I learn?," and "Have I improved?" (Butler, 1993; Dweck & Elliott, 1983; Nicholls, 1984).

Other authors have used varied terms to describe similar concepts. Most prominent among the alternative descriptors are mastery goals or task-involvement as analogues for the learning-goal orientation, and ability goals or ego-involvement as terms for a performance-goal orientation (Ames, 1992; Butler, 1988; Jagacinski, 1992; Nicholls, 1984). To minimize confusion, I will consistently use the performance-goal and learning-goal labels in discussing the respective constructs.

The adoption of either a learning or performance goal within a task context has been described as creating a mental framework used to interpret

and respond to situations. Elliott and Dweck (1988, p. 11) state that, "Each goal, in a sense, creates and organizes its own world—each evoking different thoughts and emotions and calling forth different behaviors."

Although both learning and performance goals can lead to high levels of effort, much of the research shows the alternate goal orientations are differentially related to adaptive and maladaptive reactions, especially in response to challenges and obstacles (Dweck, 1986, 1989: Dweck & Leggett, 1988; VandeWalle & Cummings, 1997). Learning goals are commonly associated with "desirable/adaptive/facilitating adaptive motivational patterns" that "... promote the establishment, maintenance, and attainment of personally challenging and personally valued achievement goals" (Dweck, 1989, p. 89). In contrast, performance goals tend to be more frequently associated with maladaptive responses such as the inability to establish and choose, maintain effort toward, or actually accomplish valued achievement goals.

These maladaptive responses can also be viewed as responses inappropriate to the task situation. Key here is "appropriateness." In situations that are beyond the individual's abilities and available effort, it may be very appropriate for that individual to exhibit some form of withdrawal from that task (Dweck & Elliott, 1983; Janoff-Bulman & Brickman, 1982). This withdrawal, common in the literature to be viewed as maladaptive, would actually be adaptive in the just-described hopeless circumstance.

While acknowledging that commonly viewed maladaptive reactions may, in certain situations, actually be appropriate, I plan on focusing the descriptions

of desirable/adaptive and undesirable/maladaptive motivation patterns in contexts in which the individual is involved *in a task context anticipated to be positively influenced by continued attention.* In this research, I view the adaptive responses to negative feedback as (a) maintenance of, or slower decline in, self-efficacy, and (b) choices of more challenging, learning-oriented tasks. Conversely, the adverse, or maladaptive responses within this study are (a) a quicker decline of self-efficacy upon receipt of negative feedback and (b) decisions to choose easier future tasks that involve less potential for development and learning.

The Goal Orientation Construct. Before extensive description of the goal orientation literature, it is important to address the conceptualization and operationalization of the goal orientation construct itself. Researchers have examined goal orientation as both a situational and dispositional construct (Button, et al., 1996; Farr, et al., 1993). Conceptually, the construct is commonly discussed and explained as an individual trait by Dweck and her associates (see Dweck, 1986; Dweck & Elliott, 1983; Dweck & Leggett, 1988). However, it has frequently been researched through task manipulations (e.g., reward structure, task instructions, or feedback characteristics). This can produce confusion in the construct's conceptualization and operationalization, creating ambiguity regarding the source of its effects (Kozlowski, Gully, Smith, Nason, & Brown, 1995, p. 8). Though my research does not focus on dispositional issues, it does focus on goal-orientation topics. Since the preponderance of research on these topics treated the goal-orientation construct dispositionally, I will now review this

literature. Prior to this elaboration, however, I will briefly discuss what it is about dispositions that create sensitivity toward performance feedback—especially negative feedback.

In a review of performance feedback issues, Ilgen, et al. (1979) conclude that individual differences affect perceptions of, acceptance of, as well as reactions to, performance feedback. They state that dispositional attributes influence the salient "perceptual sets or frames-of-reference" and "that the recipient selectively senses and interprets the feedback stimulus in a fashion consistent with his or her self-orientation" (p. 356). Pertinent to my research, these authors view individual differences dealing with sensitivity to evaluation as prone to be influenced by performance feedback. Dispositional goal orientation is an example of an individual difference fitting this category. This section will show examples of research that viewed goal orientation as an individual difference.

The self-report measures used to assess dispositional goal orientation have primarily focused on the individual's implicit theories of intellectual competence and attributional style (Button, et al., 1996; Dweck & Elliott, 1983). The issue of implicit theories regards the individual's perception of whether intelligence is dynamic and changeable with time and effort or viewed as a fixed, unalterable trait. These conceptions of intelligence have been related to the differing goal orientations (Dweck, 1986; VandeWalle, 1997). An incrementalist approach, viewing intelligence as dynamic and changeable, fits well with a learning-goal orientation since this orientation's approach views growth,

improvement, and mastery not only as possible, but as its primary set of goals. This 'incremental' outlook of intelligence asserts that intellectual competence is malleable and expandable with the exertion of greater effort. Thus, these individuals commonly perceive a greater sense of control over their achievements (Dweck, 1989).

A fixed, static interpretation of intelligence in which increased effort has little value is more consonant with a performance-goal orientation (Dweck & Leggett, 1988). Indeed, a performance orientation is associated with perceiving intelligence as a 'fixed' commodity, uneasily altered. Those with this 'entity' view of intelligence see intelligence as a stable trait, difficult to change. For these individuals, occurrences of negative feedback can be extremely ego-threatening since the adequacy of one's intelligence is "on the line in evaluative situations, magnifying the meaning and implications of negative judgments" (Dweck & Leggett, 1988, p. 264).

Work by Diener and Dweck (1978, 1980) provides a good representation of early goal-orientation efforts since it (a) focused on children and (b) viewed goal orientation as a dispositional trait. The two Diener and Dweck studies were the first efforts in which helpful and detrimental cognitive, affective, and behavioral patterns associated with learning or performance-goal orientations were viewed as interrelated. At the time of these studies, the authors did not use the two goal orientation labels. However, the studies' results and patterns in response to negative performance feedback were later utilized as clear

examples of the effects of dispositional performance- and learning-goal orientations (see Elliott & Dweck, 1988).

In these studies, late elementary students were given an inventory for placement into one of the two goal-orientation categories. If their answers indicated they viewed school-related success and failure as largely determined by their own effort (by scores above the inventory's median), they were labeled as having an incrementalist conception of intelligence and placed in the learning-goal group. If, however, responses indicated less of a perceived link between effort and school success or failure (scores below the median), they were seen as having an entity approach to intelligence and labeled as being performance-goal oriented.

For both studies, children worked on a concept-formation task. After training, all were given unsolvable problems, ensuring negative feedback. The changes in the cognition, affect, and behaviors as they went from high performance (in training) to low performance were the main interests of the studies. The tasks were set up to enable measurement of the children's problem-solving strategies. The children were asked to verbalize their thoughts and feelings as they worked on their tasks. Results indicated that during the training targets all children were equally enjoying and interested in the problems with no differences in the relevant dependent variables.

However, with receipt of the negative feedback after each of the subsequent unsolvable problems, two very different response patterns emerged. Children with the performance-goal orientation (those perceiving less of a link

between effort and outcomes) were verbalizing numerous negative self-cognitions such as performance attributions of personal inadequacy, lack of intelligence, poor memory, and low problem-solving ability. Even though these children had solved eight straight problems just minutes before, Diener and Dweck (1978) noted a lack of any positive statements within this group. These children also verbalized many more negative-affect statements during the 'failure' problems and more than two-thirds voiced task-irrelevant statements (compared to virtually none of the learning-oriented children). Learning-goal-oriented children, however, had fewer attributional verbalizations. Instead, statements indicated that the unsolvable problems were more likely to be viewed as challenges deserving more effort. In addition to many more optimistic statements, these learning-oriented children's verbalizations included more solution-oriented self-talk and self-monitoring statements as well.

Regarding the use of problem-solving strategies, performance-goal-oriented children were far worse than the learning-goal group; over two-thirds showed a decline in their problem-solving strategies—60% lapsed into ineffective strategies. In contrast, at least 80% of the children with the learning-goal orientation maintained their level of problem-solving strategies when compared to their pre-failure levels. More than 25% actually improved (Diener & Dweck, 1978).

These studies (Diener & Dweck, 1978; 1980) found negative feedback for children with performance goals promoted negative cognitions, negative affect, lower problem-solving strategies, and lower expectancies for future success.

Poor performance for children with a learning-goal orientation, however, led to more positive self-instructions and self-monitoring, more positive affect, more effective problem-solving strategies, and greater expectancies of success. In short, although all the children experienced the same task and identical outcomes in these laboratory studies, the differing dispositional goal orientations led children to process and react to the situation in very distinct ways.

These studies, operationalizing and discussing the two orientations as dispositional traits on opposite ends of the same continuum, implied that if you are high on one orientation, you must be low on the other 'opposite' orientation. You were either this or that, determined by scores above or below the inventory's median. Although Dweck and Elliott stated in 1983 that the two orientations can be held simultaneously, the dispositional measures used at the time placed individuals into the differing groups based on median splits. This method of operationalizing each orientation continued the view of a unidimensional construct. Dweck and Elliott's conceptualization that both orientations can co-exist did not match the either/or manner in which individuals were placed into an orientation for purposes of data analysis.

Many of the later reviews and studies—whether examining situationally- or dispositionally-induced orientations—also implied this either/or view of the two goal orientations. Recent reviews (Farr, et al., 1993) and research by Ames & Archer (1988), Button, et al. (1996), Sujan, et al., (1994), and Butler (1988) have wavered from the simple dichotomized approach to propose or demonstrate that the two goal orientations are not only conceptually, but

empirically independent. With independence, it is possible to look at people and/or situations high or low on both orientations. As examples, the four following studies have looked at the orientations as separate dimensions. One of these studies examined dispositional goal orientation, two sought individuals' perceptions of the situation's emphasis for each orientation, and one manipulated the situation to highlight each, as well as both, orientations.

Button, et al. (1996) asserted that previous questionnaires used to assess dispositional goal orientation often treated the two orientations as opposite ends of one continuum, had inconsistencies with the theoretical underpinnings of goal orientation, or were designed for children. These authors sought to (a) develop a survey tapping into the two-dimensional nature of the goal orientations, (b) have closer ties to Dweck's writings on the topic, and (c) be designed for adults. Over the course of three samples of undergraduates, their validation study trimmed the 20 original questions (ten for each orientation) to 16 (eight each). Seeking congruence with Dweck's conceptualizations, the performance-goal questions reflected a desire for non-challenging tasks, a wish to avoid mistakes, and a preference to evaluate performance with normative standards. Alternatively, learning-goal questions indicated preferences for challenging tasks, desires for improvement, and evaluation based on comparison to one's own past performance.

LISREL analyses indicated that the two-factor model (treating the two orientations as separate factors) fit the data better than a single-factor model. Also, for three undergraduate samples, the two orientations had very low

correlations of -.08, -.02, and -.11. The LISREL results and correlations support the notion that the dimensions are unrelated. "Thus," Button, et al. (1996, p. 46) conclude, "it is possible for people to be simultaneously high or low on both dimensions."

Three other studies also examined the differing orientations as separate dimensions. Instead of dispositional assessments, however, the measures used to quantify levels of both goal orientations for two of the studies were derived by asking for the individual's perception of his or her situation. Some questions asked the degree the situation was perceived as emphasizing learning and improvement. Other questions sought perceived emphasis on high performance. Note that these questions were not of an either/or design; this format allowed the two dimensions to vary independently.

For Ames and Archer (1988), junior and senior high school students' questionnaire responses reflected a correlation of -.03 between perceived learning and performance-goal orientation. Slightly higher, Sujan, et al. (1994) found a +.28 relationship among the perceived goal orientations for 190 salespersons. Both studies found interesting results due to the ability to scrutinize the various combinations of high and low scores among the two dimensions—observations and insights that would have been lost with a unidimensional operationalization of goal orientation.

In the earliest study, Ames and Archer (1988) assessed the students' perceptions of the goal orientation emphasized within the classroom from which each was selected. Results indicated that students viewing their classroom

situation as having a high level of emphasis toward a learning-goal orientation indicated a more positive opinion of the class. They also used more effective problem-solving strategies, expressed a greater conviction that success resulted from effort, were less likely to blame their teacher for poor performance, were more likely to credit success to the teacher, and expressed preferences for challenging tasks. Students assessing the class high on performance goals had lower opinions of the class, perceived themselves as having low ability, and attributed their low performance to low ability and task difficulty.

Since goal orientation was conceptualized and operationalized as two independent dimensions ($r = -.03$ between the orientations), the authors further scrutinized differences between the four cells resulting from median splits of the two orientation scales. Analyses indicated that the main source of differences was primarily between the high learning-oriented group (students' assessing their classroom as emphasizing learning) and the low learning-oriented group. The level of performance-goal emphasis was much less influential. As examples, those rating the class as high in a learning emphasis used more effective learning strategies, reported a greater likelihood of pursuing more challenging tasks, and had a better attitude toward the class, *regardless of whether they perceived the class as having a high or low performance emphasis.* Ames and Archer (1988) conclude that the primary issue in helping predict students' approach to the task and learning environment is dependent upon their perceptions of the classroom as accentuating a learning and mastery climate, not the view of the emphasis for high performance.

Sujan, et al. (1994) modified Ames and Archer's (1988) inventory to assess salespersons' perceptions of their work environment. Similar to Ames and Archer's, this inventory allowed both orientations to vary independently. Sujan, et al. sought the relationships between the individual's two perceived goal orientations and the dependent variables of 'working hard' (a composite score of self-reported persistence and number of hours worked) and 'working smart' (a composite score of self-reported level of planning, confidence in using a wide-range of sales techniques, and score on an adaptive selling inventory). Results indicated a perceived learning-oriented environment related to both working smart and working hard. Viewing the environment as accentuating a performance orientation was only associated with working hard (persistence and longer hours), not working smart. Similar to Ames and Archer (1988), this study found an overarching influence of the learning orientation, regardless of whether the setting was perceived as having high or low emphasis on performance. In other words, both of these studies support the idea that perception of the situation as highlighting learning goals appears to inoculate the individual from the potential negative ramifications associated with a performance-goal emphasis.

Most studies' efforts to influence goal orientation via manipulated situational characteristics have been unidimensional: high performance, low learning or low performance, high learning. Examples of this approach include Elliott and Dweck's (1988) task instructions to either do well or learn the task, Ames' (1984) competitive or noncompetitive reward structures, and Butler's

(1992) normative or informative types of performance feedback. One study, however, did create situations designed to allow both orientations to be available simultaneously. Butler (1988) found that giving people different types of feedback upon task completion led them toward responses consistent with differing goals. This study looked at the effect that grades—emphasized as allowing comparisons with fellow classmates—had on task interest as well as the desire to choose doing more tasks. This type of feedback is directly related to issues within ownership of a performance-goal orientation, namely the desire to be able to evaluate one's competence relative to others. A second feedback condition, closer to concepts within a learning-goal orientation, involved individualized supportive comments encouraging the student to persist on the task. Finally, a third condition—which could be construed as high in both orientations—involved both grades and the identical supportive comments.

Pairwise comparisons revealed that the group receiving only supportive-comments feedback (high learning, low performance oriented) had greater task interest and a desire for more tasks than the group getting just grades (low learning, high performance oriented) or grades plus identical comments (high, high). There were no differences between these two latter groups. This leads to the conclusion that the inclusion of grades, with their normative (performance goal) emphasis, overwhelmed and canceled out the positive aspects of the supportive comments. These findings support Butler's (1988) set of hypotheses that the type of feedback can highlight reactions consistent with one goal

orientation over the other. It also serves as an example of research with situational manipulations that avoid an either/or view of goal orientation.

These four studies are examples of research viewing the two orientations as separate dimensions. Efforts by Button, et al. (1996) tapped into the dispositional nature of the two goal orientations whereas the three remaining studies viewed goal orientation as originating from situational characteristics. Regarding origin, Dweck (1989) and VandeWalle and Cummings (1997) stated that sources of a person's goal orientation may be due to disposition, yet acknowledged that characteristics of the situation may have a greater influence in choice of salient orientation at that moment. Similarly, Button, et al. (1996, p. 45) view goal orientation as "a somewhat stable individual difference variable that may be influenced by situational characteristics. Thus dispositional goal orientations will predispose individuals to adopt particular response patterns across situations, but situational characteristics may cause them to adopt a different or less acute response pattern for a particular situation."

Though dispositional measures have been found useful in representing the goal orientations (e.g. Diener & Dweck, 1978, 1980; Colquitt & Simmering, 1998; Licht & Dweck, 1984), my interest is in situational factors that influence adoption of one goal orientation over the other. I particularly want to better understand characteristics of the situation that, in the face of negative feedback, promote the adaptive reactions that include resilience of self-efficacy and choices of challenging tasks.

Whether dispositionally induced or due to characteristics of the situation, viewing a given task as an occasion for an evaluative ability judgment (as opposed to an opportunity for learning) can transform interpretations and responses within achievement settings in a variety of ways (Ames, 1992; Dweck, 1986, 1989; Dweck & Elliott, 1983; Nicholls, 1984). Relevant for this dissertation, primary discrepancies include (a) differing standards likely to be used to assess success and failure, (b) varying reactions to negative and (c) public feedback, (d) the role of self-efficacy, and (e) task choice. The next sections will elaborate on these topics with initial focus on the relationship between goal orientation and differing evaluative standards. This will be followed by the impact that negative feedback and public feedback may have for individuals holding these dissimilar goal orientations. These topics will then be related to the primary dependent variables of this study: changes in self-efficacy and the willingness to choose difficult, learning-oriented tasks.

Goal Orientation and Evaluative Standards

A fundamental difference between the two goal orientations involves the salient standards used to assess the success or failure of performance (Ames & Ames, 1981; Dweck, 1989; Jagacinski & Nicholls, 1987; Nicholls, 1984, 1989). This issue of evaluative standards, whether other- or self-referenced, is a primary topic clarifying goal-orientation issues. These varying standards influence both reactions to, as well as preferences for, different types of feedback. As previously described, individuals with performance goals have a desire to demonstrate their competence and be evaluated as having high ability

in relation to others (Ames, 1992; Dweck, 1989; Nicholls, 1984). This concern with outperforming others leads them to evaluate their competence in relation to others' performance (Jagacinski, 1992). Thus, performance goals encourage interest in *other*-referenced standards and normative, comparative feedback (Butler, 1987).

Learning goals, however, foster adoption of *self*-referenced standards and feedback since perceptions of success are based on the degree of improvement relative to past personal performance. Feedback that can be used to assess personal progress and mastery is most salient. Persons with learning goals are less concerned with normative outcome comparisons since other-referenced performance feedback is less helpful in assessing performance improvement and growth. Feedback allowing *self-referenced* progress comparisons (e.g., how did I do this time compared to my last attempt?) is most pertinent (Dweck, 1989; Nicholls, 1984).

The influence of these contrasting evaluative standards can be better understood by clarifying the differing roles that performance feedback plays among the two goal orientations. Kanfer (1991) and Heyman and Dweck (1986) surmise that with a performance-goal orientation, feedback is primarily used to assess ability and as a means of normative comparison. This assessment of competence and normative evaluation creates fertile ground to view feedback as having a rewarding or punishing role rather than providing objective information (Kanfer, 1991).

Through a learning-goal filter, however, individuals would be prone to view information as an opportunity to improve strategy and further focus effort. Perceiving feedback and, specifically, negative feedback as more informative than evaluative can diminish the probability that maladaptive responses will arise (Dweck & Leggett, 1988; Kanfer, 1991).

Similarly, Nicholls (1984) argues that since their goal is to master the task, individuals emphasizing learning goals see acquisition of that learning and improvement to be a sufficient end state. Improvement, or acquisition of new skills, is considered paramount. Thus feedback allowing this improvement assessment is most pertinent; comparative feedback is less helpful in establishing whether there has been a gain in mastery.

Alternatively, for those with a greater performance orientation, perceptions of appearing competent are primary. For these individuals, learning may be a way to get to the desired result of appearing competent; however, without the opportunity to display their competence, merely learning is not enough. In other words, with performance goals, learning or improvement may be means to the desired end, but they are not the goal. Appearing capable, frequently by outperforming others, is the goal (Ames, 1992; Butler, 1988; Dweck, 1986, 1989; Nicholls, 1984). This desire to appear more competent than others necessitates feedback that can be used to make this comparison.

Butler (1992; 1993) has been involved in lab experiments examining the question of whether the differing purposes associated with the two goal orientations lead to a desire for theoretically predictable different types of

feedback. In her 1993 lab study, undergraduates randomly received task instructions highlighting one of the two goal orientations. The learning-goal instructions stated that the problems were constructed to enable learning and improve strategy development. Performance-goal directions indicated the problems were tests of analytic thinking and problem solving with scores highly related to academic ability and IQ. The dependent variables of interest were the type of feedback requested after each problem as well as the timing of these requests. Butler (1993) hypothesized that manipulated goal orientation would influence the type of feedback sought. It was also proposed that the type of feedback requested may differ among the goal orientations depending on the stage of skill acquisition, either early or late.

Results were largely consistent with the predictions; those with directions highlighting the learning goal would seek feedback most helpful for self-improvement. Receipt of performance-goal instructions would lead to greater interest in type and timing of feedback that involved self-enhancement.

Butler found individuals most interested in improving their competence and gaining mastery of the task (learning-goal oriented) much more likely to seek self-referenced feedback that helped them assess their level of improvement relative to their prior performance. Their requests for helpful, solution-oriented feedback occurred more frequent in the early problems. Both the type and timing of the feedback were consistent with a self-improvement goal.

Instructions emphasizing performance goals promoted relatively fewer solution-oriented feedback requests yet more requests for normative feedback that gave the percentile range in which the solution placed them. These individuals passed up opportunities to view feedback they were told could help them improve on future problems. Their primary desire was, not to learn, but to find out how they compared to others.

The anticipated link between performance-goal-oriented directions and motives of self-enhancement was not supported with this finding alone, however. This link was further clarified with consideration of the three-way interaction between goal orientation, timing of feedback request, and participant's skill level (assessed as high or low based on their performance on the practice problems). It was found that those with high ability were most likely to seek the normative feedback rather than solution-oriented feedback in the latter problems. The self-enhancement motive appears to be a valid explanation for the finding that those with performance goals, receiving (normative) feedback indicating that they are doing well, were most likely to continue seeking this self-gratifying type of feedback.

In a study with a very similar research design and purpose, Butler (1992) examined whether children given task instructions highlighting one goal orientation or the other would seek different types of feedback. Findings were consistent with the author's 1993 study using undergraduates: those with learning goals spent more time examining solution-oriented feedback, whereas performance-goal task instructions led to more time examining feedback which

allowed normative comparison, especially for those with high ability. Again, Butler (1992) found support for her reasoning that learning goals promote seeking information most related to self-improvement, whereas those with performance goals that are doing well will primarily seek the self-enhancing, normative feedback.

The two Butler studies just described point out that the salient goal orientation highlights evaluative standards directing individuals' (both children and adults) attention toward information relevant to that standard. The general notion is that goal orientation leads to preferences for differing types of feedback (G.O. —> FB). There have also been studies showing that varying types of feedback may lead to reactions that are consistent with the differing goal orientations (FB —> G.O).

Kanfer (1991) notes the potential influence that the type of feedback can have on creating differing response patterns: feedback regarding progress and personal improvement can highlight motives and perceptions of mastery (learning goals), whereas normative feedback can elicit incentives to demonstrate competence (performance goals). Support for this premise is derived from the previously detailed Butler (1988) study in which giving different types of performance feedback (normative grades, positive comments, or both) led to responses consistent with differing goal orientations. If the feedback included the normative grades, whether singularly or combined with the positive comments, the responses of lower task interest and reduced persistence fit with responses predicted by a performance-goal orientation.

Consistent with these findings, Ames (1992) states evaluative feedback that is normative and emphasizing social comparison can promote a performance-goal orientation. Nicholls (1984) adds that factors likely to incite concern about the evaluation of one's appearance of competence can produce a performance-goal orientation, especially negative feedback (Farr, et al., 1993). The common ingredient for negative feedback, as well as other situational influences, is the degree it is perceived as ego-threatening, creating questions in the individual's mind about his or her appearance of competence.

The normative feedback conditions that Butler (1988, 1992, 1993) created allowed the individual to gather his or her social comparative feedback in private. Another ego-threatening situation in which a concern about appearance of competence can occur is with audience knowledge of performance (Ames, 1992; Nicholls, 1984). Thus, a greater concern, or threat, on how one is performing could occur with the expectation that one's performance will become publicly known. As noted earlier, Nordstrom, et al. (1991) concluded that public performance feedback was a useful intervention. However, when examined with goal orientation issues in mind (e.g., the adoption of a performance-goal orientation), this intervention may be expected to lead to maladaptive responses.

This section has shown the reciprocal relationship of feedback and goal orientation. First, goal orientation can influence the desire for certain types of feedback. Second, differing types of feedback can direct responses associated with one or the other goal orientation. The next sections examine research using goal orientation to predict and/or explain individuals reactions to negative

feedback as well as the anticipation of that evaluative feedback becoming publicly known.

Goal Orientation and the Influence of Negative feedback

Evaluation can influence motivation (Ames, 1992; Locke & Latham, 1990). The impact is not whether the evaluative feedback occurs, but the recipients' perception of what that evaluative information means (Mac Iver, 1987). One of the more universal findings in the goal orientation literature is that differing goals can affect both the perceptions of—and shape the reactions to—obstacles, challenge, and failure (Dweck, 1986; VandeWalle & Cummings, 1997).

Since individuals with learning goals tend to evaluate their performance using self-referenced standards, receipt of negative feedback is likely to cause people to think more about how they can improve. With this interpretation, the negative feedback would be perceived less as personal insufficiency and more as providing natural and useful information assisting with learning. The consequences of negative feedback for those with learning goals could be greater effort or different strategies (Diener & Dweck, 1978; Heyman & Dweck, 1986). Higher and sustained confidence is fostered by focusing on strategy and progress versus ability and evaluation (Anderson & Jennings, 1980; Dweck, 1989).

Approaching achievement situations with primary performance goals creates a focus on measuring and validating abilities. Feedback received is commonly interpreted in terms of normative comparisons and the resulting self-ascribed label of success or failure is dependent on satisfaction with this

comparison (Butler, 1992; 1993; Dweck & Elliott, 1983). Negative feedback for those with performance goals tends to be interpreted as diagnostic of low intellectual ability, thus carrying "personal and social evaluative threats" (Wood & Bandura, 1989, p. 408).

In a lab study with fifth-graders, Elliott & Dweck (1988) were interested in how the two goal orientations influence reactions to negative feedback. These authors experimentally manipulated the two differing goal orientations through the instructions and explanation of the task. Prior to the goal manipulation, self-efficacy was manipulated by giving the children randomly assigned high or low self-efficacy feedback on practice pattern-recognition tasks. The performance-goal orientation was then created for half of the children by stating that efforts on the next pattern-recognition task would be filmed and normatively scored by experts. It was anticipated that the combination of being filmed and knowing their performance would be compared to others would highlight a performance goal's desire to appear competent. In the learning-goal condition, the filming and normative evaluation were not mentioned, but the children were told that much could be learned from the task since it "sharpens the mind" (p. 7) and learning to do well on it could help them with their schoolwork.

Since the authors were solely interested in reactions following negative feedback, the children were told their solutions were wrong for all three of the post-training tasks. On the last training problem and all of the test tasks, the children were asked to think out loud as they were doing the tasks. Derived from coding these spontaneous verbalizations, dependent variables of interest were

(a) changes in problem-solving effectiveness, (b) attributions for the poor performance, and (c) affective reactions.

Following the negative feedback, results indicated that the experimentally-induced goal orientation interacted with level of manipulated self-efficacy to affect the three dependent variables. For those children oriented toward the learning goal, perceived self-efficacy (whether high or low) was largely immaterial to their subsequent problem solving, attributions, and affect. However, self-efficacy was a very influential factor for those in the performance-oriented group. For example, the only group of children whose problem-solving strategies significantly deteriorated was the group with performance goals and low self-efficacy (p. 9). The other three groups (learning goal with high and low efficacy and performance goal with high efficacy) displayed greater persistence in their problem-solving efforts.

Compared to the other three groups, those with performance goals and low self-efficacy also had significantly more statements attributing their poor performance to uncontrollable causes as well as more statements of negative affect. For attributions, 26% of performance-oriented children given low ability feedback (low self-efficacy) made attributional comments. Every one in this group attributed their failure to an uncontrollable cause. Only 4 to 8% of children in the other three groups made any attributional statements. Regarding affective verbalizations, 30% of the children in the performance-goal group with low self-efficacy made statements of negative affect compared to four percent or less for the remaining three groups.

The evaluative standards and related reaction to negative feedback can also be influenced by the task's reward structures. Different reward structures can lead to dissimilar perceptions and reactions to negative feedback, often explainable by goal orientation issues. For Ames, Ames, & Felker (1977), the task's reward contingencies were manipulated, promoting different goal orientations within a lab setting. Children's attributional and affective reactions were examined in response to bogus feedback indicating success or failure (operationalized as four out of five or one out of five correct) on a puzzle-solving task in both competitive and noncompetitive reward structures.

In the noncompetitive condition, children were paired up and told each would receive a prize for "helping us make puzzle games for children your age" (p. 3). Within this condition, no differences in self-attributions or affect were found between those receiving the manipulated success or failure feedback. However, those receiving the poor-performance feedback in the competitive reward structure (in which the pair were told they were competing against each other for a prize) had higher negative emotions and rated their own ability lower than the self-ratings of those who did poorly in the noncompetitive conditions (p. 4-5). Although low satisfaction may be a motivator to increase achievement-directed behavior for some, this negative affect in combination with low ability attributions—the combination created in the competitive condition after receiving negative feedback—may reduce future achievement strivings. Regarding the combination of feedback and reward structure, Ames, Ames, & Felker, (1977) conclude, "Failure appears to be a critical factor causing negative self-

evaluations, but competitive reward contingencies appear to accentuate the negativism in self-attributions and affective feelings" (p. 6).

The previously cited studies examined reactions to negative feedback by individuals that were led toward situationally-induced goal orientations. Within these examples, either task instructions (Elliott & Dweck, 1988) or reward structures (Ames, Ames, & Felker, 1977) were used to elicit one goal orientation or the other. The Diener and Dweck studies (1978; 1980) described earlier used dispositional measures and found negative feedback led those inclined toward performance goals to make more attributions of personal inadequacy and more negative comments. They also experienced a greater deterioration in problem-solving strategy than children with a learning-goal disposition.

Licht and Dweck (1984) examined the effects of dispositional goal orientation within a setting anticipated to be similar to negative feedback. They manipulated the level of confusing text within a programmed instructional booklet for children in a classroom setting. Although this confusion manipulation was not directly a failure manipulation with negative feedback, it was anticipated to be a perceived challenge and obstacle to high levels of performance. For Licht and Dweck, the research question was whether the alternative dispositional goal orientations would lead to differential levels of course mastery in the no-confusion and confusion conditions.

Using the same inventory as Diener and Dweck (1978, 1980), children were categorized as being learning-oriented if their attributions were more heavily indicative of effort being the primary cause of performance outcomes. If,

however, they did not link effort expended to performance outcomes, they were put in the performance-oriented group.

After the material was read, a test assessed content mastery. None of the children were told beforehand of the more difficult text. As predicted, children in both dispositional goal orientations did nearly identical in the no-confusion setting. There was, however, wide performance variance between the confusion and no-confusion conditions, dependent upon goal orientation: 76.6% of the learning-goal-oriented students mastered the material compared to only 34.6% of the other children. Since children from both orientations did the same in the no-confusion condition, intellectual differences between the two orientations is not evident. Noting this, Licht and Dweck (1984) advance a motivational explanation: children with performance goals are less capable of coping with challenging "intellectual-achievement situations" (p. 633).

One study examined the influence of both situational and dispositional goal orientation on reactions to negative feedback. In Stipek and Kowalski's (1989) lab experiment, children worked on unsolvable problems after receiving task instructions leading them toward one goal orientation or the other. The learning-goal instructions were designed to reduce anxiety about performance scores and emphasize a focus on the task. The performance-goal instructions, however, did not downplay the importance of high performance. Dispositional goal orientation was also assessed by the same inventory used by Diener and Dweck (1978; 1980) and Licht and Dweck (1984).

Following the negative feedback after each problem, the authors examined problem-solving strategies and affective comments by coding the children's verbalizations. Results indicated a task instruction by disposition interaction: Fewer dispositionally performance-goal-oriented children used effective strategies when task instructions further emphasized performance goals than those given learning-goal instructions. In other words, students with dispositional performance goals given task instructions de-emphasizing high performance (dispositional performance goal by situational learning goal) used more effective strategies and had more positive comments during the task than those with the same dispositional performance-goal orientation given instructions stressing high performance. For those with dispositional learning goals, instructions toward either goal orientation did not improve or reduce strategy use after receiving the negative feedback.

This pattern of results implies that instructions de-emphasizing high performance just prior to the task—consistent with a learning goal—were helpful for children dispositionally inclined toward a performance-goal orientation. Stipek and Kowalski (1989) concluded that the task instructions were successful in changing a 'maladaptive' dispositional view (where increased effort does not impact performance attainment) into a more efficacious belief that effort covaries with accomplishment.

Goal Orientation and the Influence of Public Feedback

Although the relationship between public feedback and the differing goal orientations has not been directly examined, past goal-orientation research and

reviews allow straightforward predictions. For example, since performance goals are associated with a greater interest in appearing competent relative to others, conditions that threaten this high-ability appearance can lead to maladaptive response patterns (Ames, 1992; Butler, 1993; Dweck, 1986, 1989; Nicholls, 1984).

Previously described studies (Butler, 1992; 1993) have shown that performance goals create a greater desire for normative performance feedback. Butler (1988) found normative feedback eliciting responses consistent with performance goals (e.g., reduced task interest and desire for fewer tasks). All three of Butler's studies used private feedback: Only the individual was aware of his or her relative standing. Considering that individuals with performance goals have a prominent desire to appear competent, anticipation that performance feedback will become known to others—thus easily compared, could be perceived as quite threatening.

Ames (1992, p. 265) states, "It is not the mere availability of social comparison information that is problematic; it is when this information becomes emphasized (Jagacinski & Nicholls, 1987) that the linkage between effort, outcome, and affect becomes undermined." Following Ames' reasoning regarding the dangers of "emphasis," comparative feedback anticipated to become public would be more problematic than similar feedback expected to be private. Additionally, anticipated receipt of negative feedback indicating unflattering social-comparative information would fit Ames' idea of harmful emphasis—especially for those with performance goals.

Problematic reactions are expected when public negative feedback is expected for those with performance goals. Even if oriented toward learning goals, expectations that others can easily compare one's performance may cause adverse responses consistent with a performance-goal orientation. These inferences directly contradict Nordstrom, et al.'s (1991) conclusions that public feedback interventions were helpful, motivating interventions.

The next sections discuss the primary dependent variables of the study; changes in self-efficacy and choice of future task.

Self-efficacy

Self-efficacy "clearly refers to what a person believes he or she can do on a particular task" (Mitchell, Hopper, Daniels, George-Falvey, & James, 1994, p. 506). Differing levels of self-efficacy play prominent roles in determining varying levels of task performance, affective and cognitive reactions, as well as selection of future activities and environments (Bandura, 1986, 1989, 1994; Kanfer & Ackerman, 1989). Given that an individual's high level of self-efficacy is important in a wide range of domains, understanding factors that influence levels of self-efficacy would be useful. Relatedly, understanding factors that assist in maintaining high levels of self-efficacy, especially in response to negative feedback, would be valuable.

In the following sections, I briefly discuss influences on self-efficacy level and issues related to its change. I will then examine the limited research on changing levels of self-efficacy due to negative feedback and goal orientation-related topics.

Influences on Self-efficacy Level. Bandura (1977) cites four main sources for determining individuals' self-efficacy expectations: past performance accomplishments, vicarious experience, verbal persuasion, and levels of physiological/emotional arousal. Among these, past performance accomplishments are viewed as the most influential source (Silver, et al., 1995; Wood & Bandura, 1989). These accomplishments are communicated by feedback (Bandura, 1986).

In an article on self-efficacy's antecedents and malleability, Gist & Mitchell (1992) looked beyond the four sources identified by Bandura (1977). Gist & Mitchell argued that judgments of self-efficacy early in skill acquisition involved a complex synthesis of various factors such as attributes of the task, the physical and interpersonal environment, as well as one's ability, knowledge, personality, and goals. Later estimates of self-efficacy were proposed to be dependent on fewer cues.

Research by Mitchell, et al. (1994) examined Gist and Mitchell's propositions with undergraduates performing a computer task. Over a period of seven performance trials with immediate performance feedback after each trial, results from repeated questionnaires indicated that early assessments of self-efficacy were due to perceptions of available resources, past performance, task feedback, previous experience with similar tasks, as well as task complexity, novelty, and difficulty. With the exception of perceptions of past performance, all of these variables diminished in importance for later self-efficacy ratings.

In these latter stages, contributing factors to self-efficacy changes included the desire to do well and perceptions of alertness—described by the authors as "more affective or motivational" factors (p. 510). Although Bandura (1977) identified the need for research on factors influencing changes in self-efficacy nearly two decades ago, Mitchell, et al. (1994) recently advocated the same desire. My research will continue examining these "affective" or "motivational" factors on self-efficacy changes.

Self-efficacy, Negative Feedback, and Goal Orientation Issues. Past research has shown that individuals with performance goals and low self-efficacy are prone to maladaptive responses to negative feedback. As examples, the combination of past low performance and low self-efficacy for individuals with performance goals has resulted in responses such as lower effort (Covington & Omelich, 1979; Dweck & Leggett, 1988; Dweck & Reppucci, 1973), increased anxiety (Block, 1995), greater distractions from the task (Wine, 1982) and children's choices of less challenging tasks and reduced persistence (Elliott & Dweck, 1988).

Individuals with learning goals, either high or low in self-efficacy, have been shown to be less influenced by negative feedback since appearing competent is a less salient goal compared to self-referenced development. This desire to continue improving and developing competence—inherent within a learning-goal orientation—allows self-efficacy to have less influence, even in the face of negative feedback (Elliott & Dweck, 1988). Thus, expectations of self-

improvement, the prominent desire for those with learning goals, can happen regardless of one's perception of self-efficacy.

Similar to those with learning goals, performance-goal-oriented persons with *high* self-efficacy are less affected by negative feedback (Dweck, 1989; Nicholls, 1984). These performance-oriented individuals' goals of demonstrating high ability and appearing competent are perceived as being less threatened when they have high expectations of future performance.

The general summary of the relationship between self-efficacy and goal orientation is that a performance-goal orientation creates a sensitivity to the detrimental influence of low self-efficacy, whereas a predominant learning-goal orientation is less affected by a similar low self-efficacy assessment.

Although numerous studies have examined how self-efficacy (as an independent variable) can combine with goal orientation to influence reactions to task situations, only two directly tests goal orientation's impact on self-efficacy (as a dependent variable). Both Colquitt and Simmering (1998) and Phillips and Gully (1997), using the previously-described Button, et al. (1996) measure, found dispositional learning goals leading to higher self-efficacy (termed "expectancy" in the Colquitt and Simmering study, yet used synonymously) whereas dispositional performance goals reduced self-efficacy.

For my study, a primary issue is how the individual's goal orientation affects his or her self-efficacy in response to receipt of negative feedback. The differing goal orientations—given identical negative feedback—are expected to differentially influence changes in self-efficacy.

In support of this assertion, Ames and Ames (1981) examined children's self-evaluations in either a competitive or noncompetitive reward structure. Results indicated that even with a long history of doing well, the self-evaluation and satisfaction of those in a competitive system was largely dependent upon their most recent outcomes. These results support Dweck's assertion that the normative standards associated within a performance-goal orientation can create win-lose situations where confidence is more difficult to maintain and past success can be obliterated by a comparative negative judgment (1989). This implies that performance-goal contexts, with their emphasis on doing better than others, increase the detrimental influence of the latest failure experience, even with much previous success.

In another study whose results have implications on the relationship between goal orientation and changes in self-efficacy, Wood and Bandura (1989) manipulated undergraduates' implicit theories of intelligence before beginning a task. These manipulations promoted a belief in either a changeable "incremental" view or a fixed "entity" view of intellectual ability. Individuals in the incrementalist condition were told that practice was a primary determinant of decision-making skills and the more practice they have, the better they will become. It was also mentioned that mistakes are a natural part of the skill-acquisition process. Finally, they were told that the task they would be doing would allow them to further develop their cognitive decision-making abilities.

For those in the entity group, introductory instructions emphasized that the quality of decision making is based on the individual's level of basic

cognitive and intellectual capabilities; higher cognitive ability leads to higher quality decisions. They were also told the task they would do was effective at evaluating their true cognitive ability level.

At issue in the differing descriptions of intelligence is that for the incrementalists, more practice and effort will likely pay off with better performance. For those with the entity approach, however, the level of intelligence—viewed as unchangeable—is the primary determinant of outcomes; practice and effort are less helpful. In other words (as described earlier in this chapter), the two different conceptualizations of intelligence lead to very different views of the impact of effort on outcomes—a basic distinction between the two goal orientations (Dweck, 1989; Dweck & Elliott, 1983; Jagacinski & Nicholls, 1984; 1987; Nicholls, 1984).

As previously written, the dispositional measure used by Diener and Dweck (1978; 1980), Licht and Dweck (1984), and Stipek and Kowalski (1989) split their grade-school subjects into two groups. These splits were based on high or low scores depending on whether effort was perceived to influence outcomes. For those with high scores, greater effort was viewed as likely to improve performance. This view of the effort-outcome relationship is consistent with both the theoretical foundation of a learning-goal orientation (Button, et al., 1996; Dweck, 1986, 1989) and Wood and Bandura's (1989) incremental view of intelligence since each acknowledge that improvement and progress can occur—with expenditure of additional effort. Low scores on the dispositional measure imply additional effort has little impact on outcomes, a view consistent

with a performance-goal orientation and Wood and Bandura's entity-intelligence perspective.

In Wood and Bandura's (1989) study, the task was to manage a simulated organization, making numerous staff allocation and motivational decisions to complete the production quotas by the given deadlines. Individuals received performance feedback after each of 18 trials with self-efficacy and self-set goals measured after trial 6, 12, and 18. Effectiveness of strategy testing was measured by coding the quality of decisions. Performance was able to vary for each individual, depending on his or her series of actual decisions. The authors expected that the instructions stating that performance level was reflective of fixed intelligence would highlight anxiety about personal adequacy and lead to negative consequences for changes in self-efficacy and diminish self-set goals as well as the use of analytic strategies and performance.

Results supported their expectations: Those given the entity view of intelligence showed a steady performance decline; incrementalists maintained a much higher performance level over the course of the 18 trials. Additionally, individuals in the fixed-entity group were more erratic in their strategy testing and progressively set lower goals than their counterparts in the incremental condition. Regarding changes in self-efficacy, incrementalists maintained higher levels whereas those with the entity perspective had lower and declining self-efficacy. Martacchio (1994) found similar results with college employees undergoing computer training: those given pre-training instruction stating

computer ability is acquirable increased their self-efficacy, whereas those told the ability is a fixed entity experienced reduced self-efficacy.

As mentioned before, there have been no direct tests of how the two goal orientations can differentially impact changes in self-efficacy in response to negative feedback. The Wood and Bandura (1989) study could be viewed as creating the two goal orientations and examining changes in self-efficacy in response to performance feedback since their manipulations of intelligence tap into core issues within goal orientation: the role of effort on performance outcome. However, their findings that one set of individuals maintained their level of self-efficacy and the other set declined do not allow the conclusion that the differing goal orientations—induced by the intelligence manipulation—caused the differing changes in level of self-efficacy. This lack of clear causality of goal orientation issues on changes in self-efficacy is due to the mediator of performance level: Results indicated that performance declined in the entity group whereas the incrementalist group did not have performance degradation. Thus the two groups were experiencing different types of performance feedback.

The authors' path analysis found the more positive feedback received by those with the incremental (learning goal) manipulation led to maintenance of higher self-efficacy. For individuals with the entity (performance goal) manipulation, however, the declining self-efficacy was primarily influenced by the declining performance. Since the differing levels of self-efficacy change were not in response to identical feedback experiences, it is inappropriate to view this as

an examination of self-efficacy change solely in response to alternative goal orientations.

In a different experiment, Bandura and Wood (1989) examined the effect of perceived control, a topic related to goal orientation, with performance outcomes and changes in self-efficacy. The task was identical to Wood & Bandura's (1989) computer-simulated organization. In this study, half of the subjects were told performance outcomes were largely due to the decisions they make whereas the remaining subjects received directions clearly inferring that outcomes were largely out of their control.

Similar to issues of incremental- versus entity-views of intelligence, one's sense of personal control is also associated with the differing goal orientations. Dweck (1989) explains this relationship by distinguishing between the two goal orientations' evaluative standards. Within a performance-goal orientation, goal attainment is other-referenced; salient comparisons are dependent on performance level relative to others' performance attainments. The individual has little control over other people's performance (nor the criterion used by the evaluator).

Alternatively, a learning-goal orientation's desire for self-referenced mastery or progress leads to greater perceptions of control over the outcomes since it involves a direct effort-outcome relationship. Self-referenced perceptions of progress and improvement are important; other's performance is much less salient. Due to this, a learning-goal orientation is more likely to foster a greater sense of personal control.

Within the Bandura and Wood (1989) study, results indicated that those with the low-control manipulation had declining self-efficacy over time. High-control subjects maintained, even heightened their self-efficacy. However, these results do not singularly lead to the conclusion that the differing performance-control manipulations led to the differing profiles of self-efficacy change. Similar to Wood and Bandura (1989), performance also differed between the two experimental groups: high-control subjects performed better. Thus, once again, the differing levels of self-efficacy change were not in response to identical feedback experiences. Performance—and related performance feedback—differences existed.

In my research, goal orientation's impact on changes in self-efficacy can more clearly be examined since the performance feedback will be controlled as opposed to varying for each individual. This allows examination of one of my study's primary research issues; the relationship between goal orientation and changes in self-efficacy *in response to identical negative performance feedback.*

The immediately preceding section discussed self-efficacy as a dependent variable: in response to identical negative feedback, changes in self-efficacy are proposed to be differentially influenced by the salient goal orientation. As an independent variable, my research will examine the direct and indirect roles that self-efficacy, as well as goal orientation instructions and the public or private delivery of performance feedback, can have in determining individuals' choice of future tasks.

Task Choice

Performance feedback occurs in response to past behavior on some task or job. The primary focus of most research on performance feedback is its affect on the actor's performance in the same or very similar task. However, the message and meaning of the feedback may also generalize beyond the specific task on which the behavior occurred. One of the ways in which this generalization occurs is in the choices individuals make regarding future tasks on which to work when they are given the freedom to make such choices. In the material presented below, I first discuss the importance of task choices for employees in organizations and then briefly introduce research identifying factors influencing these choices.

Task Choice as an Important Employee Behavior. Although some positions allow very little room for personal discretion and choice of future work activities (e.g., the factory worker assigned to one small segment of a manufacturing task), other positions allow for extending beyond the particular job description and undertaking new roles and responsibilities (Graen & Scandura, 1987; Ilgen & Hollenbeck, 1991). In such positions, workers may decide what future tasks are to be done as well as how they will be done (Davies & Easterby-Smith, 1984).

The tasks chosen will vary in their potential for new skill or knowledge development. This range may include those tasks with no developmental value to those with high developmental potential. They also may vary in difficulty level, regardless of the amount of new learning and development involved.

Frequently these two issues, levels of new learning and levels of difficulty, are related. Choosing future tasks that are highly developmental expose employees to new knowledge and skills, yet, as they initially tackle these new tasks, such tasks often expose the employees to greater risk of poor performance.

For those cases where employees do have the ability to choose, avoidance of developmentally challenging assignments creates a potential loss for both the employee and the organization. This avoidance is particularly detrimental since (a) there is growing recognition that on-the-job experiences are a valuable form of development (Keys & Wolfe, 1988; McCauley, Ruderman, Ohlott, & Morrow, 1994; Wexley & Baldwin, 1986) and (b) recent technological changes and greater productivity demands create an increasing emphasis for on-going continuous learning within the work force (Kozlowski & Farr, 1988).

Although employees' involvement in developmental activities are important for continuous learning and advancing professional development (Rosow and Zager, 1988), only limited research has been done on predictors or antecedents of employees' continuous learning efforts (Kozlowski & Farr, 1988; Noe & Wilk, 1993). The following section outlines research examining task choice for developmental activities. Greatest focus is on the influences of negative feedback, goal orientation, and self-efficacy issues.

Influences on Task Choice. As previously written, negative feedback can lead to a wide range of responses. Some responses may be helpful to the individual within his or her particular situation, other responses may not. One

important influence that negative feedback can have on individuals is the choice made for future work activities (Elliott & Dweck, 1988).

Since performance feedback is widely used as an employee-improvement intervention (Larson, Glynn, Fleenor, & Scontrino, 1986), a reaction by individuals receiving negative feedback to avoid future challenging assignments and other opportunities to advance skills may limit that employee's career enhancement as well as contributions to the organization. A greater understanding of factors influencing employees' willingness to choose developmental yet difficult tasks in response to negative feedback would be useful. My research examines a subset of issues anticipated to affect this willingness.

Directly relating the issue of goal orientation to choice of tasks, Dweck and Leggett (1988) described learning and performance-goal orientations as differing approaches that are useful in explaining how individuals think about and respond to potentially challenging situations. For individuals with a learning goal, low performance, obstacles, and new challenges are likely to be viewed as a natural aspect of the learning process (Dweck and Leggett, 1988). These individuals are more inclined to maintain their striving in the face of low performance and negative feedback—regardless of their self-efficacy—and pursue tasks that promote learning even if there is an increased chance of poor performance.

Conversely, since performance goals create a focus on ability judgments with a desire to appear capable, future situations or challenges that could

possibly reveal low ability will likely be shunned. In other words, performance goals promote defensive strategies (e.g., choosing easier tasks) designed to protect against negative judgments of ability—especially with low self-efficacy (Ames, 1992; Ames & Archer, 1988; Dweck, 1989; Dweck & Leggett, 1988; Elliott & Dweck, 1988; Nicholls, 1984)

Goal orientation's impact on constructs related to task choice have been studied four times. In an Expectancy-Theory based longitudinal study with college students, results of the previously mentioned Colquitt and Simmering research (1998) showed a positive relationship between dispositional learning goal orientation and motivation to learn at both the beginning and end of a six-week interval within a college class. Additionally, dispositional performance goal orientation and motivation to learn were negatively related.

Ames and Archer (1988) assessed children's perceptions of the degree to which the classroom emphasized learning goals and performance goals. After measuring perceptions, the questionnaire also asked two questions on the likelihood of choosing (a) "a project where you can learn a lot of new things but will also have some difficulty and make many mistakes" and (b) "a project that would involve a minimum of struggle or confusion and you would probably do very well." Due to the high correlation between these two questions ($r = -.61$), the authors created a composite variable reflecting a preference for challenging work. The children perceiving their environment as one emphasizing learning were significantly more likely than those perceiving a performance emphasis to

indicate a preference for more difficult projects that were most likely to promote learning (Ames & Archer, 1988, p. 263).

In a similar study, Archer (1994) assessed three sets of college students' perceptions of goal orientation within differing academic courses. This same questionnaire also asked whether the students would be willing to take on a hard task (with a high probability that they would make mistakes yet derive a high amount of learning) and, in a separate question, their willingness to choose an easy task (with likely high grades yet little work required).

Archer (1994) found significant positive correlations (r = .29, .39, and .49 for the three separate groups) between a perceived learning-goal emphasis and willingness to choose the hard, yet developmental, task. Significant negative correlations existed between the perceptions of a learning-goal environment and choice of the low-effort, easy task (r = -.27, -.30, and -.37). Similar to the Ames and Archer (1988) study examining children's perceived classroom emphasis, Archer found nonsignificant relationships between the college students' levels of perceived performance-goal orientation and willingness to choose either easy or hard tasks.

The Colquitt and Simmering (1998) research described earlier shows the relationship between the two dispositional goal orientations and an individual's motivation to learn. Though the motivation-to-learn construct certainly seems an antecedent to truly choosing learning-related tasks, actual choice was not part of this research endeavor. Relatedly, results of both the Ames and Archer (1988) and Archer (1994) studies highlight the importance of a perceived learning-goal

emphasis on the stated *willingness* to choose tasks involving both difficulty and learning. It is important to note, however, that this operationalization of task choice is one in which subjects *know they will not actually be doing the chosen task.* Expressing a "willingness" to do nonexistent harder or easier tasks is a weaker measure than if the subjects thought their task choice would truly become reality.

The previously described Elliott and Dweck (1988) study with fifth-graders provides the only goal orientation research in which task choice was perceived to actually influence future tasks encountered. These authors examined the influence of negative feedback with differing goal orientation instructions. In addition to the various dependent variables discussed earlier (changes in problem-solving effectiveness, attributions for poor performance, and affective reactions), task choice was also assessed.

Following the goal orientation manipulation, the children were given a choice of the type of task on which they would next like to work. They could either choose a performance task in which they were told that "although you won't learn new things, it will really show me what kids can do," (this inferred the task would assess their true ability level) or a learning task in which it was emphasized that mistakes would probably be made and it could seem confusing, "but eventually you'll learn some useful things" (Elliott & Dweck, 1988, p. 7). Those that chose the learning task moved immediately into their task training. If the performance task was chosen, children were then asked their preference for a difficulty level of the future tasks; easy, moderate, or difficult. After choosing,

all of the children were given the identical set of four training tasks for the new pattern-recognition task and an identical set of three test tasks.

Results indicated significant differences in task choice: Eighty-two percent of those given the learning goal chose the learning task—even with its anticipated likelihood of greater mistakes and confusion. In comparison, 66% with performance-goal instructions picked the performance task.

Aside from goal orientation instructions, Elliott and Dweck (1988) also examined the affect of self-efficacy on task choice. Similar to other previously mentioned examples in which the influence of self-efficacy was contingent upon the salient goal orientation (see Ames, 1992; Dweck, 1989), self-efficacy's moderating affect on future task choices was also apparent.

The Elliott and Dweck (1988) study provides evidence for a goal orientation by self-efficacy interaction on task choice. For children who picked the performance-goal task, future task choice was affected by the self-efficacy manipulation (receipt of bogus positive or negative pre-choice feedback): The low-efficacy group chose easier, less developmental tasks than those receiving the high-efficacy feedback. It is valuable to note that even those performance-oriented children with perceptions of high self-efficacy still largely avoided the task involving greater learning.

For Archer (1994), higher self-efficacy (non-manipulated) significantly contributed to individuals' willingness to choose hard tasks, above and beyond perceived learning or performance-goal emphasis within the classroom. Archer

did not report results of the interaction between self-efficacy and goal orientation.

Brickman and Bulman (1977, p. 160) note that " . . . if people are for any reason self-conscious, anxious, or just sensitive about their own position in a group, we might expect them to be especially interested in avoiding potentially unfavorable comparisons." This quote highlights issues within both goal orientation and self-efficacy such that the combination of both a performance goal and low self-efficacy can give reasons to be self-conscious, anxious, and sensitive about how one's ability is perceived by others. The additional issue of having one's performance feedback publicly known to others should increase anxiety similarly.

With these issues highlighted, a relevant research question of interest is "What can be done by managers within the organization to increase the likelihood that employees will choose tasks and assignments that these employees perceive to be developmental yet also involve risk of poor performance?" My research—though a lab study—examines a subset of managerially-malleable issues by using the theoretical foundation of goal orientation as a guide to explore the influence of negative feedback, task instructions, feedback delivery, and self-efficacy on choices for potentially developmental tasks.

The past sections have introduced the problem (variable reactions to negative feedback) and briefly reviewed the performance-feedback, self-efficacy, and goal-orientation literatures to identify issues and constructs that may lead to

a greater understanding of these varying responses. For purposes of my research, the responses of interest are changes in self-efficacy and choices of future tasks. The next chapter outlines the anticipated relationships and hypotheses between the variables of interest.

ANTICIPATED RELATIONSHIPS AND HYPOTHESES

The preceding literature review highlighted a dilemma created by previous studies on negative performance feedback: although performance feedback is viewed as a valuable method of enhancing employee effectiveness, feedback indicating poor performance often leads to unpredictable consequences—some good, some bad. Additionally, the review found evidence for the important role that the situationally-induced goal orientation may have on a wide range of topics—most notably its influences on responses to negative feedback. Previous sections also discussed the important role that self-efficacy plays in motivation as well as identifying a lack of clarity in conclusions derived from past research on public feedback.

In this section, the anticipated relationships between a variety of proposed motivational factors and outcomes are introduced and, as they relate to negative feedback, a related set of hypotheses is presented. A few clarifying comments should be made prior to describing these relationships. First, the purpose of this study is not to be an exhaustive portrayal of all possible constructs influencing reactions to negative performance evaluation. I certainly have a definite interest in the inclusion of a large number of individual differences and situational manipulations which may influence responses to negative feedback. As an initial investigation aimed at identifying key factors related to negative feedback, this study will be limited to those conditions believed to be critical to the issue. Thus, the hypotheses consists of a subset of constructs and their anticipated relationships which attempt to explain a portion

of the complex process in which individuals choose future tasks and alter their self-efficacy.

Second, within a given context, many goals may be present. Aside from the two achievement-related motives, numerous non-achievement goals (e.g., having fun, gaining popularity) may also exist. According to Dweck (1989), choice of goal orientation "will depend on its salience to the individual and on its value relative to other competing achievement and non-achievement goals." These points appear to advocate use of a more controlled setting, one in which greater confidence can be given that salience of goal orientations will be created through situational manipulations and that non-achievement goals will have less opportunity to interfere with the issues of research interest. Since this is an initial examination of whether these combinations of various constructs and interventions are related, the tighter control over the manipulations—and its related decrease in potential confounding and contaminating influences—makes the lab an appropriate setting for this inquiry. Upon finding that relationships exist, use of a field setting would be helpful in clarifying pertinent boundary conditions.

The past reviews of the performance feedback, self-efficacy, and goal-orientation literature have highlighted the impact that each may have on the other. The following section includes the hypotheses of my study.

Overview of the Anticipated Relationships

In this study, I expect that the perceived purpose in which an individual approaches a task influences his or her subsequent reactions to feedback. This

purpose, or goal orientation, is conceptualized within this study as the degree to which emphasis is given to developing competence (a learning goal) or demonstrating competence (a performance goal).

The goal orientation an individual adopts within an achievement task is important largely due to its effects on the standards used to evaluate success. These differing evaluative standards subsequently influence interpretations of, and reactions to, performance feedback. This study highlights the relationships that the differing goal orientations are anticipated to have with the dependent variables of interest; self-efficacy resilience (in reaction to negative feedback) and task choice. Regarding the latter dependent variable, the options given to the participants for future tasks are along a six-point continuum. In this continuum, the first and last option are described, respectively, as (a) an easier task which will allow higher scores yet is not helpful in learning about the task, or (b) a more difficult, mastery-oriented task (resulting in probable lower scores) that is designed to enhance learning about the task.

Hypotheses

Though it is not feasible to study all, or most, domains of adaptive or maladaptive reactions to negative feedback, support can be gathered from well-designed studies examining a limited set of consequential responses to negative feedback. The adaptive responses to negative feedback investigated within this research are (a) maintenance of, or slower decline in, self-efficacy, and (b) willingness to choose more difficult, mastery-oriented tasks rather than easier tasks.

The anticipated relationships between and among the independent and dependent variables suggest a number of testable hypotheses. These hypotheses consider the effects of the two situational manipulations influencing perceptions of pressure for high performance (goal-orientation instructions and public/private delivery of performance feedback) as well as self-efficacy, the interactions between these three constructs, and their relationships to the specific responses to negative feedback of self-efficacy resilience and choices for future tasks.

Hypothesis for Changes in Self-efficacy

As previously discussed, self-efficacy is an influential factor in a variety of cognitive, affective, and behavioral domains (Bandura, 1986; 1989). Due to its importance, it would be valuable to have a greater understanding of determinants of how it changes (Bandura, 1977; Silver, et al., 1995) as well as factors influencing its resilience to negative feedback (Gist & Mitchell, 1992).

Dweck (1989, p. 99) views high confidence more difficult to preserve for those with a performance-goal framework since the desire to appear more competent than others can " . . . create a win-lose situation in which the effects of past successes, considerable personal progress, or an excellent product, can be obliterated by a single comparative judgment." The Ames and Ames' (1981) study of children in competitive or noncompetitive settings supported this assertion. These suggest the following hypothesis:

> **H1:** During the receipt of repeated negative feedback, the self-efficacy of those individuals given learning-goal instructions anticipating private

feedback will decline more slowly than the self-efficacy of those given performance-goal instructions expecting public feedback.

It is anticipated that the rates of decline will be similar to the profiles diagrammed in Figure 2.

In order for this decline to occur, it is necessary that the self-efficacy at the initial point is sufficiently high to be able to drop. If, for example, initial self-efficacy were low, there would be a statistically confounding floor effect. This scenario would make it difficult for the predicted patterns in the hypothesis to emerge. Therefore, as will be explained in the methods section, this research is designed to create conditions prior to measurement allowing for suitable data analysis of self-efficacy decline.

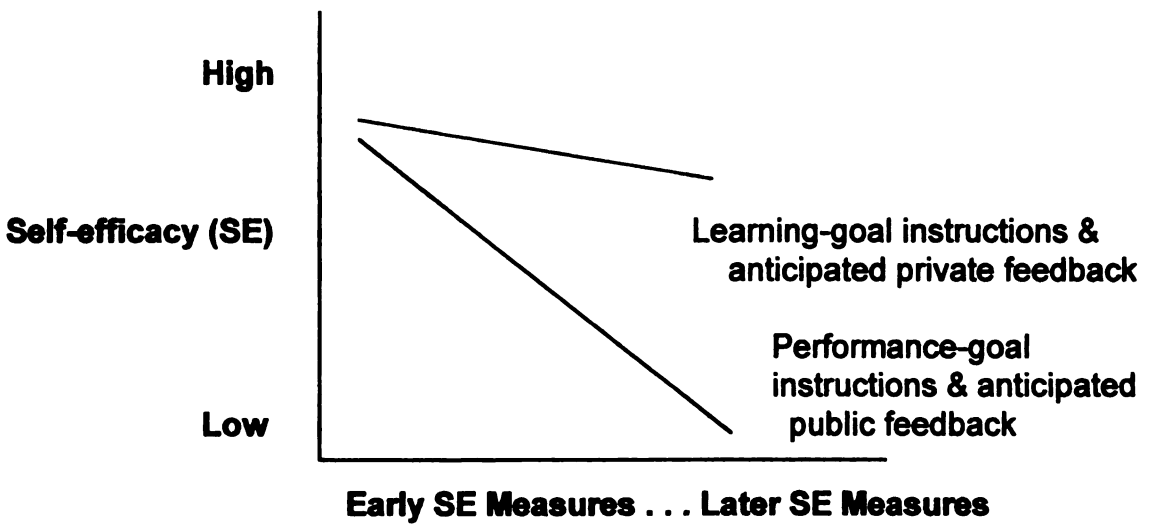


Figure 2. Hypothesized Differential Rates of Self-efficacy Decline in Reaction to Negative Feedback

Hypotheses on Task Choice

Goal Orientation on Task Choice. A common finding within the goal-orientation literature—and a recurring issue in previous sections—is that a

learning-goal orientation (whether dispositionally- or situationally-induced) promotes a more adaptive and helpful set of responses in reaction to challenges, obstacles, and failure. As previously detailed, a performance goal is commonly associated with performance standards that are other-referenced, involving normative comparisons (Butler, 1993; Dweck & Elliott, 1983; Nicholls, 1984). For an individual using this orientation, perceptions of failing to *appear capable compared to others* have greater implied threat and can lead to ego-protective behaviors which, in this research, may take the form of forfeiting opportunities to learn (i.e., avoiding difficult, mastery-oriented tasks).

Doing poorly relative to others is less detrimental to individuals with learning goals since rank and standing are less prominent issues (see Ames & Archer, 1988; Diener & Dweck, 1978, 1980; Licht & Dweck, 1984; Stipek & Kowalski, 1989). Based on these findings the following hypothesis is proposed:

> **H2:** Individuals receiving task instructions promoting learning goals will choose difficult, mastery-oriented tasks more frequently than those receiving instructions for performance goals.

At this point, I will discuss the anticipated impact of feedback delivery (public or private) and self-efficacy on task choice. Not only are these expected to directly affect task choice, but also to interact with each other and with the goal-orientation instructions. By identifying interaction hypotheses, I do not mean to imply that the main effects or nested interactions (e.g., the two-way interactions nested within the three-way interaction) are irrelevant. I view the separate direct effects of each variable as a valuable contribution as well as their interactions.

Public/Private Feedback on Task Choice. As explained earlier, one of the motives Festinger (1954) proposes to explain individuals' desire for social comparative feedback is self-validation—the enhancement of one's self-image. Self-preservation has more recently been advanced as another social-comparative motive (Goethals & Darley, 1987). This is the desire to preserve, or even improve, one's image *in the eyes of others*. Therefore, it is hypothesized:

> **H3:** Individuals anticipating private feedback will choose difficult, mastery-oriented tasks more frequently than those anticipating public feedback.

Goal Orientation and Public/Private Feedback on Task Choice. Bandura (1989, p. 1179) states "Most human behavior, being purposive, is regulated by forethought" and later adds "People anticipate the likely consequences of their prospective actions, they set goals for themselves, and they plan courses of action likely to produce desired outcomes." When a highly salient purpose is to appear competent relative to others—consistent with a performance-goal orientation—Bandura's logic leads to a prediction that these individuals will choose courses of action most likely to fulfill that purpose.

Since those with performance goals are interested in appearing competent relative to others, expectations of potentially poor performance becoming publicly known could be particularly stressful. In this case, the desired outcome would be to avoid a potentially embarrassing performance score from becoming public information. With this avoidance desire, decisions to choose easier tasks are likely to ensue. Those with learning goals, especially with the

additional anticipation of private feedback, would be less likely to choose easier tasks. This reasoning leads to the following hypothesis:

> **H4:** The influence of goal-orientation instructions on task choice will be contingent upon feedback delivery such that the combination of performance-goal orientation instructions and public feedback delivery will lead to less frequent choices of difficult, mastery-oriented tasks than any of the other three combinations of goal-orientation instructions and feedback delivery.

Figure 3 highlights the expected relationship of goal-orientation instructions and mode of anticipated feedback delivery.

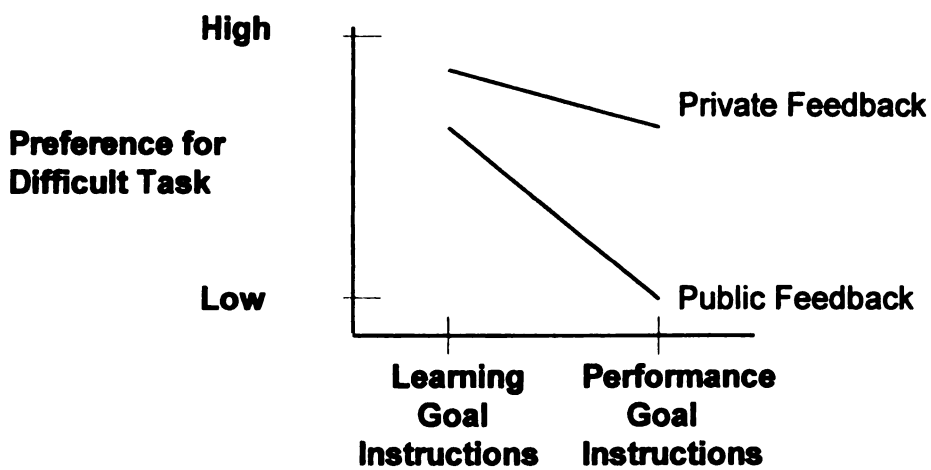


Figure 3. Hypothesized Goal-orientation Instruction by Feedback Delivery Interaction on Task Choice

Self-efficacy on Task Choice. Bandura (1989) sees self-efficacy highly influential in individuals' selection of future environments. He explains that "People tend to avoid activities and situations they believe exceed their coping capabilities, but they readily undertake challenging activities and select social environments they judge themselves capable of handling" (p. 1178). This suggests the following hypothesis:

H5: Those with higher self-efficacy will choose difficult, mastery-oriented task more frequently than individuals with lower self-efficacy.

Goal Orientation and Self-efficacy on Task Choice. Self-efficacy is important to consider when attempting to clarify the influence of salient goal orientation on reactions to negative feedback within an achievement setting. The common research shows self-efficacy to be more influential for individuals with a performance goal due to the predominant desire to appear competent (Dweck, 1989; Nicholls, 1984).

The previously described study of task choice among children by Elliott and Dweck (1988) showed low self-efficacy detrimental to those most desiring of high attainment levels: performance-goal oriented individuals. Learning goals place a greater emphasis on self-referenced improvement—an emphasis placing less importance on self-efficacy assessments. These ideas and related past findings lead to the sixth hypothesis:

H6: The influence of goal-orientation instructions on task choice will be contingent upon self-efficacy such that the combination of performance-goal orientation instructions and low self-efficacy will lead to less frequent choices of difficult, mastery-oriented tasks than any of the other three combinations of goal-orientation instructions and self-efficacy.

The nature of this anticipated goal-orientation instruction by self-efficacy interaction is clarified in Figure 4.

Private/Public Feedback and Self-efficacy on Task Choice. Feedback highlighting social comparison can increase the salience of perceived ability (Ames, 1984). As previously written, individuals often desire to have a favorable image in others' eyes (Festinger, 1954; Goethals & Darley, 1987) and there is a

desire by those expecting to have undesirable performances to avoid social comparison (Brickman & Bulman, 1977).

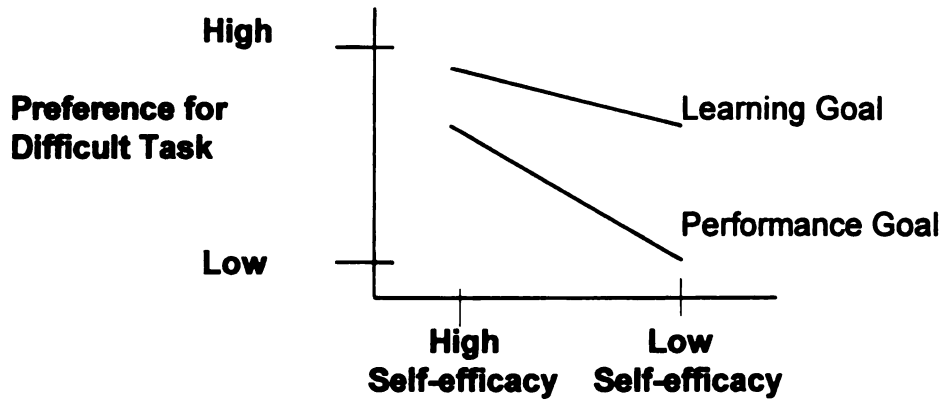


Figure 4. Hypothesized Goal-orientation Instruction by Self-efficacy Interaction on Task Choice

In some achievement situations, individuals' performance is known to others; there may not be an option to avoid the public comparison of their performance feedback. If given a chance to make this comparison more appealing, however, those with low self-efficacy are anticipated to take it. In contrast, the individuals with high self-efficacy anticipating private feedback would be less concerned about any comparison. Thus, it is hypothesized:

> **H7:** The influence of feedback delivery on task choice will be contingent upon self-efficacy such that the combination of anticipated public feedback and low self-efficacy will lead to more frequent choices of difficult, mastery-oriented tasks than any of the other three combinations of feedback delivery and self-efficacy.

The anticipated manner in which anticipated public or private feedback delivery interacts with self-efficacy is depicted in Figure 5.

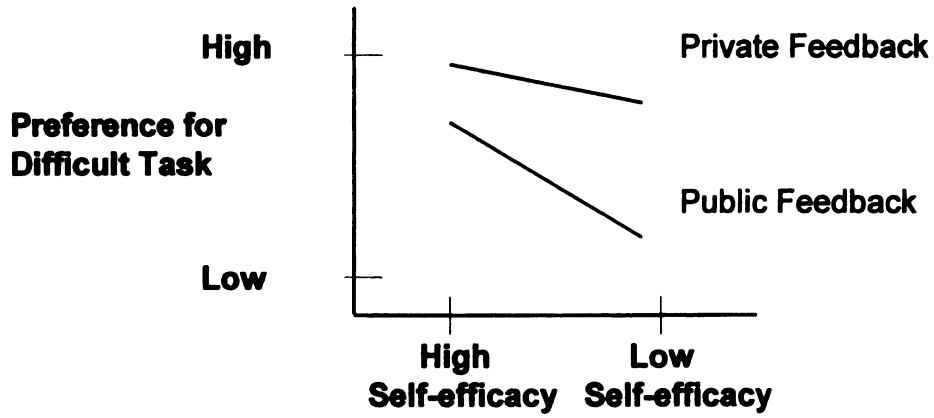


Figure 5. Hypothesized Feedback Delivery by Self-efficacy Interaction on Task Choice

Goal Orientation, Self-efficacy, and Public/Private Feedback on Task Choice. Individuals with a desire to appear competent (performance-goal oriented), anticipating that their performance will be both publicly known and poor (low self-efficacy) are expected to be in the most ego-threatening situation. The opposite group (learning-goal, private feedback, high self-efficacy) would be the least threatened. The anticipated consequences lead to the final two hypotheses:

> **H8a:** The influence of goal-orientation instructions on task choice will be contingent upon both feedback delivery and self-efficacy such that the combination of learning-goal-orientation instructions, private feedback, and high self-efficacy will lead to more frequent choices of difficult, mastery-oriented tasks than individuals in any of the other seven combinations of goal-orientation instruction, feedback delivery, and self-efficacy.
>
> **H8b:** The influence of goal-orientation instructions on task choice will be contingent upon both feedback delivery and self-efficacy such that the combination of performance-goal-orientation instructions, public feedback, and low self-efficacy will lead to less frequent choices of difficult, mastery-oriented tasks than individuals in any of the other seven

combinations of goal-orientation instruction, feedback delivery, and self-efficacy.

Figure 6 illustrates how goal-orientation instructions, anticipated method of feedback delivery, and self-efficacy are anticipated to influence task choice.

Summary

The proposed relationships and related hypotheses outline the anticipated value that goal orientation may have in both understanding and predicting reactions to performance feedback, particularly negative feedback. This research is anticipated to show the value of framing tasks in a manner emphasizing learning goals—especially when negative feedback may be received, low self-efficacy may exist, and/or when feedback is anticipated to become publicly known.

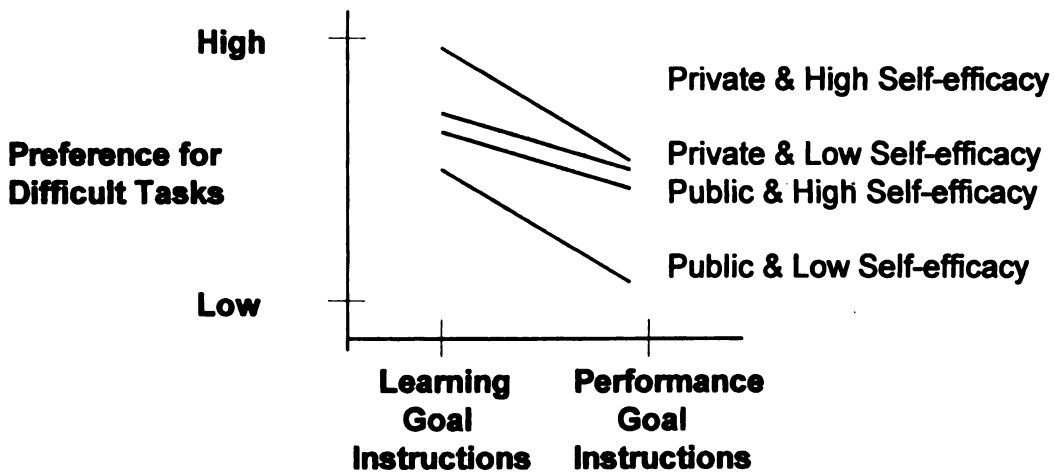


Figure 6. Hypothesized Goal-orientation Instruction by Feedback-delivery by Self-efficacy Interaction on Task Choice

Aside from framing of the task (via learning-goal instructions), conscious efforts to (a) boost individuals' self-efficacy, as well as (b) minimize the

anticipated likelihood of performance feedback becoming known to others are expected to be helpful in promoting resistance to potentially adverse reactions commonly associated with negative feedback.

The following section outlines this study's procedure and data-analytic approach.

METHOD

Overview

This task involved a series of problems that entailed gathering information from a file on computer and making a decision about a course of action. After all participants received the identical task training, goal-orientation instruction and public-private feedback-delivery manipulations occurred. Participants were randomly assigned to receive task instructions designed to focus their attention on either a learning-goal orientation or a performance-goal orientation as well as to anticipate receipt of public or private performance feedback.

Individuals receiving performance-goal instructions were told their goal was to try to achieve high scores on the task. Those given instructions for learning goals were directed to emphasize progress and mastery of the task. Individuals in the public-feedback condition were informed that their final scores—along with the scores of the others within the room—would be posted on a wall chart immediately following completion of those latter trials.

After these instructions, all participants did eight training problems with false feedback given on the computer screen immediately after each decision. This Phase-One feedback was programmed to give half of the participants identical positive performance information. The feedback was not related to their actual performance so that each could be given positive feedback. Immediately after this set of ten training problems, they were asked their preference for the type of tasks they would do in the future. This task choice was arrayed along a

six-option continuum anchored at each end by either (a) more difficult tasks with greater learning involved or (b) easier tasks with little gain in task knowledge.

Following this choice, all participants performed trials on the task and received identical bogus *negative* feedback. To assess the potentially differing rates of self-efficacy change, after the second, fourth, seventh, and tenth problems of this set, participants were asked efficacy-related questions about how they expected to perform on the next few problems. Two more sets of ten trials followed this all-negative feedback phase; the third and fourth sets of problems were easy tasks and true feedback was given. This approach allowed the participants to finish the experiment on a positive note.

Sample

To partially fulfill a course requirement, 221 students from an Introduction to Management and Organizational Behavior class participated in the study. To increase the manipulations' potential effects, participants came in small groups generated within their academic classes. These groups had worked on academic projects prior to the experiment and would continue working together after the experiment. Intact academic groups were chosen to more closely mirror issues of public feedback delivery: it was expected that individuals would care about their peers' opinions of them.

Nine students were not included in the final analysis due to incomplete survey measures and one participant had a computer malfunction. The final number of participants for analysis was 211 (110 males and 101 females).

Design

The research design for this laboratory experiment was a 2 (learning-goal vs. performance-goal instructions) X 2 (private vs. public anticipated performance feedback) X 2 (negative vs. positive Phase-One bogus feedback). Participants were randomly assigned to the eight cells.

Since the participants did the experiment in groups within the same room, the goal-orientation instructions and public/private feedback manipulations were identical for all individuals within a group (room). However, the positive or negative bogus feedback during the Phase-One problems were randomly assigned within each group.

This was a double-blind experiment: not only were the participants ignorant of the various experimental manipulations they were to encounter but the trainer was also unaware of the participants' assigned conditions.

Task Overview

Research participants worked on a computer task that simulated a naval command-and-control scenario. Individuals were trained to use the computer to gather information about an airplane (target) in the local airspace, assess whether that target appeared hostile or not, and report their judgment of the target's hostility level. Appendix A lists the nine pieces of information available for each of the airplanes and a general description of the threat ranges for each of the nine cues' values. The nine cues broke down into three combination rules (as detailed in Appendix B). A seven-point continuum was used for each final judgment, ranging from ignore (the least aggressive response), upward to

review, monitor, warn, ready, lock-on, and finally defend (the highest level of aggressive response). Appendix C describes these seven available decision alternatives.

A feedback screen appeared after each decision. The participants were told that the computer-generated feedback compared their decision to the 'correct' decision and awarded them points for their level of accuracy (as described in Appendix D). In reality, the feedback in the early phases of the experiment was not a comparison to the "correct" decision. Instead, it was a bogus, predetermined comparison directing them toward thinking they were either doing well or poorly—depending on the condition and phase of the experiment. In Phase One, half of the participants received positive feedback and half received negative feedback. For Phase Two, all received feedback indicating poor performance. Phases Three and Four, intended to have everyone finish with a positive experience, gave true feedback based on much easier targets.

Effectiveness of the bogus feedback is, of course, dependent on the participants' believing that the answer they were told was correct could plausibly be correct. The pilot study indicated the effectiveness of the target manipulations on feedback believability.

The task was based on TIDE^2 software (Team Interactive Decision Exercise for Teams Incorporating Distributed Expertise). This program is designed to simulate team and individual decision-making scenarios. For more

information, the original documentation for TIDE^2 is in Hollenbeck, Sego, Ilgen, Major, Hedlund, and Phillips (1993).

Procedure

Figure 7 outlines the chronology of the procedures for this study. This diagram is included as an additional aid to the text and depicts the timing of both the experimental manipulations and measures.

Once the participants entered the research laboratory, they read and signed an informed consent form (see Appendix E). In their academic groups, the students were taken to a room and directed to sit at individual computer stations.

Information about the naval command-and-control scenario was presented in an instruction manual. After the trainer gave a brief overview of the task, participants were given time to read the manual (comprised of Appendices A, B, C, and D). This manual gave specific information about the nine pieces of information and how these cues divide into the three combination rules. The instructions recommended the participants come up with an overall threat level for each of the three combination rules separately. After each of the three combination rules had an associated threat level, the participants were instructed to integrate the three threat levels for a final decision.

The manual described the threat continuum and the need to choose a threat level for each aircraft in the airspace. In addition, it listed scoring procedures based on the discrepancy between the actual decision that was made by the participant and the purported 'correct' decision.

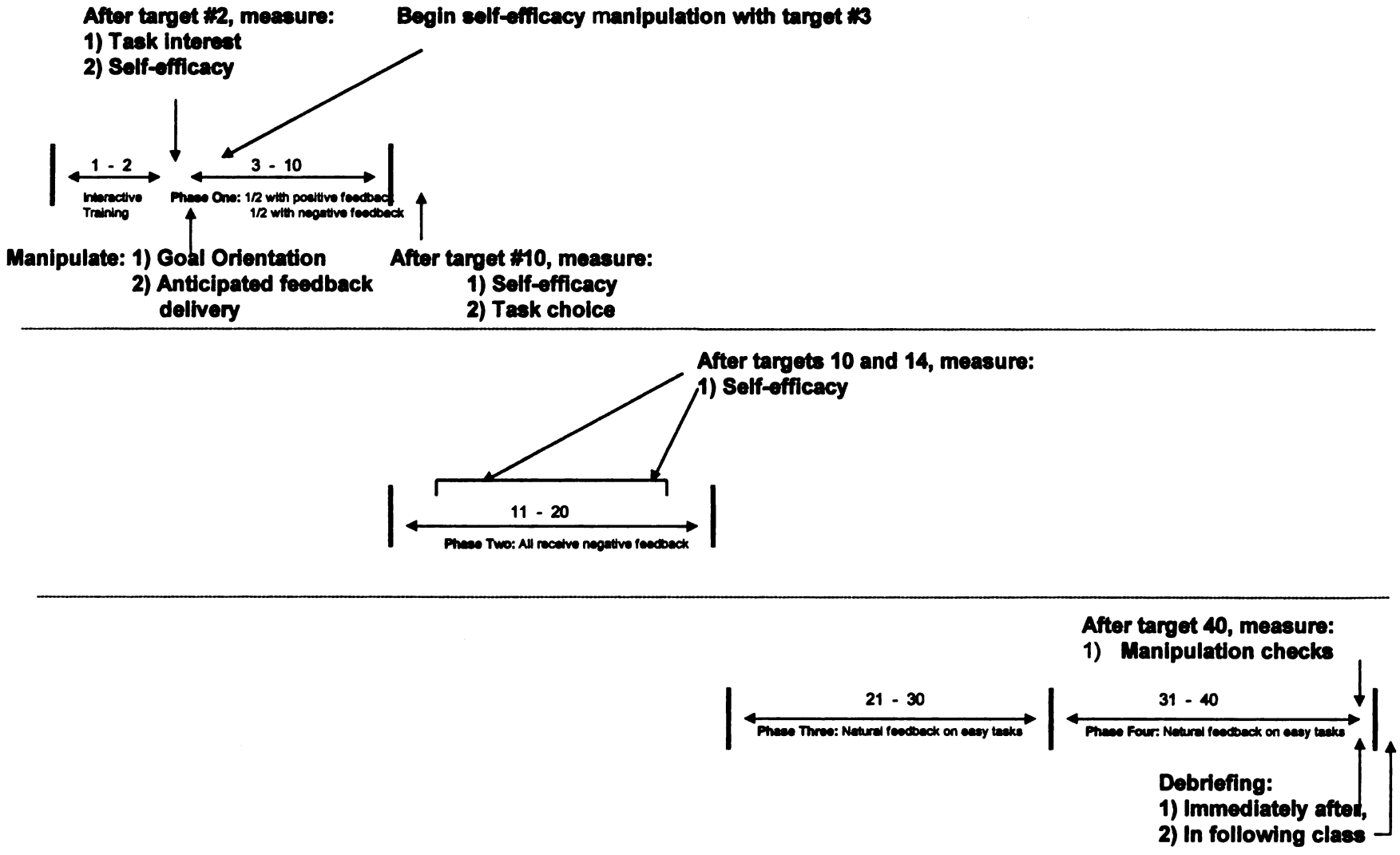


Figure 7. Chronology of Procedures, Including Measures and Manipulations

After allowing five to eight minutes to read the manual, training on the computers began. For two targets—prior to any experimental manipulations—participants were shown how to use the computer to measure cue information and make decisions. To ensure that there were no differences in these two trials, they were told exactly what decisions to make. The feedback screens were also described.

Following the first two targets in which all participants had identical experiences and feedback, questions appeared on the computer screen assessing their interest in the task. Perceptions of self-efficacy were also asked. The task interest and self-efficacy questions occurred at this time to gauge comparability of initial levels on these variables across among participants prior to any manipulations. These measures are listed in Appendix F and described in a later section.

Goal-orientation Instruction Manipulation. Immediately following the questionnaire, participants were given task instructions on both the computer screen and in a video designed to focus their attention on learning and mastering the task (learning goals) or toward doing well and attaining high scores (performance goals). When giving task instructions to influence goal orientation, it is important to successfully create the impression that the skills used in the task are meaningful and important (Butler, 1993; Nicholls, 1984). For the learning-goal condition, Butler (1993) recommends stating that what is learned is valuable, whereas the performance-goal manipulation is aided by emphasizing that the task is a test of valued skills. Considering these

recommendations, the following manipulations were introduced by a message on the computer screen followed by a video segment reiterating the manipulation.

Participants within the learning-goal condition received the following instructions:

> **On the computer screen**: For purposes of this research, we are in the final stages of creating and validating sets of targets that are most helpful in allowing individuals to learn and, over time, gain a greater understanding of this task. We are seeking your assistance in this process.
>
> Your academic success depends in large part on the quality of your ability to learn problem-solving strategies when given new tasks and to change strategies when necessary. Over the past few years of our research we have found the upcoming sets of targets to be designed in such a way as to maximize individuals' improvement from the early targets to the later targets. These targets have been refined and created to allow you to gradually master the task and develop effective strategies over time.
>
> As you go through these targets, your goal is to learn as much as you can about how this task works. You want to increase your understanding of how the three rules—and the nine cues that make up these rules—combine to form an overall threat level.
>
> It is very important for you to understand that errors and mistakes, though possibly costing you points in this task, are a natural part of the learning process. Past students have found their errors to be excellent opportunities to grasp deeper understanding of this task. These mistakes can allow you to modify ineffective strategies when necessary in order to improve your future performance.
>
> Your focus is on learning and gaining mastery over time. This is accomplished through your effort to develop an understanding of this task.
>
> **On the video** (shown immediately after the students were done reading the on-screen goal-orientation and feedback-delivery manipulations): As was just described on your computer screens, the purpose of this research is the development of targets that are effective in helping individuals improve over time by thoroughly

learning how this task is designed. We are in the final stages of that research right now.

This computer simulation may initially appear straightforward but we have found over the past 7 years with over 6000 students that we can create targets that are highly effective in helping individuals improve from the early targets to the latter targets. We are able to do this primarily by systematically altering the configuration of the nine cue values as well as manipulating how the three rules combine to form the overall judgment.

For this research, it is very important for you to attempt to learn as much as you can about how these targets are put together and how the final judgment is determined. It is through your showing the highest effort toward improving over time that this research will be most effective. Clearly, you will want to use your errors and mistakes as opportunities to learn more about how the task is designed.

In closing, we want to thank you for helping us with this research which promotes optimal learning of this task over time.

The instructions for individuals in the performance-goal condition were:

On the computer screen: For purposes of this research, we are in the final stages of creating and validating sets of targets that are most helpful in clearly identifying an individual's level of cognitive ability. We are seeking your assistance in this process.

Your academic success depends in large part on the quality of your ability to perform well when given new tasks. Over the past few years of our research we have found the upcoming sets of targets to be designed in such a way as to adequately assess individuals' cognitive ability to do well in new situations. These targets have been refined and created to allow you to show your level of ability and skill when given new tasks.

As you go through these targets, your goal is to do as well as you can. You want to show how well you understand how the three rules—and the nine cues that make up these rules—combine to form an overall threat level. It is very important for you to understand that—to be most helpful with our research—you want to show your ability and finish with as high of scores as you can.

Clearly, fewer errors and mistakes will lead to higher performance and higher cognitive ability scores. The number and type of mistakes made indicate limits in either basic problem-solving skills or your ability to modify strategies that are not working.

Your focus is on high performance and attaining high scores. This is mainly accomplished by avoiding mistakes and errors.

On the video: As was just described on your computer screens, the purpose of this research is the development of targets effective in identifying individuals' level of cognitive ability when in new situations. We are in the final stages of that research right now.

This computer simulation may initially appear straightforward but we have found over the past 7 years with over 6000 students that we can create targets that are highly effective in differentiating high performers from low performers. We are able to do this primarily by systematically altering the configuration of the nine cue values as well as manipulating how the three rules combine to form the overall judgment.

For this research, it is very important for you to attempt to score as many points on these targets as your ability allows. It is through showing the highest cognitive ability that you can that this research will be most effective. Clearly, you will want to minimize your errors and mistakes since they detract points from your overall score.

In closing, we want to thank you for helping us with this research on evaluating individuals' cognitive ability levels.

Public/Private Feedback Manipulation. Following the goal-orientation manipulations, the manipulation of the public/private feedback condition occurred on the next set of computer screens. As mentioned previously, the individuals within the same room received the identical set of goal-orientation

and public/private feedback manipulations. Those in the public feedback groups had this additional information:

> **On the computer screen:** To help you become familiar with the computer simulation, you have just completed two training targets. You have eight more targets to do within this first set. After this you have three more sets of targets.
>
> Your performance scores for your next eight targets and for the next set of ten targets (#11 to 20) are your own private feedback. However, the last two sets of targets—sets three and four—will be posted in your experiment room on the wall chart. The other people in your room will have their scores posted as well.
>
> We are posting these scores because we have found many students are very interested in how their performance compares to others they are doing the problem-solving targets with. To let you see this comparison, all of you within the room will have your name and final performance score for each of the next two sets of targets placed on the graph, similar to the example currently on the wall.

A sample chart listing four names and a range of high and low performing scores was on the wall. After the video which reiterated the goal-orientation instructions, the experimenter pointed out the sample chart and also pointed to a chart that had the participants' names on it and mentioned that it will be the one used for this group. Subjects in the private feedback condition had the following message:

> **On the computer screen:** To help you become familiar with the computer simulation, you have just completed two training targets. You have eight more targets to do within this first set. After this you have three more sets of targets.
>
> Your final scores for your next eight training targets and the next three sets of targets will be your own private information. Others in your room will not know what your scores are.

> We are keeping your scores private because we have found many students prefer their performance scores to not be shared with other students in the same experiment room.

There were no charts on the walls for the private-feedback condition. After all of the participants within the room read these manipulations on the computer screen, the experimenter turned on the video reiterating the goal-orientation instructions. After the video segment finished, the computerized questionnaire continued with questions assessing participants' goal-orientation emphasis for their task. These questions are in Appendix G and were included to assess the effectiveness of the research manipulations in directing individuals toward either performance goals or learning goals within the task.

Phase One. Following the perceptual questions assessing perceived goal orientation, the post-training simulation began. During this, half of the subjects received identical bogus feedback informing them that they were doing far above average. Plotted on the chart, their scores indicated they were consistently between the 75th and 80th percentile (see Figure 8). The other half of the participants received feedback showing below-average performance, hovering between the 40th and 45th percentile (also in Figure 8).

After the last target in this first phase of targets (#10), the same set of self-efficacy questions appeared on the computer screen. After responding to these questions, participants were asked their preferences for the type of future task they would be given in Phase Three (not the next phase). As previously mentioned, the six options available to the individuals differed on level of

difficulty as well as amount of learning that may be gained (see Appendix H). This question will be further described in a later section.

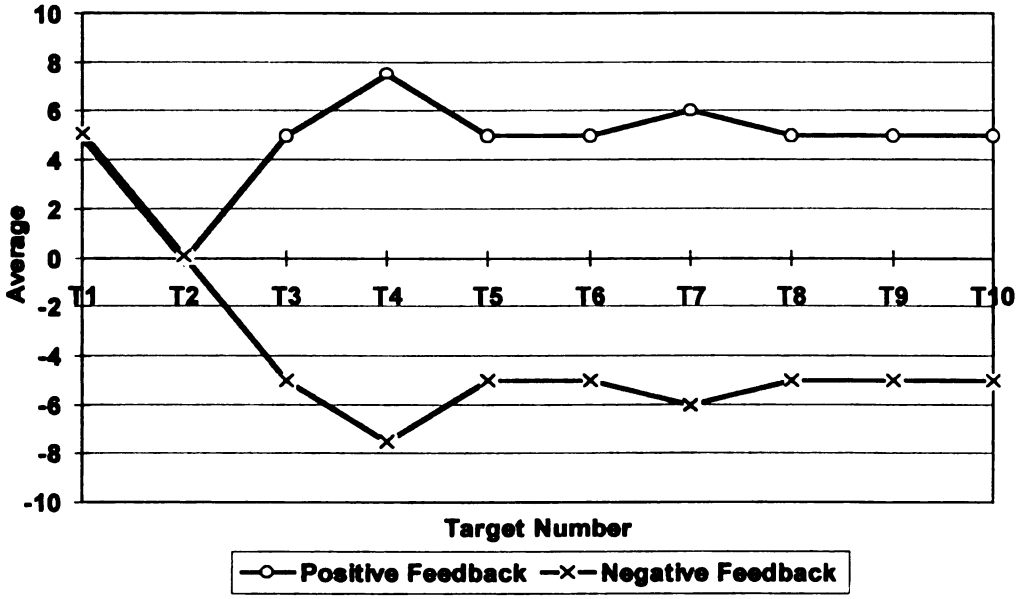


Figure 8. Feedback Chart: Targets 1 to 10 Phase One

Phase Two. Upon answering the task-choice question, the second set of targets began. During these ten targets, all participants received the same bogus performance feedback. This feedback indicated poor, below-average performance. Placed on the chart (see Figure 9), all participants saw their performance as consistently having a projected average score between 0 and -2.0 (on a scale with a maximum of 15 and minimum of -15: See Appendix D). The chart also showed this projected average as ranking between the 40th and 45th percentile.

After each target decision, individuals viewed the feedback screen and plotted their feedback on the desk chart. After the second, fourth, seventh, and tenth targets of this set (actual targets 12, 14, 17, and 20), participants were

asked their self-efficacy for "the next few targets".

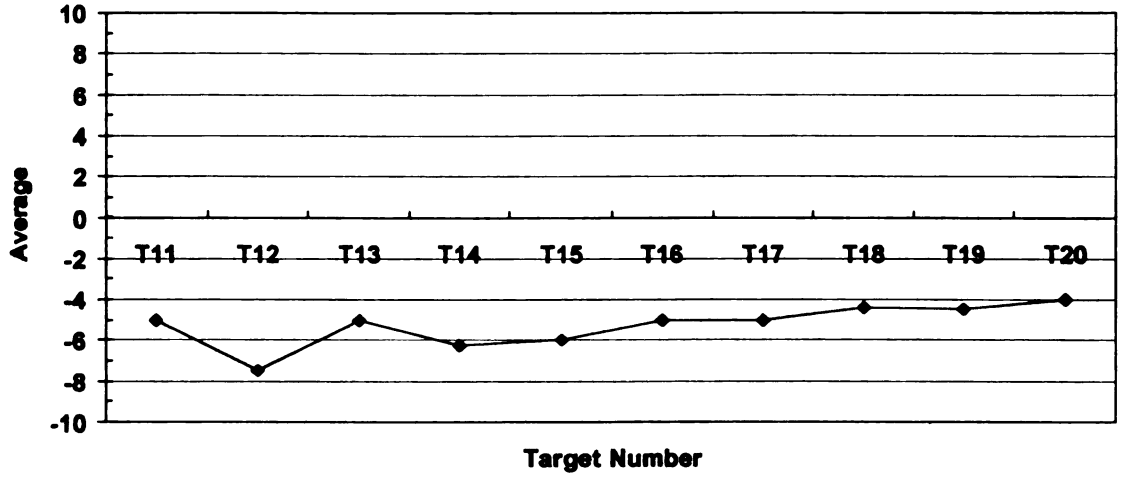


Figure 9. Feedback Chart: Targets 11 to 20, Phase Two

Phases Three and Four. The final two sets of targets provided true feedback for all participants. These targets were, however, designed to be less difficult. This was done to increase the probability that participants received higher scores, reducing the possibility of a participant being emotionally affected by the negative feedback received in earlier phases of the experiment. Figure 10 and 11 show the charts for these phases. Thorough debriefing followed completion of the targets. Elaboration of the debriefing occurs in a later section.

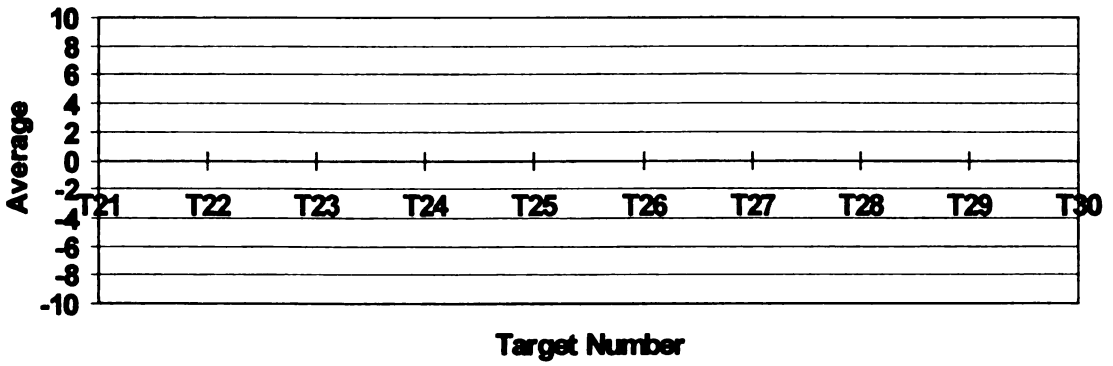


Figure 10. Feedback Chart: Targets 21 to 30
Phase Three

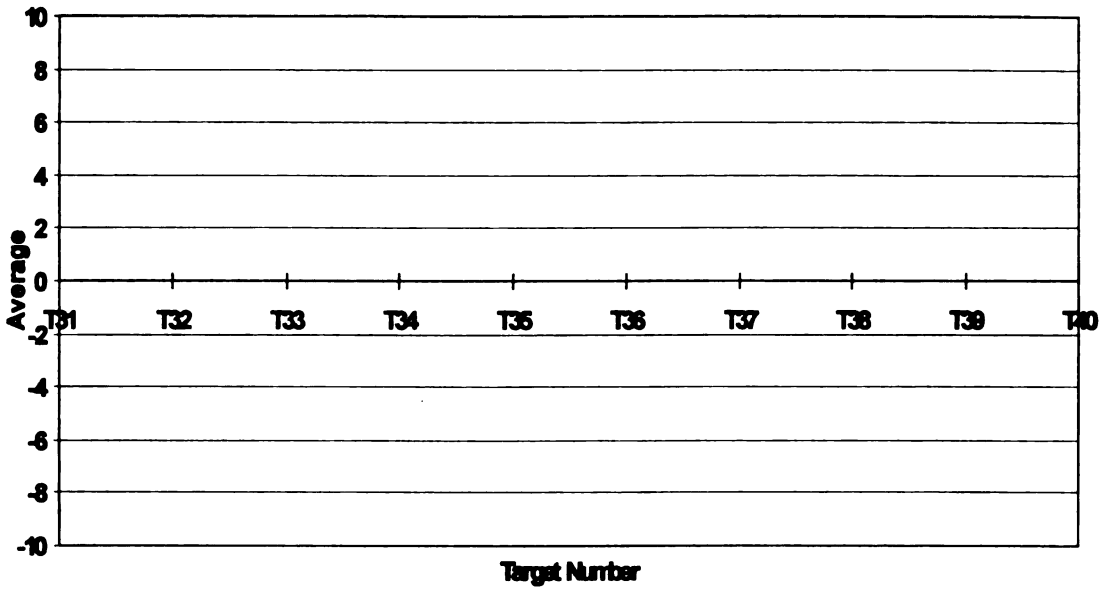


Figure 11. Feedback Chart: Targets 31 to 40
Phase Four

Feedback

A key characteristic of useful feedback is for the source to be perceived as credible (Ilgen, et al., 1979). Feedback from a task is frequently perceived as more useful than sources such as supervisors and co-workers (Greller, 1980; Herold, Liden, & Leatherwood, 1987). Feedback from the computer—a form of task feedback—has been found to be more trusted, resulting in higher efficacy, higher performance (Earley, 1988) and sought more frequently (Kluger & Adler, 1992) than feedback from a person. My research provided immediate performance feedback exclusively through the computer.

Feedback Screen. The feedback screen, appearing on the computer monitor after every decision, compared the decision made by that individual to the bogus 'correct' decision. Based on the bogus feedback, the feedback screen informed how many points were won or lost on that specific target (see Appendix D), the total points accumulated to this point, and the current average score per

target. The accumulated points and average score that appeared on the screen were for the specific phase of targets the participant was doing. At the beginning of each phase, the previous pieces of information on the computer screen were erased. During training, the experimenter explained the available information on the screen.

Feedback Charts. During the initial two training targets, participants were instructed how to chart their performance. As depicted in Figures 8, 9, 10, and 11, there were four separate feedback charts—one for each phase of targets. For each chart, the y-axis had both a point-average index (ranging from 10 to -10) and a percentile rank. Charts were placed on participants' desks. They were instructed to keep track of their average score per target on the charts and write the approximate percentile that their average score corresponds. Regarding the percentile rank—after clearly defining the concept of percentile in training—participants were told this ranking was based on performance by numerous similar undergraduates that had previously done the identical targets. The trainer periodically checked throughout the experiment to ensure correct graphing.

Feedback Manipulations. Since this study is dependent on the individual's awareness of the positive or negative levels of his or her performance, actions were taken to increase the salience of these assessments. For example, on a chart beside them, participants were instructed to update their scores after every target. These charts were placed on the desk in such a way as to keep this charting process private. During the first two training targets,

instructions were given on how to read the chart and plot performance. For the entire experiment, four separate feedback charts were used: one for training targets 1 to 10 (Figure 8) and one for each of the following three sets of targets (Phases Two, Three, and Four; Figures 9, 10 and 11, respectfully). Further description of the charts and their use in making the negative or positive feedback salient occurs in a later section.

To naturally influence perceptions of high or low performance, I could have given subjects easy or difficult tasks, let them perform and receive true performance feedback. However, this introduces the confound of differing task experience between groups. Effects on dependent variables of interest could either have been due to the level of high or low performance feedback or due to different task experiences—a confounding issue for the previously described research by Wood and Bandura (1989) and Bandura and Wood (1989).

My interest is in reactions to performance feedback. Holding the actual task experience constant eliminates this as a confound. Also, my feedback manipulations caused every participant in the same feedback condition to receive identical feedback during the first two phases of targets (negative or positive for the initial phase; only negative for the Phase-Two targets). For example, no matter what decision was sent in, every individual assigned to the positive-feedback group in the first phase was told they had a 'near hit' on the tenth target. This ensures that every chart for individuals in the same condition, if plotted correctly, would be identical. With this manner of feedback manipulation, I eliminate the effects of differential trends in the performance

feedback (e.g., Bandura & Wood, 1989; Wood & Bandura, 1989). Since the feedback profiles (within condition) were identical, the hypothesized differing effects on the dependent variables can more cleanly be described as influenced by the goal-orientation instructions and public/private-feedback manipulations—not confounded with differing levels of task difficulty.

To clarify my study's operationalization of the bogus feedback, this feedback's sign—positive or negative—was created in two ways: First, the objective scores given participants were higher for positive feedback than negative feedback. Second—and very important in goal-orientation research, the level of the objective feedback—high or low—was directly related to congruent high or low social-comparative feedback. As previously described, evaluative standards are very different for the two goal orientations: individuals within performance-goal situations are much more cognizant of how their performance compares to others. Those in learning-goal settings, however, place less importance on *other*-referenced information and greater attention to *self*-referenced cues of improvement and progress.

Measures

Task Interest. Three items were used to measure participants' interest in the task prior to any experimental manipulations (e.g., "How interested are you in doing more tasks like this?"; see Appendix F). These items were on a seven-point Likert scale with 1 = Not at all and 7 = To a great extent. Butler (1992) used this interest scale with a resulting reliability coefficient of .90.

Self-efficacy. The self-efficacy questions asked after the final training target and periodically after the following targets were the type suggested by Lee and Bobko (1994). In a comparative analysis of five often-used self-efficacy measures, these authors recommended a format that seeks a yes/no judgment on whether a specific performance level can be attained for future tasks as well as a numeric indication of confidence in attaining each level. The summary value used to represent the individual's self-efficacy was derived by summing the confidence ratings for all levels receiving a "yes" judgment. In this study, six levels were presented, ranging from -10 to 10 (-10, -6, -2, 2, +6, and +10; see Appendix F). After a "yes" or "no" was given for each level, individuals assessed their confidence in achieving the chosen level on a 1 (no confidence) to 9 (full confidence) scale. Thus, this scale can range from 0 ("no" for every level of scoring options) to 54 ("yes" for all six levels with a confidence of '9' for each level).

Task Choice. After the final target of Phase One (target 10), participants were told their next ten targets (targets 11 to 20) were already specified and their choice of task would be for the second set of ten targets (targets 21 to 28).

The participants had six task options available. Prior to actually choosing, they read the following introduction presented on their computer screens:

> Numerous targets that allow highly accurate assessments of a student's ability in new situations have been designed and created for research in this lab. These targets have varied primarily in their difficulty level as well as instructional value.
>
> As the targets have been completed by over 6000 college undergraduates over the past seven years, we have been able to

place many of these targets into six different levels of difficulty and instructional value. We have also found that nearly all students that have participated have been able to improve their performance over time.

Your next group of 10 targets (targets 11 to 20) is already set. However, you have a choice for the type of targets you will be doing for targets 21 to 28. You can choose from six differing levels of difficulty and instructional value.

Both the least challenging as well as the most challenging sets of targets are described on the next screen. The next screen will describe the 1st set and the 6th set of targets. You can choose either of these extremes or a set of targets that falls somewhere in the more moderate level of difficulty and instructional value. Please seriously consider this choice.

You will be choosing targets 21 to 28 from these 6 options:

The two ends of the six-point continuum were tasks in which they can either do well (sacrificing greater learning) or increase their understanding of the task (sacrificing higher scores). The end-choices (sets 1 and 6; see Appendix H), with descriptions, appeared on their computer screens as follows:

Set # 1: These targets have been found to be reasonably easy for most students that have attempted them. Although you won't learn new things about how the various cues fit together to do better on future targets, your scores for this set of targets will probably end up being quite high. In other words, you will probably not make very many mistakes but you are also unlikely to learn very much in the process.

And

Set # 6: These targets will allow you to learn a great deal about how this task is designed and works. You will, however, probably make numerous mistakes and get a little confused at times. These targets are designed so that you will eventually learn valuable information about the task (such as how various cues fit together to determine appropriate threat levels). This type of learning and experience may help you in future targets.

When this task-choice question appeared after target 10, it clearly stated that the choice was for targets 21 to 28, not the next set of immediate targets.

In the previously mentioned Ames and Archer (1988) and Archer (1994) studies, subjects were aware that their choice of tasks would not actually affect their future activities. I view this operationalization of the task-choice dependent variable with concern: subjects knew they would not experience the ramifications of their choice. Due to my concern, I attempted to improve the operationalization by leading subjects to believe their task choice was real—actually determining their upcoming tasks; not just a hypothetical projection.

Debriefing

Extensive precautions were taken to ensure that the subjects did not leave the experiment with the feeling that their performance was inadequate. In Phase One of the experiment, half the subjects received bogus positive performance feedback and half received bogus low performance feedback. In Phase Two, all received bogus feedback indicating low performance levels. Phases Three and Four, in which all received true feedback on easy targets, were created to increase the probability that participants ended the experiment with an upbeat experience.

In the debriefing, participants were told that a large part of this experiment depended on creating feelings of success or failure and then assessing people's reaction to this feedback. They were given a debriefing form (see Appendix I) and asked not to mention the contents of this experiment to fellow students who may be participating in the future.

All of the subjects were from four recitation sections of an introductory management course. After all of the participating students did the experiment, they were also debriefed in their classes. In this debriefing, participants were reminded that the experiment was primarily designed to measure reactions to differing types of performance feedback and that the feedback received throughout the first phases of the experiment should not be interpreted as reflecting their true level of cognitive ability.

Data Analysis

Pre-manipulation Checks of Task Interest and Self-efficacy. Participants responded to questions assessing their task interest and self-efficacy for future targets immediately after the first two training targets. At this point, all participants had received identical training and performance feedback. These assessments occurred prior to the manipulations of goal-orientation instructions, public/private feedback delivery, and positive/negative feedback. Measures were obtained at this time to check that participants in the differing cells—as well as within the same cells—started with similar levels of interest and self-efficacy.

Manipulation Checks: Bogus Feedback and Goal-orientation Perceptions. Two questions need to be asked regarding a check of this study's manipulations. First, did the positive and negative feedback affect participants' perceptions of high or low performance? Second, were the two manipulations—goal-orientation instructions and public/private feedback delivery—affect participants.

The manipulated positive/negative feedback's' effectiveness was assessed with two separate correlations. Initially, the participants' positive/negative feedback manipulation (a dichotomous variable) was correlated to their response to a one-item question asking if they thought they did well or poorly (another dichotomous variable: see Appendix J). Finally, the point-biserial correlation between feedback sign (positive or negative) and the self-efficacy measure immediately after the feedback-sign manipulation (target 10) was examined.

Various analyses were used to examine the effectiveness of the goal-orientation instruction (learning or performance) and feedback delivery (private or public) manipulations. At the basic level, two one-item questions were asked at the end of the experiment assessing whether participants could recall each initial manipulation (see Appendix J). They were asked whether they received instructions telling them to emphasize either (a) learning or (b) high performance. They were then given a question checking their memory regarding feedback delivery: were they initially told their feedback would be public or private? For both of these questions, the percentage of participants correctly remembering their goal orientation instructions and feedback-delivery manipulations as well as the correlations between these manipulations and the participants' respective responses were ascertained.

The important part of these instructions, however, was not whether they were remembered, but whether they actually influenced participants' goal-orientation emphasis within the task. This research would best test the

hypotheses only if the experimental goal-orientation instructions and feedback-delivery manipulations successfully created the desired performance or learning goals within the individual. This *perceptual* goal-orientation emphasis was also assessed.

Twelve perceptual questions were developed in the pilot study that examined the manipulations' influence on enhancing internalized learning-goal and, separately, performance-goal states. The final set of questions included five items assessing a learning-goal emphasis within the task. Sample learning-goal questions included, "One of my goals in this task will be to understand the concepts" and "I anticipate that I will risk making a mistake on this task if I think I will learn something helpful." Seven items assessed a performance-goal emphasis (e.g., "One of my goals in this task will be to get a high score" and "One of my goals in this task will be to not look foolish/stupid.") See Appendix G for all twelve questions. Factor analyses of these 12 items within the pilot study found the two expected separate factors (eigenvalues: factor 1 = 4.89, factor 2 = 3.12). In the pilot study, reliability coefficients were .92 for learning-goal items and .83 for performance-goal questions.

The two sets of questions were asked immediately after viewing both the goal-orientation instruction and feedback-delivery manipulations on the computer screen as well as the video further emphasizing the manipulated goal-orientation instructions.

For analysis of the manipulations' effectiveness, correlations are reported between the manipulated goal orientation instructions and the measure of (a)

learning goal perceptions (LGP) and (b) performance goal perceptions (PGP). Correlations between the feedback-delivery manipulation and (a) LGP and (b) PGP are also examined.

In addition to the correlation analyses, a two-step hierarchical regression assessed the effectiveness of the manipulations' influence on each of the perception measures. For example, with LGP as the dependent variable, the first step included both the goal-orientation instructions and feedback-delivery manipulations. The interaction variable was entered in the second, and final, step. An identical analysis will be done with performance-goal perceptions as the dependent variable.

Dependent Variable: Self-efficacy Change. To effectively study the impact of the various situational manipulations on the resilience of self-efficacy in reaction to negative feedback, it is essential that the participants have experience with the task prior to measurement of this construct. Measurement occurred after ten targets (including two training targets). During the eight non-training targets, all participants encountered fabricated feedback. Half received bogus positive feedback. The remaining subjects received bogus negative feedback. The group initially receiving the bogus positive feedback—anticipated to result in high enough levels of self-efficacy to allow meaningful measurement of decline—was used to study self-efficacy resilience in response to ensuing negative feedback.

This analysis of differing self-efficacy levels compared the two groups anticipated to have the most disparate goal-orientation emphases: (a) those

receiving learning-goal instructions anticipating private feedback, and (b) those given performance-goal instructions expecting public feedback. As described earlier, analysis of decline requires an initial level of self-efficacy high enough for meaningful decline to occur. Due to this, only those who received the bogus positive feedback in Phase One (targets 3 to 10) were used for analysis.

The measures used to assess self-efficacy came from the self-efficacy questionnaires completed after the tenth target—immediately prior to the bogus negative feedback—and the fourteenth target (after four negative-feedback targets).

After receiving this identical negative feedback, Hypothesis 1 predicted that, in response to negative feedback, those with learning-goal instructions expecting private feedback will have a slower self-efficacy decline than those given instructions for performance goals that are anticipating public feedback (see Figure 12).

Table 1 shows the variables used for this analysis.

To assess the expected impact of the manipulated goal orientation, it was important to remove variance due to the autocorrelations between the chronologically adjacent measures of the dependent variable of self-efficacy. To do this, the variables conveying chronological self-efficacy measurement were partialled. The remaining residual correlation matrix was then anticipated to be free of autocorrelation. This partialling occurs through the first step of the regression analysis in Table 1.

Next, the dichotomous variable was entered which represents the manipulated conditions expected to be most different: learning-goal instruction with anticipated private feedback versus performance-goal instructions with anticipated public feedback. The third step of this regression includes the interaction variable. The difference between the two rates of decline would be statistically significant if this final variable explains a significant amount of variance.

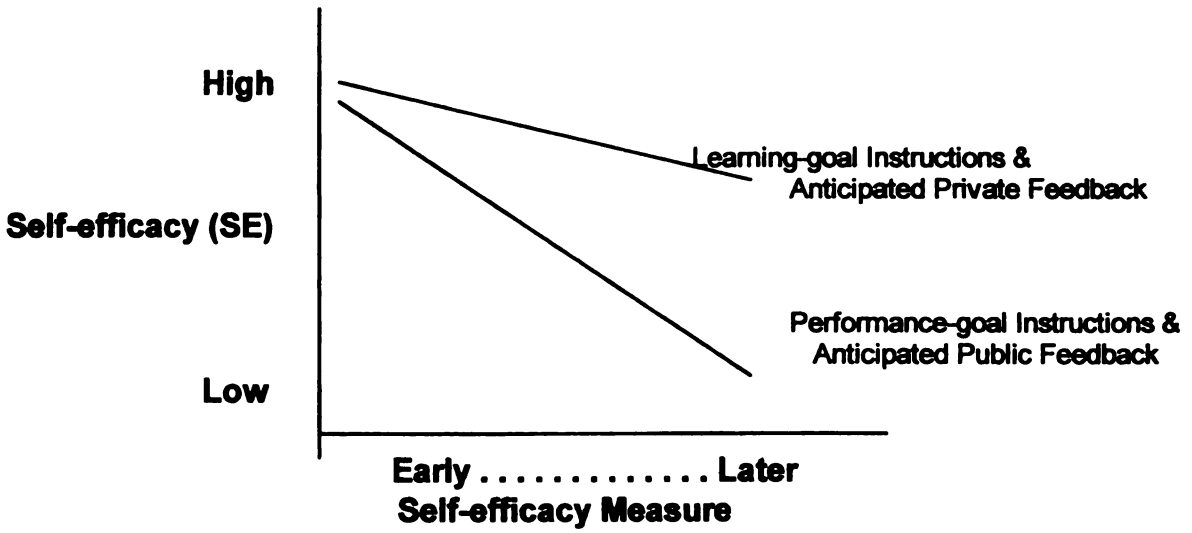


Figure 12. Hypothesis 1: The Effect of Goal-orientation Instructions & Feedback Delivery on Self-efficacy Decline as a Result of Repeated Negative Feedback

Since the self-efficacy measure was collected twice during the all-negative phase of the bogus feedback, repeated measures regression was used to more accurately analyze each variable's influence on the variance explained. This data-analysis technique divides the dependent variable's variance into between- and within-subject variance. To assess statistical significance, the portion of variance explained by each step of the hierarchical regression is

tested based on the appropriate variance—whether between- or within-subject, not the total variance.

Table 1. Polynomial Regression Analysis for Self-efficacy Decline

Dependent Variable: Self-efficacy

Order of Independent Variable Entry:

Step 1. Self-efficacy measure (SM) [a]

Step 2. Condition (dichotomous variable):
1 = Performance goal instructions & public feedback
2 = Learning goal instruction & private feedback

Step 3. SM by Condition interaction[H1]

[a] To partial out autocorrelation due to adjacent measurement

[H1] This step is the test for Hypothesis 1. If significant, the rate (slope) of the two decline rates differ

In this analysis, Condition (step 2) is a between-subject variable. Self-efficacy measure (SM) and the interaction variables (steps 1 and 3) are within-subject variables. For a lengthy explanation of the advantages of this technique with repeated-measures data see Cohen and Cohen (1983) and Hollenbeck, Ilgen, and Sego (1994).

Dependent Variable: Task Choice. The remaining hypotheses examined the dependent variable of task choice. A number of hypotheses consider the relationship of self-efficacy to task choice (see Hypotheses 5, 6, 7, 8a and 8b). During the course of the study, multiple measures of self-efficacy measures were obtained. The first self-efficacy measurement was after the second target and

occurs to (a) train the participants on how to respond to the questionnaire and (b) obtain an assessment showing the participants to be similar prior to any manipulations. The second self-efficacy measure (after target 10) occurred after the feedback was manipulated to direct half of the participants to perceptions of high self-efficacy and half to low self-efficacy. I used this second self-efficacy measure for analysis since it was taken immediately preceding individuals' task choice.

Hierarchical regression analysis was employed to examine the relationships identified in Hypotheses 2 through 8b. Table 2 highlights the entire regression analysis. I will use this single table to explain the analytical plan for the remaining hypotheses.

Table 2. Hierarchical Regression Analysis For Task Choice

Dependent Variable: Task Choice

Order of Independent Variable Entry:

Step 1. Goal-orientation Instructions (GOI) [H2]
Public/Private feedback delivery (FbD) [H3]
Self-efficacy (SE) [H5]

Step 2. GOI by FbD interaction [H4]
GOI by SE interaction [H6]
FbD by SE interaction [H7]

Step 3. GOI by SE by FbD three-way interaction [H8a, H8b]

[H2 to H8b] Final variable entered to analyze the respective hypotheses

As earlier explained, I am interested in the situational influences on task choice. Hypothesis 2 predicts individuals receiving instructions promoting learning goals will choose difficult, mastery-oriented tasks more frequently than those receiving instructions for learning goals. The third hypothesis states that

those anticipating private performance feedback will choose difficult, mastery-oriented tasks more frequently than individuals expecting public feedback.

To complete the anticipated direct effects on task choice, the fifth hypothesis states that individuals with higher self-efficacy will choose difficult, mastery-oriented tasks more frequently than those with lower self-efficacy. Each of these direct-effect hypotheses (hypotheses 2, 3, and 5) will be supported if the respective variable's beta coefficient, when all three variables are entered simultaneously in the first step of the hierarchical regression, is statistically significant—and in the anticipated direction. Since all hypotheses clearly imply a priori direction, a significance level of .10 is used.

Hypothesis 4 begins the analyses on interaction effects. Figures 3, 4, 5, and 6 clarify the expected nature of the relationships for the interaction variables on task choice. Each of these hypotheses not only proposes an interaction but also predicts the direction. For example, the fourth hypothesis suggests that individuals with performance-goal instructions that are anticipating public feedback will avoid difficult, mastery-oriented tasks more frequently than individuals in any other combination of goal-orientation instruction and feedback delivery (performance-goal instructions & private feedback, learning-goal instructions & public feedback, and learning-goal instructions & public feedback; see Figure 3).

I performed two different forms of analysis for the interaction variables (hypotheses 4, 6, 7, 8a, and 8b). First, the significance of each interaction was

tested by its statistical significance when it was entered in the regression's second and third steps (see Table 2).

The second set of analyses examining the interaction variables focused on the specific set of conditions predicted to most likely avoid the difficult, mastery-oriented tasks (hypotheses 4, 6, 7, and 8b) or choose these types of tasks (hypotheses 8a). Multiple planned-comparison testing occurred to assess whether the specific group identified in each individual hypothesis was significantly different than each of the other comparable groups. Using the hypothesis 4 example, the mean of participants receiving performance-goal instructions with public feedback was compared to the mean of each of the other three combinations of goal-orientation instructions and feedback delivery. As with the hierarchical regression, since all the tests involve directional hypotheses, a significance level of .10 was used.

The interaction of goal orientation with self-efficacy is considered by hypothesis 6 (see Figure 4). It is anticipated that individuals with performance-goal instructions and lower self-efficacy will avoid the difficult, mastery-oriented tasks more frequently than individuals in the other three combinations of goal orientation and high/low self-efficacy. The last two-way interaction is expressed in hypothesis 7: Individuals anticipating public feedback with low self-efficacy will avoid the difficult, mastery-oriented tasks more frequently than individuals in the other three combinations of feedback delivery and high/low self-efficacy (see Figure 5).

The final two hypotheses address the joint influence that the three variables are anticipated to have on task choice. Figure 6 illustrates the anticipated general pattern of task choices among the various combinations. I am not attempting to be precise with the particular order for most of the available combinations of the three variables within this interaction. I do, however, make explicit order predictions (hypotheses 8a and 8b) regarding the specific combinations that will be at each extreme of the preference-for-task-difficulty continuum.

Hypothesis 8a proposes that individuals with learning-goal instructions, anticipating private feedback, and high self-efficacy will choose difficult, mastery-oriented tasks more frequently than individuals in the other seven combinations of goal-orientation instructions, feedback delivery, and self-efficacy. Hypothesis 8b states that individuals with performance-goal instructions, anticipating public feedback, and low self-efficacy will *avoid* difficult, mastery-oriented tasks more frequently than individuals in the other available variable combinations.

The next section summarizes the results from the data analyses previously outlined.

RESULTS

Descriptive Statistics and Evaluation of Measures

The means, standard deviations, and intercorrelation matrix of all variables as well as the reliability coefficients for all multi-item measures (coefficient alphas) are summarized in Table 3.

Pre-manipulation Equivalency

In this study, task interest and self-efficacy were measured to assess equivalency among groups prior to the goal-orientation instructions, feedback-delivery (public or private), and feedback-sign manipulations. This equivalency would be indicated by non-significant bivariate correlations between each manipulation and the variables of task interest and self-efficacy.

Self-efficacy. As indicated by the intercorrelation matrix in Table 3, participants within the differing manipulation groups showed no significant differences in pre-manipulation self-efficacy (with goal-orientation instructions, $r = .07$, ns; feedback delivery, $r = -.04$, ns; and feedback sign, $r = -.01$, ns).

Task Interest. Butler (1992) had previously used this three-item measure of task interest. In the current study, this measure's internal consistency coefficient was a high .89. There was no correlation between pre-manipulation task interest and goal-orientation instructions ($r = -.03$, ns) or feedback sign ($r = .03$, ns), but the relationship between task interest and feedback delivery was significant ($r = -.16$, $p \leq .05$). Since this measure was completed prior to the feedback-delivery manipulation, this relationship was unexpected.

Table 3. Descriptive Statistics, Intercorrelation Matrix, and Reliability Coefficients

Variable	Mean	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Goal-orientation Instructions[a]	1.53	.50									
2. Feedback Sign[b]	1.57	.50	-.02								
3. Feedback Delivery[c]	1.49	.50	.09	.01							
4. Task Interest	4.34	1.29	-.03	.03	-.16**	(.89)[e]					
5. Initial Self-efficacy (Target 2)	34.47	9.84	.07	-.01	-.04	.31***					
6. Learning-goal Perceptions	5.21	.99	.10	.00	-.13*	.46***	.29***	(.81)[e]			
7. Performance-goal Perceptions	4.32	1.22	-.40***	.00	-.26***	.29***	.19***	.23***	(.85)[e]		
8. Self-efficacy (Target 10)	31.92	9.79	.07	.53***	-.05	.16**	.49***	.21***	.10		
9. Self-efficacy (Target 14)	19.65	9.90	.14**	.07	.04	.26***	.47***	.22***	.03	.59***	
10. Task Choice[d]	4.12	1.54	.11	.21***	.10	.31***	.16**	.17**	-.04	.24***	.15**

[a] Goal-orientation Instructions: 1 = performance goal, 2 = learning goals
[b] Feedback Sign: 1 = negative, 2 = positive
[c] Feedback Delivery: 1 = private, 2 = public
[d] Task Choice: 1 = easier, non-mastery oriented, 2 = more difficult, mastery oriented
[e] Reliability coefficients in diagonals

n = 211
* $p \leq .10$ ** $p \leq .05$ *** $p \leq .001$

Manipulation Checks

This study was designed to manipulate goal-orientation perceptions through task instructions (emphasizing learning or high performance) and mode of feedback delivery (public or private). Additionally, self-efficacy was manipulated by the bogus feedback given to participants about their performance. The quality of these manipulations is addressed below.

Manipulation of Goal-orientation Instructions and Feedback Delivery. At the end of the experiment, participants were asked if they recalled their original goal instructions and type of feedback delivery. Unfortunately, of the 221 participants, only 127completed these questions.

These participants were first asked whether they initially received instructions telling them to stress (a) learning or (b) doing well on the task. The correlation between their answer to this question and the goal-orientation instructions (learning or performance) was .64 ($p \leq .001$) and in the expected direction: For those receiving performance-goal instructions, 76% of respondents correctly said they were told to highlight high performance, not learning. Eighty-eight percent given learning-goal instructions accurately indicated they were directed toward learning, not high performance.

A separate question asked if participants correctly remembered if their feedback was to be (a) publicly displayed or (b) private. The correlation between this question and the mode of feedback delivery (public or private) was .73 ($p \leq .001$). This correlation was also in the expected direction: Eighty-four percent of

those told their feedback would be public accurately indicated this. Similarly, 88% correctly remembered their private-feedback instructions.

Although each of the goal-orientation and feedback-delivery questions showed most participants aware of the respective manipulations received, the most effective test of this study's hypotheses best occurs for participants aware of the manipulations. Unfortunately, however, the reduced sample size negatively affects the analyses' statistical power. In the upcoming analyses I will report results from both the full sample (n = 211; which includes participants reportedly forgetting the original manipulations) and the reduced sample in which participants correctly remembered both the goal-orientation instructions and feedback delivery. (Of the 127 given the manipulation checks, only 92 correctly remembered both the goal-orientation instructions and feedback delivery manipulations).

Regardless whether the instructions were remembered, the important issue is if these instructions actually influenced participants' goal-orientation emphasis within the task. The following section describes the influence of the manipulations on learning- and performance-goal perceptions.

Manipulation of Goal-orientation Perceptions. Perceptual questions developed in the pilot study examined the effectiveness of the manipulations in creating internalized learning-goal and, separately, performance-goal states. The two sets of questions (explained in Chapter Three and listed in Appendix H) were asked immediately after the goal-orientation instruction and feedback-delivery manipulations occurred. The factor structure and high reliability indices

were similar across the pilot study (described earlier) and the final study. The same two factors found in the pilot study emerged, in the same order (eigenvalues: factor 1 = 4.52, factor 2 = 2.54). Coefficient alphas for the five-item scale measuring learning-goal perceptions (LGP) emphasis was .81 and, for the seven-item scale assessing perceived performance goals (PGP), .85.

To assess the experimental manipulations' influence on goal-orientation perceptions, I examined correlations as well as hierarchical regression. The correlation matrix shows the initial goal-orientation instructions having more influence on participants' performance-goal perceptions than learning-goal perceptions ($r = -.40$, $p \leq .001$ versus $r = .10$, ns; see Table 3). The negative correlation denotes, as expected, performance-goal instructions led to higher PGP. Feedback delivery also influenced PGP more than learning-goal perceptions ($r = -.26$, $p \leq .001$ versus $r = -.13$, $p \leq .10$). The negative correlations indicate that anticipated public feedback led to higher PGP and, to a lesser extent, higher LGP. It is interesting to note the direction of this LGP influence: those with anticipated public feedback expressed a greater desire to learn the task than those anticipating private feedback. This difference could be expected since individuals are more likely to want to do well on the task if their performance will become public—and learning about the task is commonly seen as an important factor in doing well. A two-step hierarchical regression tested the two manipulations' direct and interaction effects on learning-goal perceptions and, separately, performance-goal perceptions. Table 4a highlights this analysis with the full sample; Table 4b with the reduced sample.

Table 4. Results of Hierarchical Regression of Experimental Manipulations on Learning-goal Perceptions (LGP)

Dependent Variable: Learning-goal Perceptions (LGP)

A. Full Sample (n = 211)

	Variable	Beta[a]	Δ F	R^2	Δ R^2	p of Δ
Step 1	Goal-orientation instructions[b] (GOI)	.11*				
	Feedback Delivery[c] (FbD)	-.14**	3.05** df = 2, 208	.03**	.03**	p ≤ .05
Step 2	GOI by feedback delivery	.03	.01 df = 1, 207	.03	.00	ns

Overall Model: F Ratio = 2.03; df = 3, 207; p = .11

B. Reduced Sample (n = 92)

	Variable	Beta[a]	Δ F	R^2	Δ R^2	p of Δ
Step 1	Goal-orientation instructions[b] (GOI)	.31***				
	Feedback Delivery[c] (FbD)	-.13	5.09*** df = 2, 89	.10***	.10***	p ≤ .01
Step 2	GOI by feedback delivery	-.24	.26 df = 1, 88	.00	.00	ns

Overall Model: F Ratio = 3.45; df = 3, 88; p ≤ .05

[a] Beta coefficient at the time of variable entry
[b] 1 = Performance-goal instructions, 2 = Learning-goal instructions
[c] 1 = Public Feedback, 2 = Private Feedback
* p ≤ .10 ** p ≤ .05 *** p ≤ .01

For learning-goal perceptions in the full sample, both manipulations had some effect (goal-orientation instructions, beta = .11, p ≤ .10; feedback delivery,

beta = -.14, $p \leq .05$). The beta signs show, as expected, learning-goal instructions and anticipated public feedback led to higher LGP. The interaction was non-significant. The variables explained only 2.9% of LGP variance. For the reduced sample, only the goal-orientation instructions were significant (beta = .31, $p \leq .005$; learning-goal instructions lead to higher LGP). Compared to the full sample's 2.9% of LGP variance, however, the variables with the reduced sample explained over three times the variance—10.3%.

For PGP, each of the manipulations' direct effects within the full sample were significant (see Table 5a; goal-orientation instructions, beta = -.38, $p \leq .001$; feedback delivery, beta = -.22, $p \leq .001$). Beta signs indicate performance-goal instructions and anticipated public feedback creating higher PGP. The interaction was non-significant. The variables in the full sample explained 21% of PGP variance. The reduced sample analysis is very similar: Both manipulations were significant (see Table 5b; goal-orientation instructions, beta = -.38, $p \leq .001$; feedback delivery, beta = -.22, $p \leq .05$). The interaction was non-significant. These reduced-sample variables explained 26.4% of PGP variance.

The manipulations explained greater variance for performance-goal perceptions (PGP) than learning-goal perceptions (LGP) across the sets of statistical analyses (21% vs. 3% for the full sample's two-step regression; Tables 4a & 5a: 26% vs. 10% for the reduced sample; Tables 4b & 5b). Although the manipulations affected PGP more than LGP, it is interesting to note that—for both samples—LGP was higher than PGP in all four conditions created by

Table 5. Results of Hierarchical Regression of Experimental Manipulations on Performance-goal Perceptions (PGP)

Dependent Variable: Performance-goal Perceptions (PGP)

A. Full Sample (n = 211)

	Variable	Beta[a]	Δ F	R^2	Δ R^2	p of Δ
Step 1	Goal-orientation instructions[b] (GOI)	-.38***				
	Feedback Delivery[c] (FbD)	-.22***	27.57*** df = 2, 208	.21***	.21***	p ≤ .001
Step 2	GOI by FbD	.00	.00 df = 1, 207	.21***	.00	ns

Overall Model: F = 18.29; df = 3, 207; p ≤ .001

B. Reduced Sample (n = 92)

	Variable	Beta[a]	Δ F	R^2	Δ R^2	p of Δ
Step 1	Goal-orientation instructions[b] (GOI)	-.48***				
	Feedback Delivery[c] (FbD)	-.22**	15.92*** df = 2, 89	.26***	.26***	p ≤ .001
Step 2	GOI by FbD	.07	.03 df = 1, 88	.26***	.00	ns

Overall Model: F = 10.50; df = 3, 88; p ≤ .001

[a] Beta coefficient at the time of variable entry
[b] 1 = Performance-goal instructions, 2 = Learning-goal instructions
[c] 1 = Public Feedback, 2 = Private Feedback
* p ≤ .10 ** p ≤ .05 *** p ≤ .01

crossing the two goal-orientation instruction conditions by the two feedback delivery manipulations (See Table 6a & b). Thus, regardless of experimental manipulations, participants reported a higher desire to learn. The bottom line is that (a) the manipulations were much more successful in creating differences in perceptions of performance goals than in creating differences in perceived learning goals, and (b) there was uniformly higher LGP than PGP.

The literature supports these asymmetrical outcomes. For example, Nicholls (1984) states that individuals emphasizing learning goals view learning and improvement to be acceptable end states since their goal is to master the task. Improvement, or acquisition of new skills, is considered an end in itself—performing at a high level is not the priority.

Assuming Nicholls is correct, one would expect most people to desire and report relatively high levels of learning goals in most any performance setting. Performance goals, on the other hand, would be more likely dependent on external stimulation. The fact that the means were consistently *higher* and SDs generally *lower* for learning goals than performance goals (see Table 6) is consistent with this interpretation.

Individuals with a greater *performance*-goal orientation have a primary motive of appearing competent. Although learning may occur on the way to the desired result of appearing competent, merely learning is not enough for those with performance goals. They want the opportunity to display their competence. Thus, learning or improvement may be means to the desired end, but they are

not the goal. Appearing capable, frequently by outperforming others, is the goal (Ames, 1992; Butler, 1988; Dweck, 1986, 1989; Nicholls, 1984).

Table 6. Perceptual Goal-orientation Mean Scores and Standard Deviations for the Four Conditions Created by the Two Experimental Manipulations

A. Full Sample (n = 211)

	Private Feedback	Public Feedback
Learning-goal Instructions	LGP = 5.19, SD = 1.05 PGP = 3.61, SD = 1.30	LGP = 5.44, SD = .84 PGP = 4.16, SD = .93
Performance-goal Instructions	LGP = 4.95, SD = 1.08 PGP = 4.53, SD = 1.19	LGP = 5.23, SD = .93 PGP = 5.08, SD = .86

B. Reduced Sample (n = 92)

	Private Feedback	Public Feedback
Learning-goal Instructions	LGP = 5.40, SD = 1.08 PGP = 3.45, SD = 1.21	LGP = 5.74, SD = .74 PGP = 3.99, SD = 1.14
Performance-goal Instructions	LGP = 4.88, SD = 1.03 PGP = 4.55, SD = 1.16	LGP = 5.03, SD = .76 PGP = 5.16, SD = .94

LGP – Learning-goal Perceptions
PGP – Performance-goal Perceptions

Given this view, learning may be a desire for all individuals (as indicated by the uniformly higher LGP scores than PGP), yet the desire to go beyond learning and appear competent is adopted by those with a greater performance-goal orientation. In other words, it makes sense that manipulating learning-goal perceptions is less effective since all of the participants are likely to voice a desire to learn about the task. For those given learning-goal manipulations, learning is enough. For those with performance-goal manipulations, learning

isn't enough; they will say 'yes' they want to learn but their purpose transcends just learning—with the added motive of appearing competent.

Manipulation of Feedback Sign (positive and negative). This study's third manipulation check examined the affect of early negative and positive feedback on perceptions of performance adequacy. Bogus negative feedback was given to half the participants during targets 3 to 10; the other half received bogus positive feedback. Immediately after receiving this bogus feedback, individuals answered questions on their computer screen. One of these questions asked if they thought they had done poorly or well. The correlation between this question and manipulated feedback sign (negative or positive) was .57 ($p \leq .001$) and in the expected direction: For those receiving negative bogus feedback, 84.4% said they had done poorly. Upon receipt of positive bogus feedback, 73.6% reported that they had done well.

For this research, however, the manipulated feedback's influence on self-efficacy level is very important. Immediately preceding the above-mentioned poor/well question, self-efficacy was assessed. The mean self-efficacy for those receiving the negative feedback was 25.89 (potential range of 0 to 54). Participants receiving the positive feedback had a mean self-efficacy of 36.41.

The point-biserial correlation between manipulated feedback sign (a dichotomy) and resultant self-efficacy, measured after the tenth target, was .53 ($p \leq .001$; see Table 3). This indicates an effective and highly significant manipulation of participants' task-related self-efficacy. Squaring the correlation

between the two variables shows that this feedback-sign manipulation accounted for 28% of variance in participants' self-efficacy.

Dependent Variables

The main dependent variables within this study focus on individuals' choices for future tasks as well as self-efficacy decline. Since all of the hypotheses propose specific direction of outcome, a .10 significance level is used for analysis. Through various statistical tools, the following sections will examine the previously outlined hypotheses for self-efficacy and task choice.

Self-efficacy Decline. Hypothesis 1 proposed that, in response to negative feedback, the rate of decline between the pre-negative feedback measure of self-efficacy (after target 10) and a later self-efficacy measure (after target 14) would differ between those given performance-goal instructions anticipating public feedback and those receiving learning-goal instructions expecting private feedback.

As discussed earlier, only participants receiving initial positive feedback were used for this analysis (full sample, n = 66; reduced sample, n = 31). The measures (taken after targets 10 and 14) capture the changes in self-efficacy during the all-negative feedback targets. I used repeated measures regression since within-subject variables are captured with 132 observations (66 participants with two self-efficacy observations each) for the full sample and 62 observations for the reduced sample. The n for between-subject variables is only 66 or 31, depending on the respective sample.

Table 7. Hypothesis One: Hierarchical Regression for Self-efficacy Decline[a]

Dependent Variable: Self-efficacy Decline

A. Full Sample, n = 66

	Variable	R^2 of equation	ΔR^2	Variance Within	Variance Between	p of Δ
Step 1	Self-efficacy Measure (SM)	.44	.44***	.78* f = 101.38 df = 1, 130		$p \leq .001$
Step 2	Condition	.45	.01		.023 f = 2.51 df = 1, 63	ns
Step 3	SM by Condition	.45	.00	.00 f = 1.35 df = 1, 128		ns

B. Reduced Sample, n = 31

	Variable	R^2 of equation	ΔR^2	Variance Within	Variance Between	p of Δ
Step 1	Self-efficacy Measure (SM)	.54	.54***	.90*** f = 71.45 df = 1, 60		$p \leq .001$
Step 2	Condition	.61	.07***		.16*** f = 10.93 df = 1, 28	$p \leq .01$
Step 3	SM by Condition	.61	.00	.00 f = .02 df = 1, 62		ns

alpha = .10

[a] Analysis only for participants receiving all-positive feedback

* $p < .10$ ** $p < .05$ *** $p < .01$

Repeated measures regression partitions total variance into between- and within-subject variance. For the full-sample analysis (see Table 7A), 43.8% of total variance is between-subject whereas 56.2% is within-subject variance. In

the analysis with only participants remembering the manipulations (Table 7B), between-subject variance accounted for 40% of the total variance; within-subject variance, 60%. Both analyses F-ratios and degrees of freedom are adjusted accordingly (see Cohen & Cohen, 1983).

For both samples—as depicted in Table 7A and 7B—the first step's variable, self-efficacy measure (SM), is a within-subject variable. The second step, involving the only between-subject variable, analyzes the two focal conditions: the dichotomous variable representing the performance-goal instruction/public feedback group and the learning-goal instruction/private feedback condition.

The third step involves the interaction variable derived from the regression's first two steps: SM by condition. Since this involves at least one within-subject variable, the interaction represented in this third step is also treated as a within-subject variable (Hollenbeck, Ilgen, & Sego, 1994).

As previously written, SM (the self-efficacy measure) was included in the analysis to remove autocorrelation due to chronologically adjacent measures of self-efficacy. For the full sample (Table 7A), SM accounted for 44% of total variance and 78% of within-subject variance (both at $p \leq .001$). The direct comparison of the two conditions (step two)—explained 1% of total variance (nonsignificant) and 2.3% of between-group variance (both nonsignificant).The SM by condition interaction variable—representing the first hypothesis—was also nonsignificant.

For the participants remembering the manipulations (the reduced sample, see Table 7B), the first step SM variable accounted for 54% of total variance and 90% if within-subject variance. The second step's variable representing the two conditions explained 7% of total variance ($p \leq .005$) and 16% of between-subject variance ($p \leq .01$). Similar to results of Table 7A, the SM by condition variable (step 3) was nonsignificant. Thus, for both samples, the anticipated differing rates of decline did not occur for the differing conditions within the full sample. Hypothesis 1 was not supported.

Task Choice. The remaining hypotheses within this study examine goal-orientation instructions' and feedback delivery's influence on participants' choices for the type of future tasks they would encounter after the tenth target. Upon finishing this target, half of the individuals had just received negative feedback whereas the other half had received positive feedback. All were informed that their decision would be for targets 21 through 28, not their next set of ten targets (targets 11 to 20).

Various sets of statistical analysis follow. Once again, these analyses will be done with both the full sample ($n = 211$) and the reduced sample ($n = 92$). The first analysis involves a three-step hierarchical regression involving the experimental manipulations (see Table 8A and 8B). The second analysis involves multiple planned-comparison tests to clarify the two- and three-way interactions examined in the regression.

Task Choice: Hierarchical Regression with Experimental Manipulations. The initial step of the regression simultaneously examined the

direct effects of the goal-orientation instructions, feedback delivery, and self-efficacy. The second step has all two-way interactions allowed by the three variables in the previous step. The final step included the three-way interaction. Since the direction of all task-choice hypotheses is specified, an alpha of .10 was used for significance testing. As previously described in an earlier section, the self-efficacy measure used for analysis of the task choice was the assessment immediately preceding this task choice (after target 10).

Hypotheses 2, 3, and 5 focus on the direct, yet separate, influences of goal-orientation instructions, feedback delivery, and self-efficacy on task choice. Table 8A and 8B show the three-step hierarchical regression for the task choice dependent variable. In this regression's first step, goal-orientation instructions, feedback delivery, and self-efficacy are simultaneously entered. From this analysis for the full sample (see Table 8A), only self-efficacy clearly explained significant variance (beta = .24, $p \leq .001$), thus showing support for hypothesis 5. As anticipated, higher self-efficacy led to choices for more difficult, mastery-oriented tasks. Both goal-orientation instructions and feedback delivery were nonsignificant. The joint influence of goal-orientation instructions, feedback delivery, and self-efficacy explained a significant 7.8% of variance in the participants' task choice ($F = 5.86$; $df = 3, 207$; $p \leq .001$).

For the reduced sample (those remembering the manipulations; see Table 8B), the goal-orientation instructions manipulation was the only significant direct effect ($p \leq .10$). Thus, hypothesis two is supported, yet the direct effects of

Table 8. Results of Hierarchical Regression for Task Choice

Dependent Variable: Task Choice

A. Full Sample (n = 211)

	Variable	Beta[a]	Δ F	R^2	Δ R^2	p of Δ
Step 1	Goal-orientation instructions (GOI)	.09				
	Feedback Delivery (FbD)	.10				
	Self-efficacy (SE_{10})	.24***	5.86*** df = 3, 207	.08***	.08***	p ≤ .001
Step 2	GOI by FbD Interaction	-.33				
	GOI by SE_{10} Interaction	.45				
	FbD by SE_{10} Interaction	.50*	2.20 df = 3, 204	.11***	.03*	p ≤ .10
Step 3	GOI by FbD by SE_{10} 3-way Interaction	-.54	.18 df = 1, 203	.11***	.00	ns

Overall Model: F = 3.51; df = 7, 203; p ≤ .005 **n = 211, alpha = .10**

B. Reduced Sample (n = 92)

	Variable	Beta[a]	Δ F	R^2	Δ R^2	p of Δ
Step 1	Goal-orientation instructions (GOI)	.18*				
	Feedback Delivery (FbD)	.10				
	Self-efficacy (SE_{10})	.10	1.99 df = 3, 88	.06	.06	p ≤ .15
Step 2	GOI by FbD Interaction	-.68				
	GOI by SE_{10} Interaction	1.60***				
	FbD by SE_{10} Interaction	.96*	5.42 df = 3, 85	.21***	.15***	p ≤ .005
Step 3	GOI by FbD by SE_{10} 3-way Interaction	.13	.00 df = 1, 84	.21***	.00	ns

Overall Model: F = 3.26, df = 7, 84; p ≤ .005 **n = 92, alpha = .10**

[a] Beta coefficient at the time of variable entry

* p < .10 ** p < .05 *** p < .01

feedback delivery (hypotheses three) and self-efficacy (hypothesis five) were not. The three direct variables explained 6% of total variance.

Hypotheses 4, 6, and 7 suggest two-way interactions among the experimental manipulations. Hypotheses 8A and 8B imply a three-way interaction. As previously written, two statistical tests were used with both samples to assess these interactions' significance on task choice. First, I looked at the influence of each two-way interaction as it was simultaneously entered into the hierarchical regression's second step with the other two-way interaction variables. Each beta coefficient and related significance level indicates the value of that specific interaction in explaining participants' task choice after the main effects of goal-orientation instructions, self-efficacy, and feedback delivery (step 1) have been removed. The second set of statistical analyses involved multiple planned-comparison tests.

Table 8A (the full sample) shows the feedback delivery by self-efficacy variable as the only significant interaction (hypothesis 7; $p \leq .10$). The goal-orientation instruction by self-efficacy interaction (hypothesis 6) and the goal-orientation instruction by feedback delivery interaction (hypothesis 4) were both nonsignificant. This step in the hierarchical regression, involving all two-way interactions, explained an additional 2.9% of task-choice variance ($F = 2.20$; $df = 3, 204$; $p \leq .10$).

The remaining variable, the three-way interaction involving hypotheses 8A and 8B, was not significant. The entire regression model explained 10.8% of task choice variance ($F = 3.51$; $df = 7, 203$; $p \leq .005$).

For the reduced sample (see Table 8B), the goal-orientation instructions by self-efficacy interaction (hypothesis 6; $p \leq .005$) and feedback delivery by self-efficacy (hypothesis 7; $p \leq .10$) were significant. The goal-orientation instructions by feedback delivery interaction (hypothesis 4) was not significant. These three two-way interactions explained 15% of total variance—five times the amount from step two of the full-sample analyses (see Table 8A). The three-way interaction was not significant. The entire set of variables for the reduced sample explained nearly twice the total variance as that of the full sample (21% vs. 11%).

Task Choice: Planned Multiple-comparison Tests with Experimental Manipulations. Multiple planned-comparison tests are the second analysis investigating the statistical significance of the experimental manipulations' hypothesized interactions. These tests examine each hypothesis' focal condition with the other relevant conditions. Figures 13, 14, 15, and 16—including both the full and reduced samples—graphically illustrate the mean comparisons for hypothesis 4, 6, 7, 8A, and 8B, respectively (Figure 16 illustrates both 8A & 8B).

Figure 13 highlights—for both the full and reduced samples—the task choices among the four conditions created by the goal-orientation instructions and feedback delivery interaction (hypothesis 4). This hypothesis suggests participants in the focal condition—receiving performance-goal instructions and anticipating public feedback delivery will avoid the difficult, mastery-oriented tasks (on a 1 to 6 scale with 6 most difficult) more than any of the other three combinations of goal- orientation instructions and feedback delivery.

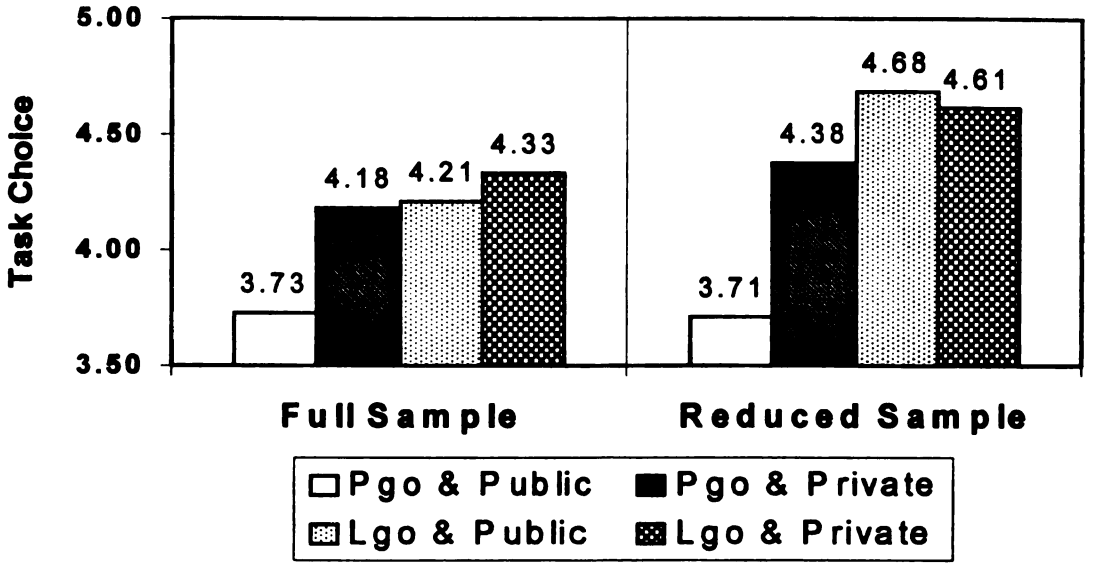


Figure 13. Hypothesis 4: Task Choice Among Goal-orientation Instruction by Feedback Delivery Conditions

Table 9 shows the multiple-planned comparison tests for both the full and reduced samples (and visually displayed in Figure 13). For the full sample, there is a significant difference between the focal condition (Mean = 3.73, from a 1 to 6 scale) and its opposite condition; learning-goal instructions with anticipated private feedback delivery (condition 4; Mean = 4.33, $p \leq .10$). Though lower, this performance goal/public feedback condition was not significantly different than the remaining two conditions: those with performance-goal instructions anticipating private feedback (condition 2; Mean = 4.18, ns) and those with learning-goal instructions anticipating public feedback (condition 3; Mean = 4.21, ns). Thus, though not supported through the full sample's hierarchical regression (See Table 8A, step 2), there was partial support from the multiple planned-comparison tests for the proposition that an emphasis on high performance, while anticipating that this performance would become public, may be viewed as

ego-threatening—at least when compared to its opposite learning-goal, private feedback condition.

Table 9. Hypothesis 4: Multiple Planned-comparison Analyses Comparing the Performance-goal instructions and Public Feedback Delivery Condition to Each of the Other Three Conditions

Condition
1 - Performance-goal instructions & public feedback delivery (focal group)
2 - Performance-goal instructions & private feedback delivery
3 - Learning-goal instructions & public feedback delivery
4 - Learning-goal instructions & private feedback delivery

	Condition 1	**Condition 2**	**Condition 3**	**Condition 4**
Task Choice: full	**3.73**	4.18	4.21	4.33
reduced	**3.71**	4.38	4.68	4.61
SD: full	1.70	1.39	1.50	1.50
reduced	1.71	1.16	.95	1.50

	Full Sample		**Reduced Sample**	
Contrast	**t value**	**p of t**	**t value**	**p of t**
1 vs. 2	-1.46	ns	-1.56	$p \leq .15$
1 vs. 3	-1.63	ns	-2.30	$p \leq .05$
1 vs. 4	-2.12	$p \leq .10$	-2.21	$p \leq .05$
4 vs. 2	.50	ns	.59	ns
4 vs. 3	.42	ns	-.18	ns

Full sample; n = 202, df = 198, alpha = .10
Reduced sample; n = 92, df = 88, alpha = .10

Analyses in the reduced sample also found significant differences between these two opposite conditions (condition 1: Mean = 3.71 vs. condition 4 mean = 4.61, $p \leq .05$). In addition, the focal group (condition 1: performance goals anticipating public feedback) significantly differed with participants in the learning goal, public feedback condition (condition 3: Mean = 4.68, $p \leq .05$).

Similar to the full-sample findings, the *hierarchical regression* did not support a goal-orientation instructions by feedback delivery interaction (see Table 8B, step 2) yet multiple-planned comparison tests found significant differences within the four conditions (see Table 9 and Figure 13). With this smaller sample, both conditions having learning goal instructions—whether anticipating private or public feedback—were significantly different than the focal group.

As depicted in Table 10 (see also Figure 14), multiple planned-comparison tests show similar patterns of relationships as well as partial support for hypothesis 6 for both the full and reduced samples. The focal condition--those receiving performance-goal instructions having low self-efficacy (condition 1: Full-sample Mean = 3.80; Reduced-sample Mean = 4.36)—avoided the difficult, mastery-oriented tasks more than its complete opposite condition of learning-goal instructions and high self-efficacy (condition 4: Full-sample Mean 4.71, $p \leq .005$; Reduced-sample Mean = 5.12, $p \leq .10$). The hypothesis' focal condition, however, was not significantly different from the remaining two conditions within either of the samples.

Interestingly, within both samples, those with the combination of learning-goal instructions and high self-efficacy (condition 4) were significantly more likely to choose the difficult, mastery-oriented task than the other two remaining conditions: condition 2, learning goals with low self-efficacy (see Table 10: Full-sample Mean = 3.82, $p \leq .005$; Reduced-sample Mean = 4.04, $p \leq .01$) and

condition 3, performance goals with high self-efficacy (Full-sample Mean = 4.09, $p \leq .10$; Reduced-sample Mean = 3.69, $p \leq .005$).

Table 10. Hypothesis 6: Multiple Planned-comparison Analyses Comparing the Performance-goal instructions and Low Self-efficacy to Each of the Other Three Conditions

Condition
1 - Performance-goal instructions & low self-efficacy (focal group)
2 - Learning-goal instructions & low self-efficacy
3 - Performance-goal instructions & high self-efficacy
4 - Learning-goal instructions & high self-efficacy

	Condition 1	**Condition 2**	**Condition 3**	**Condition 4**
Task Choice: full	**3.80**	3.82	4.09	4.71
reduced	**4.36**	4.04	3.69	5.12
SD: full	1.47	1.55	1.70	1.31
reduced	1.40	1.43	1.62	.95

	Full Sample		**Reduced Sample**	
Contrast	**t value**	**p of t**	**t value**	**p of t**
1 vs. 2	-.07	ns	.80	ns
1 vs. 3	-.94	ns	1.54	ns
1 vs. 4	-3.14	$\leq .005$	-1.94	$p \leq .10$
4 vs. 2	3.07	$\leq .005$	2.80	$p \leq .01$
4 vs. 3	2.06	$\leq .10$	3.36	$p \leq .005$

Full sample; n = 202, df = 198, alpha = .10
Reduced sample; n = 87, df = 83, alpha = .10

Thus, for both samples, low self-efficacy—reflecting the strength of self-efficacy's direct effects—inhibited willingness to tackle difficult, mastery-oriented tasks (see conditions 1 and 2 from Table 10). The benefits of high self-efficacy, however, were destroyed with a simultaneous emphasis on high performance (see condition 3 vs. 4).

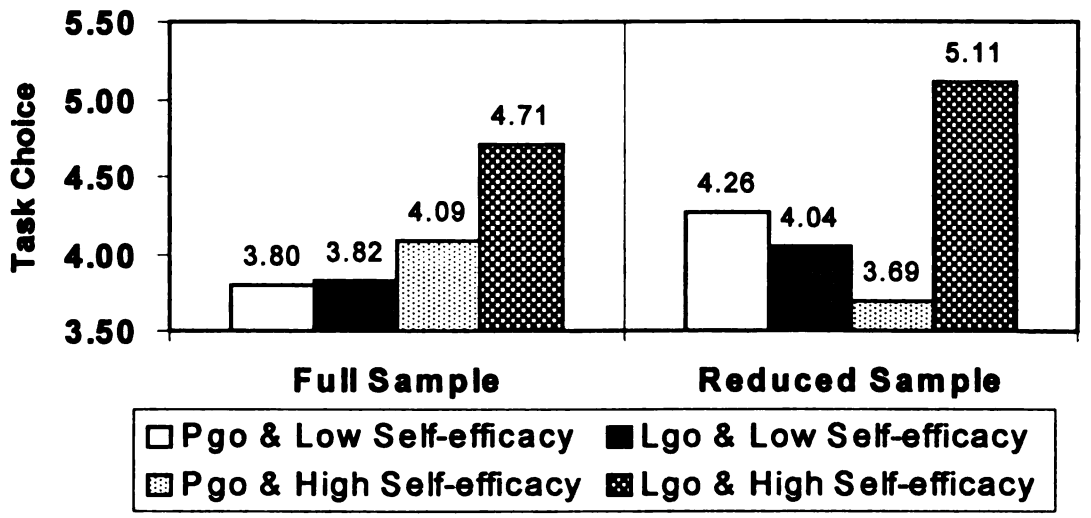


Figure 14. Hypothesis 6: Task Choice Among Goal-orientation Instruction by Self-efficacy Conditions

This pattern of results does not support past conclusions regarding interaction effects of goal orientation and self-efficacy (see Dweck, 1989; Elliott & Dweck, 1988; Nicholls, 1984). These previous conclusions emphasized how self-efficacy would have little effect on those with learning goals since improvement can happen regardless of perceived self-efficacy. Table 10 shows highly significant differences between those with high and low self-efficacy that received learning-goal instructions.

Hypothesis 7 proposes that those with low self-efficacy anticipating public feedback delivery are less likely to choose difficult, mastery-oriented tasks than individuals in any other combination of feedback delivery and self-efficacy. Results from Table 11 (and graphically displayed in Figure 15) show partial support for this hypothesis only with the full sample: the focal condition of low self-efficacy/public feedback (condition 1; Mean = 3.72) was only significantly

different than its complete opposite (condition 4, high self-efficacy and private feedback; Mean 4.79, $p \leq .005$). For the reduced sample, the focal condition was not significantly different than any of the three other conditions.

Table 11. Hypothesis 7: Multiple Planned-comparison Analyses Comparing the Public Feedback and Low Self-efficacy Condition to Each of the Other Three Conditions

Condition
1 - Public feedback delivery & low self-efficacy (focal group)
2 - Private feedback delivery & low self-efficacy
3 - Public feedback delivery & high self-efficacy
4 - Private feedback delivery & high self-efficacy

	Condition 1	Condition 2	Condition 3	Condition 4
Task Choice: full	**3.72**	3.89	4.15	4.79
reduced	**4.29**	4.14	4.19	4.95
SD: full	1.65	1.37	1.65	1.27
reduced	1.57	1.33	1.40	1.36

	Full Sample		Reduced Sample	
Contrast	**t value**	**p of t**	**t value**	**p of t**
1 vs. 2	-.55	ns	.35	ns
1 vs. 3	-1.42	ns	.22	ns
1 vs. 4	-3.45	$\leq .005$	-1.44	ns
4 vs. 2	3.00	$\leq .01$	2.0	$p \leq .05$
4 vs. 3	2.16	$\leq .10$	1.76	$p \leq .10$

Full sample; n = 202, df = 198, alpha = .10
Reduced sample; n = 87, df = 83, alpha = .10

For both samples, those having high self-efficacy anticipating private feedback (condition 4) were significantly different than those with either low self-efficacy anticipating private feedback (see Table 11; condition 2) or high self-efficacy anticipating public feedback (condition 3).

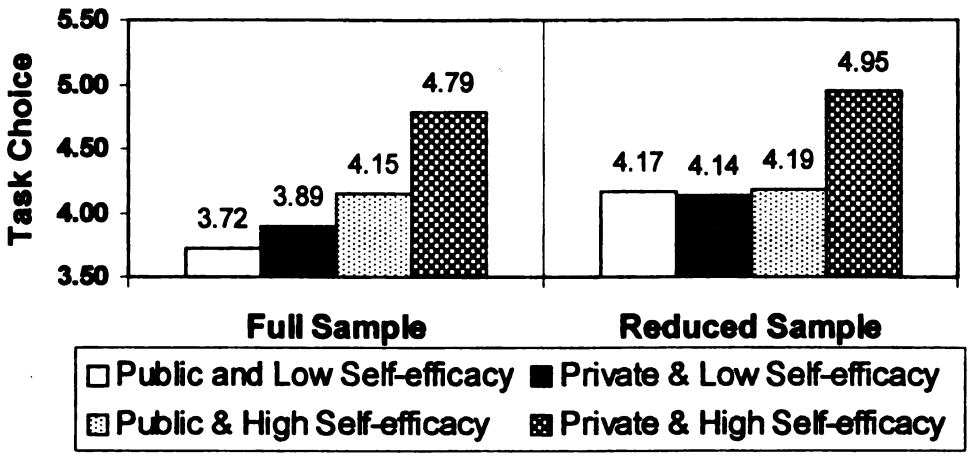


Figure 15. Hypothesis 7: Task Choice Among Feedback Delivery by Self-efficacy Conditions

The condition 3 vs. 4 comparison clearly shows that the commonly-expected beneficial effects of self-efficacy can be significantly diminished with the anticipation of performance becoming publicly known. This finding is especially notable since all participants in these two conditions had just been through eight targets with the identical positive feedback. Even with these identical feedback experiences—and related high self-efficacy for future performance, expectations of performance becoming publicly known led to significantly lower levels of willingness to tackle the difficult, mastery-oriented tasks.

Table 12 and Figure 16 address hypotheses 8A and 8B. I have only examined the full sample for these hypotheses due to the low number of subjects within each of the eight cells of the reduced sample.

Hypothesis 8A suggests that individuals given the optimal three-way combination of learning-goal instructions, private feedback delivery, and high

self-efficacy will choose more difficult, mastery-oriented tasks than those in any other combination of goal-orientation instructions, feedback delivery, and self-efficacy.

Table 12. Hypothesis 8A & 8B: Multiple Planned-comparison Analyses Comparing (a) the Learning-goal instruction, Private Feedback and High Self-efficacy and (b) the Performance-goal instruction, Public Feedback Conditions to Each Other and Each of the Other Seven Conditions

Condition

1 - Performance-goal instructions, public & low self-efficacy (focal group[H8B])
2 - Performance-goal instructions, private & low self-efficacy
3 - Learning-goal instructions, public & low self-efficacy
4 - Learning-goal instructions, private & low self-efficacy
5 - Performance-goal instructions, public & high self-efficacy
6 - Performance-goal instructions, private & high self-efficacy
7 - Learning-goal instructions, public & high self-efficacy
8 - Learning-goal instructions, private & high self-efficacy (focal group[H8A])

	1	2	3	4	5	6	7	8
Mean	**3.63**	3.96	3.83	3.81	3.79	4.63	4.52	**4.87**
SD	1.71	1.22	1.61	1.52	1.81	1.36	1.40	1.23

Contrast	t value	p of t
8 vs. 1	3.06	≤ .005
8 vs. 2	2.29	≤ .05
8 vs. 3	2.54	≤ .01
8 vs. 4	2.68	≤ .005
8 vs. 5	2.78	≤ .005
8 vs. 6	.53	ns
8 vs. 7	.89	ns
1 vs. 2	-.79	ns
1 vs. 3	-.46	ns
1 vs. 4	-.45	ns
1 vs. 5	-.39	ns
1 vs. 6	-2.07	≤ .05
1 vs. 7	-2.13	≤ .05

n = 202, df = 194, alpha = .10

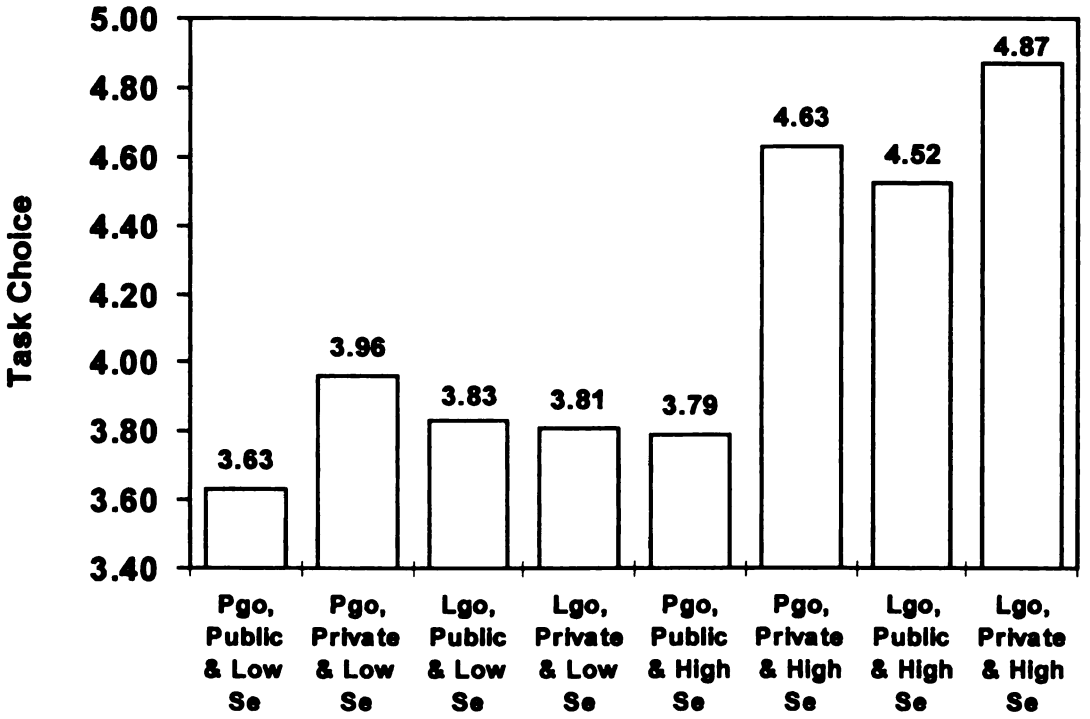


Figure 16. Hypotheses 8a & 8b: First Task Choice Among Goal-orientation Instruction, Feedback Delivery, & Self-efficacy Conditions

Results with this full sample indicate that this highlighted group (condiiton 8: Mean = 4.87) was significantly higher than five of the other seven combinations: performance-goal instructions, public feedback, and low self-efficacy (Mean = 3.63, $p \leq .005$); performance-goal instructions, private feedback, and low self-efficacy (Mean = 3.96, $p \leq .05$); learning-goal instructions, public feedback, and low self-efficacy (Mean = 3.83, $p \leq .01$); learning-goal instructions, private feedback, and low self-efficacy (Mean = 3.81, $p \leq .005$); performance-goal instructions, public feedback, and high self-efficacy (Mean = 3.79, $p \leq .005$).

Similar to the observation regarding hypothesis 7, the highly touted advantages of high self-efficacy were offset by the anticipation of performance

feedback becoming known to others—but only for those who received performance-goal instructions (see condition 8 vs. 5 comparison in Table 12). Learning-goal instructions within this combination of high self-efficacy and public feedback (see condition 7) appeared to inoculate participants from the destructive effect of anticipated public feedback.

Results for hypothesis 8B, also within Table 12, show those in condition 1 (performance-goal instruction, public feedback, and low self-efficacy) had, as anticipated, the greatest desire to avoid the difficult, mastery-oriented tasks. These individuals were significantly different than three of the other seven conditions: condition 8, as highlighted above; those receiving learning-goal instructions, public feedback, and high self-efficacy (condition 7, Mean = 4.52, $p \leq .05$); as well as those receiving performance-goal instructions, private feedback, and high self-efficacy (condition 6, Mean = 4.63, $p \leq .05$).

With the previous analyses on task choice, I used the experimental manipulations as independent variables, not the more direct measure of perception. As Dweck (1989) notes, the important issue is not what goal orientation may be *highlighted* by the specific achievement situation, but what goal orientation is *adopted* by the individual. This point directly implies that using variables representing my experimental manipulations would be less effective than using measures capturing participants' actual adopted view, or goal-orientation perception, of the task.

The next sections further examine the role of goal-orientation *perceptions*—not the manipulations—on choices to seek or avoid the difficult,

mastery-oriented tasks. It is expected that (a) using perceptions and (b) viewing the two goal orientations as separate constructs will be valuable in explaining task-choice variance.

For these analyses using perceptions, I will use the full sample: even though participants may not have remembered the experimental manipulations of goal orientation and feedback delivery, they still came to the task choice with varying levels of performance goal and learning goal emphases.

Additional Analyses of Task Choice: Hierarchical Regression with Perceptual Measures. This analysis consisted of a three-step hierarchical regression. The first step involved simultaneously examining the direct effects of LGP, PGP, and self-efficacy. Based on the literature, it is expected that participants with high LGP would choose the more difficult, mastery-oriented tasks and those with high PGP would avoid these same tasks. Of course, higher self-efficacy is expected to lead to greater challenge seeking as well.

The various two-way interactions will occur in the regression's second step and the final step will include the three-way interaction. Regarding the LGP by PGP interaction, I specifically anticipate that (a) participants with the combination of high LGP and low PGP will choose the difficult, mastery-oriented task more and (b) those with low LGP and High PGP would avoid these tasks more frequently than the other combinations of LGP and PGP. Multiple planned-comparison tests will clarify these relationships.

For the LGP by self-efficacy interaction, I expect (a) those with high LGP/high self-efficacy to choose the difficult, mastery-oriented task more

frequently and (b) those with low LGP/low self-efficacy to avoid these tasks more frequently than the other combinations.

For the remaining two-way interaction, I anticipate those with low PGP and high self-efficacy to most seek the challenging tasks whereas the high PGP, low self-efficacy participants will be least challenge-seeking.

The three-way combination of high LGP, low PGP, and high self-efficacy is also predicted to choose the challenging tasks more frequently than any of the other seven conditions. Conversely, the low LGP, high PGP, low self-efficacy combination is expected to avoid choosing the challenging tasks more frequently that all other combinations. Since the direction of the LGP and PGP influences are a priori predicted, an alpha of .10 is used for both the hierarchical regression and multiple planned-comparison tests.

As Table 13 shows, a high perceived learning emphasis led to choices for more challenging tasks (beta = .14; $p \leq .05$). Performance goal perceptions were moderately significant with the beta sign indicating a lower PGP leading to greater challenge-seeking choices (beta = -.10; $p \leq .10$). Higher self-efficacy was significantly related to choices for more challenging tasks as well (beta = .22, $p \leq .01$). Combined, LGP, PGP, and self-efficacy explained 8% of variance ($p \leq .01$).

The set of three interaction variables were highly significant ($p \leq .005$) and explained an additional 6% of variance. Finally, the three-way interaction was also significant ($p \leq .05$), adding 2% to the total variance explained. The nature of these two- and three-way interactions will be clarified in the following

section. The full regression model accounted for 16% of the task choice's variance.

Table 13. Results of Hierarchical Regression for Task Choice Using Perceptual Goal-orientation Measures and Self-efficacy

Dependent Variable: Task Choice

	Variable	Beta[a]	Δ F	R^2	Δ R	p of Δ
Step 1	Learning-goal Perceptions (LGP)	.14**				
	Performance-goal Perceptions (PGP)	-.10*				
	Self-efficacy (SE)	.22***	6.16 df = 3, 207	.08***	.08***	p ≤ .001
Step 2	LGP by PGP Interaction	-1.01***				
	LGP by SE Interaction	.54				
	PGP by SE Interaction	-.69**	4341 df = 3, 204	.14***	.06***	.000
Step 3	LGP by PGP by SE Interaction	.22**	5.45 df = 1, 203	.16***	.02**	.000

Overall Model: F = 5.54; df = 7, 203; p ≤ .001 **n = 211, alpha = .10**

[a] Beta coefficient at the time of variable entry

* p < .10 ** p < .05 *** p < .01

Additional Analyses of Task Choice: Multiple Planned-comparison Tests With Perceptual Measures. As shown in Table 14, the high LGP/low PGP group had the highest task-choice average (Mean = 4.63). It was significantly different than the low LGP/low PGP group (Mean = 3.67, p ≤ .005) and the high LGP/high PGP group (Mean = 4.03, p ≤ .05). The focal group was moderately different than the low LGP/high PGP group (Mean = 4.11, p ≤ .10).

Table 14. Results of Multiple Planned Comparisons for Task Choice Using Perceptual Goal-orientation Measures

Condition
1 – Low LGP & High PGP
2 – Low LGP & Low PGP
3 – High LGP & High PGP
4 – High LGP & Low PGP

	Condition 1	Condition 2	Condition 3	Condition 4
Mean	4.11	3.67	4.03	4.63
SD	1.41	1.56	1.69	1.44

Contrast	t value	p of t
1 vs. 2	-1.30	≤ .10
1 vs. 3	.24	ns
1 vs. 4	1.48	≤ .10
4 vs. 2	2.93	≤ .005
4 vs. 3	1.89	≤ .05

n = 183, df = 179, alpha = .10

These results for task choice (see Figure 17) show the fragility of a high desire to learn: These high-LGP benefits are only apparent with a minimal desire to demonstrate, or appear, competent (low PGP).

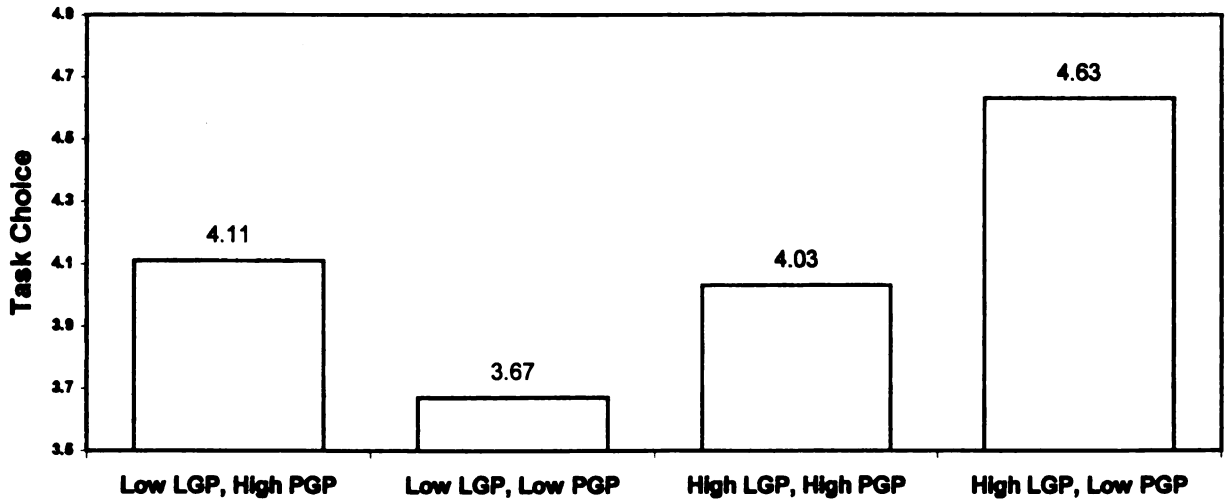


Figure 17. Task Choice by the Four Perceptual Cells

Table 15 and Figure 18 highlight differences among the four conditions created with high/low LGP and high/low self-efficacy. Multiple planned-comparison testing specifically highlights the benefit of the high LGP/high self-efficacy combination (condition 4): these individuals chose the difficult, mastery-oriented task more frequently than individuals with high or low LGP having low self-efficacy (conditions 1 & 2). Condition 4, however, was not significantly different than condition 3 (low LGP, high self-efficacy).

Table 15. Results of Multiple Planned Comparisons for Task Choice Using LGP and Self-efficacy Measures

Condition
1 – Low LGP & Low Self-efficacy
2 – High LGP & Low Self-efficacy
3 – Low LGP & High Self-efficacy
4 – High LGP & High Self-efficacy

	Condition 1	Condition 2	Condition 3	Condition 4
Mean	3.52	4.02	4.31	4.55
SD	1.41	1.57	1.43	1.62

Contrast	t value	p of t
4 vs. 1	3.45	≤ .001
4 vs. 2	1.75	≤ .05
4 vs. 3	.76	ns
1 vs. 2	-1.59	≤ .10
1 vs. 3	-2.34	≤ .05

n = 186, df = 182, alpha = .10

It was also interesting to note that the low LGP, low self-efficacy individuals (condition 1) were significantly more interested in avoiding the difficult, mastery-oriented tasks than all three other combinations of LGP and self-efficacy.

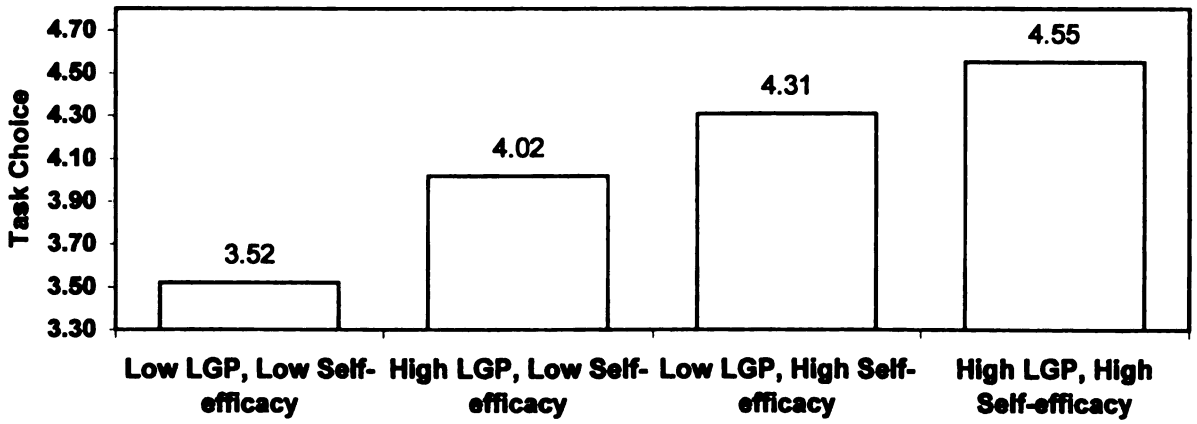


Figure 18. Task Choice by Learning-goal Perceptions and Self-efficacy

Comparing the PGP levels with self-efficacy (see Table 16 & Figure 19) shows that high self-efficacy and a reduced emphasis on high performance (low PGP; condition 4) significantly improved the chances of choosing the difficult, mastery-oriented task compared to the other three self-efficacy/PGP combinations. Aside from the high self-efficacy/low PGP condition just mentioned, those with low self-efficacy/high PGP combination (condition 1) were not significantly different than the remaining two combinations.

Figure 19 well depicts a situation where the expected beneficial effects of high self-efficacy are seriously diminished: a high emphasis on demonstrating, or appearing competent. Thus, even with high self-efficacy, those with high PGP chose to avoid the difficult, mastery-oriented tasks compared to those with low PGP (see condition 4 vs. 3, Table 16).

Table 17 shows the results of the multiple planned-comparison analyses for the eight conditions created by crossing LGP, PGP, and self-efficacy levels. The group expected to be most likely to seek challenge—those with high LGP, low PGP, and high self-efficacy (condition 7, See also Figure 20)—were clearly

more willing to choose the more difficult, mastery-oriented tasks than all of the other seven LGP/PGP/self-efficacy conditions (see Table 17 A). The complete opposite group—those with low LGP, high PGP, and low self-efficacy (condition 2)—was only significantly different than the group (condition 7) just discussed.

Table 16. Results of Multiple Planned Comparisons for Task Choice Using PGP and Self-efficacy Measures

Condition
1 – High PGP & Low Self-efficacy
2 – Low PGP & Low Self-efficacy
3 – High PGP & High Self-efficacy
4 – Low PGP & High Self-efficacy

	Condition 1	Condition 2	Condition 3	Condition 4
Mean	3.95	3.69	4.08	4.80
SD	1.48	1.57	1.65	1.27

Contrast	t value	p of t
1 vs. 2	.85	ns
1 vs. 3	-.39	ns
1 vs. 4	2.61	≤ .01
4 vs. 2	3.57	≤ .001
4 vs. 3	2.34	≤ .01

n = 193, df = 189, alpha = .10

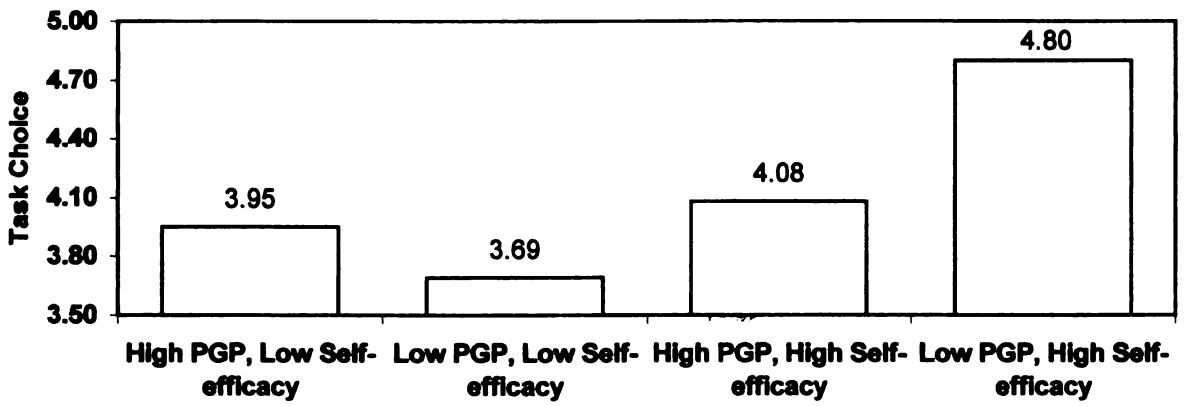


Figure 19. Task Choice by Performance-goal Perceptions with Self-efficacy

Interestingly, examination of the means shows the low LGP, low PGP, low self-efficacy group (condition 1) had the lowest desire for future challenging tasks. Upon multiple planned-comparison analysis (see Table 17 B), this group was significantly different than six of the other seven conditions.

Table 17. Results of Multiple Planned Comparisons for Task Choice Using LGP, PGP, and Self-efficacy Measures

1 – Low LGP, low PGP, & low self-efficacy
2 - Low LGP, high PGP, & low self-efficacy
3 - High LGP, low PGP, & low self-efficacy
4 - High LGP, high PGP, & low self-efficacy
5 - Low LGP, low PGP, & high self-efficacy
6 - Low LGP, high PGP, & high self-efficacy
7 – High LGP, low PGP, & high self-efficacy
8 - High LGP, high PGP, & high self-efficacy

	1	2	3	4	5	6	7	8
Mean	3.27	3.85	4.00	4.04	4.22	4.33	**5.24**	4.03
SD	1.48	1.35	1.62	1.60	1.52	1.45	.94	1.81

	Contrast	t value	p of t
(A)	7 vs. 1	4.42	≤ .001
	7 vs. 2	2.93	≤ .005
	7 vs. 3	2.61	≤ .01
	7 vs. 4	2.64	≤ .005
	7 vs. 5	2.08	≤ .05
	7 vs. 6	1.76	≤ .05
	7 vs. 8	2.85	≤ .005
(B)	1 vs. 2	-1.29	ns
	1 vs. 3	-1.62	≤ .01
	1 vs. 4	-1.80	≤ .05
	1 vs. 5	-2.05	≤ .05
	1 vs. 6	-2.16	≤ .05
	1 vs. 7	-4.42	≤ .001
	1 vs. 8	-1.91	≤ .05

n = 177, df = 169, alpha = .10

It is also interesting to note the low LGP/low PGP group's (see Table 14, condition 2) deep desire to avoid the difficult, mastery-oriented tasks. My initial interpretation of this finding is that low LGP/low PGP participants—lacking in both a desire to learn the task and to do well in it—were probably the group least interested in initially participating in the experiment. To test this proposition, I looked at the (a) correlations between task interest and the LGP and PGP measures as well as (b) multiple planned-comparison tests among the initial task interest scores for the four LGP/PGP cells. It is important to remember this task-interest measure was taken after just two training targets *yet prior to the manipulations of goal orientation instructions, feedback delivery, or self-efficacy.*

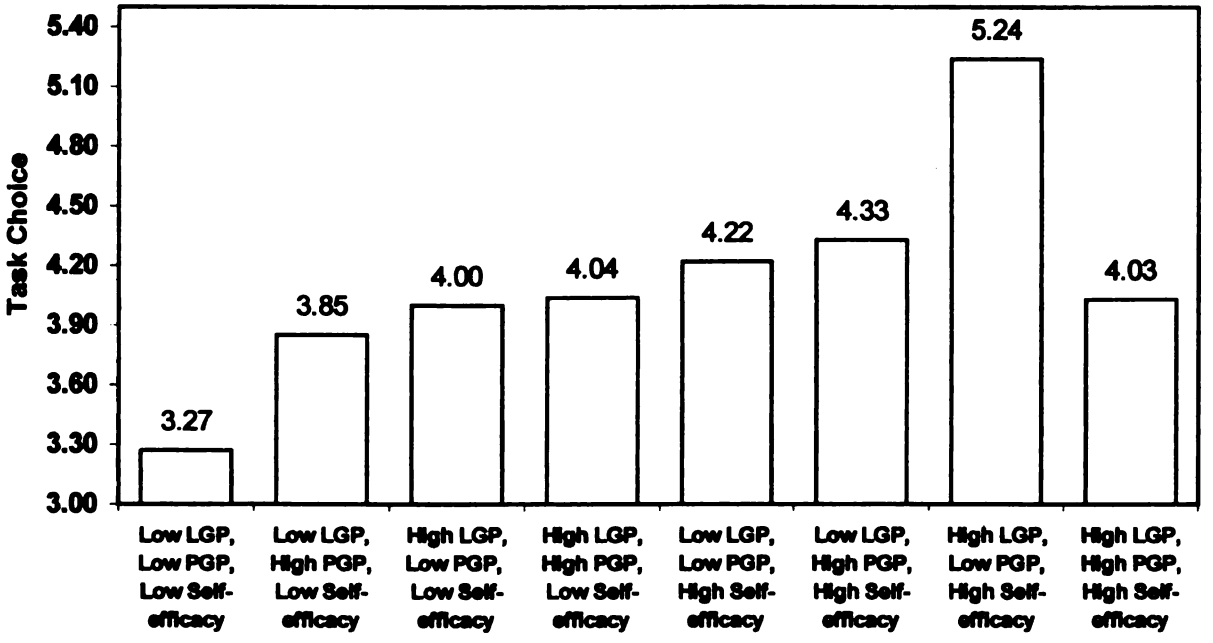


Figure 20. Task Choice by Goal-orientation Perception (LGP & PGP) with Self-efficacy

Each analysis shows my proposition is well founded. The correlations indicate initial task interest significantly related to both LGP (see Table 3; $r = .29$, $p \leq .001$) and PGP ($r = .19$, $p \leq .001$; see Table 3): High LGP and high PGP are related to greater interest in the task—or, to emphasize the *disinterest*, low initial task interest was related to low LGP and low PGP.

Table 18 and Figure 21 show results of the multiple planned-comparisons. The low LGP/low PGP condition had significantly lower initial task interest than all three other combinations—*prior to any experimental manipulations.* The low LGP/low PGP group (Mean = 3.35) was significantly lower in initial task interest than low LGP/high PGP (Mean = 4.44, $p \leq .001$), high LGP/high PGP (Mean = 4.60, $p \leq .001$), and high LGP/low PGP (Mean = 4.91, $p \leq .001$). The statistical analyses support the notion that this low LGP/low PGP group could appropriately be described as unmotivated to even be part of the experiment.

Table 18. Results of Multiple Planned Comparisons for Initial Task Interest Using Perceptual Goal-orientation Measures

Condition
1 – Low LGP & High PGP
2 – Low LGP & Low PGP (focal group)
3 – High LGP & High PGP
4 – High LGP & Low PGP

	Condition 1	Condition 2	Condition 3	Condition 4
Mean	4.44	3.35	4.60	4.91
SD	1.18	1.27	1.22	.99

Contrast	t value	p of t
2 vs. 1	4.19	≤ .001
2 vs. 3	5.40	≤ .001
2 vs. 4	6.20	≤ .001

n = 183, df = 179, alpha = .05

The next chapter examines issues highlighted during analysis of the hypothesis as well as identifies contributions this research makes to pertinent research areas. In addition, limitations of this study are discussed, as are suggested future research directions.

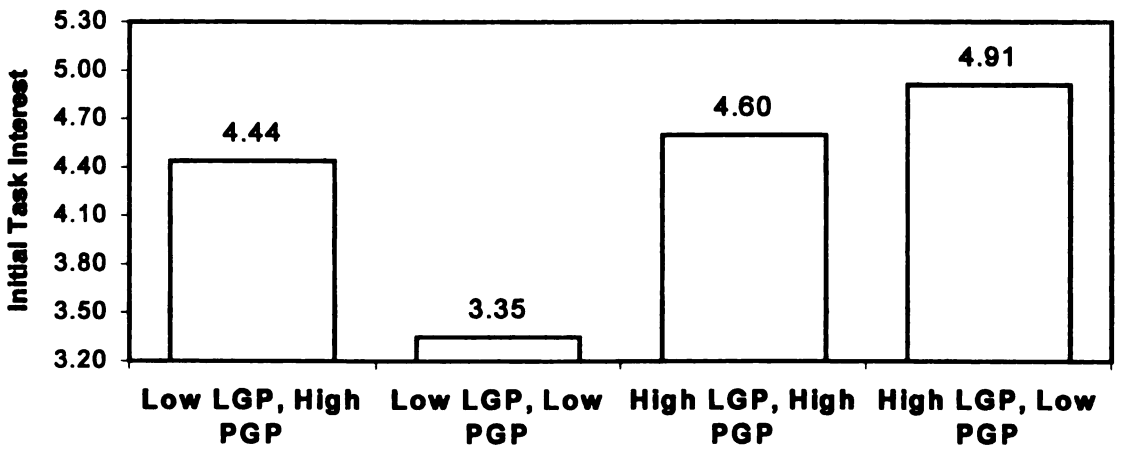


Figure 21. Initial Task Interest by the Four Perceptual Cells

DISCUSSION

Various authors have examined the role goal orientation—whether situationally induced or dispositional—plays in ego-threatening settings (see Ames & Archer, 1988; Butler, 1988, 1989, 1992, 1993; Colquitt & Simmering, 1998; Dweck & Elliott, 1983; Licht & Dweck, 1984). As initially stated, it is difficult to understand reactions to negative feedback since there are widely divergent reactions to this feedback: some good, some bad.

This study was designed to examine a subset of factors that may influence individuals' responses to ego-threatening achievement situations. In this theory-based research, I sought greater understanding of task characteristics, feedback features, and individuals' self-efficacy on reactions to negative feedback—specifically reactions of self-efficacy change and future task choices.

The previous analyses provide mixed support for this study's hypotheses. The following sections will elaborate upon the findings, identify general limitations of my research, and suggest future research that could address issues highlighted in this study.

General Conclusions on Self-efficacy Analyses

Self-efficacy: Using Experimental Manipulations. For both the full and reduced samples, the repeated measures regression was nonsignificant when comparing those receiving learning-goal instructions anticipating private feedback (least ego-threatening) to those with performance-goal instructions expecting public feedback (most ego-threatening). Regardless of the condition,

both groups had substantial self-efficacy declines upon receipt of negative feedback.

As earlier discussed, numerous plausible explanations may account for the lack of significant differences: The manipulations may have been too weak; and/or the temporal focus of the self-efficacy questions may have been too immediate.

General Conclusions on Task Choice Analyses

Task Choice: Using Experimental Manipulations. Analyses of task choice revealed mixed support for this study's numerous hypotheses. Within my study, self-efficacy was the only significant direct influence on task choice (hypothesis 5, $p \leq .001$) for the full sample: the higher the self-efficacy, the greater the likelihood of choosing the more challenging tasks. My findings with the full sample's hierarchical regression support Bandura's (1977, p. 194) statement regarding self-efficacy's influence on choices for future tasks: "People fear and tend to avoid threatening situations they believe exceed their coping skills..." The direct effects of goal-orientation instructions (hypothesis 2) and feedback delivery (hypothesis 3) were nonsignificant.

However, within the reduced sample, hypothesis 2 (goal-orientation instructions) was the only significant direct effect. The direct influences of feedback delivery and self-efficacy were nonsignificant. Thus, hypotheses 2 and 5 (direct self-efficacy influence) received mixed support from the two samples' hierarchical regression.

Regarding the interaction hypotheses, multiple planned-comparison testing was useful in identifying the nature of significant influences within every interaction tested—even though the hierarchical regression only found one significant interaction within the full sample and two within the reduced sample.

Although exceptions existed, the general outcomes of the multiple planned-comparison tests on task choice found either (a) the positive effects of high self-efficacy/private feedback/learning goal instructions, (b) the negative effects of low self-efficacy/public feedback/performance goal instructions, or (c) both a and b.

Though many task-choice findings support the literature previously reviewed, there were interesting departures from the literature found through the multiple planned-comparison tests. First, past research and summaries of the goal-orientation literature posited self-efficacy level would have minimal affect within a low ego-threatening/high learning-oriented situation since improvement can happen regardless of perceived self-efficacy (Dweck, 1989; Elliott & Dweck, 1988; Nicholls, 1984). This was certainly not the case in my research. Significant low versus high self-efficacy differences appeared at every opportunity within both the full and reduced samples within this study. These differences occurred with the lower ego-threatening conditions of learning-goal instructions (see conditions 2 vs. 4, Table 10 and Figure 14), private feedback (see conditons 2 vs. 4, Table 11 and Figure 15), or the combination (see conditions 4 vs. 8, Table 12 and Figure 16).

The heavy direct influence of self-efficacy level may be a primary explanation. Hierarchical regression, however, only supports this explanation for the full sample (see step 1 of Table 8A vs. 8B). Future research would be valuable to examine the inconsistencies between my results and previous writings.

Other interesting observations involved the frequently-expected positive effects of high self-efficacy. High self-efficacy did not promote the challenge-seeking behavior of choosing the difficult, mastery-oriented tasks when combined with performance-goal instructions (see condiitons 2 vs. 4, Table 10 and Figure 14), public feedback delivery (see conditions 2 vs. 4, Table 11 and Figure 15), or their three-way interaction (see conditions 5 vs. 8, Table 12 and Figure 16). These findings are especially notable since all participants had just been through eight targets with the identical positive feedback at the time of this task choice. Thus, even with these identical feedback experiences—and related high self-efficacy for future performance—these various conditions led to significantly lower levels of willingness to tackle the difficult, mastery-oriented tasks.

Task Choice: Using Perceptual Measures. Results from analyzing the four LGP by PGP perceptual cells' influence on task choice (see Table 14 & Figure 17) indicates: (a) the high LGP/low PGP combination chose the most challenging tasks, and (b) the benefits of high LGP are most apparent with a low PGP. Another interesting observation during this analysis was that the group that had little interest in learning the task and little interest in doing well on the

task (low LGP/low PGP) were identified as having low initial task interest—even prior to any experimental manipulations. It appears that these individuals lacked a desire to even be in the experiment.

Regarding the LGP by self-efficacy interaction's influence on task choice, once again, my results did not support Elliot and Dweck's (1988) findings that a high learning-goal emphasis diminished the detrimental influence of low self-efficacy. In my research, though the interaction was nonsignificant in the hierarchical regression (see Table 13), multiple planned-comparison testing found a significant difference between the two high LPG conditions—high self-efficacy compared to low self-efficacy (see conditions 4 vs. 2 in Table 15 & Figure 18).

For the PGP by self-efficacy interaction, both the regression analysis and multiple planned-comparison tests found significant results: As Figure 19 well illustrates—and Table 16 statistically supports, those with low PGP and high self-efficacy were most willing to choose the difficult, mastery-oriented task.

Within the hierarchical regression, the three-way LGP/PGP/self-efficacy interaction was significant. Multiple planned-comparison tests (see Table 17 and Figure 20) show the high LGP, high self-efficacy, yet low PGP to be more willing to take on the difficult, mastery-oriented task challenge than any of the other seven combinations.

Perceptual Issues

This research would best test the hypotheses only if the experimental goal-orientation instructions and feedback-delivery manipulations successfully

created the desired performance goals or learning goals within the individual. These manipulations occurred after the training targets and their effects were measured by separate perceptual learning- and performance-goal questionnaires

Comparing the manipulations versus perceptions—as Dweck (1989) implied, the important issue is not what goal orientation may be *highlighted* within any specific achievement situation, but what goal orientation is *adopted* by the individual. The task choice findings due to the perceptual measures, LGP and PGP (with self-efficacy), show this to be true: Task choice variance explained is only 10.7% for the manipulations but 16% when using perceptions (Contrasted in Tables 8A & 13).

This point directly implies that, in addition to self-efficacy, using variables representing my experimental manipulations would be less effective than using measures capturing participants' internalized goal orientation emphasized within the task.

Limitations of the Study

It is important to note this study's two primary limitations: Lack of extrinsic rewards for high performers and questions of ecological validity for this laboratory research.

Lack of Rewards. The power, or long-term personal influence, of the feedback source is important (Ilgen, et al., 1979). In this experiment, there is limited power—especially regarding the value of any rewards or consequences given by the experimenter. In the previously discussed review, Balcazar, et al.

(1986) found feedback with consequences (e.g., money or food), feedback with goal setting, and feedback with both consequences and goal setting to be much more effective than feedback alone.

Aside from course credit (regardless of either performance scores or amount learned within the task), the participants in my study received just performance feedback as a reward or consequence. If consequential rewards based on high scores existed there would have been greater pressure for high performance. This would have likely inhibited the learning-goal manipulations. Even if the reward attempted to reinforce learning and not a final score, there would still be felt pressure. Due to these reasons, I purposefully rejected the use of any form of rewards knowing this may minimize participants' task involvement. Certainly, research with adults examining reward structures' influence on goal orientation emphasis would be valuable.

Task Context. When doing laboratory research, questions of generalizability will understandably occur. This concern is valid if the purpose of the research is to apply research results to the real world (Dipboye & Flanagan, 1979; Locke, 1986; Mook, 1983). As previously explained, my study was an initial examination of various constructs' relationships. Given this purpose, the tighter control over the manipulations—and its related decrease in potential confounding and contaminating influences—makes the lab an appropriate setting for this inquiry. Upon finding that relationships exist, use of a field setting would be helpful in clarifying pertinent boundary conditions (Ilgen, 1986).

In addition, it should be noted that if significant results are obtained in a low-stakes laboratory setting, comparable—if not stronger differences—could exist in real-world settings (Brockner, Houser, Birnbaum, Lloyd, Deitcher, Nathanson, & Rubin, 1986). Due to these reasons, it (a) was appropriate to do this research in a tightly-controlled setting, and (b) the results could be expected to replicate in settings involving higher stakes.

Future Research Directions

Aside from the previously mentioned recommendations of further research clarifying a learning orientation's relationship with differing levels of self-efficacy, further research on reward structures with adults, and more goal-orientation research out of the laboratory and in the field, I advocate several other areas for future research. These areas include goal orientation's relationship to skill acquisition, changes in self-efficacy, influences on task choices, and scrutiny of the dilemma imposed by negative feedback.

Goal Orientation and Skill Acquisition. First, it is inappropriate to conclude that a performance-goal orientation is always destructive. The most intelligent approach to achievement situations involves effective *coordination* of the two orientations (Dweck, 1989): learn when learning is most important, seek high performance when performance is paramount.

Kanfer (1990) has advocated considering goal-orientation issues when researching skill-acquisition topics. This seems particularly fruitful since demanding high performance (a performance-goal orientation) in the early phases of learning a skill could be inappropriate, promoting ego-protective,

maladaptive responses. At this phase, it would be best to forgo expectations of appearing competent and focus on learning the new task—even with the likely (and often, informative) errors. Similarly, in the later stages of working on a task, it could be detrimental to continue a singular focus on learning—while sacrificing high levels of performance. An optimal sequence would involve learning goals early in the skill acquisition process, with a transition to performance goals in later phases. Research in this topic area would be valuable.

Self-efficacy Change. Individuals' self-efficacy level has exhibited widespread influence on numerous organizational-behavior topics. The general pattern of this influence shows high self-efficacy as helpful; low self-efficacy, unhelpful. Although much research has examined self-efficacy as an independent variable affecting other constructs, there has been much less study of self-efficacy's antecedents—especially how self-efficacy levels change over time (Gist & Mitchell, 1992; exceptions include Mitchell, et al., 1994; Silver, et al., 1995).

My research did not support the hypothesis that differing combinations of learning-goal instructions and feedback delivery influence self-efficacy over time *given identical feedback*. I recommend further research on this important topic of self-efficacy change. I also advocate avoidance of confounding issues. Examples of these confounding influences include the previously critiqued Wood and Bandura (1989) and Bandura and Wood (1989) studies (where performance also varied in addition to the manipulated conceptions of intelligence or personal control, respectively).

Task Choice. Regarding the value of studying employees' choices for future tasks, Dubin states "Keeping professionals current is highly important in today's competitive environment. It is essential for the survival of an organization—any organizations." (1990, p. 29). Related to goal-orientation issues, Kozlowski and Farr (1988, p. 25) advocate research investigating factors that influence individuals' perceptions and attitudes on development within the work setting. They state, "Continuing research should attempt to more completely articulate contextual features and their relation to the psychology of individuals. This problem has received little theoretical or research attention . . ." I agree with Dubin's (1990) and Kozlowski and Farr's (1988) call for further research on what the supervisors, peers, and organization can do to promote employees' interest in continuous learning and development.

My research used goal orientation as its theoretical foundation and found both manipulations and perceptions influenced choices for difficult, mastery-oriented tasks. I advocate more theory-based research—in both the lab and the field—on individual's professional development choices.

Negative Feedback Issues. Landy and Farr (1983) state that the sign of the feedback message is "the most important message characteristic in terms of its impact on the acceptance of feedback" (p. 168). Given the dilemma that (a) feedback is a commonly used management intervention to improve performance, (b) negative feedback should be expected periodically, and (c) the widely divergent reactions to negative feedback (as outlined in earlier sections), research on maximizing the beneficial results of this often-destructive feedback

would be helpful. A general approach to this study should involve both the context (e.g., developmental climate, feedback giver-recipient relationship, and framing of actual feedback) and recipient characteristics (e.g., dispositional traits and perceptions of task situation).

Conclusion

Contribution to Goal Orientation Research on Adults. My research makes several contributions to the current literature. First, my results show the influence of goal orientation extends beyond children. Only recently has this theoretical approach anchored research involving adults (see Colquitt & Simmering, 1998; Martacchio, 1994; Phillips & Gully, 1997; Sujan, et al., 1996; VandeWalle, 1997). With goal orientation's significant influence on adults in topics of interest to both organizational behavior researchers and practitioners, I anticipate additional study will soon be appearing in our journals.

Contribution to Public Feedback Research. Second, my research did not support Nordstrom et al.'s (1991) conclusions of public feedback's positive influence. Indeed, it showed destructive effects—whether directly or as part of an interaction—on choices for mastery-oriented tasks (see Tables 8, 9, 11, and 12).

For both the full and reduced samples, the anticipation of public feedback strongly heightened perceived emphasis on high performance (PGP, see Table 5A and 5B). This high PGP had a generally negative influence on choosing the difficult, mastery-oriented tasks. With the full sample, anticipation of public feedback also led to a moderately higher learning emphasis (LGP, see Table

4A) which, in turn, led to a greater willingness to choose the mastery-oriented tasks. Thus, the expectation of public feedback has an interesting dual role in my research: it heightened both PGP and LGP, the former showing *destructive* effects; the latter, *constructive*. Further scrutiny of this interesting outcome would be useful.

Contributions to Task-choice Research. Finally, results indicate wisdom for the inclusion of goal-orientation, self-efficacy, and feedback-delivery constructs (direct and/or interaction effects) when studying either the pursuit or avoidance of difficult, mastery-oriented tasks.

This research can act as a catalyst for field research that explores generalizability and addresses my earlier question: "What can be done by managers within the organization to increase the likelihood that employees will choose tasks and assignments that these employees perceive to be developmental yet also involve risk of poor performance?"

My laboratory study examined a limited set of externally alterable issues: task instructions, type of feedback, and self-efficacy. The results suggest that conscious efforts to (a) maximize the task setting's emphasis on learning (and not high performance), (b) minimize the anticipated likelihood of performance feedback becoming known to others, as well as (c) boost self-efficacy can be helpful in promoting resistance to the potentially adverse reactions commonly associated with negative feedback.

My study's results, and its theoretical foundation, address only a small subset of influences on the important topics of self-efficacy and task choice. This

research does, however, contribute to the knowledge base of these topics. It thus serves its purpose by providing helpful groundwork for future researchers.

APPENDICES

APPENDIX A

The Nine Characteristics of the Targets

Airborne targets can be measured on nine attributes. These are listed below along with the ranges of possible values for these attributes:

(1	**Altitude**	Lower targets are more threatening. **35,000 to 5,000 ft.**
(2)	**Range**	Distance of the aircraft from the carrier. The further the distance, the less the threat. **200 miles to 0 miles.**
(3)	**Corridor Status**	A corridor is a 20 mile wide "safe lane" open to commercial air traffic, and is expressed in terms of miles away from the center of the corridor. **0 miles** (in the middle of it) to **20 miles** (way out of it).
(4)	**Speed**	Faster targets are more threatening. **100 to 800 mph.**
(5)	**Direction**	**+30 degrees** (passing far to the left or right of the carrier) to **00 degrees** (coming straight into the carrier).
(6)	**Angle**	Ascending targets are more threatening. **+15 degrees** (rapid ascent) **to -15 degrees** (rapid descent).
(7)	**Size**	Smaller targets are more threatening. **65 to 10 meters.**
(8)	**IFF**	IFF stands for "Identification Friend of Foe," this is a radio signal that identifies whether an aircraft is civilian, para-military or military. **.1 MHz** (civilian-commercial jetliner) **to 1.9 MHz** (military-fighter).
(9)	**Radar Type**	The kind of radar possessed by the aircraft. **Class 1** (weather radar only) to **Class 9** (weapons radar).

APPENDIX B

The Three Decision Rules

DETERMINING THE LEVEL OF THREAT

In general, the degree to which an incoming target is threatening depends on its standing on these nine attributes. These nine attributes combine into three simple combination rules which are important in determining the danger associated with any target. You are responsible for placing these nine attributes into the three combination rules as described below.

LOCATION RULE:

Altitude, Range, and Corridor Status go together to determine the location of the aircraft. The relevant ranges of threat for each of these attributes are:

	No threat	Unclear	Some threat	Unclear	High threat
Altitude (feet)	35,000 to 27,000	26,999 to 23,001	23,000 to 18,001	17,999 to 12,001	12,000 to 5,000
Range (miles)	200 to 110	109 to 91	90 to 60	59 to 41	40 to 1
Corridor Status (miles out)	0 to 3	4 to 7	8 to 12	13 to 16	17 to 20

From the Location Rule's perspective, aircraft are threatening only if they are **low** (low value on altitude), **close** (low value on range, and **far outside** the commercial corridor lane (high value on corridor status). If any one of these attributes is in the 'No Threat' zone, the aircraft should be considered non-threatening (ignore) **in terms of this Location Rule (not necessarily an ignore for the entire target).**

MOTION RULE:

Speed, Direction, and Angle go together to determine the movement of the aircraft. The relevant ranges of threat for each of these attributes are:

	No threat	Unclear	Some threat	Unclear	High threat
Speed (mph)	100 to 275	276 to 324	325 to 500	501 to 599	600 to 800
Direction (dgs)	30 to 22	21 to 18	17 to 13	12 to 9	8 to 0
Angle (dgs)	+15 to +8	+7 to +4	+3 to -3	-4 to -7	-8 to -15

From the Motion Rule's perspective, aircraft are threatening only if they are going **fast** (high value on speed), coming **straight in** to the carrier (low value on direction), and **descending** (low value on angle). If any one of these attributes is in the 'No Threat' zone, the aircraft should be considered non-threatening (ignore) **in terms of this Motion Rule (not necessarily an ignore for the entire target).**

CATEGORY RULE:

Size, IFF, and Radar type go together to determine the category of the aircraft. The relevant ranges of threat for each of these attributes are:

	No threat	Unclear	Some threat	Unclear	High threat
Size (meters)	65 to 43	42 to 37	36 to 24	23 to 17	16 to 10
IFF (Mhz)	.1 to .4	.5 to .8	.9 to 1.2	1.3 to 1.6	1.7 to 1.9
Radar	1 to 2	3 to 4	5	6 to 7	8 to 9

From the Category Rule's perspective, aircraft are threatening if they are **small** (low value on size), **military** (high value for IFF), and have **weapons radar** (high value on radar). If any one of these attributes is in the 'No Threat' zone, the aircraft should be considered non-threatening (ignore) **in terms of this Category Rule (not necessarily an ignore for the entire target).**

It is important to understand that **within a rule**, if one of the attributes is in the 'No Threat' zone, even if the other two attributes appear highly threatening, you should consider that combination rule to be contributing an IGNORE recommendation toward your overall decision.

HOW RULES COMBINE TO DETERMINE JUDGMENTS

The nine attributes break into three rules and these three rules combine to determine the overall threat represented by the target. As an example, if you detected (1) a small, military aircraft with weapons radar (the Category Rule) that (2) is flying low, way outside the commercial corridor lane and close to the carrier (Location Rule), and (3) also moving fast, descending, and coming straight in (Motion Rule)--the carrier is soon to be attacked and you should DEFEND.

If you detected (1) a large, non-military aircraft with weather radar (Category Rule) that is (2) flying high, in the middle of the corridor lane and far from the carrier (Location Rule), and (3) also moving slow, ascending, and passing at an angle (Motion Rule)--this is a passenger plane that should be IGNORED.

Intermediate responses like MONITOR, WARN, or READY are to be used when the target is threatening according to some of the rules but not all. For example, if the aircraft is threatening on one rule, but not on the others, you may need to REVIEW or MONITOR it. If it is threatening on two rules but not on the third, you may need to be READY or LOCK-ON it.

APPENDIX C

The Seven Available Decisions

The seven decisions are described below, moving from least to most aggressive:

(1) **IGNORE:** This means that the carrier group should devote no further attention to the target and instead focus on other possible targets in the area. The group should never ignore a target that might possibly attack. This would most assuredly lead to loss of lives on the ship attacked.

(2) **REVIEW:** This means to leave this target momentarily, so that the team can monitor other targets, but to return to this target after a short period of time to update its status. A carrier group can review a large number of targets, but not an infinite number of targets.

(3) **MONITOR:** This means that the carrier group should continuously track the target on radar. A carrier group can monitor fewer targets than it can review, and thus monitoring diminishes the groups overall patrol capacity.

(4) **WARN:** This means that the carrier group sends a message to the target identifying the group and alerting the target to steer clear. Warning targets that should be ignored detracts from the salience of legitimate warnings. Warning targets that intend to attack is also bad, since the warning makes it easier for the attacker to locate the ship.

(5) **READY:** This means to get into a defensive posture and to set defensive weapons on automatic. A ship in a readied position is rarely vulnerable to attack. This stance should not be taken to non-threatening targets since weapons set to automatic often fire mistakenly at innocent targets that fly too close to the carrier group. A ship in this position cannot readily take offensive action toward the target.

(6) **LOCK-ON:** This synchronizes the ship's radar and attack weapons so that the weapons fix themselves on the target. A ship at Lock-On position can take offensive action at a moment's notice. A ship's capacity to track other targets is severely constrained once it has Locked-On a single target, however. Thus, this should be reserved for targets that are almost certain to be threatening.

(7) **DEFEND:** This is "weapons away" and means to attack the target with Tomahawk cruise missiles. A defend decision cannot be aborted once initiated and thus must only be used when the group feels attack is imminent.

APPENDIX D

Outcome and Performance Feedback

When you have sent in a decision you will receive immediate feedback indicating how accurate you were. The feedback screen will show **your decision** as well as the **correct decision**. There are seven possible outcomes from an encounter, and your performance will be expressed in terms of points associated with each outcome.

The decisions regarding each target are to be made based upon **equal weighting** of the three combination rules derived from the nine pieces of information available for each airplane. There are **SEVEN** evaluative outcomes associated with the accuracy for the decisions (scoring is done automatically by the computer).

The SEVEN possible outcomes include:

	OUTCOME	DEFINITION	EXAMPLE	SCORE
(1)	**HIT**	The decision was exactly correct	You said **Defend**, correct answer was **Defend**	**15**
(2)	**NEAR HIT**	The decision was off by one level	You said **Defend**, correct answer was **Lock-on**	**10**
(3)	**NEAR MISS**	The decision was off by two levels	You said **Defend**, correct answer was **Ready**	**5**
(4)	**MISS**	The decision was off by three levels	You said **Defend**, correct answer was **Warn**	**0**
(5)	**FAR MISS**	The decision was off by four levels	You said **Defend**, correct answer was **Monitor**	**-5**
(6)	**INCIDENT**	The decision was off by five levels	You said **Defend**, correct answer was **Monitor**	**-10**
(7)	**DISASTER**	The decision was off by six levels	You said **Defend**, correct answer was **Incident**	**-15**

Your feedback screen will also tell give your average score as well as a percentile ranking of your performance compared to others that have done these targets in previous semesters and years. This will be further explained in your upcoming hands-on training session.

APPENDIX E

Consent Form

This study is designed to study how individuals make decisions in complex situations. If you choose to participate in this study, you will be asked to learn a computer-simulated target-identification task, operate the simulation task and complete a series of questionnaire items. In addition, if you choose to participate in this study, you authorize the researchers to have access to your SAT/ACT scores, the questionnaire information that you provided in your recitation section for MGT 302, and your MGT 302 scores on individual and group assignments.

Your participation in the simulation should take approximately three hours. In exchange for your participation in this study, you will receive the full amount of points for your Management 302 class requirement to participate in a research project. Other research projects and alternatives are available from the instructor if you decide not to participate in this study.

Your participation in this research is completely voluntary. You are free to decline to answer any questions or to terminate your participation at any time. Your participation in this study will be totally confidential and will not be seen by anyone other than the research team. Your data will be included in a summary report along with the data from others.

If you have any questions or concerns regarding this study, you may contact Dr. Dan Ilgen in the Management Department at 432-5413.

Participant Statement

I agree to participate in the decision making study. I understand that I will complete a series of questionnaires during the simulation. By signing below I authorize the researchers to use my SAT/ACT scores, completed questionnaire data, and MGT scores for individual and group assignments. I recognize that I must provide my student number (PID) to do this. It is my understanding that these materials will be kept strictly confidential and will not be seen by anyone other than the research team. I also understand that I will learn to operate a computer simulation and perform the simulation. I consent to having these materials used for research purposes.

I understand that my participation is voluntary, that I may discontinue participation at any time without penalty, that all of my individual responses will be kept strictly confidential, and that I will not be identified in any report of this study.

Signature _____ **Printed Name** _____

MGT 302 TA's name _____ **MGT 302 Section number** _____

PID (Student #) _____ **Date** _____

APPENDIX F

Task Interest & Self-efficacy Questions

Task Interest

Please answer the following questions based on the following 7-point scale:

1	2	3	4	5	6	7
Not at all			**To Some Degree**			**To a Great Degree**

1. How interesting are you finding this task?
2. How much are you enjoying this task?
3. How interested are you be in doing more tasks like this?

Self-efficacy

Please consider the score you anticipate to receive for your next target. Place a 'Y' in the first column if you think you will be able to achieve that score and an 'N' if you do not think you can.

In the second column put in the level of confidence you have that you will be able to achieve that score. Use a 1 to 9 scale for the confidence with 0 representing the lowest confidence and 9 representing the highest.

	Yes or No	**Confidence 1 to 9**
I can score at least a -10 on the next target	_____	_____
I can score at least a -6 on the next target	_____	_____
I can score at least a -2 on the next target	_____	_____
I can score at least a +2 on the next target	_____	_____
I can score at least a +6 on the next target	_____	_____
I can score at least a +10 on the next target	_____	_____

APPENDIX G

Perceptual Goal Orientation Questions

Performance Goal Orientation

1. One of my goals in this task will be to do better than others.
2. One of my goals in this task will be to NOT look foolish/stupid.
3. One of my goals in this task will be to get a high score.
4. One of my goals in this task will be to look capable to the other in the room.
5. On this task, it will be important for me to avoid making mistakes.
6. On this task, I will either have the ability to do it well or I won't.
7. I anticipate that having a high score on this task will be more important to me than learning and gaining a better understanding of this task.

Learning Goal Orientation

1. One of my goals in this task will be to understand the concepts.
2. Over time, I anticipate that I will improve on this task.
3. One of my goals in this task will be to improve my knowledge about the task.
4. I anticipate that I will risk making a mistake on this task if I think I will learn something helpful.
5. I anticipate that learning and gaining a better understanding of this task will be more important to me than having high scores.

APPENDIX H

Task Choice

Your next group of 10 targets (targets 11 to 20) is already set. However, you have a choice for the type of targets you will be doing for targets 21 to 28.

You can choose from six differing levels of difficulty and instructional value.

Both the least challenging as well as the most challenging sets of targets are described on the next screen.

The next screen will describe the 1st set and the 6th set of targets.

You can choose either of these extremes or a set of targets that falls somewhere in the more moderate level of difficulty and instructional value.

Please seriously consider this choice.

You will be choosing targets 21 to 28 from these 6 options:

Set # 1 These targets have been found to be reasonably easy for most students that have attempted them. Although you won't learn new things about how the various cues fit together to do better on future targets, your scores for this set of targets will probably end up being quite high. In other words, you will probably not make very many mistakes but you are also unlikely to learn very much in the process.

Set # 2

Set # 3

Set # 4

Set # 5

Set # 6 These targets will allow you to learn a great deal about how this task is designed and works. You will, however, probably make numerous mistakes and get a little confused at times. These targets are designed so that you will eventually learn valuable information about the task (such as how various cues fit together to determine appropriate threat levels). This type of learning and experience may help you in future targets.

Select a number between 1 and 6 to choose the type of targets you will do for targets 21 - 28. Remember, this choice doesn't affect the next targets (11-20).

APPENDIX I

Debriefing Form

This research was designed to examine people's reactions to varying types of feedback. The feedback conditions (negative/positive and public/private) were created to assist with the research and should not be understood to accurately portray ability levels.

I will also go into the subjects' recitation sections and further explain the feedback manipulations and answer any further questions.

APPENDIX J

Manipulation Check Questions

Manipulation Check of Feedback Sign
If you had to choose between the two, how would you rate your performance over the past eight targets?

1. Poorly

2. Well

Manipulation Check of Goal Orientation
At the beginning of this experiment, I was trained to emphasize (pick one):

1. learning as much as I can about the task.

2. scoring as high as I can on the task.

Manipulation Check of Feedback Delivery
At the beginning of this experiment, I was informed that (pick one):

1. my performance feedback would remain private. Others in the room would not be aware of how well I am doing.

2. my performance feedback would become known to the others in the room.

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