This is to certify that the

dissertation entitled

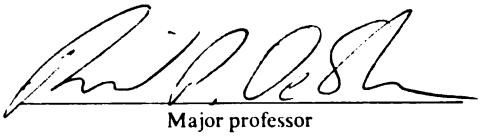
THE ROLE OF GOAL ORIENTATION IN
A SELF-REGULATION FRAMEWORK

presented by

Sandra Leigh Fisher

has been accepted towards fulfillment
of the requirements for

Ph. D. degree in Psychology



Major professor

Date 4/2/98

THE ROLE OF GOAL ORIENTATION IN A SELF-REGULATION FRAMEWORK

By

Sandra Leigh Fisher

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Psychology

1998

ABSTRACT

THE ROLE OF GOAL ORIENTATION IN A SELF-REGULATION FRAMEWORK

By

Sandra Leigh Fisher

This research was designed to examine the role of goal orientation and interest within a self-regulation framework. It was hypothesized that goal orientation would affect individuals' self-set goals, as well as reactions to discrepancies between goals and actual performance. State measures of goal orientation were developed and used in conjunction with established measures of trait goal orientation to examine the stability of goal orientation across performance periods.

A longitudinal study was conducted to examine the role of goal orientation in self-regulation processes over time in a classroom setting. Three waves of data were collected using two survey administration modes. One-fourth of the participants completed paper-and-pencil surveys, while three-fourths completed surveys using electronic mail. Electronic mail resulted in a slightly higher response rate across three waves, while response mode did not substantially affect scale means and standard deviations.

Results suggested that goal orientation did impact several processes in the self-regulation cycle. Both state and trait mastery orientation positively affected self-set exam goals, although neither performance orientation did. Some evidence was found for a moderating relationship of state goal orientation between goal-performance discrepancies and reactions to discrepancies, particularly for planned increases in effort and feedback credibility.

Results further suggested that state goal orientations had unique effects on the goal setting process, with state goal orientation affecting self-regulatory outcomes after accounting for trait goal orientation. State goal orientations tended to have stronger effects on goal setting and reactions to discrepancies in Waves 2 and 3 of the study. Mastery orientation was less stable than performance orientation, likely because of its close relationship with course specific interest. Course specific interest decreased when students did not meet exam goals. Decreases in course specific interest were associated with decreased state mastery orientation in the subsequent wave.

ACKNOWLEDGMENTS

I never expected to write this page while sitting in my house in Virginia, over a year after leaving Michigan State. It's been a long road, and I want to thank the people who helped me reach this point. First, I thank my dissertation chair, Rick DeShon. Thank you encouraging me to complete my proposal in three months, and for continually reading proposal drafts to allow me to create the proposal in that time frame. Thanks for helping me fund this research. And finally, thanks for sticking with me for the months it took to produce a final dissertation. I hope all your future dissertation students are a little more timely and easier to reach!

I want to thank my committee members, Kevin Ford, Steve Kozlowski, and Neal Schmitt. Kevin, thanks for pushing me to improve the state goal orientation scale and to write a thoughtful conclusion section. Steve, thanks for being supportive and providing so much positive feedback, especially in the proposal defense. Neal, thanks for pinch-hitting for Ann in the final defense, and offering some great comments as well. I wouldn't expect anything else! I also want to thank all four committee members for allowing me to develop many of the ideas in this dissertation through some highly relevant comps questions.

Many people made it possible for me to collect all my data. Rick and Neal assisted by offering extra credit in their statistics classes. Adam Lush was extremely helpful with data collection and data entry. Mike Wasserman helped me develop a

rather creative e-mail data collection system, and helped stuff envelopes, mail surveys, or any other tasks when I needed the help.

While I do appreciate the technical assistance from Mike, I appreciate the moral support even more. We should have been going through our dissertations at the same time. I hope I can help and support you now with your dissertation as much as you helped and supported me. Thanks for always being there for me. I couldn't have done it without you. I'm looking forward to starting the post-dissertation phase of our life!

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

Learning has never been as critical to organizations as it is today. Many of the current trends in organizations depend on the ability and propensity of individuals to learn. Some organizations strive to be learning organizations, defined by Peter Senge as "organizations where people continually expand their capacity to create the results they truly desire ..., and where people are continually learning how to learn together" (Senge, 1990, p. 3). Other companies are adopting the principles of continuous learning, where employees actively participate in expanding their skills, and learn from one another, often in the context of autonomous work teams (Rosow & Zager, 1988). Continuous learning is at the heart of Corporate Quality Universities at organizations such as Motorola, Intel, and Sprint (Meister, 1994).

Other learning-based trends in organizations are directed at individuals. New career management concepts suggest that, as organizations restructure in an effort to increase flexibility, individuals need to take responsibility for their own career development (e.g., Hall, 1987; Mirvis & Hall, 1994). Individuals will change jobs more frequently, and will be required to learn new skills and work habits. To attain career success, Mirvis and Hall suggest that most individuals will have to find and engage in learning activities of their own volition. Farr and Ford (1990) contended that individuals will be increasingly asked to innovate in their work role, introducing new ideas, processes and procedures to the job (Farr, Hofmann, & Ringenbach, 1993). Each of

these trends requires that organizations have the capability to identify individuals who are predisposed to learn and improve themselves.

One concept which has been used to characterize the motivational tendencies of individuals in learning situations is goal orientation (e.g., Dweck, 1986; Dweck & Leggett, 1988). Goal orientation has been defined as a general tendency to view learning opportunities in one of two ways: (a) mastery orientation or (b) performance orientation. Mastery goal orientation focuses the individual on the material to be learned, and on increasing his/her competence in that area (Dweck, 1986). Mastery oriented learners tend to believe that one can increase one's ability through effort, and that greater effort leads to greater mastery (Nicholls, 1984). Performance orientation focuses the individual on attaining positive judgments of his/her ability, and on avoiding negative judgments of his/her competence (Dweck, 1986). Performance oriented learners tend to believe that ability and effort are inversely related; if an individual has to apply a great deal of effort to a task, he/she must have lower abilities (Nicholls, 1984). Thus, the core elements of the goal orientation constructs are these beliefs about effort, and the cognitive focus on judgments of success.

Mastery and performance orientation have been linked to distinct behavioral patterns in achievement situations. Mastery orientation has been associated with an adaptive response pattern (Dweck, 1986; Dweck & Leggett, 1988). The adaptive response pattern promotes "the establishment, maintenance, and attainment of personally challenging and personally valued achievement goals" (Dweck, 1986, p. 1040). The adaptive pattern is traditionally characterized by selecting challenging tasks, and persistence in the face of obstacles and failure. Alternatively, performance orientation has been linked with a maladaptive response pattern, defined as "a failure

to establish reasonable, valued goals, to maintain effective striving toward those goals, or, ultimately, to attain valued goals that are potentially within one's reach" (Dweck, 1986, p. 1040). This pattern is characterized by selecting less challenging tasks, and responding to obstacles and failure with low persistence, and negative affect.

The linkage between the cognitive and affective elements of goal orientation have been so frequently associated with these response patterns that, quite often, the behavioral patterns have been treated as part of the definition of goal orientation. As highlighted by Fisher, Delbridge and DeShon (1997), it is crucial in the study of goal orientation to retain the distinction between the construct itself (i.e., the cognitive and affective elements), and the outcomes associated with the construct (i.e., task choice, persistence).

Researchers in a number of different fields, including developmental, instructional, and industrial/organizational psychology, have investigated relationships between goal orientation and the behavioral outcomes related to learning. This research has shown promising results, with goal orientation serving a significant explanatory function in processes such as task choice, reactions to failure, cognitive effort and engagement, goal setting, and feedback seeking. Research has found that mastery oriented learners had higher self-efficacy in complex training situations, which led to greater generalization of learned skills (Kozlowski, Gully, Smith, Nason, & Brown, 1995). Mastery oriented learners are more likely to persist in the face of difficulty, developing more sophisticated problem solving strategies, while performance oriented learners tend to withdraw from tasks, and experience negative affect (Elliott & Dweck, 1988). Mastery oriented trainees are likely to engage in more metacognitive activities, such as self-monitoring, diagnosis, and evaluation of their behavior (Smith, Ford,

Weissbein, & Gully, 1995) and put forth greater effort on learning tasks (Fisher & Ford, in press). Mastery oriented learners tend to select more challenging tasks that offer greater learning opportunities, while performance oriented learners tend to select tasks that allow them to avoid public failure (Elliott & Dweck, 1988). VandeWalle and Cummings (1997) demonstrated that individuals with a high mastery orientation were more likely to seek feedback on academic performance.

Theorists have suggested ways in which goal orientation may affect a variety of other situations in organizations. Goal orientation may affect the way in which individuals respond to feedback (Kluger & DiNisi, 1996), with mastery orientation associated with a task oriented response, and performance orientation associated with a self-oriented response on the part of the learner. Farr, et al. (1993) suggested that mastery oriented learners may be more motivated to attend training, may engage in greater on-the-job learning, and self-initiate more development experiences. In addition, Farr, et al. (1993) described situations in organizations in which high performance goal orientation would be useful, such as military operations or running a nuclear power plant. In situations such as these, a focus on flawless performance is crucial.

The concept of goal orientation, with its relationships to many important achievement related behaviors such as task selection and reactions to feedback, has the potential to complement a broader theory of motivated behavior in organizations: self-regulation. Self-regulation theories, including goal-setting (Locke & Latham, 1990), control theory (Carver & Scheier, 1982), and the integrated information processing/resource allocation theory (Kanfer & Ackerman, 1989), share a focus on the cognitive processes related to how individuals allocate time and effort to a range of

activities in attempts to reach various outcomes. These theories differ in the exact mechanisms and individual difference variables purported to function in self-regulation. Goal orientation is one of the individual difference variables recently suggested to impact the self-regulation process (Farr, et al., 1993, Kanfer, 1990).

Self-regulation theories specify several key events in motivated, achievement related situations that could be associated with goal orientation. For example, a critical situation in the self-regulatory process is how an individual reacts to a discrepancy between a standard and a behavior. How the individual reacts to the discrepancy is a determining factor in future cognitive processes, and hence, future learning and performance. Farr, et al., (1993) suggested that goal orientation may affect individuals' reactions to discrepancies, thus playing an important role in self-regulation. There are other potential roles for goal orientation in the self-regulation process, such as an antecedent of the choice of goals or standards.

Goal orientation may also be affected by the self-regulation process as an individual proceeds through the cycles of standard setting, performance, and reactions. In fact, the self-regulatory focus on examining behavior across a series of events allows the examination of a contentious aspect of goal orientation: its temporal stability. There has been considerable variability in the literature concerning the stability of goal orientation both across situations and over time. Some researchers have treated goal orientation as a trait variable, representing stable individual differences. Other researchers have used goal orientation as a state variable, representing situation to situation fluctuations. A third option is to use goal orientation in both ways, as a kind of "hybrid" variable (Farr, et al., 1993, p. 199). More specifically, goal orientation may be a

stable individual difference that is susceptible to change under certain situational conditions.

Thus, by investigating the role of goal orientation in the self-regulation process, this research seeks to better understand the construct of goal orientation, and how the construct functions over time. First, this research will examine how goal orientation affects several stages of the self-regulatory process. It is expected that goal orientation will impact both how individuals set standards for their behavior, and how they react to differences between self-set standards and the actual behavior. It is well known that individuals with high self-efficacy are likely to select more difficult goals for themselves (Locke & Latham, 1990). Goal setting can be conceptualized as a process through which one chooses the difficulty of one's task. As goal orientation has been related to choices regarding task difficulty, it follows that goal orientation should affect the difficulty of self-set goals. Additionally, Locke and Latham (1990) and Kluger and DiNisi (1996) have suggested that personal characteristics such as self-efficacy will affect how individuals react to discrepancies. It is likely that goal orientation will also affect reactions.

Second, this research will investigate the parameters under which an individual's goal orientation is likely to change as a result of individual cognitive interpretations of self-regulatory events, and the effect of these changes on future achievement. It is suggested that the consistency of the state, or variable, aspect of goal orientation will be affected by multiple cognitive processes. First, changing interest in the learning situation will likely affect state goal orientation. As learners become more or less interested in a topic, their general motivational approach to learning about that topic should change. Further, discrepancies between self-set goals

and actual performance are expected to affect state goal orientation. These discrepancies will likely focus learners' attention on different aspects of the situation, which should change their general motivational approach to learning in that situation.

It is important to investigate the consistency of goal orientation, as an empirical examination of the consistency of goal orientation will help to better define the construct itself. This research will shed light on whether goal orientation is appropriately used as an individual difference variable, a characteristic easily affected by situational factors, or both. Both state and trait goal orientation will be examined to determine if a state conception of goal orientation contributes to the understanding of self-regulatory behavior above and beyond the contributions of trait goal orientation. One research implication of this investigation may be a better understanding of when and how often goal orientation should be measured. If it is a stable trait, relatively unaffected by changes in the learning situation, goal orientation need only be measured once to understand and predict and individual's behavior. However, if it is indeed susceptible to change as a result of situational influences, researchers would have to select appropriate times for measurement.

The literature review that follows will begin by reviewing models of self-regulation and goal setting, with a focus on reactions to goal discrepancies. Next, the usage of goal orientation in developmental, educational, and Industrial/Organizational psychology over the past several years is explored. The attributes of states and traits are reviewed from the perspective of personality psychology, and the feasibility of goal orientation as a member of either category is explored. The role of interest in the self-regulatory model is explored. Finally, hypotheses are proposed for how goal orientation contributes to the traditional, discrepancy reduction model of self-regulation,

and how goal orientation may change as a result of reactions to discrepancies and changing interest in the learning event.

REVIEW OF THE LITERATURE

Self-Regulation

Self-regulation is a fundamental process in learning and control of behavior. As described by Karoly (1993), self-regulation consists of the processes "that enable an individual to guide his/her goal-directed activities over time and across changing circumstances" (p. 25). While some basic types of learning (e.g., operant conditioning or social learning) require little in the way of goal directed behavior, more complex types of learning such as skill acquisition are certainly goal directed, motivated activities involving attention, practice, and allocation of effort (Kanfer, 1990). Thus, understanding self-regulation is critical to understanding how individuals learn.

Specific self-regulatory theories have focused on different aspects of the self-regulation process. Control theory focuses on general discrepancy reduction (Carver & Scheier, 1982), while goal setting theory focuses on the motivational draw of goal attainment (Kluger & DiNisi, 1996). Alternatively, Kanfer and Ackerman's (1989) Integrative Resource Model focuses on the attentional requirements of self-regulation, and the importance of appropriately allocating attention during skill acquisition. Regardless of the specific focus of each theory, the central feature of all self-regulatory models is the negative feedback loop, or discrepancy reduction process (Carver & Scheier, 1982).

There are three key steps in this discrepancy reduction process. First, individuals must be aware of their own behavior. This awareness primarily occurs through self-monitoring (Karoly, 1993), as individuals determine what they are doing and how well they are doing it. Self-awareness at the input stage does not involve an

in-depth examination of one's own behavior, rather a temporary shifting of attention to a particular aspect of behavior (Carver & Scheier, 1982). Behavioral awareness can also occur through external input, as with feedback from an instructor or supervisor.

Secondly, individuals make comparisons between the current behavior, as detected through self-monitoring, and some kind of behavioral standard. The purpose of this comparator function (Carver & Scheier, 1982) is to determine any discrepancy between the current situation and the desired situation. The comparator serves not only to identify the existence of a discrepancy, but also identifies the direction of the discrepancy (i.e., positive or negative).

In the third step of the process, individuals attempt to reduce the sensed discrepancy between current performance and the standard of comparison. Individuals may attempt to reduce the discrepancy through cognitive or behavioral reactions (Kernan & Lord, 1994). Discrepancies can be reduced by changing either the behavior or the standard. Thus, one individual could improve his/her performance so that it meets or exceeds the original standard, while another could mentally or behaviorally withdraw from the situation, effectively removing the previously existing standard (Carver & Scheier, 1990).

The standards against which individuals compare their behaviors are generally considered to be hierarchically organized. Carver and Scheier (1982) contended that an individual has many standards of comparison (goals) at any one time. The top of the hierarchy is principle centered, representing what the person wants to be. The middle range levels of the hierarchy contain task level goals, such as driving to a location or studying for a test. Each superordinate level provides a standard for the next lower level. The lowest levels in the hierarchy represent physical movements

required to attain the middle level goals. This linkage implies that many standards (goals) are set without using extensive decision making processes (Lord & Levy, 1994).

Goals affect behavior by directing attention and effort to the task, and maintaining attention and effort over time (Locke & Latham, 1990; Karoly, 1993). Goal setting research has consistently reported that adoption of difficult, specific goals results in superior performance by individuals (e.g., Locke & Latham, 1990). Additionally, when a discrepancy between the current state and the goal is detected, the goal guides the individual in selecting an appropriate behavior to reduce the discrepancy.

The concept of the standard, or goal, is critical to self-regulation. One aspect of standards and goals that has not received much research attention is the process by which these standards or goals are set. In the bulk of self-regulation and goal setting research, the standards, or goals, examined have been assigned by an external source, such as a supervisor or an experimenter. For such goals to be effective, individuals must be committed to that goal (e.g., Hollenbeck & Klein, 1987). Potential lack of commitment to an assigned goal is a primary problem with this type of goal.

When goals are set by the individual him/herself, some degree of goal commitment can be assumed. Wright and Kacmar (1994) suggested that individuals would not select a goal unless they were somewhat committed to it. However, Locke and Latham (1990) contend that self-set goals are not consistently related to higher goal commitment than assigned goals, particularly when experimental subjects are explicitly asked to set goals when they may not have done so on their own. In addition to the potential for greater goal commitment, the study of self-set goals has the benefit of allowing free variation in the goal selected (Karoly, 1993). Perhaps the most

desirable result of focusing on self-set goals, however, is the opportunity to examine the antecedents of goals over time (Carver & Scheier, 1982).

Self-set Goals

When considering self-set goals instead of assigned goals, the antecedents of goal selection must be considered. Campion and Lord (1982) discovered that initial goals were related to ability and past performance. Goals for subsequent performance episodes were determined by a combination of these factors and the discrepancy between the goal and actual performance on the previous episode. Campion and Lord found that both the size and the direction of the discrepancy affected future goals. Small discrepancies did not affect the setting of goals to the same degree as did larger discrepancies.

Mone and Baker (1992a) proposed a model of the determinants and consequences of self-set goals. They contended that self-efficacy, an individual's overall judgment of his or her performance capability on a given task, and performance valence both affect self-set goals (Locke & Latham, 1990; Gist & Mitchell, 1992). Self-efficacy judgments are based on such factors as ability, prior performance, attributions, planned effort, and anticipated situational constraints. Empirically, it has been shown that individuals with high self-efficacy tend to set or select more difficult goals (Locke & Latham, 1990).

Self-set goals, in turn, affect performance, discrepancy evaluation, and causal attributions (Mone & Baker, 1992a). These three latter factors then affect self-efficacy and self-set goals in the next performance episode. Mone and Baker (1992b) tested the propositions in that model, examining the self-efficacy, self-set goals, and attributions of over 400 students across three performance episodes (exams). In each

of the three performance episodes, self-efficacy was a significant predictor of goal difficulty, even after controlling for prior performance. Additionally, exam performance was positively related to future self-efficacy following episodes 1 and 2.

Thomas and Mathieu (1994) tested a model similar to that of Mone and Baker, examining the effects of causal attributions on the goal setting process across two performance episodes (exams) in a college classroom setting. They found that self-efficacy influenced self-set goals, which in turn affected exam performance. Self-efficacy increased across performance episodes for those students with high stability attributions.

Individuals are likely to consider higher order goals when setting task specific goals. Individuals have multiple goals at any one point in time, which are hierarchically arranged (Carver & Scheier, 1982; Lord & Levy, 1994). The lower goals must be achieved in order to achieve the higher goal. In turn, the standards for the lower goals are partly determined by higher level goals. This effect was demonstrated through a surprising finding in the Campion and Lord (1982) study. Campion and Lord had predicted that negative feedback would result in a reduction of exam goals. A subset of the students in the Campion and Lord (1982) study reacted in the opposite manner, raising their goal for the next exam. This effect is known as a compensation strategy (Locke & Latham, 1990), where students raise the proximal (exam) goal in order to maintain feasibility of attaining the distal (course) goal. Consistent with the arguments of Farr, et al., (1993), the students who raised their goal for the next exam may have had high self-efficacy. Students did tend to lower course goals if the test feedback was extremely negative or repeated. Thus, it appears that distal goals, in addition to

individual characteristics, must be accounted for when predicting the difficulty of self-set goals.

Distal goals do not exert a consistent effect on proximal goals. As the proximal goal and the distal goal become closer in time, the relationship changes. One effect noted by Campion and Lord (1982) is that as the distal goal drew nearer, it had less of an effect on the proximal goal. For most students, as the end of the academic quarter approached, their course grades (the distal goal) were already determined. Their grade on the last exam had a negligible effect on their final course grade. The grade goals set for the last exam reflected this knowledge. Students also received no feedback on the last exam, because the quarter was over. Because of this compression effect, Campion and Lord did not even analyze much of the data from the last time period.

Reactions to Goal-Performance Discrepancies

Although goal setting has been shown to positively affect performance, the act of setting a goal does not guarantee attainment of that goal. Furthermore, individuals may perform in a manner that exceeds their goals. This discrepancy between the goal and the performance is an important motivational stimulus in self-regulatory theories. In control theory, the system continuously acts to keep discrepancies within reasonable limits (Lord & Levy, 1994). Therefore, the actions taken by an individual to reduce the discrepancy are often of interest.

Reactions to discrepancies can impact not only how an individual feels about his/her performance, but how he/she approaches future performance opportunities, or episodes. Performance episodes are defined as "distinguishable periods of time over which performance accrues and is reviewed" (Mathieu & Button, 1992, p. 1759). Kluger and DiNisi (1996) outlined several possible reactions to feedback, including

reactions both within and across performance episodes. The three types of discrepancy reactions discussed below are changing the effort put forth, changing the self-set goal, and discounting the feedback.

Change effort. The first strategy for dealing with a goal-performance discrepancy is to change the effort dedicated to the task. This is a cross-episode reaction, in which individuals can apply more or less effort to the task in the next performance episode than in the previous episode. This is the approach most closely associated with goal setting research. Locke and Latham (1990) suggested that individuals with high self-efficacy and high goal commitment will increase their effort rather than decrease their goal. If the gap is positive (performance is higher than the goal), the individual may decrease their effort. A similar effect has been posited in equity theory, where individuals who perceive their inputs are greater than their rewards will decrease their input (e.g., Adams, 1963).

Change goal. A second strategy for dealing with a goal-performance discrepancy is to change the goal. This strategy is also a cross-episode reaction, in which an individual can set a higher or lower goal than in the previous episode. If a person has failed, or otherwise received negative feedback, he or she may lower the goal (Karoly, 1993). Lowering goals may help the individual attain the desired state of discrepancy reduction, but is associated with several negative personal outcomes including decreased motivation, decreased self-esteem, and lower task enjoyment (Karoly, 1993). Alternatively, if a person has exceeded a goal, or received positive feedback, he or she may raise the goal for the next episode. Both of these goal change effects were demonstrated by Campion and Lord (1982), who found that students who met or exceeded their goals tended to raise their goals for the next exam,

while students who failed to meet their goals tended to lower their goals. Students who failed to meet their goals repeatedly were especially likely to lower their goals.

Individual characteristics and perceptions also affect goal change. Individuals are less likely to change the goal in either direction if they are strongly committed to the goal (Locke & Latham, 1990). Lowering the goal is less likely for individuals who have very high self-efficacy (Locke & Latham, 1990), or who have attributed the negative discrepancy to an external cause (Thomas & Mathieu, 1994; Mone & Baker, 1992).

Reject feedback. A third strategy for dealing with a discrepancy, particularly a negative discrepancy, is to simply reject the feedback. This is a within episode reaction, but has indirect impacts on future performance episodes, as it typically leads to maintenance of the current goals, effort, and strategies (Locke & Latham, 1990). If feedback is not accepted, it cannot stimulate changes. One rationale for rejecting the feedback is lack of credibility of the feedback source (Ilgen, Fisher & Taylor, 1979). If an individual perceives that the source of the feedback (i.e., teacher, supervisor) is not honest, reliable, or otherwise trustworthy, the individual could attribute negative feedback to the incompetence of the source, rather than to his/her poor performance. Feedback is also likely to be rejected when the recipient does not feel the feedback is an accurate reflection of his or her performance (Ilgen, et al., 1979).

Summary of Self-Regulation

Self-regulatory theories of behavior all center around the negative feedback loop, or the discrepancy reduction process. Individuals compare their performance with their desired standards of performance, and make judgments concerning how to deal with any discrepancy between the standard and actual performance. There are several different ways in which individuals can respond to goal-performance discrepancies,

including changing effort, changing goals, and discounting feedback. The choices individuals make regarding their responses to discrepancies affect behaviors, such as future goals and persistence in difficult situations, that impact learning and performance. Thus, it is critical to the study of motivated behavior in organizations to understand why individuals make the choices they make.

Self-regulation theories, particularly control theory, have traditionally viewed self-regulation as a somewhat automatic, universal process. These theories contend that all people generally proceed through the same steps of the process in the same way. Variations in the self-regulation process, such as differences in standards or reactions to discrepancies, are viewed as products of experience (Lord, & Levy, 1994), or features of the situation, such as the size of the discrepancy (Kernan & Lord, 1990). Consequently, few individual difference variables have been empirically studied in the context of self-regulation. Self-efficacy is one notable exception, as research has consistently demonstrated strong, positive relationships between self-efficacy and goal setting (e.g., Locke & Latham, 1990). More recently, theorists have begun to look beyond self-efficacy and explore the effects of other individual difference constructs on the self-regulation process (Kluger & DiNisi, 1996).

Goal orientation is an individual difference variable that potentially plays an important role in self-regulatory processes. Previous research investigating goal orientation suggests that this construct is related to task choice, allocation of effort, and continuation of effort in difficult situations; all events related to self-regulation. More specifically, goal orientation may affect self-set goals within performance episodes, and may be affected by reactions to goal related feedback between performance episodes. These ideas are explored further in the next section.

Goal Orientation and Self-Regulation

One important individual difference variable that has not been fully investigated in a self-regulation context is goal orientation. Goal orientation is integrally related to the cognitive processes in self-regulation, such as goal setting, that occur over time. In addition to goal setting, it is likely that goal orientation will affect how individuals react to discrepancies between their goals and their performance. In this section, potential roles for goal orientation in self-regulation are explored.

Goal orientation and Self-set Goals

Campion and Lord (1982) suggested that individual difference characteristics, such as need for achievement and locus of control, might affect self-set goals. Another characteristic which will likely affect self-set goals is goal orientation. Dweck (1989) suggested that individuals with a high mastery orientation tend to follow an adaptive response pattern, selecting challenging but achievable tasks. Those with a high performance orientation tend to follow a maladaptive response pattern, selecting tasks on which they are certain to avoid failure. This proposition suggests that a mastery orientation leads to more difficult self-set goals, while performance orientation leads to the selection of easier goals.

Farr, et al., (1993) also hypothesized relationships between goal orientation and self-set goals. They suggested that goal orientation is likely to affect both the difficulty of the goal, and the referent (internal vs. external) of the goal. Individuals with a high mastery orientation should want to improve over previous performance, while those with a performance orientation should want to perform better than other people.

As discussed above, self-efficacy is a strong predictor of the difficulty of self-set goals. Individuals with high self-efficacy tend to set more difficult goals. This relationship between self-efficacy and self-set goals may be moderated by goal orientation. Farr, et al., (1993) suggested that the correlation between mastery and self-set goals will be positive, regardless of the level of self-efficacy. However, they also suggested that performance oriented people with high self-efficacy will set difficult goals, while performance oriented people with low self-efficacy will set easier goals. Similarly, Dweck (1986) contended that the degree to which the maladaptive response pattern, or the tendency to select less challenging tasks, and respond to obstacles and failure with low persistence and negative affect, is associated with performance orientation depends on confidence. If an individual with a high performance orientation has very high confidence, he or she may very well display behaviors associated with the adaptive response pattern, such as selecting more difficult tasks.

Goal Orientation and Goal-Performance Discrepancies

The degree to which individuals choose to increase their effort, or even continue to put forth effort, in the face of difficulty is integrally related to goal orientation. It has been demonstrated that mastery oriented individuals will persevere in the face of failure, and that these individuals attempt to learn from their mistakes. Performance oriented individuals, on the other hand, tend to quit in the face of failure (Dweck, 1986, 1989). They feel that mistakes are not an acceptable part of the learning process, and would rather stop working on the task than risk making mistakes.

This effect is explained by Kluger and DiNisi (1996) through the manner in which feedback is interpreted. Performance oriented individuals seek social rewards based on their task performance. Thus, they are primed to interpret feedback as

personal feedback, regardless of the intended feedback cue. When they receive feedback, the effort that was previously directed toward task performance is channeled into the maintenance of self-esteem and impression management tactics. As suggested by Kluger and DiNisi, this redistribution of effort would lead to diminishing resources for the original task, and eventual quitting of task performance. Mastery oriented individuals strive to learn the task, and improve their performance over previous levels. They are primed to interpret feedback at the task level. When they receive feedback, they use that information to generate and test hypotheses regarding task performance. When a suitable hypothesis is found to correct the feedback situation, learning occurs, and task performance improves.

Individual characteristics lead people to interpret feedback in a certain manner, either as self or as task feedback (Kluger & DiNisi, 1996). High mastery orientation should lead individuals to select a reaction that allows them to learn as much as possible and increase their competence. High performance orientation should lead individuals to select a reaction that allows them to protect the ego, and maintain appearances of competence.

Goal orientation research has typically been concerned with only negative feedback (where the goal was higher than the actual performance), and the implications of goal orientation on task continuation (Farr, et al, 1993). A broader view of reactions to goal-performance discrepancies should include positive discrepancies, where the performance exceeds the goal. Reactions to goal discrepancies beyond continuation of effort also need to be examined. Thus, the three different kinds of reactions discussed above will be examined in relation to goal orientation, considering both positive and negative discrepancies.

Change Effort. Goal orientation has been demonstrated to affect the amount of effort put forth in learning tasks (Fisher, 1995). People with a high mastery orientation tend to devote greater effort to learning. Mastery orientation is associated with a belief in a positive relationship between effort and ability (Dweck & Leggett, 1988). Consequently, a high mastery orientation should lead people to respond to goal-performance discrepancies by increasing effort. Conversely, individuals with a high performance orientation will not choose to increase effort. They believe that effort is inversely related to ability (Dweck, 1986). In addition, since they are likely to interpret negative feedback as self-directed (rather than as task feedback), they will divert attentional resources from learning to self maintenance activities (Kluger & DiNisi, 1996). High performance oriented people may also choose to decrease the total effort devoted to the task in order to protect their ego. This process is also known as self-handicapping, or defensive evaluative avoidance (Dweck & Leggett, 1988; Karoly, 1993).

Goal Change. Dweck's (1986) notion of the adaptive and maladaptive response patterns provides linkages between goal orientation and goal change. She suggested that mastery oriented individuals, who tend to adopt the adaptive response pattern, will strive to maintain and attain personally challenging goals. Mastery oriented individuals also demonstrate persistence in the face of obstacles and failure. Thus, mastery oriented individuals will be less likely to change their goals after failure. In fact, Kluger and DiNisi (1996) suggested that if individuals who have received positive feedback see the opportunity to attain other self goals, they will raise their performance standard. A high mastery orientation should lead people to value the attainment of more challenging goals than they originally set for themselves. Thus, individuals with a high

mastery orientation may respond to a positive goal-performance discrepancy by raising their goals.

Alternatively, individuals with a high performance orientation, who tend to follow the maladaptive response pattern, often fail to maintain effective striving toward their goals, and respond to obstacles and failure with low persistence. Thus, highly performance oriented people would tend to lower their goals when provided with negative feedback. In addition, highly performance oriented people fail to attain valued goals that are potentially within their reach. This suggests that even when given positive feedback that exceeds their goals, highly performance oriented people would not choose to raise their goals.

Reject Feedback. A highly mastery oriented individual may have this latter reaction to positive feedback. This type of individual may receive objective feedback from an external source indicating he or she performed quite well on exam, but still feel as if he or she has not really learned the material. In this case, discounting the feedback could lead to additional effort. In the case of a negative goal-performance discrepancy, individuals with a high mastery orientation are likely to accept the feedback, and use it as diagnostic information for how they can improve their performance in the next episode (Kluger & DiNisi, 1996). Rejecting feedback can also serve as an ego maintenance function, as the individual attributes the negative feedback to a characteristic of the feedback source (Karoly, 1993). It is likely that highly performance oriented individuals could take this approach to negative feedback, as they desire to protect the ego.

Summary of Goal Orientation in Self-Regulation

Goal orientation potentially plays an important role in the self-regulation process. First, goal orientation is expected to affect the kinds of goals set by individuals. A high mastery orientation is typically related to selecting difficult tasks, while a performance orientation tends to be related to selecting easier tasks (Dweck, 1986). Self-efficacy may moderate the relationship between performance orientation and goal difficulty, as performance oriented people with high self-efficacy set difficult goals (Dweck & Leggett, 1988; Farr, et al., 1993). Second, goal orientation may affect how individuals respond to discrepancies between their goals and their performance.

It is also possible that goal orientation could be affected by the self-regulation process over time. Other individual difference variables have been demonstrated to change during the self-regulation cycle. For example, self-efficacy can change dramatically over multiple performance episodes (e.g., Mitchell, Hopper, Daniels, George-Falvy, & James, 1994). If a researcher measured self-efficacy once at the beginning of a ten trial learning experiment, and tried to use that measure of self-efficacy to explain goal setting and performance on the tenth trial of an experiment, he or she would likely draw misleading conclusions concerning the relationship of self-efficacy and goal setting.

Thus, research has shown that self-efficacy can, and does, change across performance episodes as individuals perform, receive feedback, and react to that feedback. A similar effect may also be present with goal orientation. The discrepancy between the goal and performance will serve to highlight performance or mastery goals. For example, failing to reach a grade goal could highlight the importance of grades in future performance episodes.

Unfortunately, there appears to be no published research that has used multiple measurements of goal orientation to investigate this possibility. In the next section, literature that has examined the issue of the stability of goal orientation over time and in response to different situations is reviewed, along with various operationalizations and measurements of goal orientation. Trait theory is reviewed and integrated with goal orientation literature to explore issues surrounding the stability of goal orientation. The guidelines of interactionist personality theory are then used to build a conceptual case for the functionality of the goal orientation concept in self-regulation.

Operationalization of Goal Orientation

Goal orientation has been operationalized and measured quite differently by researchers (Farr, et al., 1993; Dweck, 1989). Many of these differences are related to the disagreement over the conceptual underpinnings of goal orientation, as well as the relationship between mastery and performance orientation. Some researchers treat the two dimensions of goal orientation, mastery and performance, as endpoints on a single continuum. This perspective has been implied in much of the work by Dweck and colleagues (e.g., Dweck, 1986; Dweck & Leggett, 1988). This treatment stems from the belief that implicit theory of ability is an important antecedent of goal orientation. Individuals can either believe that ability is malleable and can be improved, which is suggested to lead to a mastery orientation, or that ability is fixed, which is suggested to lead to a performance orientation (Dweck & Leggett, 1988).

This continuum approach to goal orientation has led researchers to measure goal orientation by classifying individuals as either mastery oriented or performance

oriented (Elliott & Dweck, 1988; Dweck, 1989). Within this approach, goal orientation has been inferred from measures of attributions (Dweck & Leggett, 1988), or from modified version of other scales, including the Intellectual Achievement Responsibility Scale, the Motivational Orientation Scales, and the Science Activity Questionnaire (Meece, Blumenfeld & Hoyle, 1988).

Other researchers treat these two dimensions as independent constructs (e.g., Button, Mathieu, & Zajac, 1996; VandeWalle & Cummings, 1997). Researchers in this latter group contend that individuals can be oriented toward both mastery and performance. For example, graduate students presenting papers at professional conferences strive both to improve their presentation skills, and to favorably impress colleagues in the audience. Empirically, relationships between goal orientation and other variables tend not to be mirror opposites of one another, as one would expect if mastery and performance orientation were endpoints on a continuum (Button, et al., 1996). These results suggest that goal orientation can be legitimately treated as two constructs, rather than end-points on a continuum.

Researchers in this second group have typically measured goal orientation by measuring the strength of both mastery and performance orientation. Contrary to Dweck's original conceptualization of mastery and performance orientations as endpoints on a continuum, researchers taking this approach to goal orientation have conceptualized mastery and performance orientations as distinct attributes that co-exist in all individuals. Button, et al., (1996) and VandeWalle (in press) have each developed measures for goal orientation, based on different conceptualizations and dimensions. Much of this research has demonstrated a low (non-significant) correlation

between measures of the two concepts (Button, et al., 1996; Fisher, 1995; Smith, et al., 1995).

With this wide range of manipulations and measurements of goal orientation, it is not surprising that there is little consensus on the consistency and causal structure of goal orientation. Dweck and colleagues (e.g., Dweck, 1986; Dweck & Leggett, 1988) have suggested that goal orientation is strongly related to one's innate theory of ability. If an individual believes that ability is fixed, he or she is likely to have a performance orientation. If an individual believes that ability is not fixed, and can be increased through effort, he or she is likely to have a mastery orientation (Dweck & Leggett, 1988; Dweck, 1989). This argument implies that goal orientation is internally caused, and therefore consistent over time. However, the predominance of studies in which goal orientation is manipulated suggests that goal orientation may change over time as a result of situational influences. Researchers have set up competitive or cooperative reward structures, introduced an audience or evaluator (Elliott & Dweck, 1988), or presented subjects with game vs. test instructions on a task (Dweck, 1989). Each of these manipulations is intended to highlight one kind of goal or the other, thus affecting subjects' behavior.

The operationalization of goal orientation, as with any psychological construct, must follow from theory. The inconsistent usage of goal orientation may be the result of an unclear theory of the construct, as illustrated by studies that have treated goal orientation as both a trait and a state without careful explication of the theory behind such usage. To help clarify the issues surrounding the usage of goal orientation, general trait theory will be reviewed. Following the discussion of general trait theory, a

comprehensive review of the goal orientation literature in light of trait theory will be presented.

Trait Theory

Trait theory has been considered the defining perspective on personality (Buss, 1989). Simply put, trait theory suggests that individuals vary on an unspecified set of relatively stable and enduring dispositions, or traits (Mischel, 1968). These traits cause individuals to vary on their patterns of behavior over time and across situations. Traits are used by laypersons and psychologists alike to predict and explain behavior. Trait theory suggests that traits can be directly inferred from a person's behavior. Traits are often measured with self-report questionnaires which require individuals to report on their attitudes, beliefs and behavioral patterns. Traits are also measured with observational questionnaires, which require individuals to report on the behavioral tendencies of others (Hogan, 1991).

A complementary personality concept is the state. States are temporary psychological conditions caused by external stimuli or situations. These states then lead individuals to act in a manner specific to the situation. For example, Spielberger (1977) defined state anxiety as the specific psychological condition of a person in a strong situation, which leads to certain behavioral and physiological reactions. Trait anxiety, on the other hand, was the general predisposition to react in an anxious manner to a variety of situations. States are also measured using self-report and descriptive questionnaires.

Considerable controversy has surrounded the state-trait paradigm. Critics have questioned the usefulness of traits, the conceptual definition of traits and states, and the measurement systems designed to capture states and traits. How do we tell the

difference between a state and a trait? Can the same label refer to both? In the next section, both conceptual and psychometric issues regarding traits and states will be reviewed.

Conceptual Issues. Allen and Potkay (1983) suggested that research on traits and states has been hampered by the reality that some psychologists prefer to be free of the constraints of having to distinguish conceptually between states and traits, and use whichever measure "works best to predict behavior" (Allen & Potkay, 1983, p. 1089). Certainly, while this criticism is not true of all psychologists, a firm conceptual distinction between state and trait is crucial to clearly define the constructs of interest, inform research methodology, and clarify measurement. The conceptual distinction should include information on the consistency of the construct, as consistency is the hallmark of a trait. Other distinguishing characteristics of states and traits which should be discussed include causal origin, temporal duration, and frequency of occurrence (Chaplin, John & Goldberg, 1988). The labels used to represent states and traits must also be considered.

One aspect of conceptually distinguishing between states and traits is to consider the causal antecedents of each. Hans Eysenck and Raymond Cattell, early trait researchers, both believed that traits are at least partially caused by genetics (Cattell, 1983). Evidence of a hereditary component in traits such as extraversion, neuroticism, and anxiety supports the trait theory contention of internal, rather than strictly situational causes of behavior (Eysenck & Eysenck, 1980). Both Eysenck and Cattell also advocated the use of the state, defined as a temporary psychological condition caused primarily by situational factors.

Fridhandler (1986) has also contended that the causes of states and traits differs. States are caused by external events or situations. Traits are internally caused, and their source is more difficult to trace. States mediate the effects of situations on behavior, while traits affect behavior through the effects of many complex causal factors such as genetics and upbringing on behavior (Fridhandler, 1986).

Temporal duration is another distinguishing factor between traits and states. Traits are stable over moderate periods of time, but could change over the course of a person's lifetime. Cattell contended that traits should not only be stable within a person, but the structure of traits should be stable across persons and cultures (Cattell, 1983). Alternatively, states are brief psychological circumstances (e.g., moods and emotions) which affect behaviors and responses. The visible duration of states and traits differs. States are continuous in their brief duration. Traits are not displayed continuously, even though they are still a characteristic of the individual. One can describe a person as generally happy (trait), even when the situation, such as a funeral, requires a sober response (Fridhandler, 1986). States are more concrete and visible than traits. It is fairly easy to spot a person who is in an unhappy state. To determine if an individual possesses a trait, however, requires multiple observations.

Mischel (1968, 1969) criticized trait theory on the basis of consistency. While consistency has been demonstrated in cognitive aspects of personality, such as field dependence, conceptual tempo, and cognitive style (Mischel, 1969), Mischel argued that behavioral consistency had not been adequately demonstrated in the less cognitive areas of the personality domain. He cited an average correlation of .30 found between trait measures and the behaviors displayed by an individual. Mischel then contended that the appearance of behavioral consistency was the result of cognitive

organizing strategies, suggesting that regardless of actual discontinuity in behavior, the human mind searches for and perceives regularity (Mischel, 1968).

Several personality psychologists have contended that Mischel's original definition of behavioral consistency was too narrow (Eysenck & Eysenck, 1980; Hampson, 1988). Instead of trying to predict the occurrence of a single, specific behavior from a trait measure, researchers should look for "consistency at the intervening-variable level rather than at the behavioural level" (Eysenck & Eysenck, 1980, p. 202). That is, researchers should consider a broader range of behaviors as confirming evidence of a trait. There are both methodological and conceptual reasons why consistency should not be expected at the single behavior level. First, a single behavior is a one item measure, and as such, is not reliable. Correlations are substantially attenuated by low reliability, and without a reliability estimate, the correlations cannot be corrected to estimate the true relationship. Secondly, a trait represents behavioral consistency over time. Observation of a single behavior, or even two behaviors, is not enough to make a judgment of behavioral consistency. Thus, behavioral consistency should be examined in the context of the trait underlying a range of related behaviors.

More recently, Mischel and colleagues have proposed a theory of personality that allows for broad classification of situational similarity (Mischel & Shoda, 1995; Shoda, Mischel & Wright, 1994). The Cognitive-Affective Personality System (CAPS) recommends examining behavioral consistency across situations based on their psychological features (peer approval, authority punishment), rather than their nominal features (e.g., a party, a meeting). The theory then suggests that there are stable individual differences in how people relate to different psychological features. In CAPS,

a state is a pattern of mental activation at a given time that changes readily when activated situational features change. The theory does not specifically mention traits. However, ideographic analyses have demonstrated stable profiles of *if...then* statements, or "behavioral signatures" (Shoda, et al., 1994, p. 674) that could be interpreted as traits. These *if...then* statements are developed through life experiences, and they affect how social information is processed.

Much of the work under the umbrella of trait theory has taken the lexical approach to traits. The lexical approach uses person descriptor words culled from a standard dictionary (Hogan, 1991; Block, 1995). These adjectives are pared down into a reasonable set, usually using some rational method which is specific to the researcher. People are then asked to rate themselves and others on these adjectives. The main assumption behind the lexical approach is that all the words required to describe personality already exist in the natural language. Because of this foundation, Allen and Potkay (1981) asserted that the layperson should be able to reliably identify words that represent states and traits, and that a given descriptor should be used for *either* a state or a trait, not both.

Chaplin, John and Goldberg (1988) suggested that although the distinction between traits and states is not discrete, it is still meaningful. In their schema-based framework, individuals hold prototypical images of traits and states, defined by a cluster of related characteristics. The prototype characteristics are stability, causality, duration, situational scope, and frequency (Chaplin, et al., 1988). None of the related characteristics is sufficient or necessary to categorize a particular person descriptor as either a trait or a state. Person descriptors that are exemplars of neither the trait nor state schema can be classified as either a state or a trait, while more perfect exemplars

are classified more consistently. This framework addresses the labeling concern of Allen and Potkay (1981), providing an explanation for inconsistent classifications. Fridhandler (1986) also contended that there is no reason the same label cannot be applied to corresponding states and traits, and suggested that Allen and Potkay advanced no reasonable arguments to support the opposite position.

Interactionist perspective. The guidelines presented above focus on the differences between traits and states, and how to distinguish between the two. These guidelines do not, however, limit the usage of any personality concept to strictly a trait or a state. As emphasized by Chaplin, et al., (1988), many characteristics are adequately classified as a trait and a state. This realization is consistent with a general trend in personality psychology to simultaneously consider traits and states as important antecedents of behavior.

The discipline of personality psychology has not only recovered, but has benefited, from Mischel's criticisms of the trait concept (Kenrick & Funder, 1988; Hogan, 1991). From Mischel's original emphasis on the situational causes of behavior, and others' counterarguments that traits are the cause of behavior, general consensus has arisen that both the strict trait theory and the strict situational approach treat behavior as overly simplistic (Olweus, 1977). Studies can be designed that support either perspective, but these studies demonstrate little other than a firm understanding of experimental research design (Hampson, 1982; Buss, 1989). In the interactionist approach, both the individual's dispositional characteristics and the external situations that individual encounters are essential determinants of behavior (Magnusson & Endler, 1977; Murtha, Kanfer & Ackerman, 1996). Mischel's CAPS theory is consistent with the

interactionist approach, emphasizing the role of both situational features and inter-individual differences in producing behavior.

Measurement issues. Beyond the conceptual difficulties with states and traits, inadequate measurement has further muddied the personality scene. The next section provides a review of issues that are particularly relevant to the measurement of states and traits, and links the issues to personality theory.

Personality instruments that measure both states and traits have been criticized severely. Allen and Potkay (1981) strongly criticized the practice of retaining the basic structure of a trait instrument and changing only the instructions to create a state instrument. An example of this practice is using a list of person descriptors with one set of instructions (describe yourself in general) to measure a trait, and using that same list with a different set of instructions (describe yourself at this moment) to measure a state. Users of a trait or state instrument should not be able to "simply declare" that their instrument measures a state or a trait.

The multipurpose use of a single instrument is tied to the practice of using a measure of state to derive an index of trait, where traits are defined and measured as a function of states over repeated measurements. There are several issues to consider with this measurement approach. Allen and Potkay (1981) highlighted the problem of identifying *when* a trait exists. It is unknown over how many state measurements a researcher should aggregate to create a trait measure.

Another concern with aggregating states to measure a trait is the response set that might result from repeated measurements over a short period of time (Allen & Potkay, 1981). If individuals answer the same questionnaire every day for two weeks, their responses may be biased. Response consistency may be a function of memory

instead of true consistency over time. Fridhandler (1986) supported the position that state measures should not be summed or averaged to created trait measures, since traits and states are caused by different sources (internal vs. external).

Trait and state scales should demonstrate different patterns of reliability coefficients (Zuckerman, 1983). Both state and trait scales should have high internal consistency reliability. However, state scales should have low test-retest reliability, unless the situational factors present at the second test administration are highly similar to those at the first administration. Trait scales should always have high test-retest reliability. Thus, trait scores should not change as the situation changes, but state scores should change in response to different situations. Stagner (1977) has cited reliabilities for trait measures ranging from .7 to .8.

There are two primary ways in which the validity of trait and state measures should be investigated. First, because a major component of the definition of trait is consistency, test-retest reliability must be considered a part of construct validity (Cronbach & Meehl, 1955). Trait instruments must display high test-retest coefficients to demonstrate the consistency required of a trait. Secondly, Zuckerman (1977, 1983) suggested guidelines for discriminant and convergent validity correlation patterns. Trait and state tests which measure the same person descriptor (i.e., anxiety), should correlate to a low degree. Trait tests should demonstrate convergent validity with other tests of the same trait, and these validity coefficients should be higher than coefficients relating that trait with other measures of the corresponding state.

Example: State and trait anxiety. Spielberger (1977) discussed research on anxiety that provided support for the distinguishability of states and traits in the interactionist approach. He described a study in which subjects were given both state

and trait measures of anxiety. The between-subjects manipulation involved an anxiety inducing stimulus (a balloon exploding in the subject's face). The state measure taken after the manipulation displayed changes for those subjects in the high anxiety condition, and no change for those in the low anxiety condition. The trait measure showed no change for either group. In addition, those subjects in the high anxiety condition who had higher trait anxiety showed a greater increase in state anxiety. Spielberger (1977) concluded that the anxiety trait implies a greater susceptibility to influences from situations.

The trait is a general construct that predisposes an individual to respond in a given manner across time and situations. Traits are used by laypersons and psychologists alike to predict or explain an individual's behavior. The state is a more localized, temporary psychological condition which is caused by an external stimulus or situation. The interactionist perspective holds that an individual who possess a trait may not display the predicted behavior if the situational cues are strong enough to create a temporary psychological condition that will override whatever trait that individual might possess. Further, Mischel's CAPS theory of personality suggests that behavior is affected by individual response patterns to psychological features of situations. These more recent perspectives in personality psychology advise against a limiting classification system for individual difference variables where constructs are either states or traits. Rather, researchers should consider the psychological features of situations that may interact with individual differences to affect behavior. Some personality concepts may be best classified as state or trait, but many concepts have characteristics of both.

Summary of state and trait characteristics. The review of trait theory suggests several guidelines for the appropriate measurement of states and traits. Attempts to measure traits as aggregates of state measures overlook the different causal origin, duration, and consistency of traits and states. According to the interactionist perspective, trait measures must provide an indication of trait strength. Trait measures must be subjected to empirical investigation regarding longitudinal consistency. While this sort of test-retest procedure is typically treated as an indication of reliability, in this case it is also an indication of validity, as consistency across time is a defining characteristic of any psychological trait (Cronbach & Meehl, 1955). Validity must also be demonstrated in more traditional ways, such as convergent and discriminant correlations with known measures. Finally, strength of the situation, in terms of psychological impact, must be considered.

Goal Orientation Revisited

As detailed in the previous section, there are many conceptual and measurement issues involved in the determination of whether a construct can and should be treated as a trait, a state, or both. In this section, goal orientation will be reviewed in light of the conceptual and measurement issues highlighted in the review of trait theory in an effort to determine how goal orientation can best be treated.

Conceptual Issues. Dweck contended that goal orientation is a consequence of an individual's implicit theory of ability (e.g., Dweck, 1986, 1989). Individuals who believe that intelligence is fixed tend to have high performance orientations. Individuals who believe that intelligence is malleable tend to have high mastery orientations. Button, et al., (1996) found that theory of ability was positively correlated with mastery orientation ($r = .419$), and negatively correlated with performance orientation ($r = -.157$).

High scores on the theory of ability measure represented an incremental theory of ability and low scores represented an entity theory of ability. Surprisingly, goal orientation does not appear to be related to actual ability. Button, et al., (1996) found non-significant or small correlations between goal orientation and college GPA (.182 with mastery; -.004 with performance), and goal orientation and SAT scores (.028 with mastery; -.113 with performance). Fisher and Ford (in press) found non-significant correlations between goal orientation and scores on a test of general cognitive ability (.08 with mastery; .04 with performance).

Hokoda and Fincham (1995) empirically investigated the origins of goal orientation. They categorized children as either mastery oriented or performance oriented using the Intellectual Achievement Scale. These children were then observed interacting with their mothers in achievement situations. Hokoda and Fincham found that the mothers of mastery oriented children displayed different patterns of behavior than the mothers of the performance oriented children. While statements regarding the causal nature of this relationship cannot be made as a result of this study, it does appear that at the very least, parental behaviors will reinforce children's goal orientation.

While there is evidence that goal orientation has origins consistent with a trait model, many researchers have treated goal orientation as a state, manipulating it with strong laboratory situations. Kozlowski, et al., (1995) gave subjects explicit instructions regarding learning or attaining a numerical goal to emphasize one orientation or the other. Elliott and Dweck (1988) highlighted the value of performance goals by telling subjects their performance was being filmed. Boyle and Klimoski (1995) used early failure or success manipulations in a training context to induce performance or mastery

goals, respectively. While few of the researchers using goal orientation manipulations performed manipulation checks to ensure goal orientation was affected, most of the studies supported the predicted relationships. Thus, it appears that these researchers have been successful in manipulating subjects' goal orientation in specific settings.

An assumption of experimental manipulation is that goal orientation can be altered, and as such, may function as a state. Experimental conditions increase the behavioral similarity of subjects within a condition. The within group variance is expected to be minimal, and between group variance is maximized. This experimental paradigm assumes that subjects' natural orientation can be overcome, and produce the experimentally desirable orientation. This paradigm depends on inconsistency of individual characteristics. However, experimental manipulations tend to produce relatively weak effects as opposed to real life situations (Sackett & Larson, 1990; Kerlinger, 1986), due to lack of subject motivation, as well as ethical concerns for experimental subjects. Consequently, experimental manipulations create goal orientations that may be inconsistent with the subjects' usual orientation, and are likely to be of brief duration.

Evidence surrounding the causal antecedents, consistency, and duration of goal orientation suggests it can be meaningfully treated as either a trait or a state. There are long term factors related to either genetics or early upbringing that affect an individual's trait goal orientation. For instance, the work by Hokoda and Fincham (1995) suggests that children's goal orientation will remain stable over time, as they are consistently reinforced by maternal behavior patterns. However, there is also substantial empirical evidence suggesting that situations can be created that will induce individuals to behave in a manner not consistent with their trait goal orientation. This

evidence indicates that strong situations can create temporary psychological conditions (motivational approaches) that are not necessarily congruent with an individual's trait goal orientation.

Goal Orientation in the Interactionist Perspective

Since both situational influences and individual differences have been shown to affect achievement behavior, perhaps goal orientation should be approached from the interactionist perspective (Dweck & Leggett, 1988). Button, et al., (1996) characterized goal orientation as "a somewhat stable individual difference variable that may be influenced by situational characteristics" (p. 9). This statement is consistent with the interactionist perspective that goal orientation may be treated as both a trait construct and a state construct, depending on the situation. When the situation offers no cues concerning goal orientation, an individual's predisposition to one orientation or the other will be the primary determinant of behavior. In the context of a strong situation, a motivational mediator variable, state goal orientation, becomes the direct antecedent of behavior. When the influential situation is over, behavior is again influenced primarily by the trait. A strong predisposition will be more resistant to situational cues than will a weak predisposition (Dweck & Leggett, 1988).

Dweck and Leggett (1988) did not recommend use of goal orientation as either a state or a trait, but suggested that the interactionist perspective might provide the most useful understanding and prediction of behavior. In fact, Dweck (1989) distinguished between manipulating actual goal orientation and manipulating the salience and value of performance goals. The latter manipulation would alter state goal orientation, without changing the enduring personality characteristic.

Boyle and Klimoski's (1995) work is consistent with the interactionist approach to goal orientation. They attempted to influence state goal orientation, defined as the goal orientation adopted by participants in a self-directed training session, by creating early failure and success conditions. Success on a preliminary task was expected to induce a state mastery orientation, while failure on that task was expected to induce a state performance orientation. Trait goal orientation was also expected to influence state goal orientation. The success manipulation was effective, and correlated with state mastery orientation ($r = .24$) and state performance orientation ($r = -.20$). The failure manipulation had no effect on state goal orientation. Trait goal orientation was a significant predictor of state goal orientation.

In order to advance the study of goal orientation, the measurement model must be consistent with the theory (Magnusson & Endler, 1977). In the interactionist perspective, researchers must clearly consider the strength of the trait, as well as the strength of situational characteristics. These two factors both serve as antecedents of the temporary state, which then leads to behavior. The following section provides a review of current measurement of goal orientation, using the guidelines presented above. Suggestions will be made for how to measure goal orientation in an interactionist framework.

Measurement Issues

Instruments. Button, et al., (1996) presented a validation study of two scales measuring trait goal orientation. The goal orientation scales, as well as measures of other constructs believed to be associated with goal orientation, were administered to four independent samples of college students. Button, et al. supported a two factor structure (mastery goal and performance goal) for the goal orientation data over a one

factor solution. Button, et al., (1996) examined the consistency of the structure of goal orientation across samples. However, a validity study of a personality trait should include an examination of the consistency of individual responses over time or across situations (Cronbach & Meehl, 1955). Thus, the reported validation study failed to examine a critical component of the trait concept.

VandeWalle (in press) designed three scales measuring goal orientation specifically in the work setting; mastery orientation, avoid (performance) orientation, and prove (performance) orientation. The scales were designed to measure goal orientation as a domain specific trait. VandeWalle conducted a confirmatory factor analysis that demonstrated excellent fit with the three scales across four different samples. A distinguishing feature of both the Button, et. al., (1996) and VandeWalle scales is the capability to measure the strength of goal orientation. Indeed, Button, et al. suggested that their measure of goal orientation corrects some early flaws of measurement, such as one-item measures which could not provide an indication of the strength of the goal orientation.

Meece, Blumenfeld and Hoyle (1988) measured what appeared to be state goal orientation over six occasions, but then aggregated the measures to create one index of goal orientation. The questions were phrased in reference to a particular learning event. In contrast, the Button, et al. (1996) scales are phrased as general statements. The pairwise correlations between the measures at the six different times ranged from .44-.83, and the consistency coefficients ranged from .53-.64. Meece, et al., (1988) concluded that these scores were similar enough to aggregate the goal orientation scores over time. Thus, although they measured goal orientation in a state fashion, they analyzed their data using a trait conceptualization of goal orientation. Given the

criticisms levied by Allen and Potkay (1981) and Fridhandler (1986) concerning the use of averaged state measures to create a trait measure, this measurement method appears inappropriate.

Reliability. Internal consistency reliability estimates for both trait and state scales have been reasonably good. The Button, et al., (1996) scales have consistently demonstrated coefficient alpha estimates ranging from .75-.85. Internal consistency reliability estimates for all three of VandeWalle's (in press) scales were over .80. The state goal orientation scales used by Button, et al. and Boyle and Klimoski (1995) demonstrated coefficient alpha estimates ranging from .70 to .74 for the mastery scale, and from .81 to .83 for the performance scale.

VandeWalle (in press) conducted test-retest reliability analyses on his work-specific trait goal orientation scales. The test-retest coefficients over a three month time period were .66, .57, and .60, respectively. Schuerger, Zarella and Hotz (1989) reported an average test-retest coefficient of .73 for 52 studies using test-retest intervals of less than one year on major personality trait inventories (e.g., the Sixteen Personality Factor Questionnaire [16-PF], the California Personality Indicator [CPI], and the Edwards Personal Preference Schedule). Thus, the test-retest coefficients reported by VandeWalle are lower than the reported average in the personality literature. However, it is the only known attempt to provide test-retest data for a goal orientation instrument. The relationship of these scales with more general measures of goal orientation remains to be examined.

Validity. A primary concern in the validation of state and trait measures is the discriminability of two measures that share the same label and tap corresponding aspects of a variable. Button, et al., (1996) included state measures of goal orientation

in one of the four samples. The corresponding state and trait scales displayed strong positive correlations (mastery r = .506, performance r = .477). Correlations between the alternate state and trait scales were non-significant (trait mastery and state performance r = .098; trait performance and state mastery r = -.109). According to the guidelines proposed by Zuckerman (1977, 1983), the correlations between corresponding state and trait measures should be low to moderate. However, if there are no strong situational influences present, as was the case in the Button, et al, study, higher correlations between the state and trait scales seem appropriate in light of interactionist theory. The two state scales displayed a low, positive correlation (r = .16). In addition to the correlations, Button, et al. performed a confirmatory factor analysis on the state and trait scales, and found a four factor solution, reflecting the conceptual difference between state and trait scales, fit better than the two factor solution that collapsed across the state and trait scales.

In their study of the effects of goal orientation in a self-directed training context, Boyle and Klimoski (1995) measured both the trait and the state goal orientations at different points in the study, using the same scales used by Button, et al., (1996). Trait measures were completed at the beginning of the study, while the state measures were taken upon completion of a self-directed learning task. Results of the Boyle and Klimoski study indicated that trait and state measures of the corresponding goal orientation were positively related (mastery r = .35, $\underline{p} < .001$; performance r = .40, $\underline{p} < .001$), and the measures were not related to the opposite goal orientation. This result is consistent with the guidelines above. State mastery orientation was affected by an early training success/failure manipulation as expected, while state performance orientation was not affected. Of the four measures, only trait performance orientation

was significantly related to the primary outcome of interest; learning as a result of training ($r = -.22$, $p < .01$). This study provides some evidence for the existence of state goal orientation. Unfortunately, test-retest reliability was not examined.

Measurement of goal orientation in the interactionist perspective. As demonstrated by Spielberger's (1977) work on state and trait anxiety, the amount any one individual is affected by a goal manipulation is subject to empirical study. When manipulating goal orientation, both state and trait must be taken into account. One cannot manipulate the state, and assume the resulting goal orientation is the same across study participants. Those who are high on the trait are less likely to be changed by the situational manipulation. Those who are low on the trait are likely to be more susceptible to the manipulation. Both trait strength and situational strength affect behavior. This interaction can create confusion in laboratory studies (Buss, 1989). Imagine a researcher wants to manipulate aggression in his subjects. Subjects who are low in the trait of aggression may become mildly aggressive. Subjects who are naturally high on aggression may become extremely aggressive. Consequently, the manipulation is not affecting subjects equally. In other situations, a manipulation may affect only those who are high on a trait or only those who are low on the trait (Buss, 1989). A failure to measure and account for the trait level, as well as to check the effects of one's manipulation in the presence of such interactions will add to the error term in data analysis (Buss, 1989). This effect supports the explicit use of both states and traits in the study of behavior, as long as both are adequately measured. However, manipulation checks are vital in research considering both traits and states.

Summary

The above sections have provided a discussion of trait theory, and associated measurement specifications for state and trait scales. These topics were then related to goal orientation research. This review has highlighted the importance of further investigation in the following areas: (1) Can state and trait goal orientation be empirically distinguished? Measurement of these concepts must follow both goal orientation theory and state-trait theory to ensure appropriate measures are being used. Additionally, test re-test analysis must be conducted to investigate the relative consistency of state and trait goal orientation. (2) If state goal orientation changes over time and across situations, which situational features cause the changes? As researchers and practitioners, we need to identify the kind of situations, such as aspects of the self-regulation cycle and situation specific interest, that interact with trait goal orientation to produce a state goal orientation that affects self-regulatory behaviors. Suggestions for the parameters and stability of the trait would be useful. A complete theory of goal orientation should include relationships such as these. Indeed, Button, et al. (1996) called for further study of the situational aspects of goal orientation. (3) Finally, does the measurement of state goal orientation increase our understanding of goal-directed behavior? Researchers have manipulated state goal orientation (e.g., Kozlowski, et al., 1995), but the effects of naturally occurring changes in state goal orientation have not been examined.

In conclusion, whether the two dimensions of goal orientation, mastery orientation and performance orientation, are appropriately treated as consistent traits, situationally induced states, or both is an empirical question that has yet to be answered. Evidence exists to support each position. Goal orientation appears to be a

construct that falls in the boundary category between state and trait (Chaplin, et al., 1988). A more useful area of exploration may come from taking an interactionist perspective on goal orientation. Instead of forcing a choice between a state or trait representation of goal orientation, research must investigate the conditions under which situations lead to certain response patterns, and the degree to which certain individuals are affected by situational influences (e.g., Dweck & Leggett, 1988). The temporal and cross-situational consistency of these constructs must also be tested more rigorously. This is an area of research which could contribute significantly to our understanding of behavior in organizations, as well as in achievement oriented situations in general.

The next section reviews potential antecedents of state goal orientation. According to the interactionist perspective, both internal traits and external situations, or the cognitive representations of situations, must be considered. The primary internal trait expected to affect state goal orientation is trait goal orientation. Situational factors that will be considered are domain specific interest and goal-performance discrepancies. Two types of antecedents will be considered. First, variables expected to affect state goal orientation within a single performance episode will be discussed. Second, variables expected to affect state goal orientation between performance episodes (e.g., results from time 1 affecting state orientation at time 2) will be discussed.

Antecedents of State Goal Orientation

Within Episode Antecedents

Trait goal orientation. The most direct antecedent of state goal orientation is expected to be trait goal orientation. The interactionist perspective suggests that the two major determinants of a psychological state are the individual's predispositions and

strong situational factors. Thus, in absence of strong situational factors, trait goal orientation would be the prime determinant of trait goal orientation.

George (1996) proposed similar relationships among trait and state affect. She defined trait concepts of positive and negative affectivity as individual dispositions to experience positive and negative moods. These dispositions were suggested as one of two determinants of state affectivity, defined as fluctuating and changing emotions and moods. Individuals high on positive affectivity are more likely to experience positive moods, and individuals high on negative affectivity are more likely to experience negative moods (George, 1996).

Boyle and Klimoski (1995) supported this form of relationship for goal orientation. They found that trait goal orientation was a significant predictor of state goal orientation. Trait mastery orientation was a significant predictor of state mastery orientation, and trait performance orientation was a significant predictor of state performance orientation.

Interest. Relationships between interest and learning goal orientation have been suggested by several researchers. Interest is defined as "a relatively enduring preference for certain topics, subject areas, or activities (Schiefele, 1991, p. 302). Interest contains both a feeling related component (enjoyment, positive affect) and a value-related component (personal significance). Schiefele suggests that interest is a content-specific concept, and that interest is not a personality characteristic. Interest is a directive force which can explain students' choice of area in which they exhibit intrinsic motivation. Schiefele's treatment of interest is very similar to Pintrich, Smith, Garcia, and McKeachie's (1991, 1993) notion of task value. Task value is one concept

representing the value component of motivation, and measures judgments of how interesting, useful, and important the content of a specific course is to students.

Empirical studies have consistently revealed a relationship between interest and goal orientation. However, there is no consistency as to the direction of the relationship. Whether goal orientation appears to affect interest or interest appears to affect goal orientation depends on the perspective of the researcher. For example, Butler (1987) suggested that the goal orientation adopted by students in a given situation would affect their interest in the task. She manipulated goal orientation by providing different kinds of feedback. One group received individualized comments regarding their performance. A second group received grades based on a normal distribution of performance. The comments were intended to highlight task aspects of the situation, thus inducing a mastery orientation. The grades were intended to highlight comparative aspects of the situation, thus inducing a performance orientation. Interest was measured with a self-report questionnaire completed after three sessions of task performance. Butler found that students in the comments condition reported greater interest and enjoyment in the task than the students in the grades condition.

Boyle and Klimoski (1995) suggested that both trait and state mastery orientation would lead to greater interest in the learning task. They found that task interest was related to state mastery orientation ($r = .50$), but not to trait mastery orientation ($r = .15$). Interest was not significantly correlated with either trait or state performance orientation. In addition, they reported several two-way interactions among the trait and state goal orientations that significantly predicted task interest.

Alternatively, Schiefele (1991) suggested that interest in a specific topic partially determines the strength and nature of the motivational orientation adopted in a specific

learning situation. An interested person naturally wants to learn more about, or become involved with, the topic in which he or she is interested. Highly interested students have also been found to work harder on tasks, and process information more deeply. Topic-specific interest is also related to the use of more complex learning strategies, such as elaboration and critical thinking (Schiefele, 1991, Pintrich, et al., 1991, 1993). Schiefele presented a model in which state goal orientation is affected by both the trait goal orientation and interest in the topic of study. High interest leads a person to adopt a mastery orientation in that specific situation.

Likewise, Meece, et al., (1988) treated goal orientation as a state, hypothesizing that goal orientation would be affected by student interest in science. They did find that student interest in science, measured at the beginning of the course, was positively related to mastery orientation, and negatively related to performance orientation (standardized maximum likelihood path estimates .33 and -.15, respectively). Both mastery (.63) and performance (.17) goal orientation, in turn, positively affected cognitive engagement during learning.

Between Episode Antecedents

Effects of performance-goal discrepancies. Between performance episodes, state goal orientation may change in response to the goal-performance discrepancy. If the goal-performance discrepancy is negative, the salience of the grading aspect of the situation will increase. This is the desired consequence of many of the manipulations designed to alter goal orientation (Dweck & Leggett, 1988; Heyman & Dweck, 1992). Wofford and Goodwin (1990) suggested that negative feedback causes people to break out of habits, and use non-automatic processes. Similarly, negative feedback

may cause people to react in ways that are inconsistent with their usual patterns. In other words, this negative feedback could cause a state change.

This hypothesis is consistent with the interactionist perspective on goal orientation (Dweck & Leggett, 1988). When an individual initially approaches the task, behavior is predominantly guided by the trait. As the situation changes, and certain aspects of the situation are highlighted (e.g., grades), the trait loses influence. The situation has created a stronger state, which then influences further behavior, in this case, self-set goals. In the subsequent performance episode, self-set goals would then change in response to changes in state performance orientation. With an increased state performance orientation, the self-set goal should change. This relationship may be moderated by the individual's self-efficacy (Farr, et al., 1993).

Effects of Changing Interest. The effects of unmet goals on state mastery orientation may operate primarily through interest. As discussed above, interest is expected to affect state mastery orientation. Interest in a subject area may change as a result of performance experiences in that area. Schiefele (1991) postulated that success strengthens interest in an area. Failure may also decrease interest, but the effect may not be immediate. Repeated failure may be required to lessen an individual's interest in an area.

Interest may also change independently of goal-performance discrepancies. Lane, Newman, and Bull (1988) discovered that interest changes over the duration of a course. They measured interest four times within a study that examined the relationship between interest and advance organizers; at the beginning of the course, after the advance organizer, after instruction, and following a retention test two weeks after instruction. They found that interest did change across these time periods. The

changes were partially due to the advance organizer, which was found to increase student interest for those who were initially low on interest. Lane, et al., also suggested that interest might change as a result of increased familiarity with a subject area. They suggested that students who know very little about an area might be initially interested in the area, but after learning more about that area, might realize that they are actually not interested. Thus, if interest changes between performance episodes, as suggested by Schiefele (1991), then state mastery orientation may very well change between performance episodes, as a result of changing interest.

Summary of State Goal Orientation Antecedents

There are several influences on state goal orientation, both within and between performance episodes. First, the trait of goal orientation is an important influence on the state adopted in any given situation. If the situation is weak, and does not emphasize mastery or performance goals, the trait will predominate. However, if the situation does emphasize one type of goal over the other, the temporary psychological state will be strong enough to influence behaviors. Second, topic specific interest is suggested to be a situational factor that will highlight the mastery goal. Many researchers have found a relationship between interest and mastery orientation, but the direction of that relationship is unclear. Course specific interest is suggested to affect state mastery orientation. Third, discrepancies between goals and performance are suggested to affect state goal orientation. Negative discrepancies will increase the salience of grades, thus increasing state performance orientation. Effects of discrepancies on state mastery orientation are largely expected to occur through interest. Negative feedback will decrease interest in the course, resulting in a decrease in state mastery orientation.

A Model of Goal Orientation in the Self-Regulation Process

A model describing the role of goal orientation in the self-regulation process is presented in Figure 1. A second model detailing the relationships between performance episodes is presented in Figure 2. The hypotheses in the first section, within episode linkages, have been derived from the model presented in Figure 1. This first set of hypotheses suggests relationships within a single performance episode. Consequently, none of the variables themselves (i.e., state goal orientation) are expected to change in the model displayed in Figure 1. Those between episode relationships are depicted in Figure 2, and are detailed in the between episode hypotheses section. Each linkage in the figures is labeled with the corresponding hypothesis number. Two control variables, ability and general self-efficacy, are represented in the model. Both ability and general self-efficacy are expected to directly affect academic self-efficacy and distal goals. Ability and general self-efficacy will be included in the data analysis as control variables.

Within Episode Linkages

Antecedents of state goal orientation. Figure 1 contains the model depicting the effects of goal orientation on goal setting and discrepancy reactions. The first pair of linkages in the model shows the direct relationship between trait goal orientation and state goal orientation. The primary antecedent of state goal orientation is trait goal orientation. Boyle and Klimoski (1995) found that mastery trait orientation significantly predicted mastery state orientation, while performance trait orientation significantly predicted performance state orientation.

Hypothesis 1: Each trait orientation will be positively related to the corresponding state orientation.

Also affecting the state mastery orientation at this stage of the model is course specific interest. In the absence of situational influence, trait and state goal orientation would be identical. Therefore, situational antecedents of state goal orientation must be considered. According to Mischel's CAPS theory, the psychological features of a situation affect states through individual interpretations of social information. Many aspects of a college course (e.g., content, professor, grading) are likely to provide social information that students will encode and process. This processing, in concert with other individual attributes and experiences, would result in interindividual variability in course specific interest. Thus, interest would function as a psychological representation of the situational features. Schiefele (1992) has suggested that interest is likely to affect the goal orientation adopted by individuals. Boyle and Klimoski (1995) have found that area-specific interest is related to state mastery orientation, but not to state performance orientation.

Hypothesis 2: Interest in the course will interact with trait mastery orientation to affect state mastery orientation. Interest will have a greater effect on state mastery orientation when trait mastery orientation is weak.

Antecedents of self-set goals. The next set of linkages in the model portrays the antecedents of self-set goals. First, state goal orientation directly affects the goals set for exams. Goal orientation will affect the difficulty of the goal as well as the content of the goal. Dweck has suggested that goal orientation may affect the both type and difficulty of the goal chosen. Mastery orientation is reflected in a desire to improve oneself, and a comparison of current performance with past performance.

Performance orientation results in a desire to prove oneself, and to focus on normative evaluation methods.

Because of these two varieties of goals, type of goal and difficulty of goal, self-set goals will be operationalized in two ways. The traditional treatment of grades as self-set goals will be used to measure grade goals (Campion & Lord, 1982; Locke & Bryan, 1968). However, students may set goals in their courses other than grades. Mone and Baker (1992a) suggested that measures of students' subjective learning goals would provide additional insight into the goal setting process. This kind of measure logically meshes with the treatment of goal orientation. A mastery orientation leads individuals to focus on learning, while performance orientation leads individuals to focus on the normative aspects of the situation. Attempting to elicit self-set goals by asking only about grades severely restricts goal choice, particularly for those individuals high on mastery orientation. Therefore, both grade goals and learning goals are considered in the model. Given the inherently subjective nature of the learning goals and the self-report learning perceptions, the learning goals are included more for increased understanding than for rigorous hypothesis testing.

Research has demonstrated that a strong mastery orientation is associated with a preference for difficult tasks, while a strong performance orientation tends to be associated with a preference for easier tasks (Dweck, 1986). State mastery orientation has been linked to the selection of tasks where individuals have the opportunity to learn a great deal (Dweck, 1986). Individuals are more likely to learn a great deal when they set more difficult goals for themselves in courses. A strong mastery orientation will also be associated with setting a learning goal.

Hypothesis 3: State mastery orientation will have a direct, positive effect on the difficulty of the grade goal set for the upcoming performance episode.

Individuals who have high performance orientation tend to select less difficult tasks, as they seek to avoid failure and negative evaluations (Dweck, 1986). However, Farr, et al., (1993) suggested that this relationship will be moderated by the individual's self-efficacy. A high performance orientation does not lead to the typical helpless pattern if the individual has high self-efficacy. Individuals who have low self-efficacy and a high performance orientation will set lower goals, while those who have high self-efficacy and a high performance orientation will set higher goals. An individual with high self-efficacy and a strong performance orientation will tend to set difficult goals, because he or she enjoys demonstrating to others that he or she can succeed on a difficult task.

Hypothesis 4: Self-efficacy and state performance orientation will interact to affect the difficulty of the goal set for the next performance episode. More specifically, individuals with a high state performance orientation and high self-efficacy will set more difficult goals. Individuals with a high state performance orientation and low self-efficacy will set easier goals.

In addition to goal orientation, distal goals and self-efficacy are expected to affect self-set goals. Several self-regulation researchers have postulated that goals are arranged in a hierarchical fashion (Lord & Levy, 1994). The goals at the higher levels provide a standard for the goals at the lower levels. Thus, more distal goals provide a reference point for the setting of more proximal goals. Distal goals have a direct effect on the difficulty of self-set goals. While this effect is likely to change over time (Campion & Lord, 1982), the grade a student is striving toward for the entire course will

affect the exam grade goal he or she will set within a given performance episode. In a classroom setting, Campion and Lord (1982) found that exam goals were set in reference to the goal students had set for the entire course.

Hypothesis 5: Distal goals (goals for the entire course) will have a positive, direct effect on self-set proximal goals (exam goals).

Self-efficacy also has a direct effect on self-set goals. It is well known that high self-efficacy is related to individuals setting more difficult goals for themselves (Locke & Latham, 1990). This effect has been supported in research by Mone and Baker (1992b) and Thomas and Mathieu (1994), who found that self-efficacy was related to goal difficulty in each of the performance episodes in their studies.

Hypothesis 6: Self-efficacy will have a direct, positive effect on the difficulty of the goal set for the upcoming performance episode.

Antecedents of discrepancy reactions. Three possible reactions to discrepancies are represented in the model; changing the goal, changing effort, and discounting feedback. The discrepancy between the self-set goal and actual performance affects the reaction to the discrepancy. For example, negative feedback tends to be accepted less readily than does positive feedback (Ilgen, et al., 1979).

The reaction an individual has to a discrepancy between his/her goal and performance is also dependent on individual differences including goal orientation (Kluger & DiNisi, 1996). A strong mastery orientation will lead individuals to react in a manner which will assist further learning, such as increased goals, increased effort, and accepting negative feedback. A strong performance orientation will lead people react in a manner which will assist in ego protection, such as decreasing goals, decreasing effort, and rejecting negative feedback.

Goal orientation theory and research suggests that mastery and performance orientation affect the amount of effort an individual is willing to devote to a task (Dweck, 1986; Fisher, 1995). Goal orientation also affects the type of task individuals will choose, where high mastery orientation is associated with more difficult tasks, and performance orientation is associated with simpler, less risky tasks (Dweck & Leggett, 1988). This argument can be extended to the selection of future goals. Finally, goal orientation is also suggested to affect the degree to which individuals accept the feedback given to them, where performance oriented people reject negative feedback in order to defend the ego, while mastery oriented people are more likely to reject positive feedback. (see Figure 3 for a summary of hypothesis 7).

Hypothesis 7: State goal orientation will moderate the relationship between discrepancies and reactions (change in effort, change in goals, and rejecting feedback).

H7a: In a positive goal-performance discrepancy situation, a high state mastery orientation will be associated with maintenance of effort, feedback acceptance, and an increase in goal difficulty. A high state performance orientation will be associated with a decrease in effort, feedback acceptance, and goal maintenance.

H7b: In a negative goal-performance discrepancy situation, a high state mastery orientation will be associated with increased effort, feedback rejection, and maintenance of goal difficulty. A high state performance orientation will be associated with decreased effort, feedback rejection, and a decrease in goal difficulty.

Between Episode Linkages

Several of the variables in this model are expected to change from one performance episode to the next. These changes will affect the kinds of goals that are set in the next performance episode. First, the discrepancy between the goal and performance will affect several variables in the model. Interest will be directly affected by the discrepancy. If students meet or exceed their exam goal, they are likely to become more interested in the class (Schiefele, 1991). Course specific interest is likely to change over the semester, as students find out more about the subject area (Lane, et al., 1988). Interest will also change as a result of performance feedback (Schiefele, 1991). Positive feedback tends to increase interest, while negative feedback, particularly repeated negative feedback, tends to decrease interest.

Hypothesis 8: Performance-goal discrepancies at time t will be directly related to interest in the course at time t + 1. Specifically, a positive discrepancy (grade higher than goal) will be associated with an increase in interest. A negative discrepancy (grade lower than goal) will be associated with a decrease in interest.

There is a similar relationship between performance and self-efficacy. Self-efficacy judgments are based on a number of attributes, including past performance (Locke & Latham, 1990). Meeting or exceeding goals increases self-efficacy to perform the task again in the future (Locke & Latham, 1990; Mone & Baker, 1992b). When performance is below self-set goals, self-efficacy will decrease. When performance exceeds self-set goals, students will become more confident in their ability to perform well.

Hypothesis 9 : Performance-goal discrepancies on exam goals at time t will be directly related to self-efficacy at time t + 1. Specifically, a positive discrepancy

(grade higher than goal) will be associated with an increase in self-efficacy. A negative discrepancy (grade lower than goal) will be associated with a decrease in self-efficacy.

Goal-performance discrepancies are also suggested to affect state goal orientation in the subsequent performance episode. Consistent with the experimental manipulations designed to affect goal orientation, an event that makes grade goals especially salient to the student will be positively related to a change in state performance orientation (e.g., Dweck & Leggett, 1988; Heyman & Dweck, 1992). Events such as failure have been shown to increase the salience of grades in a variety of situations, which in turn increase state performance orientation (Boyle & Klimoski, 1995). The interactionist perspective must be addressed in this hypothesis as well. Situational factors have more influence on a state when the corresponding trait is weak (Magnusson & Endler, 1977).

Hypothesis 10 : Negative discrepancies on grade goals will cause state performance orientation to increase. Positive discrepancies on grade goals will cause state performance orientation to decrease. Negative discrepancies will have a greater effect on state performance orientation when trait orientation is weak.

Research Setting

Several researchers have suggested that the academic setting may be the ideal setting for studying goal setting processes over time (Mone & Baker, 1992a; Thomas & Mathieu, 1994; Campion & Lord, 1982). First, the setting is relatively natural. Students would be performing the work and obtaining feedback with or without the study. Second, students' performance is typically independent of one another. Third, there

are multiple performance episodes. Most college courses include a number of exams, each of which requires learning, performance, and the receipt of feedback. The constructs in this research will be operationalized as variables in an academic setting. Thus, the proximal goals will be exam grade goals, and the distal goals will be course grade goals. Performance will be measured with actual exam grades. The discrepancy between the grade and the goal will be the simple difference between the two measures. Goal-performance discrepancy is expected to function as a psychological feature (e.g., Mischel & Shoda, 1995) of the classroom situation that would impact state goal orientation.

While the college classroom is a relatively natural setting for conducting goal setting research, there are concerns about the motivational effects of eliciting goals from students. Wright, O'Leary-Kelly, Cortina, Klein, and Hollenbeck (1994), presented a taxonomy of self-set goals. They suggested that there are three main goal generators, or reasons for setting goals; dispositional traits, request by an authority figure, or reaction to an assigned goal. These three sources interact to create specific goal situations. Trait generated goals with no external request are called natural goals. Goals generated by a request when there is no disposition for setting that goal are called induced goals. Goals generated spontaneously that co-occur with an external goal request are labeled reinforced goals. The purpose of this taxonomy is to encourage researchers to think about the different types of self-set goals, and how their source can affect the motivational consequences of that goal.

It is possible that the self-set goals in this study will be influenced goals, or goals brought about by the researcher. It is also possible that the self-set goals will be naturally occurring, and thus will be reinforced goals. Students may very well have

standards for their performance in courses, verbalized or not, as evidenced by students who are displeased by their grades and attempt to have them raised after the fact. Students may not typically verbalize these standards as goals, but many students do indeed have naturally occurring standards. This issue of induced goals is particularly relevant with the relationship between mastery orientation and grade goals. Given the definition of mastery orientation, where students are motivated by learning rather than external standards, a high mastery orientation should not be linked with the spontaneous setting of grade goals. However, when subjects are asked to set grade goals, a high mastery orientation should be associated with the setting of difficult goals. This induced goal may or may not affect the student's behavior, depending on the valence of that goal. To deal with this issue, goal valence will be measured for grade goals. If an individual reports a low valence for a grade goal, it is likely that it was an induced goal, and will not have the same impact on behavior as would a natural or reinforced goal.

METHOD

Sample Characteristics

Participants. Participants in this study were 434 undergraduate students in various psychology courses at Michigan State University. The students received partial course credit for their participation. Complete data across three waves of data collection were available for 354 participants. Of those students who provided complete data, 68.6% (n = 243) were recruited through the Department of Psychology subject pool. These students were primarily first and second year students enrolled in introductory psychology courses. To obtain a more representative sample of psychology students, the other third of the sample was drawn from upper level psychology courses such as statistics and research methods.

Statistical Power. An important consideration in behavioral research is the statistical power for detecting various effect sizes (Cohen & Cohen, 1983). The sample size of 354 in this study provides acceptable power. With a sample of 350, the power to detect an effect size of .20 ($p < .01$) is .89. A sample of 350 allows for power of greater than .995 ($p < .01$) with correlations of .30. Regarding changes in R^2 in a regression analysis with 5 independent variables, each contributing an R^2 of .04 to a total R^2 of .40, power of .90 can be reached with a sample size of 250 (Cohen & Cohen, 1983). Thus, the final sample size of 354 allowed acceptable levels of power for hypothesis testing.

Measures

This section details the measures used in the study, including current reliability estimates. All scales used in this research were used with a 5 point Likert scale, where 5 represents Strongly Agree, and 1 represents Strongly Disagree. The full surveys are presented in Appendices A and B.

Interest. Interest in the course was measured with a 4 item scale (see Appendix C) based on the task value scale of Pintrich, et al., (1991, 1993). The original scale had six items, and a coefficient alpha of .90. Two items were deleted based on their low structural equation parameter estimates with the scale as a whole (Pintrich, et al., 1991). The coefficient alpha reliability estimates for the three waves of this study ranged from .91-.92. A sample item on the interest scale is, "I am very interested in the content area of this course."

Self-efficacy was measured with two scales; one for general self-efficacy (GSE), and one for academic self-efficacy (ASE). GSE was measured with an eight item version of Sherer, et al's (1979) general self-efficacy scale. A sample item for GSE is "I rely on myself to accomplish my goals." GSE was measured only at Wave 1, and the coefficient alpha reliability estimate was .73. ASE was measured with a 5 item scale (see Appendix D) based on the self-efficacy scale of Pintrich, et al. (1993). The coefficient alpha reliability estimates for three waves of this study ranged from .90-.91. A sample item for the self-efficacy scale is, "I am certain I can master the skills being taught in this class."

Trait goal orientation was measured with two eight item scales (see Appendix E) by Button, et al. (1996). These scales treat mastery and performance orientation as distinct constructs. These scales have typically resulted in reasonable fit to a two factor

structure, with a very small correlation between the scales. Coefficient alpha reliability in the first wave of data collection was .75 for the mastery scale, and .76 for the performance scale.

State goal orientation was measured with two six item scales (see Appendix F) based on Boyle and Klimoski (1995). Similar to the trait goal orientation measures, these scales treat mastery and performance orientations separately. An exploratory factor analysis performed by Boyle and Klimoski revealed a lack of simple structure. Therefore, several items were deleted from the scale. New items were added to make the scale more directly relevant to an academic situation. Finally, items were reworded to focus the respondent on the immediate situation. The original scale depended on the instructions to frame the scale as responses to the situation. The new items were intended to provide that direction on an item-level basis (Allen & Potkay, 1981). The revised version of the scale contained 12 items, six for mastery and six for performance. Coefficient alpha reliability estimates for the state mastery scale ranged from .70-.76, and the estimates for the state performance scale ranged from .76-.78. A sample item from the state mastery scale is "I want to really understand the material in this section." A sample item from the state performance scale is "I am eager to show how much I know about the material in this part of the class."

Self-set grade goals were measured with four items, two for distal goals and two for proximal goals (see Appendix G). Students were asked to indicate the grade they were actually trying for, and the lowest acceptable grade (e.g., Locke & Bryan, 1968; Campion & Lord, 1982). Goals set in the first wave were higher than goals set in later waves, as found by Thomas and Mathieu (1994).

Self-set goals have typically been measured in classroom settings using these types of questions (e.g., Locke & Bryan, 1968; Campion & Lord, 1982; Thomas & Mathieu, 1994). However, since mastery orientation may lead people to set goals other than grade goals, subjective learning goals were also measured. Questions were included regarding the importance of learning in the next section of the course. These items are found in Appendix G. The coefficient alpha reliability estimate for the self-set learning goals scale ranged from .78-.83. From a construct validity perspective, it was expected that state mastery orientation would be positively related to this scale, and state performance orientation would be negatively related to this scale.

Because the reported self-set goals may be affected by the request to set such goals (Wright, et al., 1994), a measure of goal valence was needed. The personal importance of a self-set goal will help indicate which of the goals were induced, and which were reinforced. While no specific hypotheses were made about induced and reinforced goals, the valence measure will help to further understand behavioral patterns associated with goal orientation. Goal valence was measured with three items reflecting the importance of grade goals and learning goals. Because of low item-total correlations, the third item on the scale was not used in analyses. A sample item is "It is very important to me to attain the grade goal I have set for the next exam." The coefficient alpha reliability estimate for this scale ranged from .58 to .68 across waves.

Goal-performance discrepancies were measured by calculating the difference between the actual performance and the goal for each performance episode. Actual exam performance was obtained from the instructor of each course. Grades were assigned values of 4.0, 3.5, 3.0, 2.5, 2.0, 1.5, 1.0, and 0 according to each instructor's grading scale. According to Ilgen, et al., (1979), feedback can come from the self as

well as external sources. Consequently, subjective learning perceptions were measured with several self-report questions (see Appendix G). A sample question is "Regardless of my exam performance, I feel that I learned a lot in the previous section of the class." The coefficient alpha reliability estimate, calculated on items 2 and 3 of this scale, ranged from .73 to .78 across waves. Because of low item-total correlations, item 1 from this scale was examined separately.

Reactions to feedback were measured with several items intended to capture the four reactions outlined by Kluger and DiNisi (1996); change in effort, change the goal, abandon the goal, and discount the feedback. The goal change reaction was measured with the goal setting items. A goal change score was computed for grade goals and for course goals by subtracting the goal for the latter wave from that of the previous wave. Change in effort was measured in three ways. First, several questions regarding the time students devoted to the class were asked. Subjects were asked to estimate the number of hours they studied for the previous exam (Campion & Lord, 1982), and how many hours they planned to study for the next exam. Additionally, they were asked how many class sessions they missed in the previous performance episode. Second, participants were asked if they intended to increase the amount of effort they put into the class.

Finally, a three item version of the Mental Workload scale (Fisher, 1995) was used to determine the amount of mental effort put forth in learning the material for the previous section of material. The original six item version had an internal consistency reliability of .87. The internal consistency estimates for the three item version in this study ranged from .77 to 80 across the three waves. A sample item is "I had to work

very hard to learn the material for the previous exam." See Appendix H for the effort items.

Feedback acceptance was measured with items based on the feedback source credibility and feedback accuracy measures used by Podsakoff and Farh (1987). Source credibility and feedback accuracy are the two primary factors involved in whether individuals choose to accept or reject feedback (Ilgen, et al., 1979). If the feedback is perceived as highly accurate, and the feedback giver has high credibility, feedback is more likely to be accepted. In this study, two subscales (source credibility and feedback accuracy) were used to measure feedback acceptance, with two items for each subscale. The coefficient alpha reliability estimates for three waves of this study ranged from .76 to .81 for the source credibility scale, and from .85 to .89 for the feedback accuracy scale. A sample item for source credibility is "I feel the instructor of this course is very knowledgeable about the course content." A sample item for feedback accuracy is "My exam grade reflected my true performance." The items are presented in Appendix H.

Procedure

Students completed Survey 1 during the first two weeks of class in the fall semester. Participants initially signed up for a time to meet with the researcher in a computer laboratory at Michigan State University in groups of 14-29 students. At this introductory session, the researcher explained the nature of the project, and asked participants to sign a consent form. Participants were assured that their course instructor would not see their responses to any of the survey items.

The researcher then described the two format options for completing surveys. On their consent form, participants were asked to choose the e-mail option or the pencil

and paper option. Those who selected the pencil and paper option (n = 92) provided a local mailing address for future surveys. They then completed the pencil and paper version of Survey 1. The participants who selected the e-mail option for the study (n = 342) were given a brief training session on the use of the student e-mail system. Those who did not have e-mail accounts were assisted to set up an account. Participants provided the researcher with their e-mail addresses. A research assistant immediately sent Survey 1 to the participants, as the researcher provided instruction on how to complete and return the surveys on the e-mail system.

All participants completed Survey 1 before leaving the introductory session. This survey consisted of the self-efficacy, and trait and state goal orientation measures. Several demographic and academic background questions were also included in Survey 1 (see Appendix A). These questions asked participants to indicate the number of psychology courses previously taken, reasons for taking the current course, and their current college grade point average (GPA).

Because first-year students did not have a current college GPA, students were asked to provide SAT or ACT scores. Test scores were also obtained from the University for each participant. When possible, the University provided ACT scores were used. It is likely that the self-report test scores were accurate, as the correlation between University provided and student self-report test scores was extremely high (r = .94). In addition, the means for self-report (23.3) and University provided (23.2) ACT scores were very close. Several students had SAT scores instead of ACT scores. In these instances, a concordance table provided by the American College Testing Service was used to translate the SAT score into an ACT score. Standardized test scores (ACT) were used as control variables when testing the hypotheses.

Immediately prior to each exam in the relevant psychology courses, students were asked to estimate the effort they put forth in the course in the time leading up to the current exam. Students completed a brief, five-item paper and pencil questionnaire containing time spent and mental workload items. Following each of the exams in their respective courses, students completed Survey 2, consisting of the state goal orientation, self-set goal, self-efficacy, interest, and reaction measures (see Appendix B). In order to obtain an estimate of the test-retest reliability of the trait orientation scales, trait orientation was also measured on each occasion. Surveys 2-4 were sent to the participants one week after the exams in their respective courses. This delay period ensured that each of the participants has actually received the feedback, taking class absences into consideration. Subjects were instructed to answer the survey only after they had received exam feedback. The two versions of the survey were sent out such that participants would receive the survey at approximately the same time, regardless of survey format.

The two sets of survey responses were compared to check for differences by administration mode. While individual studies have suggested that computerized testing results in slightly more or less impression management, the balance of studies suggests that mode of test administration does not affect scores (Hough & Schneider, 1996). Non-cognitive measures administered by computer and by pencil and paper do appear to be equivalent on both the number of factors and the factor loadings (King & Miles, 1995). In the current study, few differences were found between respondents in the two administration mode groups. Students in the e-mail group scored significantly higher on the trait mastery orientation scale, F (1, 352) = 9.43, p <.01. The mean score for the e-mail group was 4.14, SD = .44, and the mean score for the paper and

pencil group was 3.96, SD = .50. It is likely that this difference is related to self-selection rather than measurement. Individuals who are high in trait mastery orientation are theoretically expected to be willing to learn new things. It makes sense that people high in trait mastery orientation would be more willing to learn how to use the e-mail system in this study.

Missing Data Given the longitudinal nature of this study, it is not surprising that there was substantial missing data. Precautions were taken to minimize the occurrence of missing data. Reminder messages were sent to participants two days prior to the distribution of the first post-exam survey. Reminders were also sent out the day following the distribution of the surveys. Regardless, there were participants who did not return one or more surveys. Three waves of data, including Survey 1, were required for classification as a complete set of data. Incomplete data sets were still used in the calculation of psychometrics for the data set. However, only complete data sets were used for hypothesis testing.

In the first wave, 434 subjects completed surveys. Of these, 92 (21.2%) selected the paper option, and 342 (78.8%) selected the e-mail option. In the second wave, the sample size was reduced to 380. In the third wave, the sample was further reduced to 371. However, subjects who had not returned Survey 2 were given the opportunity to complete Survey 3, and many did. Therefore, all subjects who had missed either Survey 2 or Survey 3 were removed from the final data set. The final sample size used for between wave analyses was 354, resulting in an 81.6% completion rate. In the final sample there were 70 subjects using paper surveys (19.8%) and 284 subjects using e-mail surveys (80.2%). These percentages do not

vary substantially from the percentages in the first wave, suggesting that administration mode was unrelated to subject mortality.

RESULTS

Data Analysis Strategy

The data analysis for this study began with a series of exploratory and confirmatory factor analyses to determine the factor structure of the measures used. It was expected that the trait and state goal orientation data would be best represented by a four factor model, with each *a priori* scale defining one factor. This factor structure was expected because of the different causal antecedents suggested for the trait and state variables. The trait items were intended to measure a dispositional construct caused by multiple, interrelated factors in an individual's background and experience. The state items, conversely, have a specific reference to a situation, and should correlate more strongly with other state items than with the corresponding trait items because of the causal antecedents. This correlational pattern was expected even in the first wave of data, as interest was expected to impact the relationship between trait mastery orientation and state mastery orientation. Once the final scales were determined, interscale correlations were examined. Next, a series of hierarchical regressions were run to test the within-wave hypotheses. Hierarchical regressions were also used to test the between-wave hypotheses.

Factor Analyses

Goal orientation scales. Principal components exploratory factor analyses including state and trait mastery orientation items and state and trait performance orientation items were conducted as a preliminary investigation of factor structure.

Four factors were extracted. The eigenvalues for the four retained factors were 5.4, 3.8, 1.7, and 1.6 (the next highest eigenvalue was 1.2). An oblique rotation was used. The factor solution across all three waves of data revealed a lack of simple structure. State mastery items 1 and 11 consistently loaded highly on the factors representing both state and trait mastery. One of the trait performance items (item 7) loaded consistently on the factors representing both trait and state performance. Coefficient alpha reliability estimates were in the acceptable range for the trait mastery, trait performance, and state mastery scales for all three waves (.75 and above). Coefficient alpha estimates were lower for the state performance scale, ranging from .71-.74 across the three waves.

Based on these analyses, four items were deleted from the goal orientation scales; two from the state mastery, one from state performance, and one from trait performance. Deletion of an item from the established trait performance scale of Button, et al. (1996) was deemed appropriate because this scale had never been analyzed in concert with the state scale used in the current study. State performance item 2 was removed from the scale because of its low corrected item-total correlation with the state performance scale (.19 -.21 across all three waves). Removal of this item increased the reliability estimate for the scale in all three waves (.76-.78). Coefficient alpha reliability estimates for the revised goal orientation scales are presented in Table 5. All remaining analyses were performed with the revised scales.

One additional exploratory factor analysis was conducted on the Wave 1 data to examine the primary self-report scales used in the study: trait and state mastery orientation, trait and state performance orientation, interest, and academic self-efficacy. The principal factors method was used to extract six factors. The eigenvalues for the

six factors were 7.21, 3.86, 2.29, 2.04, 1.60, and 1.24 (the next highest eigenvalue was 1.14). An oblique rotation was used. The six major self-report variables demonstrated a clean factor structure. All items loaded most strongly on the factor represented by the appropriate scale. For example, all five academic self-efficacy items loaded most strongly on factor one, and no items from other scales loaded most strongly on that factor. The same was true for the remaining five factors. Factor two was represented by the trait performance orientation items, factor three by the interest items, factor four by the trait mastery orientation items, factor five by the state performance orientation items, and factor six by the state mastery orientation items. The interfactor correlations ranged from .00 (factors 2 and 3) to .41 (factors 1 and 4).

The next step of the analysis was to perform several confirmatory factor analyses. A four factor model of the goal orientation scales was subjected to a confirmatory factor analysis using AMOS 3.6 for Windows (see Figure 4). With the Wave 1 data, this model achieved a moderate level of fit, $\chi^2 = 731.022$, $\underline{df} = 246$, $\underline{p}<.05$; root mean residual (RMR) = .046, Goodness-of-Fit Index (GFI) = .87, root mean square error of approximation (RMSEA) = .067. Factor loadings for the Wave 1 data are presented in Table 1. At Wave 2, the model fit decreased somewhat ($\chi^2 = 850.140$, $\underline{df} = 246$, $\underline{p} < .05$; RMR = .052, GFI = .83, RMSEA = .081). At Wave 3, the fit did not change appreciably from Wave 2 ($\chi^2 = 823.533$, $\underline{df} = 246$, $\underline{p} < .05$; RMR = .053, GFI = .83, RMSEA = .080). Each model was tested using the trait goal orientation measures from that wave. This allows for a more stringent test of the factor structure. If only Wave 1 measures of trait goal orientation had been used, time could have been partially responsible for the reduced covariation among scales.

Given the lack of simple structure apparent in the exploratory analyses on the goal orientation scales, this level of model fit is quite reasonable. In the exploratory analysis, several of the items loaded on multiple factors. This is reflected in the modification indices. For example, including a link between trait performance item 4 and the state performance scale would improve model fit. In addition, the four factor model fits significantly better than a nested two factor model, in which all mastery orientation items load one factor and all performance orientation items load on one factor. The nested 2 factor model using Wave 1 data does not fit as well as the 4 factor model (χ^2 = 1146.352, df = 248, p < .05; RMR = .062, GFI = .795, RMSEA = .091). The χ^2 decreases by 415.33 with the move to the four factor model, with a decrease of only 2 degrees of freedom. This change in χ^2 is highly significant. Although the four factor model fits only moderately well, the results of the confirmatory factor analysis do generally support the distinction between the trait and state scales.

Goal orientation and interest. Because of high correlations between the state mastery and interest scales, a confirmatory factor analysis was conducted. A three factor model including state and trait mastery orientation and interest was fit to the data. The model fit the Wave 1 data reasonably well (χ^2 = 368.276, df = 101, p <.05; RMR = .039, GFI = .90, RMSEA = .078). At Wave 2, the model fit decreased slightly (χ^2 = 416.853, df = 101, p <.05; RMR = .044, GFI = .87, RMSEA = .091), and did not change appreciably at Wave 3 (χ^2 = 394.754, df = 101, p <.05; RMR = .047, GFI = .88, RMSEA = .089). The modification indices did not suggest the addition of any parameters between the interest scale and any of the state mastery orientation items. A two factor model (one factor combining state mastery and interest, and one factor representing trait mastery orientation) was fit to the data, and fit and less well than did

the three factor model at Wave 1 (χ^2 = 638.124, df = 103, p <.05; RMR = .067, GFI = .79, RMSEA = .118). Thus, the confirmatory factor analysis supports the separation of the interest and state mastery orientation scales, regardless of the correlation between the two scales.

Mastery orientation and learning goals. State mastery orientation and self-set learning goals were strongly correlated in both Waves 2 and 3 (r = .58 and .69 respectively, p <.01). A confirmatory factor analysis was conducted to determine if these variables were statistically distinguishable. A two factor model with all state mastery items loading on one factor and all learning goal items on the other factor was tested, using Wave 2 data. The data fit the model well (χ^2 = 54.133, df = 13, p <.05; RMR = .033, GFI = .96, RMSEA = .092). A one factor model combining the two scales did not fit the data as well (χ^2 = 74.049, df = 14, p <.05; RMR = .036, GFI = .94, RMSEA = .107). Thus, these two scales were used as separate variables in the data analysis.

Reaction to feedback scales. The two reaction to feedback subscales, source credibility and feedback accuracy, were subjected to a confirmatory factor analysis to determine if these scales should be used as one scale or as two separate scales. The variance of the error term associated with the second indicator on the feedback accuracy scale was negative (-.052). Consequently, this error term was set to zero. With the error term set to zero, the two factor model, using Wave 2 data, fit the data well (χ^2 = .402, df = 2; RMR = .009, GFI = .99, RMSEA = .00). A one factor model combining the two scales did not fit the data as well (χ^2 = 155.848, df = 2, p <.05; RMR = .163, GFI = .85, RMSEA = .451).

Because of the negative error term in the two factor model, a principal components factor analysis was also conducted to examine the factor structure. All factors with an eigenvalue greater than 1 were extracted, resulting in two factors which were then subjected to an oblique rotation. This analysis suggested two distinct factors, the first representing feedback accuracy (eigenvalue = 2.3), and the second representing source credibility (eigenvalue = 1.1). The eigenvalue for the third factor was .36. All factor loadings for the appropriate factor were greater than .83, and none of the loadings for the alternate factor were greater than .15. Thus, it was determined that these scales should be used separately.

Correlations

Within-wave correlations are presented in Tables 2 - 4. Internal consistency estimates, where appropriate, are presented in the diagonal of each matrix. All correlations were computed using the final sample of 354 subjects. Internal consistency estimates were calculated on the full sample within each wave. The Wave 1 trait measurements were used in each correlation matrix. Theoretically, the trait should not change across measurement periods within a relatively short time period of three months.

Goal orientations. Correlations support the distinction between trait mastery and performance orientations ($r = -.04$, ns). At each wave, state mastery and state performance were significantly correlated ($r = .33$, .31, and .33, $p < .01$). This is consistent with the view that states are caused by some external source. These correlations suggest that both states are affected by a common source. One common causal antecedent may have been interest in the course. It was expected that state mastery would be positively associated with interest. This relationship did occur, with

correlations between state mastery and interest ranging from .50 to .53 across three waves. State performance orientation was also related to interest, with correlations ranging from .09 to .24.

Correlational analyses were used to estimate the test-retest reliability of the trait and state goal orientation scales (see Table 5). The mastery state scale had test-retest coefficients of .59 and .55 between one wave, and .43 between two waves. The performance state scale had test-retest coefficients of .65 and .67 between one wave, and .53 between two waves. These estimates are somewhat higher than would be expected for a state, given variation in the situation. The mastery trait scale had test-retest coefficients of .60 and .65 between one wave, and .52 between two waves. The performance trait scale had test-retest coefficients of .70 and .74 between one wave (4-6 week time span), and .61 between two waves (3 month time span). According to Schuerger, Zarella and Hotz (1989), the average test-retest reliability coefficient for major personality inventories such as the 16-PF and CPI is .73. Following this guideline, the performance trait scale demonstrates acceptable test-retest reliability at 4-6 weeks. The three month test-retest coefficients are similar to those obtained by VandeWalle (in press). All test-retest estimates for trait scales are higher than the estimates for the state scales. However, the difference is not as large as anticipated.

Goal orientation and self-set goals. Each of the goal orientation variables showed a different pattern of correlations with self-set goals. In Wave 1, course goal and exam goal were positively correlated with trait and state mastery orientation, with the trait correlations of higher magnitude. Both grade goals had a slight positive correlation with state performance orientation, and a non-significant correlation with trait performance orientation. In Waves 2 and 3, both grade goals were still positively

correlated with both mastery orientations, but the correlations with state mastery orientation were of higher magnitude. The correlations between grade goals and state performance orientation were non-significant at Wave 2, and were slightly positive at Wave 3. The correlations between trait performance and grade goals were negative in Waves 2 and 3.

In Waves 2 and 3, learning goals were measured in addition to the grade goals. Learning goals were strongly correlated with state mastery orientation in both waves ($r = .58, .69$ respectively, $p < .01$). Learning goals had a moderate, positive correlation with both trait mastery and state performance orientations, and a non-significant correlation with trait performance orientation. To test the possibility that this pattern of correlations may be due to the influence of interest on learning goals and both state orientations, interest was partialed out of the correlations between state orientations and learning goals. The correlations were reduced somewhat, but the relationship between the state orientations and learning goal was still present (state mastery Wave 2 partial $r = .47$, $p < .01$; state performance Wave 2 partial $r = .23$, $p < .01$).

Goal valence. Goal valence was negatively related to the difficulty of self-set goals, both for exams and the entire course (see Tables 2-4). Thus, participants who set more difficult goals tended to view them as less important. Goal valence was positively correlated with both trait performance orientation and state performance orientation, and negatively correlated with both state and trait mastery orientation and interest. These correlations with goal orientation support theory that suggests that performance oriented individuals tend to place greater emphasis on visible outcomes such as grades. The normal distribution of the goal valence scores within each wave suggests that many of the participants were setting induced goals rather than natural or

reinforced goals (Wright, et al., 1994). Therefore, the effects of goal valence were considered when testing hypotheses including self-set goals.

Exam performance. As expected, there was a moderate, positive correlation between exam goals and exam grades across all three waves. The correlations ranged from .35 in Wave 1 to .45 in Wave 3 ($p < .01$). Course goals and exam grades were also positively correlated, with the correlation increasing across the three waves. At Wave 1, the correlation was .26 ($p < .01$). At Wave 2, the correlation increased to .37, and to .49 at Wave 3. These correlations decreased somewhat after partialing out the measure of cognitive ability, ACT scores, but were all still significant.

Academic self-efficacy was also related to exam performance. Within each wave, academic self-efficacy was positively correlated with exam scores, even with cognitive ability partialed out. Exam scores were also related to self-efficacy in the next wave. The partial correlation between Exam 1 scores and self-efficacy in Wave 2 was .34 ($p < .01$), and the partial correlation between Exam 2 scores and self-efficacy in Wave 3 was .29 ($p < .01$). After accounting for ACT scores, there were no significant correlations between general self-efficacy and exam scores.

Exam scores were generally uncorrelated with the goal orientation and interest measures (see Tables 2 - 4), with the exception of trait performance orientation. In Waves 1 and 2, trait performance orientation was negatively correlated with exam grades (-.23, -.17). After partialing out ACT scores, the correlations decreased to -.18 and -.10. In the third wave, both interest and state mastery orientation displayed a slight, positive correlation with exam scores.

Exam performance was also related to some of the reactions to goal-performance discrepancies. Exam scores were negatively related to individuals' plans

to increase their effort in the next section of the course (after exam 1 r = -.32; after exam 2 r = -.31; p <.01). Exam scores were positively related to individuals' judgments of the credibility of the feedback source both within and between waves. Within waves, exam scores were positively correlated with source credibility (r = .36 for exam 1 and .24 for exam 2, p <.01). Between waves, the source credibility judgment for the first exam was positively associated with the performance on the second exam (r = .19, p <.01).

Effort measures. The three variables measured on the pre-exam survey, hours studied, number of class sessions missed, and perceived mental workload, were minimally related (see Table 6). At Wave 3, hours studied was positively related to mental workload (r = .18, p < .01). Also at Wave 3, classes missed was negatively related to mental workload (r = -.16, p < .01). Number of classes missed was consistently related to exam scores. Correlations ranged from -.20 to -.22 , all significant at p < .01. Thus, the more classes students missed, the lower their exam grade. Additionally, there was a negative relationship between state mastery orientation and the number of classes missed in the second and third waves (r = -.20 and -.21 respectively, p <.01). Consistent with Dweck's hypothesis that mastery orientated individuals would feel that effort is related to increased ability, individuals with a higher state mastery orientation tended to miss fewer classes, which appears to have resulted in superior exam performance.

Hypothesis Testing: Within Wave

All hypotheses were tested using the final sample of 354 students. Hierarchical regression was used to test the hypotheses. General self-efficacy and academic ability (ACT scores) were entered as control variables. The effects of trait goal orientation

were examined in each analysis before testing the effects of state goal orientation. By testing the hypotheses in this manner, a clearer determination of the incremental value of state goal orientation can be made.

Hypothesis 1. Hypothesis 1 suggests that each trait goal orientation is positively related to the corresponding state goal orientation. This hypothesis was tested separately for each dependent variable: state mastery and state performance orientation (see Tables 7 and 8). For state mastery orientation, the hierarchical regression started with the entry of general self-efficacy and ACT scores in step 1. Trait mastery orientation was entered in step 2. For Waves 2 and 3, the state mastery score from the previous wave was entered next. In Wave 1, general efficacy, ACT scores, and trait mastery all were significant predictors of state mastery orientation. General efficacy and trait mastery positively affected state mastery, while ACT scores had a negative effect ($b = -.13$, $p < .05$). These relationships held in Wave 2, with the addition of a significant positive beta weight for state mastery ($\beta = .47$, $p < .01$). In the Wave 3 analysis, general efficacy, trait mastery orientation, and state mastery had significant effects on state mastery at Wave 3.

Because academic self-efficacy was consistently correlated with trait mastery orientation ($r = .42 - .45$), an additional step was added to each of the hierarchical regressions described above. Academic self-efficacy was a significant, positive predictor of state mastery orientation in each wave. However, state mastery orientation remained a significant predictor with the effects of academic self-efficacy partialed out. Although academic self-efficacy is a significant predictor of state mastery orientation, its effects are not redundant with those of the previous wave state mastery orientation.

For the prediction of state performance orientation, academic self-efficacy, ACT scores, and general self-efficacy were all entered on the first step of the hierarchical regression. Trait performance orientation was entered next, followed by the state performance orientation of the previous wave (in Waves 2 and 3 only). At each wave, academic self-efficacy and trait performance orientation were significant predictors of state performance orientation. ACT scores predicted state performance orientation in Wave 3 ($\beta = -.14$, $p < .05$). In Waves 2 and 3, the previous state performance orientation was a significant predictor of state performance after trait performance orientation was taken into account.

From these analyses, it can be concluded that Hypothesis 1 was supported. In all three waves, state mastery was predicted by trait mastery orientation. The effect of trait orientation on state orientation decreased steadily over time, presumably as the situation became more salient. Likewise, state performance was predicted by trait performance orientation at each wave, with the beta weight decreasing over time.

Hypothesis 2. Hypothesis 2 suggested that interest and trait mastery orientation would interact to predict state mastery orientation. To test this hypothesis, interaction terms between trait mastery orientation and interest were created. Trait mastery at Wave 1 was used for each interaction term, and interest at each wave was used. The hierarchical regression analysis was performed by entering general self-efficacy and ACT scores on the first step. On the second step, trait mastery orientation was entered, followed by academic self efficacy, state mastery orientation (in Waves 2 and 3) and interest on the third, fourth and fifth steps. Finally, the interaction between trait mastery and interest was entered (see Table 9).

In each wave, both general self-efficacy and ACT scores were significant at step 1. General self-efficacy had a strong, positive beta weight (.41), while ACT scores had a negative beta weight (ß = -.13, p<.01). At the second step, trait mastery orientation added significantly to the prediction of state mastery orientation. In Waves 2 and 3, the state mastery orientation from the previous wave added significantly to the prediction of state mastery orientation. In fact, both trait and state mastery orientation explained unique variance in the dependent variable in Waves 1 and 2. In Wave 3, the beta weight for trait mastery became non-significant once state mastery was added to the equation. Academic self-efficacy and interest also added significantly when entered in their respective steps. The interaction between trait mastery orientation and interest was significant only in the third wave analysis (ß = .74, p<.01). Thus, hypothesis 2 was supported in Wave 3 only. In Waves 1 and 2, trait mastery orientation and interest acted independently to predict state mastery orientation. The effect of trait mastery orientation on state mastery orientation weakened over time. In Wave 3, the direct effect of trait mastery was no longer significant, and the interaction became significant.

Hypothesis 3. To test the hypothesis that state mastery orientation would have a direct, positive effect on goal difficulty, exam goals were regressed on general self-efficacy, ACT scores, trait mastery, interest, and state mastery. Trait mastery and interest were included in the analysis as control variables, given their relationship with state mastery orientation. For Wave 1, general self-efficacy, ACT scores, and mastery trait orientation were significant predictors of exam goals. In Wave 2, ACT scores had a significant, positive beta weight in the first step. In the second step, interest had a significant beta weight (ß =.20, p <.01), but trait mastery did not. In the third step, state mastery had a significant effect on the exam goal (ß =.16, p <.05). In Wave 3, only

ACT scores and interest predicted the exam goal. Thus, it appears that mastery orientation became progressively less predictive of grade goals. At Wave 1, grade goals were predicted by trait mastery. At Wave 2, they were predicted by state mastery. At Wave 3, they were predicted by neither mastery orientation variable.

Because of the relationship between academic self-efficacy and state mastery orientation, academic self-efficacy was added as a final step in the regression analyses for Hypothesis 3. In each wave, academic self-efficacy was a significant predictor of exam goals (see Table 10). The test of the hypothesis as stated provided partial support for the positive effects of state mastery orientation on exam goals. Academic self-efficacy, however, demonstrated much larger, more consistent effects for the prediction of exam goals.

The effect of mastery orientation on self-set learning goals was also tested by regressing self-set learning goals on general self-efficacy, ACT scores, trait mastery, interest, state mastery, and academic self-efficacy (see Table 11). In both waves, general self efficacy, interest, and state mastery orientation had a positive effect on learning goals. ACT scores had a negative effect on learning goals in Wave 2 ($\beta = -.19$, $p < .01$). Trait mastery orientation predicted learning goals in Wave 2 ($\beta = .15$, $p < .05$), but not in Wave 3. Academic self-efficacy had little effect on learning goals in Wave 2, and a positive effect in Wave 3 ($\beta = .12$, $p < .01$). Given the nature of the learning goals scale, this analysis was exploratory. However, it does appear that mastery orientation is much more strongly related to the difficulty of self-set learning goals than it is to the difficulty of specific grade goals for exams.

Hypothesis 4. Hypothesis 4 suggested that academic self-efficacy and state performance orientation would interact to predict exam goals. More specifically, it was

hypothesized that individuals with a high state performance orientation and high academic self-efficacy would tend to set higher exam goals. To test this hypothesis, exam goals were regressed on general self-efficacy, ACT scores, trait performance orientation, state performance orientation, academic self-efficacy, and the interaction of state performance orientation and academic self-efficacy (see Table 12).

In Wave 1, general efficacy, ACT scores, and academic self-efficacy significantly predicted goal difficulty. State performance orientation did not have a direct effect, but the interaction of academic self-efficacy and state performance was significant (ß = -1.10, $p < .01$). Results were similar for Wave 2, with ACT scores and academic self-efficacy directly affecting goal difficulty, and a significant academic self-efficacy X state performance interaction (ß = -.77, $p < .01$). In Wave 3, ACT scores and academic self-efficacy were still significant. State performance orientation was also significant (ß = .12, $p < .05$). The interaction was not significant in Wave 3. The Wave 1 interaction is depicted in Figure 6. This figure indicates that when self-efficacy was high, there was a negative relationship between state performance orientation and the grade goal set for exam 1. When self-efficacy was low, there was a positive relationship between state performance orientation and the grade goal set for exam 1. Therefore, the form of the interaction does not support hypothesis 4.

Hypothesis 5. Hypothesis 5 suggested that distal goals (goals for the entire course) would positively affect the difficulty of exam goals. This hypothesis was tested by adding an additional step containing the participants' course goals to the analysis for hypothesis 4 (see table 12). In each wave, the course goal was a significant predictor of the specific exam goal, adding significantly to the R^2 ($\Delta R^2 = .40 - .42$) even after considering seven other variables. These results support Hypothesis 5.

Hypothesis 6. This hypothesis, which suggested that academic self-efficacy would have a direct, positive effect on exam goals, was incidentally tested in the regression analysis for Hypothesis 4 (see Table 12). Results indicated that academic self-efficacy did have a direct effect on exam goal difficulty. Beta weights for academic self-efficacy ranged from .26 in Wave 1 to .41 in Wave 2 ($p < .01$). These results support Hypothesis 6.

Given the correlational relationships found between goal valence (the importance of attaining the self-set goal) and many of the variables of interest, goal valence was added to the regression equation presented in Table 12. Goal valence was entered as the last direct effect in the analysis. It did not add significantly to the prediction of goals. Therefore, after considering the effects of the main variables of study, goal valence did not impact the difficulty of the self-set goals. Goal valence was not considered in the remainder of the analyses.

Hypothesis 7. This hypothesis suggests that state goal orientation would moderate the relationship between goal-performance discrepancies and reactions to feedback. This hypothesis was tested in two ways; first by dichotomizing each variable using a median split and conducting a series of chi square analyses as suggested in Figure 3, and secondly with hierarchical regression.

The chi-square tests indicated that after a negative performance discrepancy in Wave 1, individuals with a high mastery orientation were more likely to increase effort than were individuals with a low mastery orientation ($\chi^2 = 4.74$, $df = 1$, $p < .05$). In addition, after a negative performance discrepancy in Wave 2, individuals with a high performance orientation were less likely to reject feedback than were individuals with a low performance orientation ($\chi^2 = 3.77$, $df = 1$, $p < .05$).

Several other trends were apparent in the data. For example, after a positive performance discrepancy in Wave 2, individuals with a low performance orientation were less likely to reject feedback than were individuals with a high performance orientation (χ^2 = 2.99, df = 1, p <.10). However, these trends were not significant, as analyses concerning the positive discrepancy group suffered from low power as a result of the relatively small number of individuals in this group (Wave 1, n = 48; Wave 2, n = 34). The small number of individuals with positive discrepancies is partially the result of range restriction. If a participant set a goal of 4.0 for the exam, it would be impossible for him/her to have a performance discrepancy, as 4.0 is the highest grade possible.

To further investigate the relationships proposed in Hypothesis 7, and to more directly test the interactions, separate regressions were performed for each of the three reactions to feedback; goal change, effort change, and feedback credibility. The goal-performance discrepancy was entered on the first step, followed by the trait goal orientations. The state goal orientations were entered on the third and fourth steps, followed by the interaction between the discrepancy and the state goal orientations on steps five and six.

Results for the planned increase in effort (see Table 13) indicate that in both waves, the discrepancy between one's goal and one's performance had a strong, positive effect (ß = .32 and .29, p <.01). Trait goal orientations did not significantly impact planned effort. State mastery orientation affected planned effort in Waves 1 and 2 (ß = .14, .15 respectively, p <.01). In contrast, state performance orientation did not have a significant effect. In Wave 1, the interaction between state mastery orientation and the discrepancy added significantly to the prediction of planned effort (ΔR^2 = .02, p <.05). Figure 7 shows that after a negative discrepancy, people with a

high state mastery orientation planned to increase their effort during the next section of the course. After a positive discrepancy, people with a high state mastery orientation were less likely to plan to increase their effort. This interaction partially supports Hypothesis 7. No other interaction terms added significantly to the prediction of planned effort.

Regarding changes in goals, the discrepancy between the goal and exam performance was again a significant predictor between both waves (see Table 14). In Wave 1, state mastery orientation had a positive effect on future goals. No other variables significantly affected goal change.

Feedback credibility was also significantly affected by the goal-performance discrepancy in both waves (see Table 15). Trait performance orientation was a significant, negative predictor of feedback credibility in both Wave 1 and Wave 2 (ß = -.25, -.31 respectively, $p < .01$). After considering the trait goal orientations, state mastery orientation was a significant predictor in both waves. Finally, the interaction between state performance orientation and the discrepancy was significant (ß = .77, $p < .01$) in Wave 2. Figure 8 shows that after a negative discrepancy, people with a high state performance orientation tended to reject feedback. After a positive discrepancy, people with a high state performance orientation were more likely to accept the feedback. This interaction supports Hypothesis 7.

These results indicate partial support for Hypothesis 7. The discrepancy between the students' goals and their actual performance was a robust predictor of all three reaction variables across both time periods. State mastery orientation was also a consistent predictor of all three dependent variables. However, the interaction terms

were generally not significant. Of the six interaction terms, only two were significant. The form of these interaction terms generally supported Hypothesis 7.

Hypothesis Testing: Between Wave

Hypothesis 8. This hypothesis suggested that performance-goal discrepancies at one time period would be directly related to interest in the course at the next time period. Hypothesis 8 was tested by regressing interest at Waves 2 and 3 on general self-efficacy, ACT scores, interest from the previous wave (as a covariate), and the discrepancy between the exam goal and exam performance. This discrepancy variable was created by subtracting the goal from the performance. Thus, a negative discrepancy score reflects an exam score lower than the participant's exam goal.

Results of the hierarchical regression (see Table 16) indicate that general self-efficacy, interest from the previous wave, and the discrepancy score all affected interest at the next time period. The beta weight for the discrepancy score was negative between Waves 1 and 2, and between Waves 2 and 3 (β = -.11, -.10 respectively, p <.01). These results support Hypothesis 8.

Hypothesis 9. This hypothesis suggested that performance-goal discrepancies at one time period would be directly related to academic self-efficacy at the next time period. This hypothesis was tested by regressing academic self-efficacy from Waves 2 and 3 on general self-efficacy, ACT scores, academic self-efficacy from the previous wave (as a covariate), and the discrepancy between the exam goal and exam performance (see Table 17). Results indicated that ACT scores, general self-efficacy, academic self-efficacy from the previous wave, and goal-performance discrepancies all affected academic self-efficacy. The regression weights for the discrepancy were

negative between Waves 1 and 2, and between Waves 2 and 3 (ß = -.22, -.12 respectively, p <.05). These results support Hypothesis 9.

Hypothesis 10. This hypothesis suggested that negative goal-performance discrepancies would cause state performance orientation to increase, while positive goal-performance discrepancies would cause state performance to decrease. Hypothesis 10 also suggested that goal-performance discrepancies would interact with trait performance orientation to affect state performance. This hypothesis was tested by regressing state performance orientation from Waves 2 and 3 on trait performance orientation, state performance from the previous wave, the discrepancy between exam goal and exam performance, and the interaction of trait performance and the discrepancy score. Results of the hierarchical regression (see Table 18) showed that while both trait and state performance orientation predicted the dependent variable, neither the goal discrepancy nor the interaction term were significant predictors of state goal orientation. Thus, Hypothesis 10 was not supported.

DISCUSSION

The current study was designed to examine the effects of state and trait goal orientation over time on the self-regulatory processes of goal setting and reacting to goal-performance discrepancies. Several of the hypothesized relationships were supported, both within and between performance episodes. Mastery orientation, both state and trait, positively affected exam goals and learning goals, but both performance orientations were generally unrelated to exam goals. Some evidence was found for a moderating relationship of goal orientation between discrepancies and reactions. This study also investigated properties of trait and state goal orientation. Results demonstrated that trait goal orientation was a significant predictor of state goal orientation. Interest affected state mastery orientation, although the hypothesized interaction between interest and trait mastery orientation was not supported. Implications of specific findings are discussed below.

Role of Goal Orientation and Interest in Self-regulation

A major goal of this study was to develop a richer, more detailed model of self-regulation that integrated important individual difference variables. Traditionally, self-regulation models have considered limited individual variables such as ability and past performance (e.g., Campion & Lord, 1982; Locke & Latham, 1990). Recent research demonstrating the complex relationships between goal orientation and numerous

learning outcomes (e.g., Kozlowski, 1995; Fisher & Ford, in press) has pointed toward the inclusion of goal orientation in a broader self-regulation framework. The models developed in this study suggest that state goal orientation is involved in self-regulation in two ways (see Figure 1). First, state goal orientation was expected to affect the difficulty of self-set goals. Previous literature has linked goal orientation with task choice (e.g., Dweck, 1986; Dweck & Leggett. 1988). Individuals with high mastery orientation tend to choose more difficult tasks that provide the opportunity to learn new concepts. Individuals with a high performance orientation tend to choose tasks that allow that individual to avoid appearances of poor performance (Dweck, 1986).

Consequently, in the current study, state mastery orientation was expected to be positively related to goal difficulty, and state performance orientation was expected to interact with self-efficacy to predict goal difficulty. In this study, task difficulty was operationalized with participants' goals for exam grades in psychology courses. Participants who set a difficult goal for themselves were considered to have chosen a more difficult task. Exam grades were then used as indicators of learning.

The second role hypothesized for state goal orientation in Figure 1 is that state goal orientation should affect how individuals react to discrepancies between their goals and performance feedback. Mastery goal orientation has been linked with an adaptive response pattern in achievement situations, while performance orientation has been linked with a maladaptive pattern (Dweck, 1986; Dweck & Leggett, 1988). Building on the previously identified response patterns, individuals with a high state mastery orientation were expected to have more adaptive responses to negative feedback, while individuals with a high state performance orientation were expected to

protect their ego, resulting in the use of less adaptive responses to goal-performance discrepancies.

In the remainder of this discussion section, the results of the study are reviewed in light of the expectations outlined above and depicted in Figure 1. The discussion begins with a review of the effects of the individual difference variables (goal orientation, self-efficacy, and interest) on goal setting. The effects of these variables on reactions to discrepancies are described next, followed by a discussion of the implications of this study for state and trait measurement of goal orientation. Finally, study limitations and implications are discussed.

Effects of goal orientation and interest on goals. As hypothesized, both state and trait mastery orientation positively affected exam goals. In the first wave, trait mastery orientation predicted exam goals. In the second and third waves, state mastery orientation affected exam goals, and trait mastery orientation did not. In addition to setting specific grade goals for each exam, participants were asked to indicate their goals for learning. Subjective learning goals were included in this study because individuals with a high mastery orientation should focus on learning rather than on grades. Exam grades, while used as indicators of learning, inherently lead to comparisons with others. Students with a high mastery orientation should be less focused on grades, and are likely to be focused on goals that specifically reference learning rather than grades. The data suggested that this is the case. State mastery orientation was strongly related to learning goals in both Waves 2 and 3 (see Table 11). In fact, the relationship between state mastery orientation and learning goals was much stronger than the relationship between state mastery orientation and grade goals.

Perhaps the most surprising finding in this study concerned the relationship between state performance orientation and goal setting. Previous goal orientation literature had suggested that individuals with a strong performance orientation preferred easier tasks, consequently setting lower goals, in order to avoid negative judgments of their ability (e.g., Dweck & Leggett, 1988). Later scholars (e.g., Farr, et al., 1993) suggested that this relationship may be moderated by self-efficacy. They suggested that individuals with a high performance orientation would indeed prefer less challenging tasks (i.e., easier goals) if they had low self-efficacy. However, individuals with high performance orientation and high self-efficacy would prefer more challenging tasks (i.e., set more difficult goals).

The results of this study indicated that neither state nor trait performance orientation had a significant, direct effect on exam goals in the first two waves. State performance orientation was a positive, significant predictor of exam 3 goals. The interaction between academic self-efficacy and state performance orientation was significant in Waves 1 and 2. However, the form of the interaction was opposite that which was predicted. Individuals with high state performance orientation and low academic self-efficacy tended to set more difficult goals, while individuals who were high in both characteristics tended to set lower goals. This effect was not large, and decreased steadily across waves, until it was non-significant at wave three.

This hypothesis suggesting the interaction between state performance orientation and self-efficacy was based on the suggestions of Dweck (1986, 1989) and Farr, et al. (1993). These researchers focused primarily on the positive aspects of an individual having high performance orientation and high self-efficacy. They contended that high self-efficacy would allow individuals to overcome the problems associated with

high performance orientation, and to exhibit behaviors more consistent with the adaptive response pattern. Dweck (1986, 1989) did, however, suggest an alternate course of events. She suggested that individuals who had high performance orientation and low self-efficacy could either set low, easily attainable goals, or could set excessively difficult goals, safe with the knowledge that failure to attain such difficult goals does not signify low ability. Perhaps this latter scenario was the case in this sample of students. Those individuals with low self-efficacy may have been setting unrealistically high goals as a defense mechanism. These results indicate that the relationship between performance orientation and goal setting warrants more research attention.

Both academic self-efficacy and interest had larger effects on exam goal difficulty than did either mastery or performance orientation. High self-efficacy has consistently been found to lead to the selection of more difficult goals (e.g., Locke & Latham, 1990). Thus, this finding is consistent with previous literature. Self-efficacy had a minimal impact on learning goals, however. Self-efficacy appears to be a predictor of more traditional, specific, measurable goals like exam grades, while mastery orientation is a better predictor of more subjective, internal goals.

Participants' interest in course played a greater role in the self-regulation model than was hypothesized. The direct effect of interest on goal difficulty in Waves 2 and 3 was unexpected. As shown in Figure 1, interest was hypothesized to affect goals only indirectly through state mastery orientation. However, the students in this sample who were more interested in the course tended to set higher goals, regardless of their state mastery orientation. This effect increased over time as students became more familiar with the course and could make more informed judgments about their interest. The

variation in interest also increased over time, as the standard deviation of interest increased from .80 to .96 from Wave 1 to Wave 3. Interest was also strongly related to participants' learning goals.

These results suggest that self-set goals are indeed related to individual difference variables other than the frequently studied variables of self-efficacy and past performance. Self-efficacy and past performance are excellent indicators of whether or not an individual feels that he or she can achieve a certain performance level. Individual difference variables such as goal orientation and interest are more indicators of whether or not and individual *wants* to participate in the learning activity, and if he or she *wants* to learn. Thus, this study expands the predictors of self-set goals from those variables found in the traditional expectancy-valence model of motivation to those found in intrinsic models of motivation (Kanfer, 1990).

The relationships among the goal orientation and interest variables lead us to greater understanding of the process through which individuals set their own goals. This, in turn, helps us understand important outcome variables such as exam performance. Exam scores were generally uncorrelated with state and trait mastery orientation, state performance orientation, and interest, and were negatively correlated with trait performance orientation in Waves 1 and 2 (see Tables 2-4). Consistent with volumes of previous research, goals and self-efficacy were both strongly correlated with exam scores (e.g., Locke & Latham, 1990; Thomas & Mathieu, 1994; Mone & Baker, 1992b).

Although only trait performance orientation was directly correlated with exam performance, mastery orientation and interest affected exam performance through their relationships with goal setting. Mastery orientation and interest were both positively

related to exam goal difficulty, which was then strongly related to exam performance. Both of these variables have indirect effects on exam performance through their relationship with self-set goals. This relationship is similar to the results of a previous study which indicated that goal orientation affected test scores through effort and attention (Fisher & Ford, in press). Goal orientation tends to affect learning outcomes through several motivational processes such as goal setting and attention allocation rather than directly affecting test scores.

Effects of goal orientation on reactions. The second role of state goal orientation in self-regulation depicted in Figure 1 is the impact on reactions to performance discrepancies. Three types of reactions were examined in this study: change in effort, change in goals, and feedback acceptance. It was expected that state goal orientation would interact with the actual goal-performance discrepancy to predict individuals' reactions. Individuals with a high mastery orientation were expected to react in an adaptive manner, increasing or maintaining effort levels and goal difficulty in situations of both positive and negative feedback. These individuals were hypothesized to accept feedback in the negative discrepancy situation, but not necessarily in the positive discrepancy situation. Individuals with a high performance orientation were expected to react in a less adaptive manner, striving to protect their ego at all times by minimizing effort, lowering goals in the face of a negative discrepancy, and rejecting negative feedback (see Figure 3).

Consistent with the suggestions of Farr, et al., (1993) and Kluger and DiNisi (1996), reactions to performance discrepancies were indeed related to both state and trait mastery goal orientation. Participants' planned increase in effort for the next section of the course was partially explained by state mastery orientation, and in Wave

1, the interaction between state mastery and the discrepancy. Examining the plot of the interaction (see Figure 7) reveals that those with a high state mastery orientation planned to increase their effort after a negative performance discrepancy, but not when they encountered a positive performance discrepancy. This finding supports the hypotheses depicted in Figure 3.

While trait mastery orientation had no effect on planned increase in effort, participants with a high state mastery orientation tended to plan an increase in effort for the next performance episode. Participants' goal change was primarily accounted for by the performance discrepancy, but there was a positive, direct effect for state mastery orientation on goal change between waves 1 and 2. Thus, individuals with a high state mastery orientation tended to plan an increase in effort and raise their goals between performance episodes.

Changes in effort and goals were related to exam performance. As discussed above, goal difficulty was positively associated with exam scores. However, planned increase in effort was negatively associated with exam scores. Participants who reported planning to increase their effort following exam 2 tended to score lower on exam 3 ($r = -.24$). Thus, even though they planned to increase their effort, their performance did not improve. This effect could be a result of poor study strategies. Participants who reported a high degree of workload while studying also tended to score lower on exams (see Table 6). It appears that these students were applying effort, but may have misdirected that effort.

Feedback credibility was also affected by goal orientation. State mastery orientation was positively associated with feedback credibility after waves 1 and 2, while trait performance orientation had a significant, negative impact on feedback

credibility. These findings support previous suggestions (e.g., Kluger & DiNisi, 1996) that individuals with a high performance orientation will find it more difficult to accept and acknowledge the accuracy of negative performance feedback than those individuals low in performance orientation, and consequently, with lower ego-protection needs. Rejecting negative performance feedback can serve an ego-protection function. Instead of recognizing that their performance was substandard, these individuals reported that the feedback did not accurately describe their performance.

The moderator analysis predicting feedback credibility perceptions also supported this ego-protection concept. In Wave 3, the interaction between state performance orientation and goal-performance discrepancy was significant as expected. Participants with a high state performance orientation who experienced a positive discrepancy felt the feedback was credible. Those with a low state performance orientation perceived the feedback as less credible when they experienced a positive discrepancy, and were more likely to accept the feedback when they experienced a negative discrepancy. Thus, when the direction of the discrepancy was taken into account, it became even more clear that a high performance orientation was associated with a tendency to protect the ego. A high performance orientation was associated with rejecting only negative feedback, while individuals with a low performance orientation felt such feedback was more credible.

Previous research indicates that feedback that is negative and provided by a source that lacks credibility is least likely to be accepted by the feedback receiver (Ilgen, Fisher & Taylor, 1979). Individuals are unlikely to correct mistakes made in earlier performance episodes if they do not attend to and accept the negative feedback provided. Consequently, the current findings concerning feedback credibility suggest

that individuals with a high performance orientation are likely to continue engaging in the maladaptive behavioral patterns identified by Dweck (1986; Dweck & Leggett, 1988), as they are most likely to reject feedback.

Ilgen, Fisher and Taylor (1979) were among the first to suggest that individual differences influence reactions to feedback. Kluger and DiNisi (1996) suggested that individual differences influence reactions to feedback by directing attention to the self rating than to improving performance. The results of this study support this aspect of Kluger and DiNisi's feedback intervention theory, as individuals with a high performance orientation tended to reject negative feedback. In attempts to protect their ego in the short term, individuals with high state performance orientation may overlook more long-term performance improvement strategies, such as changing goals or increasing effort.

To summarize, state and trait goal orientation did affect self-regulatory processes in this study. Self-set goals were positively affected by both state and trait mastery orientation. Participants with a high state mastery orientation tended to display more adaptive, functional responses to goal-performance discrepancies, as they were more likely to plan to increase their effort in the next performance episode and increase their goals. State mastery orientation was also associated with greater acceptance of feedback, as represented by exam scores. The primary effect of state performance orientation in this study was a negative association with feedback credibility. Participants with a high state performance orientation tended to report that exam scores lower than their goals were actually an inaccurate reflection of their performance. These results are generally consistent with Dweck's (1986) notion of the adaptive response pattern. A strong mastery orientation was associated with

responses to goal-performance discrepancies that would lead to improved performance in the next performance episode.

It was beneficial in this study to include measures of state goal orientation in addition to trait goal orientation in the examination of self-regulation. State orientation generally impacted self-regulatory outcomes after statistically accounting for the effects of trait orientation. Further, trait goal orientation tended to affect outcomes in the first wave, and state goal orientations had greater effects in waves 2 and 3. As situational influences affected participants' state goal orientation, state mastery and state performance became more influential toward self-regulatory reactions and behaviors. These findings were made possible by the repeated measurement of state goal orientation with a tool based on clear definitions of state and trait goal orientation that was designed according to state measurement guidelines.

State and Trait Goal Orientation

In the past several years, the goal orientation literature has begun to examine both state and trait conceptualizations of the construct. However, researchers have typically failed to clearly distinguish between state and trait. For example, researchers have defined goal orientation in a trait-like manner, but then proceeded to manipulate it (e.g., Elliott & Dweck, 1988; Dweck & Leggett, 1988). It is important to distinguish between state and trait goal orientation because these variables will impact human behavior in different ways. Trait goal orientation is the tendency to respond to a variety of achievement situations in a similar manner, and is the result of complex factors such as genetics and upbringing. State goal orientation is the immediate response to a particular achievement situation, and is the result of an individual's trait goal orientation plus situational factors. The failure of many researchers to conceptually clarify the

difference between state and trait goal orientation can cause misinterpretation of research findings, and makes it difficult to interpret the body of goal orientation research as a whole. Once a researcher distinguishes conceptually between state and trait goal orientation, the measurement of the variables must clearly follow from the definition of those variables.

Despite the importance of clearly distinguishing between state and trait, research attempting to distinguish between state and trait goal orientation has been somewhat limited by the available measurement tools. The state goal orientation measure used in the past (e.g., Button, et al., 1996; Boyle & Klimoski, 1995) does not meet several of the standards for instruments designed to measure personality states (Zuckerman, 1977, 1983; Allen & Potkay, 1981). Most importantly, the test-retest reliability of the previous scale was virtually indistinguishable from the test-retest reliability of the trait scales (Fisher, et al., 1997). Test-retest reliability is a critical aspect of the distinction between trait and state (Cronbach & Meehl, 1955). Therefore, this study strove to improve the measurement of state goal orientation.

State and trait goal orientation were both measured in this study to investigate how goal orientation changes as a result of changing situational influences over time (see Figure 2). Consistent with interactionist theory of personality (Magnusson & Endler, 1977; Mischel & Shoda, 1995), goal orientation theory suggests that goal orientation is a relatively enduring individual characteristic that may be susceptible to temporary changes due to situational influences (Button, et al., 1996). Up to this point, research has not examined naturally occurring situations that affect the state aspect of goal orientation.

Measurement issues. This study did provide evidence for an improved measurement system for goal orientation. A new state scale was constructed in this study that adheres to guidelines for the measurement of personality states. The items on each measure were related to the conceptual definitions of mastery and performance orientation. However, the trait items focused on general tendencies, while the state items focused on cognitive reactions to specific situations encountered in the learning environment. The state instrument was not dependent on instructions to orient individuals to the appropriate frame of mind (Allen & Potkay, 1981), rather, the framing was accomplished at the individual item level. A confirmatory factor analysis supported the distinction between the state and trait measures of goal orientation, as a two-factor model combining the state and trait measures did not fit as well as a four factor model that separated the state and trait measures.

These improvements in the state goal orientation scales resulted in better psychometric qualities than found with previous scales. Test-retest statistics demonstrated greater consistency over time for the trait measures than the state measures. Previous studies have found similar, and occasionally identical, test-retest coefficients for state and trait scales of goal orientation (Fisher, et al., 1997). In addition, internal consistency estimates were higher for the state scales developed in this study than demonstrated for previous state scales. Consequently, the state scales used in this study represent an important improvement in the measurement of state goal orientation, thus allowing more accurate comparisons between state and trait.

Construct issues. The improved state goal orientation scales facilitated the examination of how goal orientation functions over time. As shown in Figure 2, state goal orientation was expected to change across episodes of the self-regulation process

as a result of participants' changing interest in the course. State mastery orientation did change over time, while state performance orientation was more stable. The test-retest estimates for state performance orientation were consistently higher than the estimates for state mastery orientation.

Much of the expected fluctuation in state mastery orientation appears due to the strong relationship between state mastery orientation and interest. As interest changed between waves, as a result of performance-goal discrepancies, state mastery orientation changed as well. Surprisingly, the effects of interest on state mastery orientation were primarily direct effects. The hypothesized interaction between trait mastery orientation and interest was not significant in the first two waves, even though both trait mastery orientation and interest exerted strong, direct effects on state mastery orientation.

This finding contradicts interactionist theory which suggests that situational influences such as course-specific interest will be more likely to affect the state if the trait is weak (Magnusson, 1977). These results suggest that some situational influences, such as course-specific interest, affect state goal orientation even when trait goal orientation is strong. This result does not suggest that behavior is strictly specific to the situation, but rather suggests that the situation can affect all individuals in a similar manner. These results suggest that manipulations of goal orientation could be expected to affect the goal orientation of all subjects. The results also emphasize the need to measure state goal orientation in the presence of any situational influence expected to affect goal orientation. Even if all individuals have a high mastery orientation, for example, their specific reaction to the situation will be affected by the features of the situation.

State performance orientation was also related to course-specific interest, but to a lesser degree. Changes in state performance orientation across waves were primarily accounted for by changes in academic self-efficacy. As demonstrated by the data supporting Hypothesis 9, large performance-goal discrepancies predicted lower academic self-efficacy in the next wave. These changes were reflected in state performance orientation, although, as noted above, state goal orientation was more stable than state mastery orientation.

The fluctuations in state goal orientation demonstrate the importance of measuring goal orientation at the appropriate time in a research study. Researchers may measure individuals' traits at the beginning of a study and expect that measurement to affect behavior throughout the study. If participants receive feedback repeatedly over several experimental trials, the results of this study suggest that individuals' state goal orientation will change, and begin to impact behavior. In this kind of study, the researcher should consider examining state goal orientation at several points in the study.

It is important to remember that the current study investigated changes in state goal orientation across time, but within the same domain. One criticism of the goal orientation literature is that the bulk of the research has been conducted within laboratory and academic settings. The degree to which goal orientation might be consistent within a person but across domains is unknown (VandeWalle, in press). It certainly appears likely that as an individual's interest varies across different activities, state goal orientation would also vary across activities. One person may have low state performance orientation for college psychology courses, but have extremely high state performance orientation for golf or tennis. Thus, even though state performance

orientation was rather stable in this sample, it may be less stable across domains, particularly outside of the educational domain.

The data consistently demonstrated a positive relationship between state mastery orientation and academic self-efficacy. This relationship was not hypothesized. However, even after accounting for both trait mastery and state mastery orientations in the previous wave, academic self-efficacy was a robust predictor of state mastery orientation. Alternatively, Kozlowski, et al., (1995) found that both trait mastery orientation and a mastery goal manipulation positively affected self-efficacy in a self-directed learning experiment. In the current study, academic self-efficacy also had a positive relationship with state performance orientation. Thus, individuals who were confident in their ability to learn the course material tended to have both high state mastery and performance orientations. Future work should continue to examine the relationship between self-efficacy and goal orientation.

Overall, the results supported fewer of the hypothesized relationships involving performance orientation than those involving mastery orientation. One potential explanation for this lack of results is that performance orientation may actually consist of two dimensions (e.g., Elliot & Church, 1997; VandeWalle, in press). Elliot and Church suggested that performance orientation contains both approach and avoidance motivations. The approach motivation is represented by the desire to do better than others, while the avoidance motivation is represented by the fear of doing poorly. VandeWalle named these dimensions performance-prove and performance-avoid. An exploratory factor analysis (Elliot & Church, 1997) and a confirmatory factor analysis (VandeWalle, in press) statistically supported the division of performance orientation

into these two factors. If performance orientation should indeed be treated as two separate factors, combining these factors could mask results.

The performance orientation scale used in this study was not separated into prove and avoid subscales because the items in the Button et al (1996) scale were not written to tap these two subdimensions of performance orientation. The items cannot be cleanly divided into the two subscales. Many of the Button et al items refer to internal motivations rather than focusing on other individuals. For example, the items refer to the happiness and enjoyment derived from performing well rather than a desire to prove one's ability to others. Thus, this potential explanation for non-significant results regarding performance orientation could not be directly tested.

A broader concern with the two-factor conceptualization of performance orientation is the measurement system used by proponents of that view. The scales appear to be inconsistent with goal orientation theory. Many of the items on these scales involve the choice of tasks. For example, VandeWalle's scale asks respondents if they would choose to avoid engaging in certain kinds of activities. Measuring a motivational tendency in this way is misleading, as it focuses on the outcome of the construct (task choice) instead of the construct itself (Fisher, et al., 1997). Using task choice as an indicator of goal orientation also reinforces a bipolar view of goal orientation. If one chooses to avoid certain tasks, one cannot also choose to prove his/her ability to others on those tasks. The use of task choice as a measurement tool promotes the finding of distinct factors, but is inconsistent with the current view that the different "parts" of goal orientation are <u>independent</u> but related concepts. Thus, although performance orientation may indeed have two distinct subscales, existing measures do not allow researchers to adequately determine differences between them.

Survey Administration Mode

Another contribution of this study was the investigation of alternative survey administration modes. Traditional paper-and-pencil surveys were used, as well as electronic versions of the same surveys administered using the student e-mail system. Response rates for the two modes were similar, although slightly higher for the e-mail respondents. Over three waves, the response rate for e-mail respondents was 83%, while the response rate for paper-and-pencil surveys was 76%. In addition, the surveys appeared to be roughly equivalent across the administration modes. Differences in means and standard deviations between the two groups were minimal. The only significant difference in group means was on the trait mastery orientation scale in the first wave, with the e-mail group having a higher mean. This difference may reflect a willingness by the individuals with a high mastery orientation to learn and use new concepts, including technology. The use of the non-traditional survey administration mode improved the three-wave response rate, without impacting results. However, it must be noted that the improved response rate cannot be wholly attributed to administration mode, as participants were not randomly assigned to e-mail and paper-and-pencil groups. It is possible that the participants who were more dedicated to the study and were more likely to respond tended to choose the e-mail mode.

Study Limitations

This study did have several limitations that require caution in interpreting and generalizing the results. First, it is difficult to disentangle measurement issues from construct validation issues. If we find that test-retest for the trait scale is poor, does this mean that there is not a trait by that name, or does it mean that our instrument is poor? Questions such as this cannot be answered in the current study. A second

measurement limitation of the study is that the state goal orientation measures were developed for this study, and their psychometric properties were previously untested. Three of the twelve state goal orientation items were deemed of poor quality and were discarded, resulting in shorter scales than desired.

An additional limitation of the study was the variability in the participant sample. While inclusion of a broader range of students could be viewed as a strength of the study, allowing greater generalizability, this variability was a potential threat to internal validity. The students who participated in the study came from six different psychology courses. Differences across these courses, such as difficulty of the course, the slightly different timing of exams, and the inclusion of different grading mechanisms such as homework and written projects in addition to the exams could all have affected the results of the study. Furthermore, year in college was associated with course. Students who were enrolled in the statistics and measurement courses tended to be upper level students, while those enrolled in the introductory course tended to be first or second year students.

Implications

First, this study suggests that goal orientation is indeed an individual difference variable that plays a role in the self-regulatory process. Of particular interest are the effects of goal orientation on reactions to goal-performance discrepancies. State mastery orientation predicted planned increases in effort, increases in goal difficulty, and realistic acceptance of performance feedback. Thus, it appears that educators and trainers could assist students and trainees in reacting positively to performance discrepancies by creating situations that promote a state mastery orientation.

The strong, positive relationship between interest and state mastery orientation has implications for the role of interest in organizations. Interest has traditionally played a role in career counseling efforts, as represented by the use of the Strong Interest Inventory (SII) and the Kuder Occupational Interest Survey (Dawis, 1991). Scores on the SII have been demonstrated to predict occupational membership, and to a lesser extent, job performance. The link between interest and state mastery orientation reinforces the use of interest in career selection, as people with a high mastery orientation may be more successful, as they may be more likely to learn and develop throughout their careers (Mirvis & Hall, 1994).

Further, this study suggests a new mechanism for managers for promoting a mastery orientation in their employees. Given the strong, positive relationship between interest and state mastery orientation, perhaps managers in organizations should consider employees' interests before distributing work assignments. The results of this study and others suggest that employees who are highly interested in their work will have higher state mastery orientation, and thus may devote greater effort to the work (Fisher & Ford, in press), be more willing to seek feedback on their work (VandeWalle & Cummings, 1997), and generalize skills learned in training to the workplace (Kozlowski, et al., 1995). Few studies of goal orientation have actually been conducted in work organizations. Much work is needed in this area to determine if the beneficial effects of mastery orientation discovered in the laboratory and the classroom will generalize to the workplace.

The results of this study also have implications for the further study of goal orientation. Dweck (1989) suggested there was an important difference between manipulating an individual's goal orientation (trait), and manipulating the salience and

value of different types of goals (state). The actual goal orientation, or trait, is relatively stable, and changes little in the short term. The salience and value of different types of goals, or state, can be affected by environmental factors. Researchers must remember that it is not the nominal presence of environmental factors, such as goal manipulations, that change state goal orientation (Shoda & Mischel, 1995), but rather the individual's interpretation of the environment in light of his or her experiences. Thus, all individuals will not respond to environmental influences in the same manner, or to the same degree. For example, course specific interest is an integration of the features of the situation with the individual's interpretation of the situation in light of his/her preferences and previous experiences. There is no such thing as an objectively interesting situation. Similarly, not all individuals will find the same situation motivating, or find the same goals appealing.

The results of this study support Dweck's view concerning the difference between state and trait goal orientation, and suggest that both state and trait concepts are important to consider in the explanation and prediction of goal directed behavior. Several of the hypothesized relationships were supported for state mastery orientation, but not for trait mastery orientation. Had state mastery orientation not been examined, the role of goal orientation in self-regulation would have appeared much smaller and less interesting.

Summary

In summary, this study has demonstrated several points about the role of goal orientation in self-regulation, as well as the measurement properties of goal orientation. Goal orientation, both trait and state, affected goal setting and reactions to goal-performance discrepancies. State goal orientation was distinguished from trait goal

orientation in a theoretically driven measurement model. Trait and state goal orientation were found to have different effects on self-regulatory behaviors. This evidence, as well as the finding that interest in the course affected state mastery orientation over time, supports the theoretical position that goal orientation can be fruitfully conceptualized and operationalized as both a state and a trait. Interest appears to be a significant factor in state goal orientation, and may be a key concept in understanding changes in state goal orientation over time and across situations. Future research examining the role of goal orientation in goal directed, achievement related behavior should carefully consider both the environmental and the person-driven aspects of goal orientation.

APPENDICES

APPENDIX A

Survey #1

Your responses to all questionnaires in this research will be kept confidential, and will be seen only by the experimenters. Your instructor (professor and/or teaching assistants) will not see any of your responses to any of the questionnaires used in this research.

MSU Student ID #: _____

Please write your answer to each of the items in the blank to the left of the item.

_____1. Sex: 1 = Male 2 = Female

_____2. Year in College (1-5)

_____3. How many other college level psychology courses have you taken (do not count courses you are currently taking)?

_____4. How many college level courses in math or statistics have you taken, including psychology statistics courses?

_____5. What is your current GPA (if this is your first semester, skip this question)?

_____6. What was your GPA last semester (if this is your first semester, please give your high school GPA)?

_____7. What were your SAT scores? Math: Verbal: Total:
(If you did not take the SAT, please report your total ACT score.)

_____8. Why are you taking your current psychology class (write letter for all reasons that apply):

a) it fulfills a requirement
b) the content seemed interesting
c) it will be useful to me in other courses
d) it is an easy elective
e) it was recommended by a friend or counselor
f) it fit into my schedule

_____9. What is the *minimum acceptable grade* for you for the first exam in this class (on 4.0 scale)?

_____10. What is the *minimum acceptable grade* for you for the entire course (on 4.0 scale)?

_____11. What is the grade you are *actually trying for* on the next exam in this class (on 4.0 scale)?

_____12. What is the grade you are *actually trying for* in the entire course (on 4.0 scale)?

Please use this scale to answer the following items. Write the number of the response that best represents your opinion in the blank to the left of the item.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

_____13. The opportunity to do challenging work is important to me.

_____14. I do my best when I am working on a fairly difficult task.

_____15. I try hard to improve on my past performance.

_____16. When I have difficulty solving a problem, I enjoy trying different approaches to see which one will work.

_____17. The opportunity to learn new things is important to me.

_____18. The opportunity to extend the range of my abilities is important to me.

_____19. I prefer to work on tasks that force me to learn new things.

_____20. When I fail to complete a difficult task, I plan to try harder the next time I work on it.

_____21. The things I enjoy the most are the things I do the best.

_____22. I feel smart when I can do something better than most other people.

_____23. I like to be fairly confident that I can successfully perform a task before I attempt it.

_____24. I am happiest when I perform tasks on which I know that I won't make any errors.

_____25. I feel smart when I do something without making any mistakes.

_____26. I prefer to do things that I can do well rather than things that I do poorly.

_____27. The opinions others have about how well I can do certain things are important to me.

_____28. I like to work on tasks that I have done well on in the past.

_____29. If I can't do something the first time, I keep trying until I can.

_____30. When I set important goals for myself, I rarely achieve them.

_____31. I avoid facing difficulties.

_____32. When I have something unpleasant to do, I stick with it until I am finished.

_____33. When I decide to do something, I go right to work on it.

_____34. When trying to learn something new, I soon give up if I am not initially successful.

_____35. I rely on myself to accomplish my goals.

_____36. I do not seem capable of dealing with most problems that come up in my life.

_____37. I find this course very interesting.

_____38. I think the course material in this class is useful for me to learn.

_____39. I like the subject matter of this course.

_____40. I am very interested in the content area of this course.

_____41. It is more important to really learn the material than to get the grade I want.

_____42. It is OK if I don't know much about the material at the end of the class as long as I get the grade I want.

_____43. It is very important to me to attain the grade goal I have set for the next exam.

_____44. It is important to me to learn a lot in the next section of the course.

_____45. I really want to increase the amount I know about the material in this course.

_____46. I am confident I can understand the basic concepts taught in this course.

_____47. I am confident I can do an excellent job on the assignments and tests in this course.

_____48. I am confident that I will do well in this class.

_____49. I am certain I can master the skills being taught in this class.

_____50. I am certain I can understand the most difficult material presented in the readings for this course.

_____51. I am eager to get started learning the material in this section.

_____52. I hope I don't ask any stupid questions during this part of the class.

_____53. I intend to learn as much as I can in this part of the class.

_____54. I am eager to prove to others how good I am at the content of this class.

_____55. I want to really understand the material in this section.

_____56. I look forward to mastering the challenging material in this part of the course.

_____57. I wonder how my score on the next exam will compare with others.

_____58. I am eager to show how much I know about the material in this part of the class.

_____59. I want to appear competent in this class.

_____60. I want to do better than others on the next exam.

_____61. I have little desire to learn new things in this part of the class.

_____62. If I don't understand the material in this section right away, I will keep trying until I do understand it.

APPENDIX B

Survey 2

Your responses to all questionnaires in this research will be kept confidential, and will be seen only by the experimenters. Your instructor (professor and/or teaching assistants) will not see any of your responses to any of the questionnaires used in this research.

MSU Student ID #:

Please use this scale to answer the following items. Write the number of the response that best represents your opinion in the blank to the left of the item.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

_____1. I wish I had learned more in the previous section of the course.

_____2. In the last section of the course, I increased the amount I know about the material in this course.

_____3. Regardless of my exam performance, I feel that I learned a lot in the previous section of the class.

_____4. I feel that my exam score is an accurate evaluation of my performance.

_____5. My exam grade reflected my true performance in the course.

_____6. I feel the instructor of this course is very knowledgeable about the course content.

_____7. The instructor of this course is qualified to evaluate my performance in this class.

_____8. How many hours do you plan to study between now and the next exam?

_____9. I plan to study more for the next exam than I did for the last exam.

_____10. In general, I plan to work harder in the next part of this course than I did in the last part.

_____11. The opportunity to do challenging work is important to me.

_____12. I do my best when I am working on a fairly difficult task.

_____13. I try hard to improve on my past performance.

_____14. When I have difficulty solving a problem, I enjoy trying different approaches to see which one will work.

_____15. The opportunity to learn new things is important to me.

_____16. The opportunity to extend the range of my abilities is important to me.

_____17. I prefer to work on tasks that force me to learn new things.

_____18. When I fail to complete a difficult task, I plan to try harder the next time I work on it.

_____19. The things I enjoy the most are the things I do the best.

_____20. I feel smart when I can do something better than most other people.

_____21. I like to be fairly confident that I can successfully perform a task before I attempt it.

_____22. I am happiest when I perform tasks on which I know that I won't make any errors.

_____23. I feel smart when I do something without making any mistakes.

_____24. I prefer to do things that I can do well rather than things that I do poorly.

_____25. The opinions others have about how well I can do certain things are important to me.

_____26. I like to work on tasks that I have done well on in the past.

_____27. I find this course very interesting.

_____28. I think the course material in this class is useful for me to learn.

_____29. I like the subject matter of this course.

_____30. I am very interested in the content area of this course.

_____31. I am eager to get started learning the material in this section.

_____32. I hope I don't ask any stupid questions during this part of the class.

_____33. I intend to learn as much as I can in this part of the class.

_____34. I am eager to prove to others how good I am at the content of this class.

_____35. I want to really understand the material in this section.

_____36. I look forward to mastering the challenging material in this part of the course.

_____37. I wonder how my score on the next exam will compare with others.

_____38. I am eager to show how much I know about the material in this part of the class.

_____39. I want to appear competent in this class.

_____40. I want to do better than others on the next exam.

_____41. I have little desire to learn new things in this part of the class.

_____42. If I don't understand the material in this section right away, I will keep trying until I do understand it.

_____43. I am confident I can understand the basic concepts taught in this course.

_____44. I am confident I can do an excellent job on the assignments and tests in this course.

_____45. I am confident that I will do well in this class.

_____46. I am certain I can master the skills being taught in this class.

_____47. I am certain I can understand the most difficult material presented in the readings for this course.

_____48. What is the minimum acceptable grade for you for the next exam in this class (on 4.0 scale)?

_____49. What is the minimum acceptable grade for you for the entire course (on 4.0 scale)?

_____50. What is the grade you are actually trying for on the next exam in this class (on 4.0 scale)?

_____51. What is the grade you are actually trying for in the entire course (on 4.0 scale)?

_____52. It is important to me to learn a lot in the next section of the course.

_____53. I plan to learn more in this next section than I did in the last section.

_____54. I really want to increase the amount I know about the material in this course.

_____55. It is more important to really learn the material than to get the grade I want.

_____56. It's OK if I don't know much about the material at the end of the class as long as I get the grade I want.

_____57. It is very important to me to attain the grade goal I have set for the next exam.

APPENDIX C

Course-specific Interest Scale
(Pintrich, et al., 1991)

1. I find this course very interesting.
2. I think the course material in this class is useful for me to learn.
3. I like the subject matter of this course.
4. I am very interested in the content area of this course.

APPENDIX D

General Self-efficacy Scale

1. If I can't do something the first time, I keep trying until I can.
2. When I set important goals for myself, I rarely achieve them.
3. I avoid facing difficulties.
4. When I have something unpleasant to do, I stick with it until I am finished.
5. When I decide to do something, I go right to work on it.
6. When trying to learn something new, I soon give up if I am not initially successful.
7. I rely on myself to accomplish my goals.
8. I do not seem capable of dealing with most problems that come up in my life.

Academic Self-efficacy Scale
(Pintrich, et al., 1991)

1. I am confident I can understand the basic concepts taught in this course.
2. I am confident I can do an excellent job on the assignments and tests in this course.
3. I am confident that I will do well in this class.
4. I am certain I can master the skills being taught in this class.
5. I am certain I can understand the most difficult material presented in the readings for this course.

APPENDIX E

Trait Goal Orientation Scales
(Button, Mathieu & Zajac, 1996)

Trait Mastery Orientation

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

Trait Performance Orientation

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

APPENDIX F

State Goal Orientation Scale

1. I am eager to get started learning the material in this section. (M)*
2. I hope I don't ask any stupid questions during this part of the class. (P)*
3. I intend to learn as much as I can in this part of the class. (M)
4. I am eager to prove to others how good I am at the content of this class. (P)
5. I want to really understand the material in this section. (M)
6. I look forward to mastering the challenging material in this part of the course. (M)
7. I wonder how my score on the next exam will compare with others. (P)
8. I am eager to show how much I know about the material in this part of the class. (P)
9. I want to appear competent in this class. (P)
10. I want to do better than others on the next exam. (P)
11. I have little desire to learn new things in this part of the class. (M)*
12. If I don't understand the material in this section right away, I will keep trying until I do understand it. (M)

Note: M = mastery orientation, P = performance orientation. Items marked with an asterisk (*) were deleted from the final version of the scales.

APPENDIX G

Self-set Goal Scales

Self-set grade goals (Locke & Bryan, 1968)

1. What is the minimum acceptable grade for you for the next exam?
2. What is the minimum acceptable grade for you for the entire course?
3. What is the grade you are trying for on the next exam?
4. What is the grade you are trying for in the entire course?

Self-set learning goals (Mone & Baker, 1992)

1. It is important to me to learn a lot in the next section of the course.
2. I plan to learn more in this next section than I did in the last section.
3. I really want to increase the amount I know about the material in this course.

Goal Valence

1. It is more important to really learn the material than to get the grade I want.
2. It's OK if I don't know much about the material at the end of the class as long as I get the grade I want.
3. It is very important to me to attain the grade goal I have set for the next exam.

Subjective learning perceptions

1. I wish I had learned more in the previous section of the course.
2. In the last section of the course, I increased the amount I know about the material in this course.
3. Regardless of my exam performance, I feel that I learned a lot in the previous section of the class.

APPENDIX H

Discrepancy Reaction Scales

Time Spent (Campion and Lord, 1982)

1. Estimate the number of hours you studied for this class during the last section.
2. How many class sessions did you miss during the last section of the course?
3. How many hours do you plan to study between now and the next exam?
4. I plan to study more for the next exam than I did for the last exam.
5. In general, I plan to work harder in the next part of this course than I did in the last part.

Mental Workload (Fisher, 1995)

6. I had to work very hard to learn the material for the last test.
7. Learning the material for this class was easy.
8. Learning the material for the previous section required a lot of mental activity.

Feedback Accuracy (Podsakoff & Farh, 1987)

9. I feel that my exam score is an accurate evaluation of my performance.
10. My exam grade reflected my true performance in the course.

Feedback Source Credibility (Podsakoff & Farh, 1987)

11. I feel the instructor of this course is very knowledgeable about the course content.
12. The instructor of this course is qualified to evaluate my performance in this class.

APPENDIX I

Table 1

Factor Loadings for Confirmatory Factor Model of Trait and State Goal Orientation:

Four-Factor Model: Wave 1 Data

Scale / Item	Unstandardized Factor Loading	SE
Trait Mastery		
TMO1	.499	.039
TMO2	.377	.047
TMO3	.307	.035
TMO4	.449	.047
TMO5	.356	.032
TMO6	.302	.027
TMO7	.440	.036
TMO8	.396	.035
Trait Performance		
TPO1	.368	.047
TPO2	.503	.040
TPO3	.418	.045
TPO4	.585	.049
TPO5	.548	.039
TPO6	.542	.041
TPO8	.412	.034
State Mastery		
State3	.554	.033
State5	.531	.033
State6	.593	.044
State12	.366	.032
State Performance		
State4	.793	.046
State7	.464	.050
State8	.655	.039
State9	.449	.039
State10	.504	.047

Note. n = 434.

Table 2

Wave 1 Intercorrelations

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Self-Efficacy	3.74	.71	(.90)											
2. General Efficacy	3.91	.49	.43	(.73)										
3. Course Goal	3.72	.43	.31	.18	—									
4. Exam 1 Goal	3.72	.41	.32	.14	.77	—								
5. Exam 1 Score	2.23	1.12	.22	.11	.26	.35	—							
6. Interest	3.61	.82	.36	.10	.16	.12	-.02	(.88)						
7. Mastery - State	4.00	.57	.45	.39	.18	.15	.00	.50	(.76)					
8. Mastery - Trait	4.11	.46	.42	.54	.26	.26	.04	.19	.50	(.75)				
9. Perf - State	3.54	.66	.22	.01	.14	.13	-.03	.20	.33	.15	(.76)			
10. Perf - Trait	4.12	.54	-.08	-.12	-.07	-.08	-.23	.01	.06	-.04	.34	(.76)		
11. Goal Valence	2.66	.81	-.28	-.15	-.19	-.16	-.09	-.44	-.45	-.25	.02	.19	(.58)	
12. ACT score	23.1	3.43	.08	.07	.24	.30	.45	.00	-.10	.00	-.08	-.15	.01	—

Note. n=354. Coefficient alpha internal consistency estimates are presented in the diagonal. Estimates are not given for Course goal, Exam 1 Goal, and Exam 1 Score as these are one item measures. Perform. State = state performance orientation, Perform. Trait = trait performance orientation, Source cred. = source credibility.
Correlations ≥ .13 are statistically significant at $p < .01$.

Table 3

Wave 2 Intercorrelations

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. SelfEf 2	3.62	.78	(.91)												
2. C Goal	3.57	.51	.42	—											
3. E2 Goal	3.61	.55	.43	.79	—										
4. E2	1.99	1.15	.24	.37	.38	—									
5. Interst 2	3.43	.90	.40	.27	.25	.06	(.91)								
6. SMO2	4.04	.57	.42	.26	.24	.07	.53	(.70)							
7. TMO	4.11	.46	.32	.17	.12	.09	.25	.39	(.75)						
8. SPO 2	3.62	.66	.12	.07	.06	-.05	.09	.31	.07	(.76)					
9. TPO	4.12	.54	-.16	-.18	-.13	-.17	-.14	-.02	-.04	.29	(.76)				
10. Cred.2	3.87	.90	.24	.25	.25	.19	.31	.17	.07	-.13	-.32	(.76)			
11. PlnEff2	4.35	.77	-.06	-.13	-.13	-.21	.09	.28	.11	.09	.11	.01	(.76)		
12. LrnGl2	4.02	.65	.24	.08	.06	-.15	.41	.58	.22	.25	.01	.08	.42	(.78)	
13. GlVal2	2.89	.97	-.18	-.14	-.13	-.06	-.37	-.22	-.08	.19	.24	-.24	.00	-.30	(.66)
14. ACT	23.1	3.43	.17	.26	.28	.30	.11	-.02	.00	-.10	-.15	.17	-.19	-.07	-.03

Note. n=354. Coefficient alpha internal consistency estimates are presented in the diagonal. Estimates are not given for Course goal, Exam 2 Goal, and Exam 2 Score, as these are one item measures. C goal = course goal, E2 Goal = Exam 2 goal, E 2 = exam 2 score, SMO 2 = state mastery orientation, TMO = trait mastery orientation, SPO 2 = state performance orientation, TPO = trait performance orientation, Cred. 2 = source credibility, LrnGl2 = learning goal 2, GlVal2 = goal valence 2. Correlations ≥ .13 are statistically significant at $p < .01$.

Table 4

Wave 3 Intercorrelations

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. SelfEff3	3.53	.81	(.90)												
2. C Goal	3.42	.65	.45	—											
3. E3 Goal	3.61	.53	.35	.78	—										
4. E3	2.45	1.13	.27	.49	.45	—									
5. Interst3	3.37	.96	.43	.27	.24	.13	(.92)								
6. SMO3	3.93	.60	.45	.21	.21	.16	.52	(.76)							
7. TMO	4.11	.46	.28	.11	.10	.10	.13	.29	(.75)						
8. SPO3	3.63	.67	.19	.14	.16	.10	.24	.33	.07	(.78)					
9. TPO	4.12	.54	-.16	-.14	-.13	.02	-.08	.02	-.04	.26	(.76)				
10. Cred.3	3.78	.94	.31	.21	.28	.06	.19	.19	.07	.02	-.31	(.81)			
11. PlanEff3	4.16	.91	.04	-.08	-.05	-.17	.15	.30	.00	.15	.01	.15	(.90)		
12. LmGl3	3.89	.72	.41	.13	.19	-.02	.50	.69	.17	.32	-.02	.23	.39	(.83)	
13. GlVal3	2.96	.97	-.25	-.17	-.15	-.14	-.49	-.44	-.17	.07	.19	-.18	-.37	-.05	(.68)
14. ACT	23.1	3.43	.17	.26	.28	.30	.11	-.02	.00	-.10	-.15	.17	-.19	-.07	-.03

Note. n=354. Coefficient alpha internal consistency estimates are presented in the diagonal. Estimates are not given for Course goal, Exam 3 Goal, and Exam 3 Score, as these are one item measures. C goal = course goal, E3 Goal = Exam 3 goal, E3 score = exam 3 score, SMO3 = state mastery orientation, TMO = trait mastery orientation, SPO3 = state performance orientation, TPO = trait performance orientation, Cred. 3 = source credibility.
Correlations ≥ .13 are statistically significant at $p < .01$.

Table 5

Test-retest reliability estimates for goal orientation scales

State goal orientation

	1	2	3	4	5	6
1. Mastery State 1	(.76)					
2. Mastery State 2	.59	(.70)				
3. Mastery State 3	.43	.55	(.76)			
4. Performance State 1	.33	.24	.07	(.76)		
5. Performance State 2	.13	.31	.09	.65	(.76)	
6. Performance State 3	.14	.24	.33	.53	.67	(.78)

Trait goal orientation

	1	2	3	4	5	6
1. Mastery Trait 1	(.75)					
2. Mastery Trait 2	.65	(.79)				
3. Mastery Trait 3	.52	.60	(.82)			
4. Performance Trait 1	-.04	-.10	-.10	(.76)		
5. Performance Trait 2	-.10	-.05	-.10	.70	(.83)	
6. Performance Trait 3	-.10	-.08	.05	.61	.74	(.87)

Note. n=354. Internal consistency reliability estimates are presented in the diagonal.

Table 6

Between-wave effort and exam score correlations.

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Hours1	14.05	12.24	—											
2. Hours2	16.49	12.73	.51	—										
3. Hours3	15.25	11.11	.50	.65	—									
4. Missed1	.90	1.37	-.07	-.10	-.12	—								
5. Missed2	1.87	2.26	-.01	-.05	-.06	.64	—							
6. Missed3	2.15	2.44	-.05	-.05	-.13	.61	.70	—						
7. Workload1	3.64	.84	-.01	.00	.04	.09	.04	.06	(.80)					
8. Workload2	3.84	.75	.11	.14	.12	-.05	-.03	-.09	.48	(.80)				
9. Workload3	3.65	.79	.09	.10	.18	-.13	-.05	-.16	.33	.53	(.77)			
10. Exam Score 1	2.23	1.12	.07	.05	.09	-.22	-.15	-.23	-.29	-.15	-.04	—		
11. Exam Score 2	1.99	1.15	.05	.15	.12	-.18	-.20	-.16	-.11	-.13	-.17	.56	—	
12. Exam Score 3	2.45	1.13	.03	.08	.20	-.18	-.21	-.20	-.03	-.12	-.18	.42	.65	—

Note: n = 293 for Wave 1, 297 for Wave 2, and 286 for Wave 3. Coefficent alpha internal consistency estimates are presented in the diagonal for Workload; all other variables are one item. Correlations ≥ .15 are statistically significant at $p < .01$.

Table 7

Regression results for Hypothesis 1: State Mastery orientation

DV = State Mastery Wave 1

Step #	IV	ß	R	ΔR^2
1		.41**	.42	.18**
	Gen. Efficacy	-.13*		
	ACT			
2	TMO	.39**	.53	.11**
3	Acad. Efficacy1	.26**	.60	.05**

DV = State Mastery Wave 2

Step #	IV	ß	R	ΔR^2
1			.34	.11**
	Gen. Efficacy	.31**		
	ACT	-.15*		
2	TMO	.34**	.44	.08**
3	SMO1	.47**	.60	.16**
4	Acad. Efficacy2	.24**	.63	.05**

DV = State Mastery Wave 3

Step #	IV	ß	R	ΔR^2
1			.27	.07**
	Gen. Efficacy	.27**		
	ACT	-.04		
2	TMO	.24**	.34	.04**
3	SMO2	.46**	.54	.17**
4	Acad. Efficacy3	.30**	.60	.07**

Note. All beta weights are from the step at which the variable was entered; n=354. Acad. Efficacy - academic self-efficacy, TMO = trait mastery orientation, SMO = state mastery orientation.
*p <.05. **p <.01.

Table 8

Regression results for Hypothesis 1: State Performance orientation

DV = State Performance Wave 1

Step #	IV	ß	R	ΔR^2
1			.26	.07**
	Acad. Efficacy1	.27**		
	Gen. Efficacy	-.06		
	ACT	-.10		
2	Trait Perform.	.36**	.44	.13**

DV = State Performance Wave 2

Step #	IV	ß	R	ΔR^2
1			.16	.02**
	Acad. Efficacy2	.14**		
	Gen. Efficacy	-.06		
	ACT	-.10		
2	TPO	.28**	.32	.08**
3	SPO1	.61**	.64	.31**

DV = State Performance Wave 3

Step #	IV	ß	R	ΔR^2
1			.24	.06**
	Acad. Efficacy3	.23**		
	Gen. Efficacy	-.05		
	ACT	-.14*		
2	TPO	.28**	.37	.08**
3	SPO2	.62**	.70	.35**

Note. All beta weights are from the step at which the variable was entered; n=354. Acad. Efficacy = Academic self-efficacy, TPO = trait performance orientation, SPO = state performance.
*p <.05. **p <.01.

Table 9

Regression Results for Hypothesis 2

DV = State Mastery Wave 1

Step #	IV	ß	R	ΔR^2
1			.42	.18**
	Gen. Efficacy	.41**		
	ACT	-.13*		
2	Trait Mastery	.39**	.53	.11**
3	Acad. Efficacy1	.26**	.60	.05**
4	Interest1	.38**	.68	.13**
5	Trait mastery X interest1	.11	.68	.00

DV = State Mastery Wave 2

Step #	IV	ß	R	ΔR^2
1			.34	.11**
	Gen. Efficacy	.31**		
	ACT	-.15*		
2	Trait Mastery	.34**	.44	.08**
3	State Mastery	.47**	.59	.16**
3	Acad. Efficacy2	.24**	.63	.05**
4	Interest2	.27**	.67	.05**
5	Trait mastery X interest2	.14	.67	.00

Note. All beta weights are from the step at which the variable was entered; n=354.
*p <.05. **p <.01.

Table 9, continued

DV = State mastery 3

Step #	IV	ß	R	ΔR^2
1			.27	.07**
	Gen. Efficacy	.27**		
	ACT	-.04		
2	Trait Mastery	.24**	.34	.04**
3	State Mastery2	.46**	.54	.17**
4	Acad. Efficacy3	.30**	.60	.07**
5	Interest3	.32**	.66	.07**
6	Trait mastery X interest3	.74	.70	.05**

Note. All beta weights are from the step at which the variable was entered; n=354.
*p <.05. **p <.01.

Table 10

Regression results for Hypothesis 3: Exam goals

DV = Exam goal 1

Step #	IV	ß	R	ΔR^2
1			.33	.11**
	Gen. Efficacy	.29**		
	ACT	.15**		
2			.40	.05**
	Trait Mastery	.25*		
	Interest2	.03		
3	State Mastery2	.03	.40	.00
4	Acad. Efficacy2	.23**	.44	.03**

DV = Exam goal 2

Step #	IV	ß	R	ΔR^2
1			.28	.08**
	Gen. Efficacy	.07**		
	ACT	.27**		
2			.35	.04**
	Trait Mastery	.03		
	Interest2	.20**		
3	State Mastery2	.16*	.37	.02*
4	Acad. Efficacy2	.37**	.48	.10**

Note. All beta weights are from the step at which the variable was entered; n=354.
*p <.05. **p <.01.

Table 10, continued

Regression results for hypothesis 3: Exam goals

DV = Exam goal 3

Step #	IV	ß	R	ΔR^2
1			.28	.08**
	Gen. Efficacy	.04**		
	ACT	.28**		
2			.35	.05**
	Trait Mastery	.08		
	Interest2	.20**		
3	State Mastery2	.09*	.36	.01
4	Acad. Efficacy2	.27**	.42	.05**

Note. All beta weights are from the step at which the variable was entered; n=354.
*p <.05. **p <.01.

Table 11

Regression results for Hypothesis 3: Learning goals

DV = Learning goal, Wave 2

Step #	IV	ß	R	ΔR^2
1			.25	.06**
	Gen. Efficacy	.17**		
	ACT	-.19**		
2			.47	.16**
	Trait Mastery	.15*		
	Interest2	.36**		
3	State Mastery2	.48**	.60	.14**
4	Acad. Efficacy2	-.02	.60	.00

DV = Learning Goal Wave 3

Step #	IV	ß	R	ΔR^2
1			.18	.03**
	Gen. Efficacy	.17**		
	ACT	-.07		
2			.55	.27**
	Trait Mastery	.08		
	Interest2	.51**		
3	State Mastery2	.59**	.72	.23**
4	Acad. Efficacy2	.12**	.73	.01**

Note. All beta weights are from the step at which the variable was entered; n=354.
*p <.05. **p <.01.

Table 12

Regression Results for Hypotheses 4, 5 and 6

DV = Exam goal 1

Step #	IV	ß	R	ΔR^2
1			.33	.11**
	Gen. Efficacy	.14**		
	ACT	.29**		
2	Acad. Efficacy	.26**	.41	.06**
3	Trait Perform.	-.05	.41	.00
4	State Perform.	.08	.41	.00
5	State Perf. X Acad. Efficacy1	-1.10*	.44	.02**
6	Course Goal	.71**	.78	.42**

DV = Exam goal 2

Step #	IV	ß	R	ΔR^2
1			.28	.08**
	Gen. Efficacy	.07		
	ACT	.27**		
2	Acad. Efficacy2	.41**	.48	.15**
3	Trait Perform.	-.06	.48	.00
4	State Perform.2	.01	.48	.00
5	State Perf.2 X Acad. Efficacy2	-.77	.49	.01*
6	Course Goal2	.72**	.80	.40**

Note. All beta weights are from the step at which the variable was entered; n=354.
*p <.05. **p <.01.

Table 12, continued

Regression results for Hypotheses 4, 5 and 6

DV = Exam goal 3

Step #	IV	ß	R	ΔR^2
1			.28	.08**
	Gen. Efficacy	.04		
	ACT	.27**		
2	Acad. Efficacy2	.33**	.41	.09**
3	Trait Perform.	-.08	.42	.01
4	State Perform.2	.12*	.44	.01*
5	State Perf.2 X Acad. Efficacy2	-.27	.44	.00
6	Course Goal2	.74**	.78	.41**

Note. All beta weights are from the step at which the variable was entered; n=354.
*p <.05. **p <.01.

Table 13

Regression Results for Hypothesis 7: Increase effort

DV = Planned increase in effort, Wave 2

Step #	IV	ß	R	ΔR^2
1	Discrep1 (D1)	.32**	.32	.10**
2			.33	.01
	TMO	.09		
	TPO	.04		
3	SMO1	.14*	.35	.02*
4	SPO1	.03	.36	.00
5	SMO1 x D1	-.94*	.38	.02*
6	SPO1 x D1	.31	.38	.00

DV = Planned increase in effort, Wave 3

Step #	IV	ß	R	ΔR^2
1	Discrep2 (D2)	.29**	.29	.09**
2			.30	.00
	TMO	.03		
	TPO	-.04		
3	SMO2	.15**	.33	.02**
4	SPO2	.00	.33	.00
5	SMO2 x D2	-.69	.34	.01
6	SPO2 x D2	-.31	.35	.00

Note. All beta weights are from the step at which the variable was entered; n=354.
*p <.05. **p <.01.

Table 14

Regression Results for Hypothesis 7: Goal change

DV = Goal change, Wave 1 to Wave 2

Step #	IV	ß	R	ΔR^2
1	Discrep1 (D1)	.34**	.34	.11**
2			.35	.01
	TMO	-.08		
	TPO	-.02		
3	SMO1	.12*	.36	.01*
4	SPO1	-.02	.36	.00
5	SMO1 x D1	-.00	.36	.00
6	SPO1 x D1	-.56	.37	.01

DV = Goal change, Wave 2 to Wave 3

Step #	IV	ß	R	ΔR^2
1	Discrep2 (D2)	-.26**	.26	.07**
2			.27	.00
	TMO	-.05		
	TPO	-.03		
3	SMO2	-.04	.27	.00
4	SPO2	.06	.28	.00
5	SMO2 x D2	.13	.28	.00
6	SPO2 x D2	-.23	.28	.00

Note. All beta weights are from the step at which the variable was entered; n=354. Discrep = Goal-performance discrepancy, TMO = trait mastery orientation, TPO = trait performance, SMO = state mastery , SPO = state performance.
*p <.05. **p <.01.

Table 15

Regression Results for Hypothesis 7: Feedback Credibility

DV = Feedback Credibility, Wave 2

Step #	IV	ß	R	ΔR^2
1	Discrep1 (D1)	.32**	.32	.10**
2			.42	.07**
	TMO	.08		
	TPO	-.25**		
3	SMO1	.16**	.44	.02**
4	SPO1	-.10	.45	.01
5	SMO1 x D1	.55	.45	.01
6	SPO1 x D1	-.07	.45	.00

DV = Feedback Credibility, Wave 3

Step #	IV	ß	R	ΔR^2
1	Discrep2 (D2)	.13*	.13	.02*
2			.33	.10**
	TMO	.05		
	TPO	-.31**		
3	SMO2	.12*	.35	.01*
4	SPO2	.01	.35	.00
5	SMO2 x D2	.46	.36	.00
6	SPO2 x D2	.77*	.38	.01*

Note. All beta weights are from the step at which the variable was entered; n=354. Discrep = Goal-performance discrepancy, TMO = trait mastery orientation, TPO = trait performance, SMO = state mastery , SPO = state performance.
*p <.05. **p <.01.

Table 16

Regression results for Hypothesis 8

DV = Interest Wave 2

Step #	IV	ß	R	ΔR^2
1			.17	.03**
	General Efficacy	.16**		
	ACT	.06		
2	Interest	.69**	.71	.47**
3	Discrepancy1	-.12**	.72	.01**

DV = Interest Wave 3

Step #	IV	ß	R	ΔR^2
1			.13	.02
	General Efficacy	.04		
	ACT	.13*		
2	Interest2	.71**	.72	.50**
3	Discrepancy2	-.10**	.73	.02**

Note. All beta weights are from the step at which the variable was entered; n=354.
*p <.05. **p <.01.

Table 17

Regression results for Hypothesis 9

DV = Academic Self-efficacy Wave 2

Step #	IV	ß	R	ΔR^2
1			.37	.14**
	General Efficacy	.34**		
	ACT	.13*		
2	Acad. Efficacy 1	.62**	.67	.32**
3	Discrepancy1	-.22**	.70	.04**

DV = Academic Self-efficacy Wave 3

Step #	IV	ß	R	ΔR^2
1			.37	.13**
	General Efficacy	.33**		
	ACT	.15*		
2	Acad. Efficacy 2	.69**	.73	.40**
3	Discrepancy2	-.12**	.74	.01**

Note. All beta weights are from the step at which the variable was entered; n=354.
Acad. Efficacy = Academic self-efficacy
*p <.05. **p <.01.

Table 18

Regression results for Hypothesis 10

DV = State performance orientation Wave 2

Step #	IV	ß	R	ΔR^2
1	TPO	.28**	.28	.08**
2	SPO	.61**	.64	.33**
3	Discrep1 (D1)	-.02	.64	.00
4	TPO x D1	-.22	64	.00

DV = State performance orientation Wave 3

Step #	IV	ß	R	ΔR^2
1	TPO	.25**	.25	.00**
2	SPO2	.65**	.67	.39**
3	Discrep2 (D2)	-.03	.68	.00
4	TPO x D2	.03	.68	.00

Note. All beta weights are from the step at which the variable was entered; n=354. Discrep = Goal-performance discrepancy, TMO = trait mastery orientation, TPO = trait performance, SMO = state mastery , SPO = state performance.
*p <.05. **p <.01.

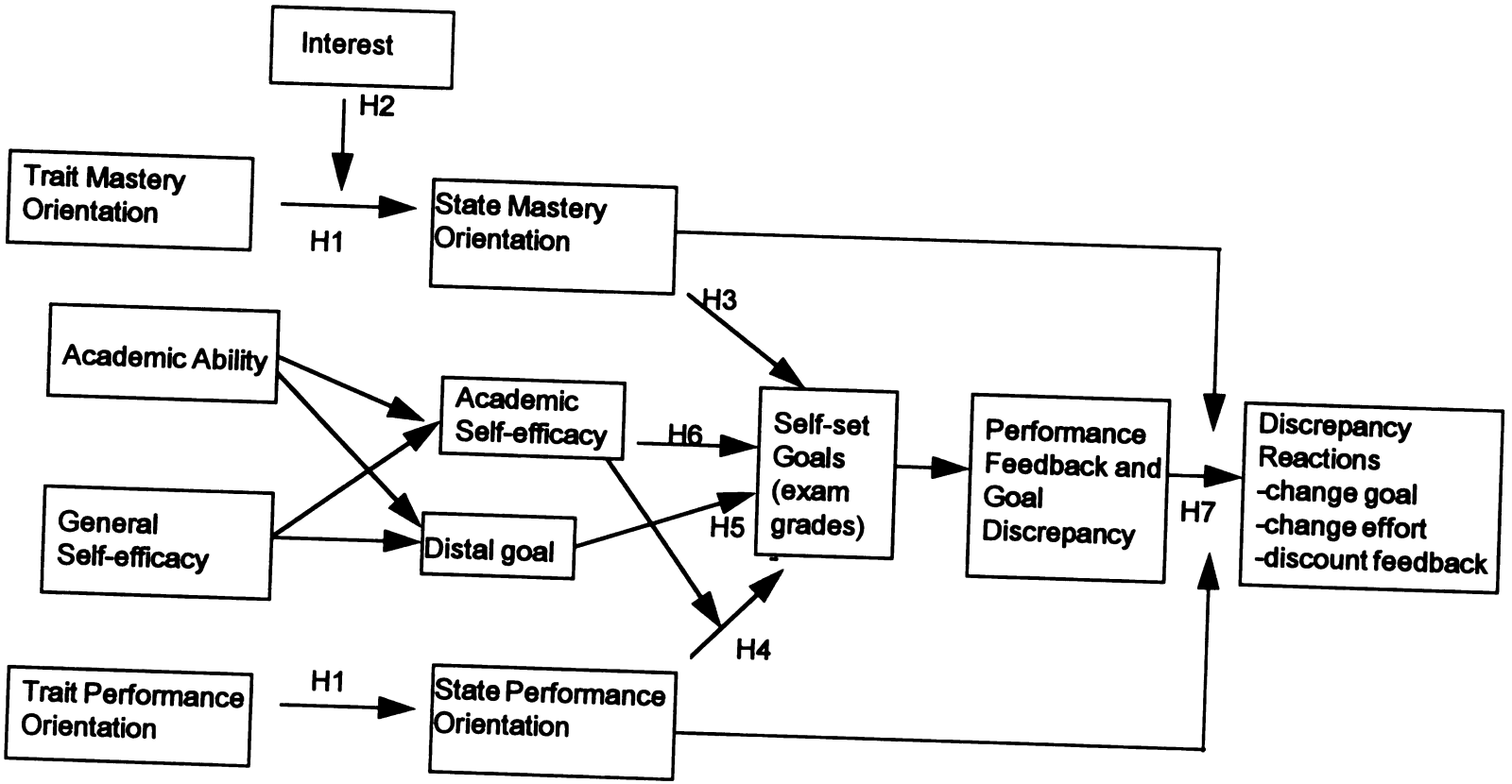


Figure 1. Within Episode Linkages

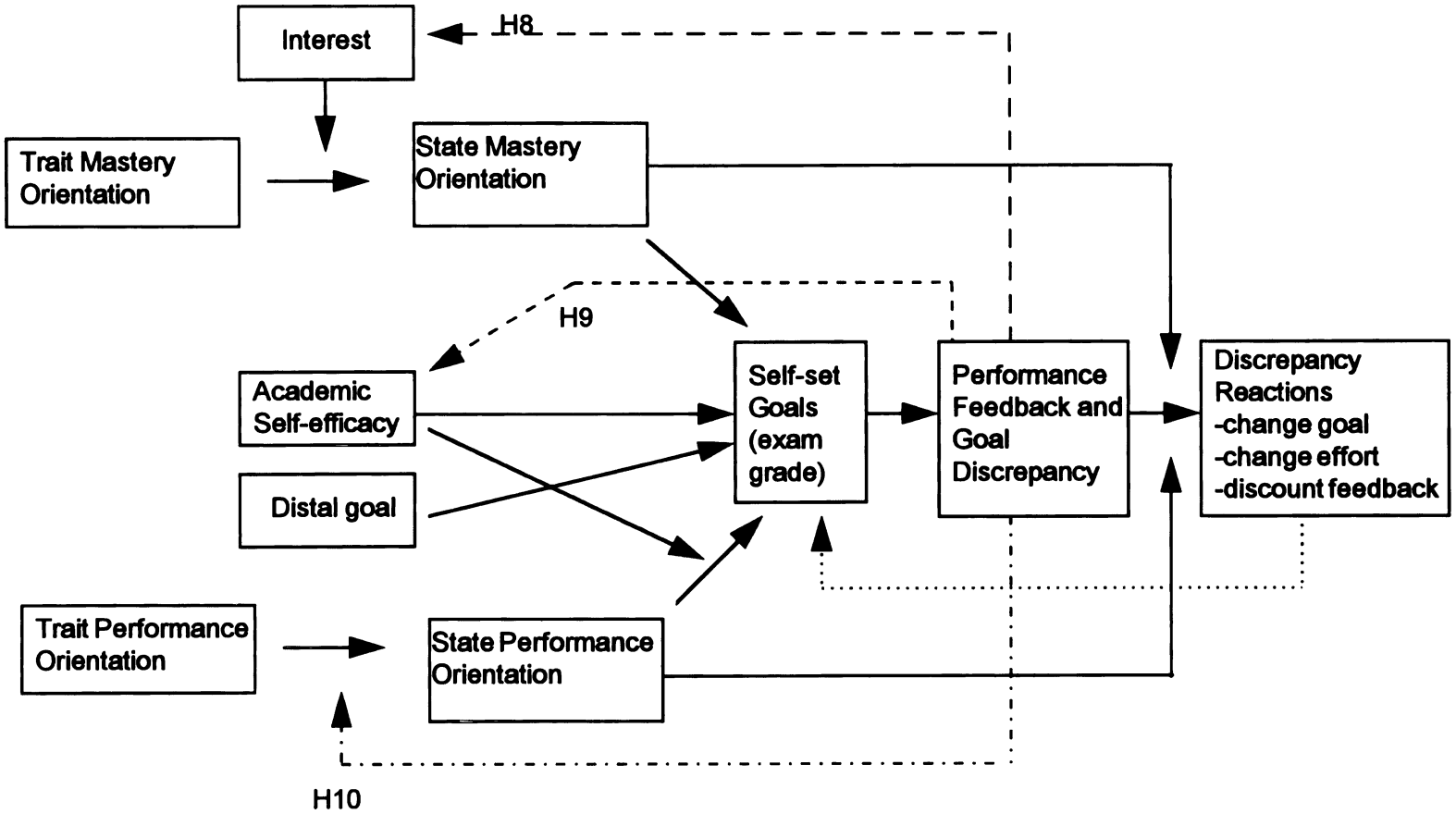


Figure 2. Between Episode Linkages

	High State Mastery Orientation	High State Performance Orientation.
Positive Discrepancy (Performance > Goal)	Change effort (0) Reject feedback (+) Change goal (+)	Change effort (-) Reject feedback (-) Change goal (0)
Negative Discrepancy (Performance < Goal)	Change effort (+) Reject feedback (-) Change goal (0)	Change effort (-) Reject feedback (+) Change goal (-)

Figure 3. Summary of Interaction Between State Goal Orientation and Goal-Performance Discrepancies

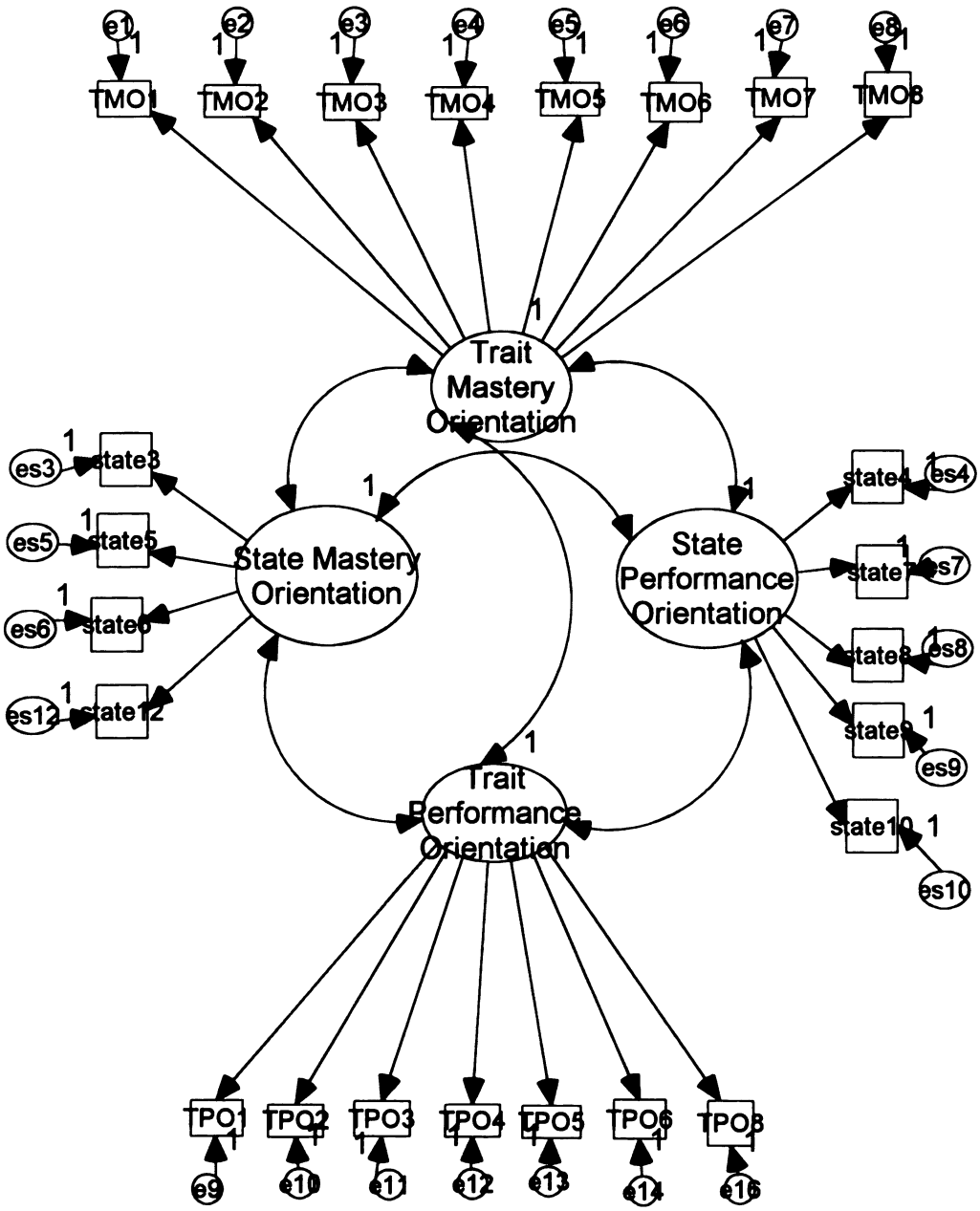


Figure 4. Four factor goal orientation measurement model.

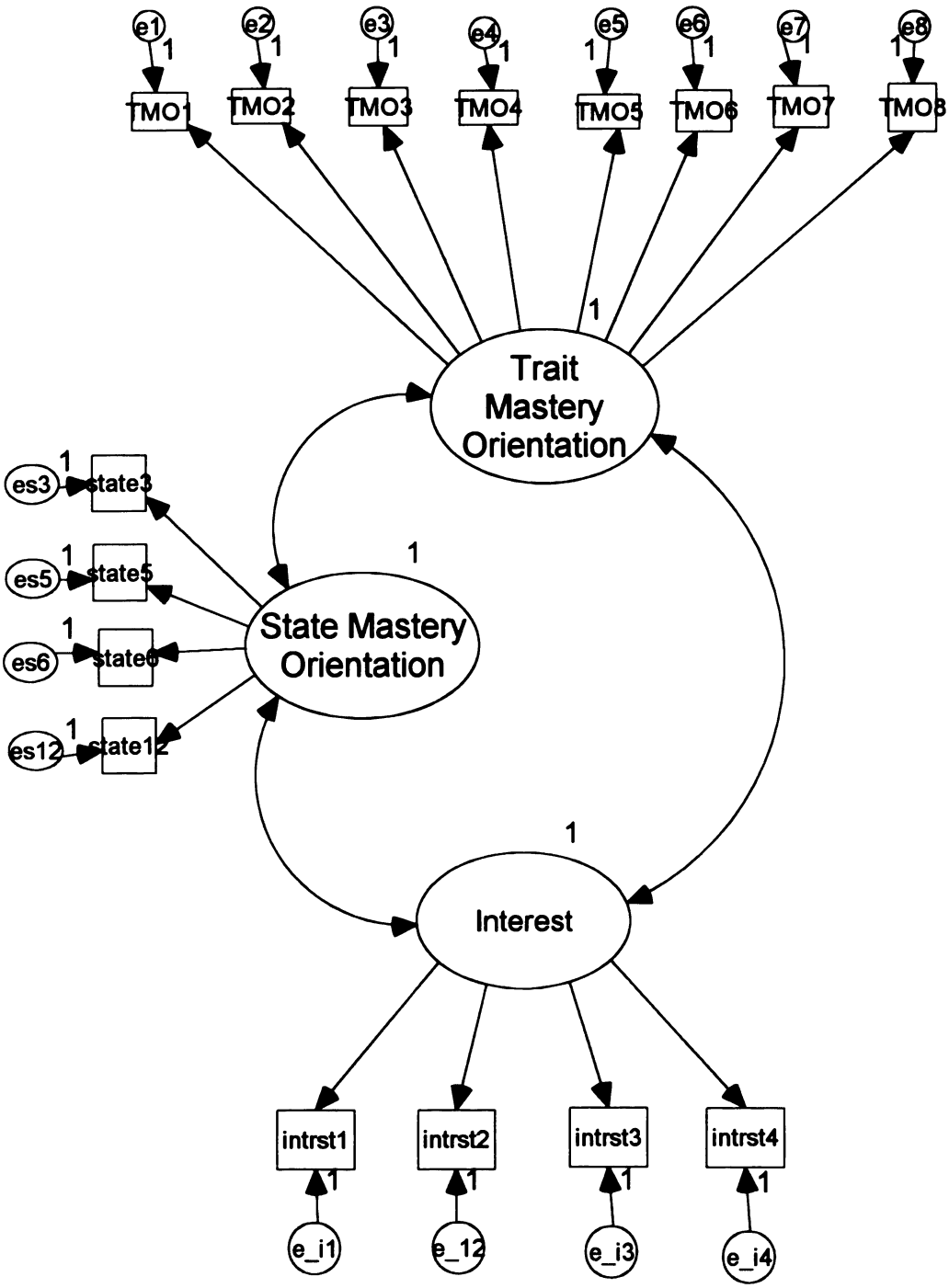


Figure 5. Three factor mastery goal orientation and interest model.

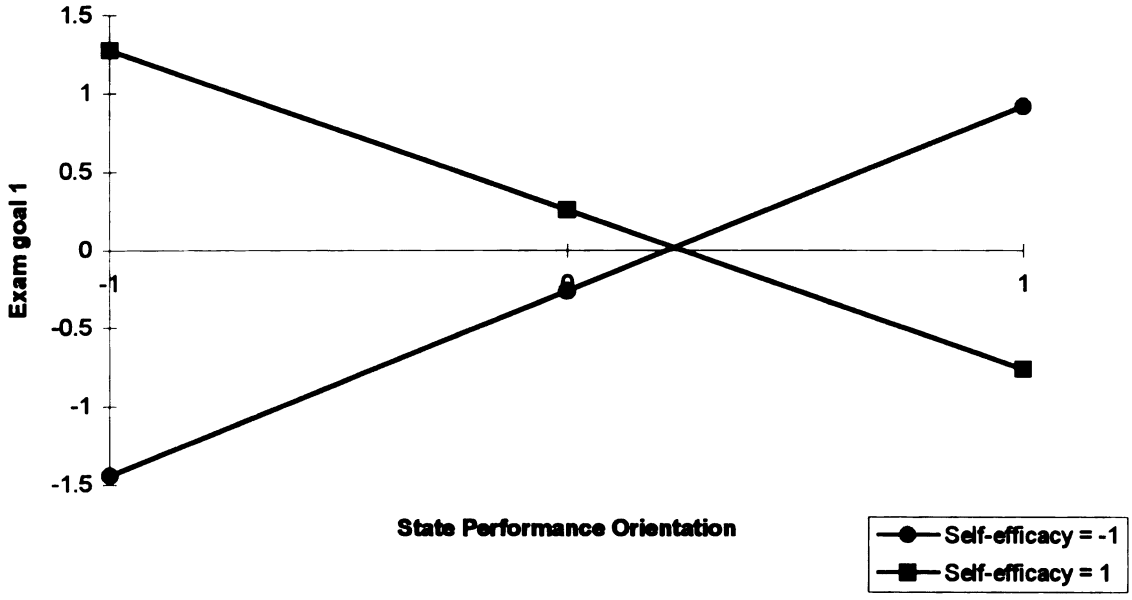


Figure 6. Interaction between self-efficacy and state performance orientation.

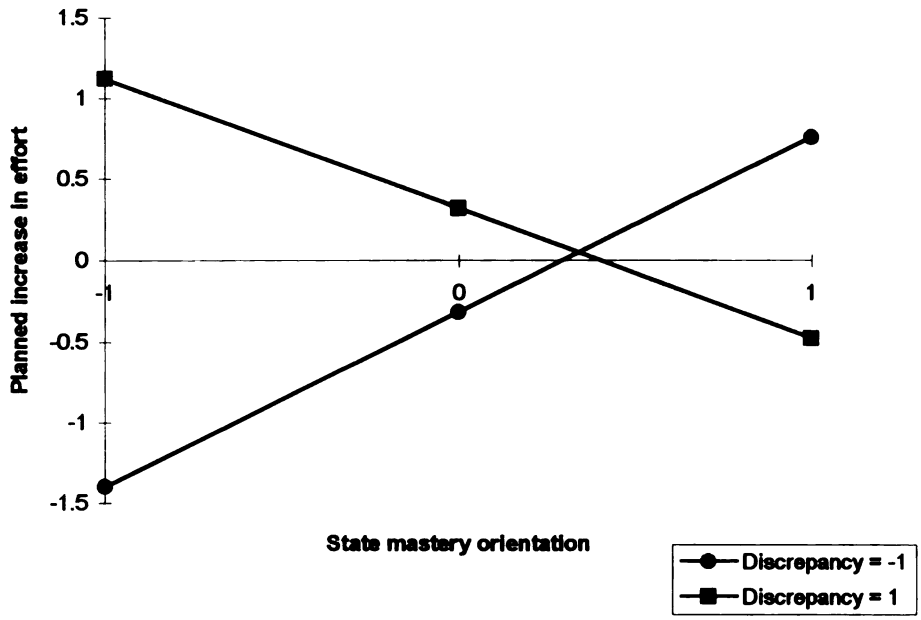


Figure 7. Interaction between planned increase in effort and state mastery orientation.

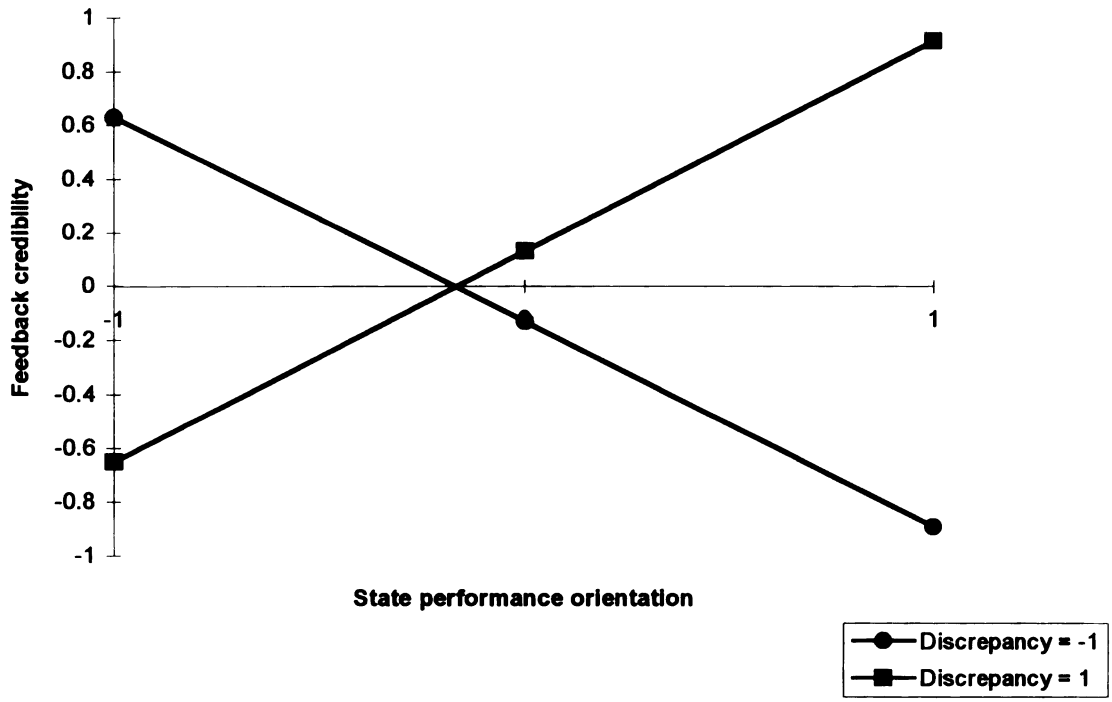


Figure 8. Interaction between feedback credibility and state performance orientation.

LIST OF REFERENCES

LIST OF REFERENCES

Adams, J. S. (1963). Towards an understanding of equity. Journal of Abnormal and Social Psychology, 12, 365-381.

Allen, B. P., & Potkay, C. R. (1981). On the arbitrary distinction between states and traits. Journal of Personality and Social Psychology, 41, 916-928.

Allen, B. P., & Potkay, C. R. (1983). Just as arbitrary as ever: Comments on Zuckerman's rejoinder. Journal of Personality and Social Psychology, 44, 1087-1089.

Austin, J. T., & Klein, H. J. (1996). Work motivation and goal striving. In K.R. Murphy (Ed.) Individual Differences and Behavior in Organizations, 209-257. San Francisco: Jossey-Bass.

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

Button, S. B., Mathieu, J. E., & Zajac, D. M. (1996). Goal orientation in organizational research: A conceptual and empirical foundation. Organizational Behavior and Human Decision Processes.

Carver, C. S, & Scheier, M. F. (1982). Control theory: A useful conceptual framework for personality-social, clinical, and health psychology. Psychological Bulletin, 92, 111-135.

Carver, C. S, & Scheier, M. F. (1990). Origins and functions of positive and negative affect: A control-process view. Psychological Review, 97, 19-35.

Cattell, R. B. (1983). Structured Personality-Learning Theory: A Wholistic Multivariate Research Approach. Praeger Publishers: New York, New York.

Chaplin, W. F., John, O. P., & Goldberg, L. R. (1988). Conceptions of states and traits: Dimensional attributes with ideals as prototypes. Journal of Personality and Social Psychology, 54, 541-557.

Cohen, J., & Cohen, P. (1983). Applied multiple regression/correlations analysis for the behavioral sciences (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates.

Cronbach, L. J., & Furby, L. (1970). How should we measure "change" - or should we? Psychological Bulletin, 74, 68-80.

Dawis, R. V. (1991). Vocational interests, values, and preferences. In M.D. Dunnette and L. M. Hough (Eds.) Handbook of Industrial and Organizational Psychology, 2nd Ed., (Vol. 2), 834-871, Consulting Psychologists Press: Palo Alto, CA.

Dweck, C. S. (1986). Mental processes affecting learning. American Psychologist, 41, 1040-1048.

Dweck, C. S. (1989). Motivation. In A. Lesgold and R. Glaser (Eds.), Foundations for a Psychology of Education. Lawrence Earlbaum Associates: Hillsdale, NJ.

Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. Psychological Review, 95, 256-273.

Elliot, A. J., & Church, M. A. (1997). A hierarchical model of approach and avoidance achievement motivation. Journal of Personality and Social Psychology, 72, 218-232.

Elliott, E. S., & Dweck, C. S. (1988). Goals: An approach to motivation and achievement. Journal of Personality and Social Psychology, 54, 5-12.

Eysenck, H. J. (1960). The Structure of Human Personality. John Wiley and Sons: New York.

Eysenck, M. W. & Eysenck, H. J. (1980). Mischel and the concept of personality. British Journal of Psychology, 71, 191-204.

Farr, J. L., Hofmann, D. A., & Ringenbach, K. L. (1993). Goal orientation and action control theory: Implications for Industrial and Organizational Psychology. In C.L. Cooper and I.T. Robertson (Eds.), International Review of Industrial and Organizational Psychology. Wiley and Sons.

Farr, J. L., & Ford, C. M. (1990). Individual innovation. In M.A. West and J.L. Farr (Eds.), Innovation and Creativity at Work (pp. 63-80). New York: John Wiley and Sons.

Fisher, S. L. (1995). The role of cognitive effort and learning outcome demands in skill acquisition and learning. Unpublished master's thesis, Michigan State University.

Fisher, S. L., and Ford, J. K. (in press). Differential effects of learner effort and goal orientation on two learning outcomes. Personnel Psychology.

Fisher, S. L., Delbridge, KD, & DeShon, R. P. (1997). Here today, gone tomorrow? The stability of goal orientation. Paper presented at the Twelfth Annual Meeting of the Society for Industrial and Organizational Psychology, St. Louis, MO.

Fridhandler, B. M. (1986). Conceptual note on state, trait, and the state-trait distinction. Journal of Personality and Social Psychology, 50, 169-174.

George, J. M. (1996) Trait and state affect. In K.R. Murphy (Ed.) Individual Differences and Behavior in Organizations, 145-174. Jossey-Bass: San Francisco.

Hall, D. T. (1987). Careers and socialization. Journal of Management, 13, 301-321.

Hampson, S. E. (1988). The Construction of Personality: An Introduction (2nd Ed.). Routledge: New York.

Heyman, G. D., & Dweck, C. S. (1992). Achievement goals and intrinsic motivation: Their relation and their role in adaptive motivation. Motivation and Emotion, 16, 231-247.

Hollenbeck, J. R. & Klein, H. (1987). Goal commitment and the goal-setting process: Problems, prospects, and proposals for future research. Journal of Applied Psychology, 72, 212-220.

Hough, L. M., & Schneider, R. J. (1996). Personality traits, taxonomies, and applications in organizations. In K.R. Murphy (Ed.) Individual Differences and Behavior in Organizations, 31-88. Jossey-Bass: San Francisco.

Ilgen, D. R., Fisher, C. D., & Taylor, M. S. (1979). Consequences of individual feedback on behavior in organizations. Journal of Applied Psychology, 64, 349-371.

Kanfer, R. (1990). Motivation theory and industrial and organizational psychology. In M.D. Dunnette and L. M. Hough (Eds.) Handbook of Industrial and Organizational Psychology, 2nd Ed., (Vol. 1), 76-170, Consulting Psychologists Press: Palo Alto, CA.

Kanfer, R., & Ackerman, P. (1989). Motivation and cognitive abilities: An integrative aptitude treatment interaction approach to skill acquisition. Journal of Applied Psychology, 74, 657-690.

Karoly, P. (1993). Mechanisms of self-regulation: A systems view. Annual Review of Psychology, 44, 23-52.

Kernan, M. C., & Lord, R. G. (1990). Effects of valence, expectancies, and goal-performance discrepancies in single and multiple goal environments. Journal of Applied Psychology, 75, 194-203.

King, W. C., Jr., & Miles, E. W. (1995). A quasi-experimental assessment of the effect of computerizing noncognitive paper-and-pencil measurements: A test of measurement equivalence. Journal of Applied Psychology, 80, 643-651.

Kluger, A., & DiNisi, A. (1996). The effects of feedback interventions on performance: A historical review, meta-analysis, and a preliminary feedback intervention theory. Psychological Bulletin, 119,

Kozlowski, S. W. J., Gully, S. M., Smith, E. M., Nason, E. R., & Brown, K. G. (1995, May). Learning orientation and learning objectives: The effects of sequenced mastery goals and advance organizers on performance, knowledge, meta-cognitive structure, self-efficacy, and skill generalization for complex tasks. Paper presented at the Tenth Conference of the Society for Industrial and Organizational Psychology, Orlando, FL.

Lane, D. S., Newman, D. L., & Bull, K. S. (1988). The relationship of student interest and advance organizer effectiveness. Contemporary Educational Psychology, 13, 15-25.

Locke, E. A., & Bryan, J. F. (1968). Goal-setting as a determinant of the effect of knowledge of score on performance. Journal of Applied Psychology, 81, 398-406.

Locke, E. A., & Latham, G. P. (1990). A theory of goal setting and task performance. Englewood Cliffs, NJ: Prentice Hall.

Lord, R. G., & Levy, P. E. (1994). Moving from cognition to action: A control theory perspective. Applied Psychology: An International Review, 43, 335-398.

Magnusson, D., & Endler, N. S. (1977). Interactional psychology: Present status and future prospects. In D. Magnusson and N.S. Endler (Eds.), Personality at the Crossroads: Current Issues in Interactional Psychology, 3-36. Hillsdale, NJ: Lawrence Earlbaum Associates.

Meece, J. L., Blumenfeld, P. C., & Hoyle, R. H. (1988). Students' goal orientations and cognitive engagement in classroom activities. Journal of Educational Psychology, 80, 514-523.

Meister, J. C. (1994). Corporate Quality Universities. New York: Irwin.

Mirvis, P. H., & Hall, D. T. (1994). Psychological success and the boundaryless career. Journal of Organizational Behavior, 15, 365-380.

Mischel, W. (1968). Personality and Assessment. New York: Wiley.

Mischel, W. (1969). Continuity and change in personality. American Psychologist, 24 (11), 1012-1018.

Mischel, W., & Shoda, Y. (1995). A cognitive-affective system theory of personality: Reconceptializing situations, dispositions, dynamics, and invariance in personality structure. Psychological Review, 102, 246-268.

Mone, M. A., & Baker, D. D. (1992a). Cognitive, affective, and behavioral determinants and consequences of self-set goals: An integrative, dynamic model. Human Performance, 5, 213-234.

Mone, M. A., & Baker, D. D. (1992b). A social-cognitive, attributional model of personal goals: An empirical evaluation. Motivation and Emotion, 16, 297-321.

Murtha, T. C., Kanfer, R., and Ackerman, P. L. (1996). Toward an interactionist taxonomy of personality and situations: An integrative situational-dispositional representation of personality traits. Journal of Personality and Social Psychology, 71, 193-207.

Nicholls, J. G. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. Psychological Review, 91, 328-346.

Olweus, D. (1977). A critical analysis of the "modern" interactionist position. In D. Magnusson and N.S. Endler (Eds.), Personality at the Crossroads: Current Issues in Interactional Psychology, 221-235. Hillsdale, NJ: Lawrence Earlbaum Associates.

Pintrich, P. R., Smith, D. A. F., Garcia, T., & McKeachie, W.J. (1991). A manual for the use of the Motivated Strategies for Learning Questionnaire (MSLQ). Technical Report No. 91-B-004, University of Michigan, Ann Arbor, MI.

Pintrich, P. R., Smith, D. A. F., Garcia, T., & McKeachie, W. J. (1993). Reliability and predictive validity of the Motivated Strategies for Learning Questionnaire (MSLQ). Educational and Psychological Measurement, 53, 801-813.

Podsakoff, P. M. & Farh, J. L. (1987). Effects of feedback sign and credibility on goal setting and task performance. Organizational Behavior and Human Decision Processes, 44, 45-67.

Schiefele, U. (1991). Interest, Learning and Motivation. Educational Psychologist, 26, 299-323.

Schuerger, J. M., Zarella, K. L., & Hotz, A. S. (1989). Factors that influence the temporal stability of personality by questionnaire. Journal of Personality and Social Psychology, 56, 777-783.

Senge, P. M. (1990). The Fifth Discipline. New York: Doubleday.

Shoda, Y., Mischel, W., & Wright, J. C. (1994). Intraindividual stability in the organization and patterning of behavior: Incorporating psychological situations into the

ideographic analysis of personality. Journal of Personality and Social Psychology, 67, 674-687.

Spielberger, C. D. (1977). State-trait anxiety and interactional psychology. In D. Magnusson and N. S. Endler (Eds.), Personality at the Crossroads: Current Issues in Interactional Psychology, 173-184. Hillsdale, NJ: Lawrence Earlbaum Associates.

Smith, E. S., Ford, J. K., Weissbein, D. A., & Gully, S. M. (1995, May). The effects of goal orientation, metacognition, and practice strategies on learning and transfer. Paper presented at the Tenth Meeting of the Society for Industrial and Organizational Psychology, Orlando, FL.

Stagner, R. (1977). On the reality and relevance of traits. The Journal of General Psychology, 96, 185-207.

Thomas, K. M. & Mathieu, J. E. (1994). Role of causal attributions in dynamic self-regulation and goal processes. Journal of Applied Psychology, 79, 812-818.

VandeWalle, D. (in press). Development and validation of a work domain goal orientation instrument. Educational and Psychological Measurement.

VandeWalle, D., and Cummings, L. L. (1997). A test of the influence of goal orientation on the feedback seeking process. Journal of Applied Psychology, 82, 390-400.

Wofford, J. C. & Goodwin, V. L. (1990). Effects of feedback on cognitive processing and choice of decision style. Journal of Applied Psychology, 75, 603-612.

Wright, P. M. & Kacmar, M. (1994). Goal specificity as a determinant of goal commitment and goal change. Organizational Behavior and Human Decision Processes, 59, 424-260.

Wright, P. M., O'Leary-Kelly, A. M., Cortina, J. M., Klein, H. J., & Hollenbeck, J. R. (1994). On the meaning and measurement of goal commitment. Journal of Applied Psychology, 79, 795-803.

Zuckerman, M. (1977). General and situation-specific traits and states: New approaches to assessment of anxiety and other constructs. In M. Zuckerman and C.D. Spielberger (Eds.), Emotions and Anxiety: New Concepts, Methods, and Applications. Lawrence Earlbaum Associates: Hillsdale, NJ.

Zuckerman, M. (1983). The distinction between trait and state scales is *not* arbitrary: Comment on Allen and Potkay's "On the arbitrary distinction between states and traits." Journal of Personality and Social Psychology, 44, 1083-1086.