Introduction

Theories of work motivation have long recognized the importance of discrepancies between one's goal and actual performance in determining behavior. Proponents of these theories suggest that it is not an individual's performance level per se that is important; rather it is the discrepancy between the person's performance and their performance goal or standard goal that affects motivation (Bandura, 1991; Campion & Lord, 1982; Locke & Latham, 1990). More specifically, current models of self-regulation suggest that people frequently monitor the match between desired goals and their actual behavior. When a discrepancy is observed between a desired goal and actual performance (termed a goal-performance discrepancy; GPD), individuals are likely to engage in behavior that will reduce or eliminate this discrepancy (Bandura, 1991; Campion & Lord, 1982; Carver & Scheier, 1981; Donovan & Williams, 2003; Locke & Latham, 1990; Williams, Donovan, & Dodge, 2000). Thus, according to these self-regulatory models, the detection of and reaction to GPDs represents one of the key components of self-motivation.

In support of these propositions, there has been a considerable amount of research conducted to date demonstrating that individuals attend to GPDs and that these discrepancies exert a strong influence on subsequent motivational processes such as affective states (Ilies & Judge, 2005) effort expenditure (e.g., Bandura & Cervone, 1983), self-satisfaction (Williams et al., 2000), and goal revision (e.g., Campion & Lord, 1982; Donovan & Williams, 2003). However, it is important to realize that this body of research has been largely focused on examining the effects of GPDs related to a given task for subsequent motivational processes associated with that very same task. Very few studies in the realm of self-regulatory behavior have attempted to determine how the presence of GPDs on a given task may trigger or influence motivational processes for an altogether different task. In other words, we know very little about

the possible existence and operation of processes whereby motivation from one task "spills over" to a subsequent, distinct task. This process, termed motivational spillover, can be generally defined as any instance in which goal-related performance outcomes (i.e., GPDs) associated with a given task or assignment exert an impact on the motivational processes related to a subsequent, distinct task or assignment.

To remedy this omission in the empirical literature, the goal of the present study is to extend past self-regulatory research by investigating the process of motivational spillover across task domains. More specifically, this study will test a model of motivational spillover developed by Quintela and Donovan (2004) that delineates the motivational mechanisms by which motivational spillover occurs. In an initial test of this model, Quintela and Donovan (2004) found support for their propositions in that the motivational properties associated with GPDs on one task significantly impacted self-regulatory processes for an altogether separate task through their influence on affective states following performance. However, there were several limitations inherent in their study that necessitate a replication and extension of these findings (e.g., motivational spillover was examined only under conditions where individuals were confronted with negative GPDs on their initial task, ignoring the impact of positive GPDs on the motivational spillover process). Thus, the purpose of this study is to provide a more comprehensive test of the Quintela and Donovan (2004) model that addresses many of these limitations.

The Concept of Motivational Spillover

As it relates to the present study, the concept of motivational spillover can be formally defined as the process by which outcomes (i.e., GPDs) on a given task exert a significant impact on the motivational processes exhibited for a subsequent, distinct task. It is important to realize

that motivational spillover can be both positive and negative in nature. For example, an individual experiencing success on a particular task (a positive GPD) may exhibit an enhanced sense of efficacy for a subsequent, distinct task, which may lead the individual to establish a more challenging goal for themselves on the second task (positive spillover). Conversely, an individual experiencing failure on a particular task (a negative GPD) may demonstrate a decrease in self-efficacy for a separate task, resulting in the establishment of a less challenging goal for this second task (negative spillover). In the present study, our examination of motivational spillover is focused on the effects of failure or success in achieving a performance goal for one task on self-regulatory processes (i.e., self-efficacy perceptions, goal-setting, and performance) for a distinct task performed at a later time. Moreover, the main objective is to determine the potential mechanisms that serve to link performance feedback on one task to self-regulatory processes for another task.

Insufficient Theoretical Exploration of Motivational Spillover.

As noted earlier, there has been virtually no research to date focused on the observation and explanation of motivational spillover across task domains. While this omission may be due to a number of factors, one likely explanation for this oversight in the empirical literature is the manner in which currently accepted models of self-regulation (e.g., Bandura, 1986; Carver & Scheier, 1990; Kluger & Denisi, 1996; Shah & Kruglanski, 2003) address the possibility of motivational spillover in their propositions concerning the effects of GPDs. Although these models often provide a general acknowledgement that, at some level, motivation on a given task may be related to motivation for a distinct task, there is minimal discussion, if any, of the mechanics or processes characterizing this phenomenon. An example of a current self-regulatory tenet that has not fully addressed the concept of motivational spillover is the goal hierarchy

principle outlined in several self-regulation frameworks (Bandura, 1986; Kluger & Denisi, 1996; Lord & Levy, 1992; Shah & Kruglanski, 2003; Vancouver, 2005). Although the goal hierarchy approach emphasizes the interconnectivity of goal systems, the manner in which these systems are related to one another is not clearly outlined.

Goal hierarchy approach. Various self-regulation theorists argue that the concept of hierarchy is critical to understanding multiple goal scenarios (Bandura, 1986; Kluger & Denisi, 1996; Lord & Levy, 1992; Shah and Kruglanski, 2004; Vancouver, 2005). The examination of multiple goal systems is important given that individuals in an organizational setting are typically working toward achieving various goals at a time, not just a single goal. Control systems theorists have most explicitly described the concept of goal hierarchies (Austin & Vancouver, 1996; Lord & Levy, 1992; Powers, 1973). Proponents of this theory suggest that multiple goal scenarios are represented by a series of interconnected negative feedback loops embedded within a hierarchy of goals (Austin, & Vancouver, 1996; Carver & Scheier, 1981; Kluger & Denisi, 1996; Newell, 1990; Powers, 1973; Shah & Kruglanski, 2003). That is, goals and their corresponding feedback loop systems are arranged in a hierarchical order. Feedback loops function in a way such that when a sensor yields a signal (feedback), which is below a referent, standard, or desired state (goal) that discrepancy or error triggers a self-correcting motivation (Powers, 1973). Feedback loops that represent the self-concept (e.g., goal striving behavior directed toward maintaining self-worth) operate at the highest level of the hierarchy whereas feedback loops that represent motor functions/muscle tensions (e.g., goal striving behavior directed toward activating muscles to accomplish a task) operate at the lowest level (Lord & Levy, 1992; Powers, 1973). As shown in Figure 1, several feedback loops are located between the highest and lowest order goal systems in the hierarchy. Below the self-concept level

are the principle and program-level feedback loops, which Newell (1990) argues make up the "rational" cognitive band. These feedback loops represent sophisticated symbolic operations that are typified by logical, rational thought processes rather than automatic ones. More specifically, principal-level feedback loops are associated with an individual's values (e.g., goal striving behavior directed at maintaining integrity), and program-level feedback loops are associated with an individual's achievement-oriented principles (e.g., goal-striving behavior toward task performance). The self-concept, principle, and program-level goal systems are typically considered the goal systems of interest to social and applied researchers (Carver & Scheier, 1998; Cropanzano, James, & Citera, 1992; Klein, 1989; Vancouver & Putka, 2000).

In general, it is theorized that goal processing occurs in a "bottom-up" manner such that lower level subsystems operate to serve higher-order feedback loops (Lord & Levy, 1994; Shah & Kruglanski, 2003). In other words, individuals may strive to attain goals at lower levels, which will also serve to achieve goals operating at higher levels of the hierarchy. It is also possible for goal processing to occur in a "top-down" manner such that outputs from higher order goals activate or determine the desired level of lower level goal systems (Austin & Vancouver, 1996; Kluger & DeNisi, 1996; Lord & Levy, 1994). Both the "bottom-up" and "top-down" approaches outlined by self-regulation theories are important to consider in the conceptualization of motivational spillover. It could be argued that goal failure on a given task at the program-level (i.e., feedback loops that represent task performance) will influence feedback loops at the self-concept level, which may consequently influence goal striving behavior in other subsequent performance settings at the program level. In other words, a complex series of relationships between goal levels may be evidenced such that when negative GPD feedback at the program-level impacts feedback loops at the self-concept level, an individual's self-correcting motivation

may be demonstrated by revising goals downward on distinct, subsequent tasks at the program-level. Simply stated performance feedback on a particular task will work its way up the hierarchy to the self-concept level, which would then ultimately impact a distinct task as this change filters back down the goal hierarchy. It is the influence from one program-level task to another task of *distinct* nature that connotes the occurrence of spillover across task domains.

It could be assumed that research on motivational spillover has been largely ignored due to the ambiguous conceptualization of goal hierarchies presented by models of self-regulation. That is, current goal hierarchy models do not sufficiently depict the circuitous goal processing route that illustrates how spillover occurs. Very little is known about the mechanisms by which low-order feedback loops can be influenced by high-order feedback loops, and visa versa. In other words, can feedback loops associated with high-order goals mediate the relationships between feedback loops associated with low-order goals? According to Austin and Vancouver (1996), understanding the complete context for a given behavior or behavior sequence requires the examination of the associated network of feedback loops across levels in the goal hierarchy. Unfortunately, depictions of how these feedback loops are connected are abstract and vague. More concrete conceptualizations of the way in which feedback loops are influenced by one another and with their environments are necessary before motivational spillover can be depicted by them. Additionally, goal hierarchy models are difficult to operationalize given their dynamic nature. Moreover, the methodology and analytic procedures needed to examine these models are still not fully developed (Donovan, 2001; Vancouver, 2005).

Given these limitations, it can be assumed that the exploration of motivational spillover using a control systems lens may prove difficult and challenging. The unclear conceptualizations of how goals across task domains can be connected to one another, and the lack of research

attention regarding the potential for and the mechanisms by which spillover operates serve as the primary impetuses for the present study. It is my opinion that the lack of research on motivational spillover processes conducted to date is simply a function of these theoretical limitations/ambiguities, rather than an indication that motivational spillover is something that we should not concern ourselves with. In fact, I feel that the motivational spillover process represents a potentially important part of self-regulation that should be empirically and theoretically addressed by researchers in the field of work motivation. By ignoring the impact of GPDs across distinct task domains, current models of self-regulation may be underestimating the importance of GPDs, as well as providing a somewhat limited perspective on the self-regulation of task performance. Additionally, the examination of motivational spillover may have important implications for goal-related behavior. Many organizational employees today are required to perform multiple tasks of varying nature to fulfill their responsibilities. Moreover, they are constantly switching back and forth between these tasks during a typical workday. This begs the question: Can an employee working on two distinct assignments experience a change in level of motivation for assignment B due to a weak/strong performance outcome on assignment A? Take the example of financial planner whose responsibilities are to perform analytical activities as well as customer-service oriented tasks. If his/her performance outcomes on the analytical activities influence his/her motivation for the customer-service activities, this may have implications for the individual's subsequent goal-setting behavior and performance on the customer-service activities. Thus, the identification and examination of processes that occur between performance episodes for distinct tasks is important in broadening our understanding of work motivation, for both applied and theoretical reasons.

Beyond the clear need for additional research examining spillover and the mechanisms by which this process occurs, there remains an additional catalyst for the present research examining motivational spillover regarding the temporal pacing of the spillover process. More specifically, while theoretical explanations of motivational spillover utilizing goal hierarchies would suggest that spillover is a somewhat lengthy process, the limited body of empirical research on this topic has indicated that motivational spillover can occur within a relatively short period of time (Carver, Blaney, & Scheier, 1979; Kernis, Zuckerman, Cohen, & Spadafora, 1982; Quintela & Donovan, 2004; Radosevich, 1998). This discrepancy provides a somewhat secondary reason for the present study: to obtain further evidence regarding the temporal nature of the spillover process.

Speed of Goal Processing

Control systems theorists would argue that the circuitous depiction of spillover suggested by a goal hierarchy approach, which entails a combination of both bottom-up and top-down goal processing as described above, may take a considerable length of time (Lord & Levy, 1994). These theorists indicate that goal processing occurs at different speeds depending on the hierarchical level of focus. For example, processing at the self-concept level is largely symbolic in nature and requires conscious application to rules, substantial attentional resources, and at least several days to months for these processes to be carried out. On the other hand, processing at lower goal levels consists of utilizing subconscious subsymbolic frameworks, which require minimal attentional resources, and occur more rapidly. As such, proponents of this perspective would suggest that goal processing across feedback loops in the hierarchy would occur at different frequencies given that processing speeds vary at each level (Lord & Levy, 1994, Newell, 1990, Robertson & Powers, 1990). It would be difficult to pinpoint the exact frequency

in which goal processing occurs across levels however, Lord and Levy (1994) provide an initial description of the mechanics of goal processing and the corresponding time frame for which bottom-up and top-down processing may occur. These theorists maintain that bottom-up processing requires that GPDs that pertain to lower-order feedback loops be sufficiently sizable and repetitive before they can travel upward through the hierarchy and exert influence on higher-level feedback loops (e.g., Campion & Lord, 1982; Carver & Scheier, 1998; Hyland, 1988; Lord & Levy, 1994). Moreover, the material in lower level feedback loops must overlap substantially with material in the higher level feedback loop for revisions at higher levels to be made (Shah & Kruglanski, 2003). Thus, sufficiently sizable, repetitive, and relevant GPDs on a program-level task will likely trigger successful bottom-up processing. Although they did not specify a time frame in which bottom-up processing may occur, they suggest that this process is not instantaneous (Lord & Levy, 1994, Newell, 1990; Shah & Kruglanski, 2003).

Top-down processing requires that outputs of higher order feedback loops exert influence on subsystem feedback loops so that goals at lower levels become properly aligned with high-order goals. In order for this to occur, attentional resources must be directed toward subordinate feedback loops so that subsystem goals can be revised, cognitive operations can be adjusted, and modified behavioral outputs can be enabled (Newell, 1990; Lord & Levy, 1994; Robertson & Powers, 1990). Proponents of this perspective maintain that top-down processing occurs at a gradual pace (i.e., months to days) (Newell, 1990; Lord & Levy, 1994; Robertson & Powers, 1990). That is, higher-level feedback loops tend to use information processes that are more complex and operate at a slower pace than lower-level feedback loops. Thus, higher-level feedback loops cannot directly control the internal operations of lower-level feedback loops which operate at a faster pace (Lord & Levy, 1994). For example, moment to moment

adjustments in behavior made while playing a video game (i.e., low-level operations), which might occur at 100-500 milliseconds, can be triggered but not directly produced by rational cognitive operations (i.e., high-order feedback loops), which take a longer period of time to process through the system. Inasmuch, Lord and Levy (1994) indicate that systematic cognitive processes, which control higher-order feedback loops will cause delay to goal processing that travels downward.

Interestingly enough, the processing speed depicted by Lord and Levy's (1994) model does not correspond with previous studies that suggest that spillover occurs rapidly (Carver et al., 1979; Kernis et al., 1982; Quintela & Donovan, 2004; Radosevich, 1998). For example, a study conducted by Quintela and Donovan (2004), which will be discussed in more detail later, revealed that performance outcomes on one task effectively spilled over to influence self-regulatory processes for a second, distinct task in a short period of time. More specifically, the time in which performance outcomes on one task indirectly influenced levels of self-efficacy for a distinct task, via affective reactions, occurred in less than an hour. Although research findings have not yet specified a definitive time period in which goal processing depicted by a combination of bottom-up and top-down approaches occurs, the findings of Quintela and Donovan (2004) suggest that this process occurs more quickly than posited by control theory and other models of self-regulation (Lord & Levy, 1994; Newell, 1990, Powers 1979). Thus, current control systems frameworks and their depiction of time constraints across hierarchical levels do little in the way of adequately explaining spillover processes that occur in a brief period of time. Moreover, this evidence demonstrating that spillover occurs in a succinct period of time (e.g., Carver et al., 1979; Kernis et al., 1982; Quintela & Donovan, 2004; Radosevich, 1998) suggests

that we may need to amend our current theoretical models of motivation to provide an alternative route by which "immediate" spillover occurs (e.g., via positive and negative affective states).

Research on Spillover Processes

Although the body of empirical work on motivational spillover across tasks is rather small, research on concepts related to motivational spillover dates back more than half a century (Bandura & Cervone, 1983; Campion & Lord, 1982; Festinger, 1942a; Jucknat, 1937). When researchers in the field of motivation and personality first started conducting studies on goals and performance they noticed that performance outcomes on one task "transferred over" in such a way to affect level of aspiration (i.e., goal striving behavior) for a subsequent task (Jucknat, 1937). In her study, Jucknat found that reactions to success and failure on a paper and pencil maze task affected the levels of aspiration exhibited by individuals for a second maze task. More specifically, negative reactions to failure on the first series of mazes "transferred over" and resulted in decreased levels of aspiration on the second series of mazes. Similarly, positive reactions to success on the first series of mazes "transferred over" and resulted in increased levels of aspiration on the second series of mazes (Jucknat, 1937, p. 170). In another study, Festinger (1942a) reported similar findings using a maze task. However, in this study two types of mazes were used; in the first condition both series of mazes were solvable and in the second condition both were unsolvable. The results of this study indicated that the level of aspiration shifted downward from one series to the next in the unsolvable condition and shifted upward in the solvable condition, characterizing a transfer in motivation. More specifically, 64% of individuals in the unsolvable condition reduced their level of aspiration (i.e., goal) from one series to the next, and 51% raised their level of aspiration in the solvable condition from one series to the next.

In the last seven decades, theoretical frameworks of work motivation have made considerable progress. Current accepted theories of self-regulation would argue that "transfer of motivation", as described by Jucknat (1937) and Festinger (1942a), denotes the self-evaluative chain of events that characterizes self-regulation. In other words, transfer of motivation can be described in terms of the impact that performance outcomes have on intra-task mechanisms such as self-efficacy and goal-setting behavior, which directly influence subsequent performance levels. The term "motivational spillover" is used to describe a different process than originally proposed by Jucknat (1937) and Festinger (1942a). As previously mentioned motivational spillover describes the impact of performance outcomes on motivational processes across task boundaries.

In contrast to Jucknat (1937) and Festinger's (1942a) research examining motivation across performance episodes for the same task, more recent studies have examined motivational spillover across task domains (Carver et al., 1979; Kernis et al., 1982; Quintela & Donovan, 2004; Radosevich, 1998). These studies indicate that motivational spillover can take place between disparate tasks. For the most part, they suggest that spillover between two distinct tasks occurs in the presence of positive/negative performance outcomes and subsequent affective reactions and performance expectancies related to separate tasks. For example, Carver et al. (1979) examined whether outcome expectancies from an initial task would impact persistence on a subsequent task. The initial task was an anagram task, in which students were asked to rearrange letters of each item to form a word. The second task was a design task in which students were asked to trace over the lines of a geometric figure without lifting their pen from the page and without retracing any line segment. Results indicate that after failure on the anagram task, individuals reported negative outcome expectancies for the design task, and exhibited

minimal effort toward successful performance on the task. On the other hand, after successful performance on the anagram task, individuals reported positive outcome expectancies and exhibited high levels of effort toward successful performance on the design task.

Similarly, Kernis et al. (1982) presented students with a maze task and these students were led to believe that they failed at the task. Subjects in an internal expectancy condition were led to believe that the cause of their failure was due to internal factors and that it was unlikely that they would do well on a subsequent design problem task. In contrast, subjects in the external expectancy condition were led to believe that the cause of their failure was due to external factors and that the subsequent design problems would be very difficult to solve. Results indicated that after failing the maze task, subjects, in general, expected to do poorly on the design problem task. One explanation of why students may not have tried to do well on a subsequent dissimilar task is because they may have rationalized that success was not within the boundaries of their control, thereby, exhibiting the typical learned helplessness effect (Kernis et al., 1982).

More recently, goal systems theorists argue that affective states may facilitate the occurrence of spillover across task domains (Shah, Kruglanski, & Friedman, 2003). Although very little conceptual work has been published on "affective transfer" (Fishbach, Shah, Kruglanski, 2004, p. 724), these theorists argue that depending on the strength of the connections between low-order and high-order goals, affective reactions to one subgoal outcome influences goal-striving behavior related to a separate goal. That is, if one's high-order goal is to "excel at all work-related activities" then affective reactions to performance outcomes on one work-related activity may influence goal pursuit associated with another activity, given the activities are both strongly associated with the high-order goal. In this respect, affective charges are theorized to

"spill over" (or spread) to separate activities that similarly serve as attainment means to the high-order goal in question (Fishbach, et al., 2004 p. 726). In a recent study conducted by Fishbach et al. (2004) they found that the magnitude of affective transfer between attainment means depended on the perceived strength of the association between the attainment means to the high-order goal. Although spillover was not directly tested, positive affect associated with one particular goal (e.g., "keeping good grades") *transferred* to other goals (e.g., "attending classes") when both of these means were perceived as highly related to the high-order goal of "doing well in school", and the high-order goal was perceived to be important to the individual. Though GPDs were not directly observed, and findings were correlational in nature, the authors imply that affective responses may be useful in explaining goal-processing across task domains.

While the previously mentioned studies provided evidence of motivational spillover, they are less informative in terms of the mechanisms by which this spillover occurred. That is, although work by Carver et al. (1979) and Kernis et al. (1982) indicated that failure/success on one task influences subsequent motivation primarily though its impact on expectancies for future performance, there was no explicit explanation given for how these motivational processes transferred across tasks. Similarly, although Fishbach et al. (2004) suggest that affective reactions may underlie the spillover process it is unclear as to how affective responses are carried over to impact behavior across the goal system. In light of these omissions, a recent study by Quintela and Donovan (2004) provided support for a model whereby affective reactions in response to negative GPDs, and self-efficacy were examined as the potential mechanisms of negative motivational spillover.

Quintela and Donovan (2004)

In line with previous work on motivational spillover, Quintela and Donovan (2004) examined whether goal failure on an initial task would influence levels of self-efficacy and goal-setting on an unrelated subsequent task. The initial task was a creativity task in which individuals were asked to produce creative solutions to a problem. The second task was a stock-predicting task in which individuals were asked to predict the stock values of fictitious companies using three informational cues. The results of this study indicated that individuals exposed to large, negative GPD feedback on the creativity task were more likely to exhibit lower levels of positive affect and higher levels of negative affect compared to individuals exposed to small, negative GPD feedback. High levels of negative affect and low levels of positive affect associated with goal failure on the creativity task were in turn related to decreased levels of self-efficacy for the subsequent stock-predicting task. Finally, self-efficacy was positively related to goal-setting for the stock-predicting task. The authors suggest that the underlying mechanism for motivational spillover is characterized by the affect-self-efficacy link. They suggest that an individual's affective state plays an influential role on cognitive processes associated with task performance, as posited by the affect-as-information theory and affect priming theory. Thus, an individual who experiences negative affect as a result of goal failure may experience negative self-evaluations about their capabilities in other task domains.

Despite the uniqueness of these findings, there are several limitations of this particular study that should be mentioned. First, negative GPDs were created in this study by providing artificial (i.e., manipulated) performance feedback to participants. All participants were told that they failed to reach the assigned goal, regardless of actual performance and the negative GPDs only occurred in two magnitudes (small and large). Although participants indicated that they largely believed the feedback that they were given, the use of bogus performance feedback still

raises concerns over the extent to which these results may occur in more naturalistic settings in which individuals receive varying levels of GPD feedback (zero, small, moderate, large). Second, although these researchers acknowledged that there are likely to be boundary conditions that either limit or facilitate the occurrence of motivational spillover, no boundary conditions were assessed or empirically examined in this study. It is quite possible that certain dispositional or state-like constructs may enhance or impede the likelihood of motivational spillover occurring. For example, it seems plausible to argue that negative motivational spillover resulting from goal failure (negative GPD) is unlikely to occur if an individual doesn't care about the performance goal or has no desire to reach this goal. Finally, because this study only examined responses to negative GPDs, this study provides a somewhat limited perspective on spillover in that it did not allow for the examination of positive spillover effects whereby success in attaining a goal may lead to increased motivation levels for a subsequent task. Several researchers have suggested that goal success may spillover to impact motivation on a distinct task in a similar fashion as goal failure does (Carver et al., 1979; Kernis et al., 1982).

Based upon these limitations, the present study sought to replicate and extend Quintela and Donovan (2004) by testing their model in a naturalistic performance environment without manipulated feedback. By addressing these limitations, the present study will provide a more informative and accurate picture of how motivational spillover is likely to occur in natural performance settings, as well as indicate what factors may influence the magnitude of spillover experienced by individuals.

Model for Motivational Spillover

The proposed model for motivational spillover utilized in this study is provided in Figure 2. This model argues that (a) GPDs may spillover to a different task through its impact on

positive and negative affect, (b) positive and negative affect will influence self-efficacy perceptions for the second, distinct task, (c) self-efficacy will impact the goals individuals set for this second task, and (d) that self-set goals established for the second task will influence performance levels for that task. Altogether, this model illustrates (1) *how* motivational spillover occurs and (2) what impact spillover has on subsequent self-regulatory mechanisms. Moreover the present study explores potential boundary conditions that may inhibit or facilitate the onset of motivational spillover across task domains. In the following sections, the mechanics of the spillover process will be described based on propositions outlined by self-regulation theories of work motivation.

Theoretical Framework for the Processes of Motivational Spillover.

Theories of self-regulation assert that GPDs have a strong influence on the self-regulatory processes of individuals in performance settings (Bandura, 1986). Negative GPDs occur when an individual's actual performance level on a task falls short of meeting the desired goal. On the other hand, positive GPDs occur when an individual's actual performance level exceeds the desired goal. Propositions outlined by the social-cognitive theory (SCT) indicate that GPDs can serve to impact affective states, self-efficacy perceptions, the type of goals an individual establishes, the effort he/she exerts, and the performance level that he/she achieves in subsequent performance episodes (Bandura, 1986; 1991). The theory postulates that self-regulation of behavior encompasses three steps: self-observation, self-evaluation, and self-reaction (Bandura, 1986). After individuals set goals and monitor their behavior (self-observation) they make comparisons between their actual performance and desired goals (self-evaluation) (Bandura, 1986). The affective response (self-reaction) associated with this last step is a key component of SCT in predicting subsequent discrepancy reduction/production responses.

Consequences of GPDs. One of the primary tenets of Bandura's (1986) SCT is that an individual's reaction to reduce or eliminate discrepancies stems from a desire to alleviate dissatisfaction or negative affect associated with substandard performance. Consequently, these affective reactions may lead to behavioral responses (e.g., increased effort) or cognitive responses (e.g., downward goal revision) for subsequent performance trials. Conversely, individuals who experience positive GPDs (i.e., performance that exceeds the goal) are likely to experience positive affect, which may in turn lead to discrepancy production behaviors. Individuals who engage in discrepancy production behaviors are likely to revise goals upward and increase effort expenditure when levels of valence and expectancies of goal attainment remain high. Given these propositions, SCT serves as an appropriate framework to draw upon to explore the mechanisms involved in the motivational spillover phenomenon.

GPD and affect.

Affect refers to the emotional states experienced by individuals, which can be characterized by the levels of positive and negative affect they experience (Watson, Clark, & Tellegen, 1988). Positive affect can be defined as the extent to which a person feels enthusiastic, active and alert. Individuals with high levels of positive affect are described as highly energetic and fully concentrated whereas individuals with low levels of positive affect are described as melancholic and lethargic. Negative affect is defined as the extent to which a person feels displeased, distressed, and aversive. Individuals with high levels of negative affect are described as angry, pessimistic, fearful, and nervous whereas individuals with low levels of negative affect are described as calm and serene.

Studies indicate that affective states may be influenced by a number of different factors. For example, affective reactions can result from positive or negative life events (Erez & Isen,

2002; Forgas, 2001; George & Brief, 1996). These events may be as major as the death of a loved one or as minor as a passing smile. Dispositional traits such as extraversion and neuroticism are also theorized to evoke affective responses. For example, individuals who are high on neuroticism a more likely to experience negative affect in the face of negative events compared to individuals who are low on neuroticism (Bolger & Schilling, 1991; George & Brief, 1996; Watson & Clark, 1984; Weiss & Cropanzano, 1996). Environmental factors including the weather, air pollution, noise, and negative ion levels also appear to elicit affective reactions. For example, negative affect is more likely to be evoked by uncomfortable levels of heat, high levels of humidity, noxious pollutants, and large crowds (e.g., Bell, Garnand, & Heath, 1984; Oldham & Fried, 1987; Rotton, 1983). A smaller body of research brings to light the antecedents of affect in organizational contexts. Major organizational determinants of affect include company performance, the organization's rewards systems, culture, individual goal-performance discrepancy levels, physical surroundings, layout of the work area, and crowdedness of office space (Baron, Russell, & Arms, 1985; George & Brief, 1996; Weiss & Cropanzano, 1996).

Although some have argued that positive and negative affect are simply opposite ends of a single continuum, work by Watson and colleagues (e.g., Watston, et al., 1988; Watson & Tellegen, 1985) suggests otherwise. Their factor analytic findings indicate that positive and negative affects represent independent dimensions of affect. Furthermore, the two dimensions have been demonstrated to have different correlates (e.g., Watson & Clark, 1984) and antecedents (e.g., Costa & McCrae, 1980; Warr, Barter, & Brownbridge, 1983), and to be differentially related to life events (e.g., Zautra, 1983).

As stated previously, SCT purports that negative GPD states (i.e., goal failure) are likely to bring about increases in negative affect and decreases in positive affect (e.g., Bandura, 1986;

Locke & Latham, 2002). When individuals fail to reach established goals this creates a sense of disturbance, which results in feelings of dissatisfaction. Numerous studies have shown support for this link (e.g., Bandura & Cervone, 1983; Mikulincer, 1988; Mone & Baker, 1992; Pittman & Pittman, 1979; Thomas & Mathieu, 1994). For example, Bandura and Cervone (1983) found that individuals experiencing a large, negative GPD on an ergometer task exhibited higher levels of self-dissatisfaction than individuals who experienced smaller discrepancies. Similarly, Thomas and Mathieu (1994) found that individuals who missed reaching their personal goals on course exams were more likely to be dissatisfied with their performance compared to individuals who met their personal goals. Finally, Mone and Baker (1992) found that students who experienced large, negative GPDs on an exam reported higher levels of dissatisfaction with performance compared to individuals who did not experience negative GPDs. Although these studies indicate that performance satisfaction is closely linked to the presence of GPDs, it is important to realize that they focus on performance-related affect, rather than basic, general affect (which is the focus of the present model). However, we still feel that these studies are relevant to the relationship between GPDs and general affect in that satisfaction with performance can be considered a subcomponent of affect in that individuals experience discontentment with specific performance outcomes.

Recent studies have focused on the impact of GPDs on basic, general affective states (Goldstein & Strube, 1994; Ilies & Judge, 2005; Quintela & Donovan, 2004; Woo & Mix, 1997). Within the present model, it is argued that GPDs will exert influence on general affective states that are not specifically tied to performance outcomes (Bandura, 1991) although we acknowledge that performance satisfaction is likely to also be affected by GPDs. For example, Goldstein and Strube (1994) found that students who received failure feedback on course exams

reported higher levels of negative affect compared to students who did not receive failure feedback. Similarly, Woo and Mix (1997) found that students who missed meeting their goal on an exam experienced high levels of positive affect and low levels of negative affect compared to students who reached their goal. In a two part study, Ilies & Judge (2005) found that negative performance feedback on a set of brainstorming tasks, and a knowledge-based task was associated with lower levels of positive affect and higher levels of negative affect, at a within-person level of analysis. Finally, Quintela and Donovan (2004) found that individuals who experienced consecutive goal failure across three trials of a creativity brainstorming task experienced an increase in negative affect and a decrease in positive affect compared to baseline measures. Overall, these findings suggest that negative GPDs for a given task are likely to result in higher levels of negative affect and lower levels of positive affect.

Along the same line, SCT proposes that positive GPD states (i.e., surpassing the goal) are likely to bring about increases in positive affect and decreases in positive affect (e.g., Bandura, 1986; Locke & Latham, 2002). Previous studies suggest that an individual who exceeds his/her performance goal is likely to experience feelings of enthusiasm and positive affect (Goldstein & Strube, 1994; Ilies & Judge, 2005; Martocchio & Webster, 1992; Nichols, Whelan, & Meyers, 1991; Quintela & Donovan, 2004; Tauer & Harackiewicz, 1999; Woo & Mix, 1997). For example, Tauer and Harackiewicz (1999) found that individuals who received positive performance feedback on a word game were more likely to experience positive affect than individuals who received negative performance feedback. Martocchio and Webster (1992) found that clerical and administrative employees who received positive feedback on a microcomputer training performance task reported higher levels of positive affect compared to individuals who did not receive positive performance feedback. Woo and Mix (1997) found that students who

performed successfully on an exam experienced higher levels of positive affect and were more satisfied with their performance than individuals who received negative GPD feedback. Goldstein and Strube (1994) found that students who received success feedback on a course exam reported increases in positive affect compared to students who did not receive success feedback. Finally, Ilies and Judge (2005) found that positive performance feedback on a set of achievement tasks was associated with higher levels of positive affect and lower levels of negative affect. Altogether, these findings indicate that positive GPDs for a given task are likely to result in higher levels of positive affect and lower levels of negative affect. Inversely, negative GPDs are likely to result in higher levels of negative affect and lower levels of positive affect. Based on these findings, it is hypothesized that:

GPDs will be positively related to positive affect. ***(Hypothesis 1a)***

GPDs will be negatively related to negative affect. ***(Hypothesis 1b)***

Affect and self-efficacy.

As noted by many, the role of affect in self-regulation processes has received limited and insufficient attention (e.g., Bower, 1981; Bower & Cohen, 1982; Erez & Isen, 2002; George & Brief, 1992; Isen & Shalker, 1982; Rosenhan, Salovey, & Hargis, 1981, Seo, Barrett, & Bartunkek, 2004). Researchers have typically neglected to consider the influence of affective states on cognition, work-related thought processes, judgments, decision-making, and behaviors. For example, in their literature review, Erez and Isen (2002) indicate that only "2 of 327 published articles found in the PsycINFO database present an empirical exploration of affect's influence on constructs from any motivational theory" (p. 1055).

Recently, a handful of studies have argued that a link between positive and negative affect and self-evaluative cognitive processes exists (e.g., Erez & Isen, 2002; Ilies & Judge,

2005; Scott & Cervone, 2002). For example, in their two-part study, Erez and Isen (2002) found that individuals who were placed in a positive affect induced condition were more likely to have high levels of performance expectancy for an anagram task and a cognitive ability test compared to individuals in a control condition (where affect was allowed to vary naturally). They argue that affective states can critically influence an individual's perception of performance expectancy, which is closely tied to perceptions of self-efficacy (Bandura, 1991). Ilies and Judge (2005) found that individuals' positive affective states partly mediated the relationship between performance feedback and goal-setting such that positive performance feedback on three separate laboratory tasks predicted enhanced positive affect, which led to the establishment of difficult goals. On the other hand, negative performance feedback predicted decreased positive affect, which resulted in the establishment of easy goals. Negative affect was also proposed to mediate the relationship between feedback and goals however, analysis revealed that although there was a trend in the expected direction, the relationship between negative affect and goals was not significant. These researchers argue that affective processes have much to offer in the explanation of motivational self-regulation in that they help clarify the link between performance outcomes and future goal-related processes. The theoretical underpinnings for the link between affect and motivation are based on the frameworks posited by the affect priming, affect-as-information theory, and affect infusion theories.

Affect Priming Model. The affect priming model (Bower, 1981, 1991; Isen, Shalker, Clark, & Karp, 1978) argues that affective states influence the type of information that is recalled or attended to as individuals evaluate their own capabilities for a task. This memory-based model posits that affective states are represented as nodes in a network of associations and linkages. When a node is stimulated, for whatever reason, it results in the "spread of activation" that

stimulates other nodes in the network. According to Bower (1981), the activation of nodes across the associative network of memory ultimately leads to the priming of affect-congruent information. In other words, affect facilitates the recall of mood-congruent material rather than material that is not mood-congruent. Simply stated, people in positive moods tend to recall more positive items from memory than negative items whereas people in negative moods tend to recall more negative items than positive items. It has also been argued that positive affect can go as far as to actively inhibit the recall of negative material whereas negative affect may actively inhibit the recall of positive material (Weiss & Cropanzano, 1996).

Given this line of reasoning, it can be inferred that affective states prime information that pertains to the self-perceptions one carries about him/herself. In other words, positive affect prompts positive self-relevant information to be recalled, while negative affect prompts negative self-relevant information to be recalled. This affect-dependent recall of information may subsequently impact efficacy levels in that positive self-relevant information serves to enhance an individual's level of self-efficacy whereas negative self-relevant information serves to diminish levels of self-efficacy. In short, when individuals are called to make self-efficacy evaluations, they search their memories for information corresponding to the affective state that they are in. This information may be in the form of self-efficacy judgments. Altogether, affect influences *what* kind of self-relevant information people recall, attend to, and select. Given this proposition, affect priming serves as an important theoretical mechanism in which to better understand the link between affect and motivation (Bower, 1991; Erez & Isen, 2002; Isen, 1999).

Affect-as-information. An alternate position to the memory-based explanation of the impact of affect on motivation is the affect-as-information model advocated by Schwarz and Clore (1983). This perspective posits that affective states have a more direct influence on

perceptions such that they serve as *actual input* for self-efficacy formation. That is, individuals may simply ask themselves how they *feel* about a certain task or activity and in turn rely on these emotional states to establish self-evaluative judgments. The main tenet of this framework suggests that the affective state an individual finds herself in serves as a piece of information that is utilized to indicate how she perceives herself in a self-evaluative context. Thus, residual affective states function as information that can infuse evaluative judgments of unrelated topics or events. According to this perspective, positive affective states provide the basis for high levels of efficacy, while negative affective states provide the basis for low levels of self-efficacy.

A recent adaptation of the affect-as-information theory is provided by the affect infusion model (Forgas, 1995). Affect infusion denotes a process by which affectively loaded information exerts a gradual influence on, and becomes embedded in, a person's cognitive processes. In this model the impact of affect on judgments are organized in terms of processing strategy. The nature and extent of affect infusion depends on what kind of processing strategy is being used by the individual when approaching a particular task (Forgas & George, 2001). According to this perspective, simple tasks that require performing routine, repeated actions may solicit limited constructive thinking (Fiedler, 1991) and thus may not be influenced by affect. On the other hand, complex strategic tasks that require open thinking and interpretation of ambiguous informational cues should require highly constructive and systematic processing that will more than likely be influenced by affect (Forgas & Vargas, 1998). These propositions argue that affective states may not always exert an influence on cognitive processes, especially when the processing strategy is simple, requiring no cognitive elaboration of available informational stimuli. As such, it is suggested that when employees' judgments and behaviors are dictated by well-established habits and routines, they are not likely to rely on their affective state in the

formulation of self-efficacious beliefs. In contrast, for more complex tasks, affect infusion will occur such that more extensive and elaborate processing may facilitate the influence of affect on self-efficacy.

Empirical support for the link between affect and self-efficacy can be seen in several works. For example, Williams (2002) found a significant relationship between affective states and self-efficacy for health related behaviors among ill subjects such that negative affect was associated with low levels of confidence in individuals' ability to engage in exercise and healthy eating habits. Cinciripini et al. (2003) showed that self-efficacy mediated the relationship between depressed mood and nicotine abstinence such that elated moods lead to higher levels of self-efficacy for smoking cessation, which in turn predicted nicotine abstinence for over six weeks. Tillema, Cervone, and Scott (2001) found that students who reported dysphoric moods were more likely to exhibit lower levels of self-efficacy for various everyday activities compared to individuals in a non-dysphoric mood. Forgas, Bower and Moylan (1990) showed that affective states were linked to self-efficacy for exam performance among students who felt they had performed unsuccessfully on a previous exam. Baron (1988; 1990) found that after receiving destructive criticism on a goal-related task, individuals experienced enhanced negative affect, which resulted in reduced levels of self-efficacy. Finally, Saavedra and Earley (1991) found that students who experienced negative affect after receiving substandard performance feedback on an employee performance evaluation task had unfavorable self-efficacy expectations for the same task on a subsequent trial.

Although this body of literature supports the link between affective states and self-efficacy, it is important to realize that the evidence described above simply indicates that affect may impact efficacy perceptions for future performance of the *same* task. It does not indicate

whether or not performance related affect will impact self-efficacy for a *distinct* task. To date, Quintela and Donovan (2004) is the only study that has examined this possibility. Findings from their study indicate that individuals who experienced heightened levels of negative affect and diminished levels of positive affect due to consecutive goal failure on a creativity task reported decreased levels of self-efficacy for a subsequent analytical task. This finding is in support of Isen and Barron's (1991) theoretical perspective that affect influences a wide variety of cognitive and behavioral responses that may not be connected to the original source of affect. Based upon the mechanisms described by the affective priming theory, the affect-as-information perspective, and the affect infusion model it is possible that residual affective states from a given task domain could prime informational cues or actually function as information that could impact self-efficacy associated with a distinct task domain. The present study attempts to link affect stemming from performance of an initial task to self-efficacy perceptions for a distinct, subsequent task. As such, it is hypothesized that:

> Positive affect resulting from one task will be positively related to self-efficacy for a subsequent, distinct task (***Hypothesis 2a***)
>
> Negative affect resulting from one task will be negatively related to self-efficacy for a subsequent, distinct task (***Hypothesis 2b***)

Self-efficacy and goal-setting. In contrast to the somewhat limited empirical support for the affect-self-efficacy linkage, the relationship between self-efficacy and goal-setting is one of the more well established findings in the literature on work motivation. Self-efficacy refers to "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (Bandura, 1986; p.391). SCT argues that self-efficacy influences the choices people make, their aspirations, how much effort they exert, and how long

they persevere in the face of obstacles (Bandura, 1986). An individual's efficacious beliefs in their abilities is theorized to influence goal-setting processes within performance contexts (Bandura, 1991; Locke & Latham, 1990; 2002). The more capable individuals judge themselves to be on a given work assignment, the higher the goals they set for themselves. On the other hand, the less capable individuals judge themselves to be, the lower the goals they set for themselves.

A number of studies have found evidence for the positive influence of self-efficacy on the goal establishment process. These studies assert that self-efficacy plays a key role in determining personal goal level (Bandura & Locke, 2003; Breland & Donovan, 2005; Chen, Gully, Whiteman, & Kilcullen, 2000; Locke, Fredrick, Lee, & Bobko, 1984; Locke & Latham, 1990; Phillips & Gully, 1997; Wofford, Goodwin, & Premack, 1992). For example, Locke et al. (1984) found that students who reported higher levels of self-efficacy for a task established more challenging goals for themselves compared to individuals who reported low levels of self-efficacy, after controlling for past performance. Phillips and Gully (1997) found that students who were efficacious in their ability to perform well on an academic task were more likely to set challenging goals compared to individuals who were not efficacious in their ability to succeed. In a two-part study, Breland and Donovan (2005) found that individuals with high levels of self-efficacy for exam grades and for a complex decision-making task were more likely to set higher goals for themselves compared to individuals with low levels of self-efficacy for each task. Chen et al. (2000) demonstrated that individuals who reported high levels of self-efficacy associated with learning performance on course exams established more challenging goals for themselves compared to individuals who reported low levels of self-efficacy. Finally, in their review of the goal-setting literature, Locke and Latham (1990) reported an average correlation of .39 between

an individual's self-efficacy associated with a given task and his/her personal performance goal. Altogether the previously mentioned findings suggest that individuals that are highly efficacious with respect to a task tend to set more challenging or difficult goals for themselves than individuals who are less efficacious. Given these well-established findings, it is proposed that:

Self-efficacy will be positively related to the goals that individuals set for themselves (***Hypothesis 3***).

Goal setting and performance.

It is a well established finding in the field of work motivation that goals are positively related to work-related outcomes such as strategy development, planning activities, and performance. In early works by Lewin (1951) and Ryan (1970) terms such as "level of aspiration" and "intentions" were used to describe what is now known as goal-setting behavior. They demonstrated that "level of aspiration" and "intentions" played an important role in determining performance levels. Currently, the most popular goal-based theory of work motivation is goal-setting theory (GST) (Locke, 1968; Locke & Latham, 1990). The basic tenet of GST is that the establishment of challenging goals will likely produce heightened performance levels compared to less challenging goals (Locke and Latham, 1990). According to these theorists, difficult goals generally have a positive influence on performance such that these goals help to clearly define satisfactory levels of performance, increase the amount of effort exertion, increase determination toward goal attainment, enhance the engagement of in-depth strategy development, and direct individuals toward goal-related activities.

Numerous tests of the goal-setting model have consistently demonstrated that challenging goals are related to higher levels of performance (Locke & Latham, 1990; 2002; Tubbs, 1986; Mento, Steel, & Karren, 1987; Wood, Mento, & Locke, 1987). For example, Tubbs' meta-

analytic review demonstrated that difficult goals were positively associated with performance levels across a variety of different tasks. Similarly, in Wood et al.'s (1987) meta-analytic study the authors revealed that difficult goals were related to enhanced performance levels, specifically when task difficulty was low compared to high. DeShon and Alexander (1996) found that students who set high goals for a complex learning task performed better compared to students who set low goals for themselves. Breland and Donovan (2005) demonstrated that self-established goals were positively related to exam grades and performance on a complex decision-making task such that challenging goals were associated with high exam grades and success on a naval radar simulation task compared to easy self-set goals. Finally, Locke and Latham (1990) present over 200 studies that, for the most part, collectively demonstrate a positive relationship between goal-level and performance. Altogether, these findings provide strong support for the positive relationship between goals and performance. As such it is hypothesized that:

> Self-established goals will be positively related to an individual's level of task performance (***Hypothesis 4***).

Method

Participants

Two hundred and one undergraduate students from a large southeastern university enrolled in psychology and management courses participated in the present study in exchange for receiving extra-credit toward their course grade.

Procedure

Upon arrival to a computer laboratory, participants were asked to read an informed consent form and sign it if they chose to participate in the study. Participants were told that the

purpose of the study was to examine decision-making processes on task performance. They were notified that the information they provided would be held confidential, and that their participation was completely voluntary. Please refer to Appendix A, which summarizes the procedural events described below in tabular form.

Practice Trials. First, participants were asked to fill out a baseline measure assessing affect (Appendix B). Next, the participants were asked to complete a series of four practice trials, two for a stock-predicting computer-based task and two for a creativity computer-based task. The order of the practice trials alternated from one task to another starting with the creativity task first. Before they began each practice trial, participants were asked to read through four to five instructional screens to obtain information about how to complete the tasks.

Creativity tasks. The first creativity task was named "Locks". The objective was to name as many "locks" as possible. Participants received immediate feedback after every response was entered. Five points were awarded for a creative response (i.e., Goldilocks, Maalox), one point for a common response (i.e., bike lock, door lock), and zero points if the response did not match those responses found in the word bank. The second creativity task was named "Bears". The objective was to name as many "bears" as possible. Participants received immediate feedback after every response was entered. Five points were awarded for a creative response (i.e., barefoot, Bering Strait), one point for a common response (i.e., grizzly bear, teddy bear), and zero points if the response did not match those responses in the word bank. These creativity tasks were adapted from a workbook for children, in which the activities are designed to be brainstorming in nature, and the objective is to enhance problem-solving skills (Micklus, 1989).

Stock predicting task. This task was devised by Earley, Connolly, and Ekegren (1989) and consists of predicting stock prices for fictitious companies. Participants were asked to predict

the stock value for 25 companies given the following pieces of information about each company: (a) the performance of the company's marketing, (b) research and development and (c) production decisions relative to their own division goals. The cues were given in percentages (e.g., "marketing=100%, research and development=120% and production=60%"). The percentages represent how well each department did relative to their own departmental goals. For example when "research and development = 120%" this indicates that the department exceeded their goals by 20%, when "research and development = 70%" this indicates that the department missed their goals by 30%. Based on this information, participants were asked to predict the value of each company stock within $25 of the correct stock value. Participants were allotted ten seconds to make a prediction and the value of the stocks ranged from $10 to $150. After each prediction was made, immediate feedback was provided indicating whether or not the predicted stock price fell within $25 of the correct stock value. Those predictions that fell within $25 of the correct stock value were awarded with one point. For each practice trial participants were given information about 25 fictitious companies and were instructed to make a prediction for each company. The stock-predicting task was chosen as this exercise is novel and requires systematic and constructive thinking. Affect theorists argue that simple tasks that require performing routine, repeated actions may not be influenced by affective states whereas complex tasks requiring interpretation of ambiguous cues will more than likely be influenced by affect (Forgas & Vargas, 1998). Thus, a complex strategic task utilizing ambiguous informational cues about company performance was chosen since individual performance on these types of tasks is theorized to be influenced by affective states.

In order to test the hypothesis that spillover occurs from one task to an altogether separate and distinct task, it is important to choose two tasks that are distinct from one another. The

creativity and stock predicting tasks have been chosen based on the divergent skills necessary to perform well on each task. The stock predicting task is analytical in nature in which individuals must process information based on informational cues about a company to make quick decisions about a stock value. On the other hand, in order to perform well on the creativity tasks individuals must generate innovative ideas and produce creative responses. Huffcutt, Conway, Roth, and Stone (2001) assert that "creativity" reflects the capability to generate innovative solutions. Many argue that creativity is different from the concept of analytic capabilities because it requires the flexibility of thought, originality, and the ability to see beyond current structures (Cohen & Swerdlik, 1999). Based on this, the stock predicting and creativity tasks were chosen as they represent different domains of mental capability or skill sets. It should be noted that as part of their piloting efforts, Quintela and Donovan (2004) found that individuals rated these tasks to be distinct in nature. Moreover, a task distinctiveness measure (Appendix F) was included in the present study to assess the divergence of these tasks. Following the practice trials, participants were asked to complete a baseline measure of self-efficacy associated with the stock-predicting task (Appendix C).

Creativity Performance Trial

Next individuals were asked to perform a creativity task. The creativity task was named "generals" whereby the objective was to name as many "generals" as possible. Participants received five minutes to generate responses for the performance trial. Prior to the performance trial, participants were asked to set a goal (Appendix D), indicating how many creative responses they would aim to produce. During the performance trial participants received immediate feedback after every response was entered. They were told whether the response they generated was "common", "creative" or "inappropriate". At the end of the trial, individuals were provided

with goal-performance discrepancy feedback. This feedback indicated the extent to which they met/missed/exceeded their goal. Additionally, a percentage value indicator was provided representing the percentage by which individuals missed/exceeded their goal. Finally, a qualitative statement such as "Congratulations, you've reached/exceeded your goal!" or "Your performance was unsatisfactory, you didn't reach your goal" was be provided. Following the performance trial participants were asked to fill out measures assessing, positive and negative affect, and self-efficacy for the stock-predicting task.

Stock-Predicting Performance Trials

Next, participants underwent a performance trial for the stock-predicting task. Prior to the trial, individuals were asked to set a performance goal (Appendix E). Participants were presented with 30 fictitious companies and were asked to predict the value of each company stock within $10 of the correct stock value. Again, participants were given the following informational cues about each company prior to making a prediction: (a) the performance of the company's marketing, (b) research and development and (c) production decisions relative to their own division goals. Participants were allotted ten seconds to make a prediction and the value of the stocks ranged from $10 to $150. After each prediction was made, immediate feedback was provided to indicate whether or not the predicted stock price fell within $10 of the correct stock value. At the end of the trial, individuals were provided with goal-performance discrepancy feedback. This feedback indicated the extent to which they met/missed/exceeded their goal. Additionally, a percentage value indicator was provided representing the percentage by which individuals missed/exceeded their goal. Finally, a qualitative statement such as "Congratulations, you've reached/exceeded your goal!" or "Your performance was unsatisfactory, you didn't reach

your goal" was provided. After reviewing their performance feedback, participants were told that they reached the end of the experiment and they were debriefed as to the purpose of the study.

Measures

Goal-performance discrepancy (GPD). GPDs was computed as the point difference between an individual's self-set goal and performance. Positive scores indicate that performance was higher than goals, and the larger the score the farther performance was from the goal. Negative scores indicate that performance was lower than goal, and the larger the score the farther performance was from the goal.

Affect. The Positive and Negative Affect Schedule (PANAS) (Watson et al., 1988) measured positive and negative affect (see Appendix B). The PANAS consists of 10 feelings or emotions reflecting negative affect (i.e., distressed, irritable, upset) and 10 feelings or emotions reflecting positive affect (i.e., interested, excited, active). Participants were instructed to indicate the extent to which each item characterizes how they feel at the present moment. Responses for each scale were made on a five-point scale (1= very slightly or not at all; 5 = extremely) and were summed to represent the participants' negative/positive affect (possible range for each scale = 0 to 50). The reliability of this scale at Time 1 assessed by Cronbach's coefficient alpha was .80 for the negative affect scale and .92 for the positive affect scale. The reliability of this scale at Time 2 assessed by Cronbach's coefficient alpha was .81 for the negative affect scale and .94 for the positive affect scale.

Specific self-efficacy. Task specific self-efficacy (SSE) was assessed using a 10-item scale, based on the self-efficacy scale developed by Phillips and Gully (1997) (see Appendix C). For the purposes of the present study, items were adjusted to reflect participants' beliefs in their abilities to perform the stock-predicting task. The measure included items such as "I feel

confident in my ability to perform well on the upcoming stock-predicting task". Responses were made on a five-point scale ranging from (1) "strongly disagree" to (5) "strongly agree". The total self-efficacy score is the computed sum of responses of individual items. The reliability of this scale assessed by Cronbach's alpha was .82 at Time 1 and .83 at Time 2.

Performance goal -creativity task. Participants were instructed to set a performance goal for the creativity task (see Appendix D). They were asked to indicate how many creative responses they can produce, one being the easiest goal and 30 being the most difficult goal. The most difficult goal (30) was determined by computing the sum of the total number of creative responses included in the word bank for the "generals" task.

Performance goal -stock-predicting task. Participants were instructed to set a performance goal for the stock- predicting task for each of two performance trials (see Appendix E). They were asked to indicate how many stock values, out of 30, they could predict within $10 of the correct stock value, one being the easiest goal and 30 being the most difficult goal.

Task distinctiveness questionnaire. Participants were asked to respond to 4 questions assessing the extent to which they perceived the experimental tasks to be different (Appendix F). A sample question is "The creative task and the stock predicting task are very different from one another." Responses were made on a five-point scale ranging from (1) "strongly disagree" to (5) "strongly agree". Higher scores for each item indicate higher levels of perceived dissimilarity between the two tasks. The responses to this scale were summed across the four items resulting in a scale with a possible range of 4 (indicating the tasks are very similar) to 20 (indicating the tasks are very dissimilar). The reliability of this scale assessed by Cronbach's alpha was .76.

Analyses

To evaluate the proposed theoretical model, LISREL 8 (Jöreskog & Sörborm, 1993) was used to calculate all parameter estimates based upon the study covariance matrix. To accomplish this, a model was constructed in which each latent variable was represented by a single indicator and all parameter estimates were corrected for measurement error utilizing the obtained reliability estimates and observed variances for all variables. More specifically, the path from each latent variable to its single indicator was fixed at a value of 1.0, while the error variance estimates were fixed to equal one minus the reliability estimates multiplied by the observed variance of each variable (cf. Bollen, 1989; Hayduk, 1987). Following the recommendations of Anderson and Gerbing (1988) the reliability of practice trial performance (ability), performance goals, and stock-predicting task performance was set at .95, and the reliability of the goal-performance discrepancy for the creativity task was set at 1.00.

The fit of the proposed theoretical model was evaluated following Bollen's (1990) recommendation to interpret multiple indices of model fit. Thus, LISREL fit statistics such as the chi-square test, the root mean-mean-square error of approximation (RMSEA), the standardized root-mean-square residual (RMR), the goodness-of-fit index (GFI; Bollen, 1990), adjusted goodness-of-fit index (AGFI; Bentler, 1983), and the comparative fit index (CFI; Bentler, 1990) were estimated to assess how well the proposed model fit the data. According to Browne and Cudeck (1993) and Joreskog and Sorbom (1993) the criterion estimate for model fit acceptance is below .08 for the RMSEA and the standardized RMR and above .90 for the GFI, AGFI, and CFI. It is important to note that the fit indices reported in the present study were interpreted with some caution, as the degrees of freedom associated with the hypothesized model were moderately small. Greater emphasis was placed on the significance, direction, and magnitude of the parameter estimates, as they assess the hypothesized relationships between variables.

Results

Table 1 reports the means, standard deviations, and intercorrelations for all variables examined.

Task distinctiveness. The distinctiveness of the experimental tasks was assessed to determine whether individuals perceived the strategies utilized for the creativity and stock-predicting task were different. The mean for this scale was 15.31 (SD = 3.44), which was significantly different than the mid-point (t[200] = 13.66, $p < .01$). This indicates that individuals perceived the two tasks to be distinct from one another thereby permitting the test of motivational spillover across task domains.

Control variables. Prior to testing the hypothesized model, it was decided to partial out the variance accounted for by the baseline measures of affect and self-efficacy, and performance on the second practice trial of the stock predicting task (labeled ability) by including these variables in the proposed model (see Figure 2). The decision to statistically control for these variables was made so that the hypothesized relationships of interest would not be confounded by the variance accounted for by baseline measures. In order to do this, path coefficients were estimated between baseline positive affect and positive affect at Time 2, baseline negative affect and negative affect at Time 2, baseline self-efficacy and self-efficacy at Time 2, and between ability and goal, and performance.

GPDs. Prior to testing the hypothesized models, the level of variability in GPDs on the creativity task (i.e., Task 1) experienced by participants was examined. This was done to ensure that that there was adequate variability in GPDs, since they play a pivotal role in the hypothesized model. Descriptive analyses revealed that GPDs ranged from -24 to 5. Thirty two percent of participants experienced positive GPDs on the creativity task, and 68% experienced

negative GPDs. These results indicate that an adequate level of variability in GPDs was found in the present study's sample.

Test of the Hypothesized Model.

The results of the analyses for the hypothesized model revealed that the data fit the model reasonably well (χ^2 [23] = 38.66, $p < .05$, standardized RMR = .05, RMSEA = .06, GFI = .96, AGFI = .91, CFI = .97), providing some initial support for the model. Although the statistical test associated with the chi square estimate was significant, some researchers suggest that is sensitive to trivial differences between the observed and replicated covariance matrix, which may consequently lead to the rejection of well fitting models (Joreskog & Sorbom, 1993). Given this high level of initial fit, the standardized parameter estimates for the individual paths were examined. Figure 3 reveals that many of these estimates provide support for the hypothesized relationships. In the following, the results pertaining to each set of hypotheses will be discussed.

Hypothesis 1. The first set of hypotheses specified a relationship between GPDs and affect. Hypothesis 1a stated that GPDs would be positively related to positive affect. The standardized path coefficients indicated that GPDs were predictive of positive affect ($\beta = .23$, $p < .05$) such that individuals who received negative GPDs experienced low levels of positive affect, and individuals who received positive GPDs experienced high levels of positive affect. This finding provides support for hypothesis 1a. Hypothesis 1b stated that GPDs would be negatively related to negative affect. The standardized path coefficient indicated that GPDs were not related to negative affect ($\beta = -.04$, t[200] = -.56, ns) thus, failing to support hypothesis 1b.

Hypothesis 2. The second set of hypotheses specified a relationship between affect and self-efficacy. Hypothesis 2a stated that positive affect resulting from GPDs on the creativity task would be positively related to self-efficacy for the stock-predicting task. The standardized path

coefficient indicated that positive affect was predictive of self-efficacy ($\beta = .11$, $p < .05$) such that individuals who experienced low levels of positive affect after receiving negative GPD feedback on the creativity task exhibited low levels of self-efficacy associated with the stock-predicting task. On the other hand, individuals who experienced high levels of positive affect after receiving positive GPDs on the creativity task exhibited high levels of self-efficacy for the stock-predicting task. This finding provides support for hypothesis 2a. Hypothesis 2b stated that negative affect resulting from GPDs on the creativity task would be negatively related to self-efficacy for the stock-predicting task. The standardized path coefficient indicated that negative affect was not associated with self-efficacy ($\beta = .02$, $t[200] = .45$, ns) thus, providing no support for hypothesis 2b.

Hypothesis 3. Hypothesis 3 stated that self-efficacy would be positively related to the goals that individuals set for themselves. The standardized path coefficient indicated that self-efficacy was predictive of personal goals ($\beta = .32$, $p < .05$) such that individuals who experienced low levels of self-efficacy set lower goals for themselves on the upcoming stock-predicting task, whereas individuals who experienced high levels of self-efficacy set higher goals for themselves.

Hypothesis 4. Hypothesis 4 stated that personal goals would be positively related to an individual's level of task performance. The standardized path coefficient indicated that personal goals were predictive of performance ($\beta = .15$, $p < .05$) such that individuals who set low goals for themselves demonstrated low levels of performance whereas individuals who set high goals for themselves demonstrated high levels of performance.

Summary. Altogether, the results provide evidence for the occurrence of motivational spillover such that GPDs on the creativity task were positively associated with positive affect, and that this positive affect was in turn predictive of self-efficacy associated with the stock-

predicting task. In addition, self-efficacy was positively associated with individuals' self-established goals, and these goals were predictive of task performance.

Alternative Models

Consistent with the recommendations of numerous researchers (e.g., Hoyle & Panter, 1995; MacCallum et al., 1993) two alternative models were examined to determine if the proposed model could be improved through modifications made on a theoretical basis. The first alternative model sought to determine if GPDs exerted a direct effect on self-efficacy (in addition to its indirect effect through positive affect) by adding a path between GPD and self-efficacy. This alternative model was based on previous studies that have suggested that GPDs may have a direct effect on an individual's level of self-efficacy (e.g., Bandura & Cervone, 1983; Thomas & Mathieu; 1994; Williams et al., 2000). The results for this model indicated that the added path was not significant and failed to improve model fit ($\Delta\chi^2[1] = .93$, ns), suggesting that the relationship between GPD and self-efficacy was mediated by positive affect. The second alternative model tested the possibility that positive and negative affect exerted a direct influence on goal-setting by adding a direct path between the affect variables and performance goals. This alternative model was tested based upon previous research by Hom and Arbuckle (1988) and Scott and Cervone (2002), who found that individuals in a positive affective state reported setting higher goals for themselves on a task and individuals in a negative affective state reported setting lower goals for themselves. The results of this analysis showed that neither of these paths were significant, and the addition of the paths did not improve model fit ($\Delta\chi^2[2] = .11$, ns), indicating that the relationship between positive affect and goal setting was mediated by self-efficacy.

Discussion

Altogether, the findings obtained in the present study provide some evidence for the proposed model of motivational spillover. GPDs on the creativity task were associated with positive affect such that goal success was related to higher levels of positive affect than goal failure. Positive affect stemming from performance outcomes on the creativity task consequently influenced self-efficacy perceptions for a subsequent stock-predicting task such that individuals who experienced higher levels of positive affect were more confident in their abilities to perform well on the stock-predicting task compared to individuals who experienced low levels of positive affect. Confident individuals were more likely to set difficult goals for themselves on the stock-predicting task compared to individuals with little confidence. Finally, individuals who set difficult goals for themselves performed better on the task compared to individuals who set easy goals. In sum, performance feedback on the creativity tasks effectively "spilled over" to impact motivation for a second, distinct task. Although prior research has provided evidence of motivational spillover (Carver et al, 1979; Kernis et al., 1982; Quintela & Donovan, 2004), this study is the first to not only provide evidence of positive and negative spillover (i.e., goal attainment and goal failure) in a natural performance setting, but also to delineate the mechanisms by which this spillover may occur.

Findings and Contributions

GPDs and affect. It was hypothesized that performance feedback on the creativity task would influence affective states such that goal success would result in an increase in positive affect and a decrease in negative affect, and goal failure would result in a decrease in positive affect and an increase in negative affect. Findings revealed that GPDs were predictive of positive affect such that individuals who met or exceeded their performance goals on the creativity task experienced high levels of positive affect, whereas individuals who failed to reach their

performance goal experienced low levels of positive affect. This finding is consistent with social-cognitive theory, which argues that performance feedback that signals success or failure toward reaching a performance goal provokes affective reactions such that positive and negative affective states are experienced among individuals (Bandura, 1986, 1991; Locke & Latham, 2002). This finding is also consistent with previous research indicating that task performance outcomes produce positive and negative affective responses (Goldstein & Strube, 1994; Ilies & Judge, 2005; Martocchio & Webster, 1992; Nichols et al., 1991; Quintela & Donovan, 2004; Tauer & Harackiewicz, 1999; Woo & Mix, 1997).

Findings also revealed that performance feedback did not trigger a negative affect response. This finding is in contrast to Quintela and Donovan (2004), who found that failure feedback was predictive of negative affect. Results from their study indicate that as the magnitude of goal failure increased individuals experienced heightened levels of negative affect. However, as indicated previously, GPDs were operationalized in a different manner compared to the present study. In Quintela and Donovan (2004), performance feedback was strongly manipulated such that one group received increasingly large and repetitive failure feedback across trials (e.g., missed goal by 40%-60%) while another group received minimal repetitive failure feedback across trials (missed goal by 5%-11%). Findings revealed that GPDs were related to negative affect only among individuals that received large and repetitive failure feedback across trials (Quintela & Donovan, 2004). Moreover, not only did individuals receive absolute feedback after each trial (e.g., "you missed your goal by X amount"), but they also received normative feedback (e.g., "you performed worse on this task compared to other undergraduate students"), which is argued to be highly detrimental to individuals' self-perceptions and motivational processes (Kluger & Denisi, 1996; Mikulincer, 1988). In general, it

is maintained that failure feedback that is: (1) largely discrepant from one's goal, (2) repetitive across a number of trials, and (3) and provided within a normative context will likely result in negative affective states (Ilies & Judge, 2005; Kluger & Denisi, 1996). In the present study, it could be argued that the failure to find a relationship between GPDs and negative affect could be attributed to the absence of some or all of these three requirements (large GPDs, repeated failures, and normative context). However, an examination of the level of GPDs experienced by individuals in this study revealed that roughly 46% of participants experienced a negative GPD that indicated that they missed their goal by 40% or more, a level that is analogous to the "large negative GPD" manipulation utilized by Quintela and Donovan (2004). This indicates that participants in this study were experiencing GPDs of a similar magnitude to participants in the Quintela and Donovan (2004) study and were experiencing sizable failures, suggesting that the failure to find a relationship between GPDs and negative affect is not due to the magnitude of GPDs present in this study (i.e., the GPDs were sufficiently large). However, although this rules out one possible reason for the nonsignificant GPD-negative affect relationship, it is possible that this relationship did not emerge because individuals did not experience repeated failures (i.e., there was only one performance trial in the present study), and they were not administered normative feedback. The combination of these two factors could have increased the likelihood of triggering feelings of shame, guilt, and/or sadness (Kluger & Denisi, 1996).

Affect and self-efficacy. It was hypothesized that affective states resulting from GPDs on the creativity task would influence an individual's level of self-efficacy for the stock-predicting task. Findings revealed that self-efficacy associated with the stock-predicting task was influenced by positive affect stemming from GPDs on the creativity task. There was no evidence for the relationship between negative affect and self-efficacy, although a closer examination of the

correlation matrix revealed that GPDs and negative affect were related ($r = -.15$, $p < .05$). The most probable reason for why evidence was not found to support this relationship was the severe positively skewed distribution of negative affect (see Figure 4). That is, the majority of participants in the present study experienced only low levels of negative affect throughout the study (i.e., at baseline and Time 2), with very few experiencing high or even moderate levels of negative affect. The low variability in the data (i.e., a floor effect), may have undermined the likelihood that a relationship between negative affect and self-efficacy would be observed.

The link between positive affect and self-efficacy provides some interesting insights into the self-regulatory processes that span task boundaries. This finding suggests that positive affect is an important mechanism by which motivation spills over across task boundaries such that it completely mediated the relationship between performance feedback and self-efficacy for a distinct task. This mediated relationship not only provides an explanation of how spillover occurs, but also highlights the influential role that positive affect exerts on perceptions of task related capabilities. Although the relationship between affect and self-efficacy has received relatively little attention (with the exception of Erez & Isen, 2002; Scott & Cervone, 2002), the presence of such a relationship is consistent with the theoretical perspectives of both the affect-as-information and affect priming models. These models maintain that affect influences a wide variety of cognitive and behavioral responses that may not be connected to the original source of affect. As such residual affective states from a given task domain could prime informational cues or actually function as information that could impact self-efficacy associated with a distinct task domain. Only one other study to date has found evidence for the influence of GPD generated affective responses in one task domain on self-efficacy for a different task domain (Quintela & Donovan, 2004). These researchers indicate that individuals who experienced high levels of

negative affect and low levels of positive affect as a result of large and repeated goal failures on one task also experienced low levels of self-efficacy for a subsequent, distinct task. Thus, positive and negative affect served as the primary mechanisms of negative motivational spillover. It is the affect (Task 1)-self-efficacy (Task 2) link, evidenced in the present study, that provides a foundation for the occurrence of motivational spillover across task boundaries.

Given the important role that affective states may play in the process of positive and negative spillover, it is surprising that affect has not received more attention in the research conducted on work motivation. As pointed out by Ilies and Judge (2005), part of the reason for this lack of attention is because current self-regulation frameworks offer cognitive explanations of action but do not recognize affective states as potential agents in the process. These researchers recommend that current self-regulation frameworks incorporate theories of affect because they have much to offer in explaining motivational self-regulation. More specifically emotional and affective processes may serve to fill a missing link in the causal chain of self-regulation between task related outcomes and cognitive processes that drive behavior. For example, these theorists draw upon the cognitive-affective personality system theory (Mischel & Shoda, 1995; 1998), affective events theory (Weiss & Cropanzano, 1996), and behavioral motivation theory (Gray, 1981; 1990), to suggest that experienced affect plays a major role in goal-related processes. These affect-based theories argue that affective states have a critical role in linking performance outcomes to future goals such that performance feedback influences individuals' momentary affective states, which in turn influence goal and behavioral regulation. In their study Illies and Judge (2005) found that positive affect partly mediated the relationship between performance feedback and personal goals at the within-individual level of analysis, such that goal failure/success was positively related to positive affect, which in turn influenced goal-

setting on the same task. These theorists assert that in order to explore the various understudied and unexplored processes and phenomenon centered around motivational self-regulation (including positive and negative motivational spillover examined here) current conceptual frameworks must recognize that affective mechanisms can serve to advance self-regulation and motivational theories. Only by incorporating these affective components into the cognitive frameworks of action by relying on current theories of affect as guiding paradigms, and explaining how these affective and cognitive mechanisms influence one another to predict behavior can we come to a clearer understanding of motivational self-regulation.

Self-efficacy, goals, and task performance. Hypothesis 3 stated that self-efficacy would be positively related to performance goals such that individuals with high levels of self-efficacy would establish challenging goals, whereas individuals with low levels of self-efficacy would establish easy goals. Findings revealed that the more capable individuals judged themselves to be on the stock-predicting task, the higher the goals they set for themselves. On the other hand, the less capable individuals judged themselves to be, the lower the goals they set for themselves. This finding is consistent with SCT and previous research that has found evidence for the positive influence of self-efficacy on the goal establishment process (Bandura & Locke, 2003; Breland & Donovan, 2005; Chen, et al., 2000; Locke & Latham, 1990; Phillips & Gully, 1997; Quintela & Donovan, 2004).

Hypothesis 4 stated that an individual's self-set goal for the stock-predicting task would influence the level of performance demonstrated. Findings revealed that personal goals were positively associated with performance levels such that individuals who set challenging goals performed well on the stock-predicting task whereas individuals who set easy goals performed poorly. This finding is consistent with GST and previous research, which indicates that difficult

goals are related to enhanced performance levels (Breland & Donovan, 2002; Locke & Latham, 1990; Tubbs, 1986; Wood et al., 1987). Taken in the context of motivational spillover these results have important implications for practice. They suggest that the level at which an individual performs on a given assignment may be indirectly influenced by performance outcomes and consequent affective reactions that pertain to other task domains. More specifically, it is possible that employees who experience positive spillover (i.e., goal success) will set challenging goals and perform successfully on unrelated projects, whereas individuals who experience negative spillover (i.e., goal failure) will set easy goals and perform poorly on unrelated projects. In sum, the consequential effects of spillover can be evidenced in the goal-setting and performance behaviors of employees for unrelated assignments.

Altogether, results of the present study provide strong support for the occurrence of positive and negative motivational spillover across task domains in a natural performance feedback setting. The principal underlying mechanism by which this phenomenon occurred was through affect such that positive affective reactions to goal success/failure in one task domain effectively spilled over to influence self-regulatory processes for distinct task domain. Although few studies have examined spillover across task domains (e.g., Carver et al, 1979; Kernis et al., 1982; Quintela & Donovan, 2004) the present study is the first to provide evidence for both positive and negative motivational spillover by means of positive affective responses in a natural performance setting.

Implications

Given the results of the present study and past research demonstrating the existence of motivational spillover effects, one clear implication of this research is that the concept of motivational spillover should be incorporated into current models of self-regulation. The notion

that perceptions of task related capabilities can be influenced by performance in separate task domains is not explicitly acknowledged in current depictions of self-regulation, which tend to focus on self-regulatory processes within a given task. For example, SCT would benefit from taking into consideration the possibility that an individual's self-efficacy can be influenced by contextual sources outside of the immediate task environment of focus. By ignoring the impact that GPDs in distinct task domains have on efficacy perceptions for a given task, SCT may be underestimating the importance of the GPD, as well as providing a somewhat limited perspective on the self-regulation of task performance.

Another implication is that goal hierarchies may not be operating in the process of spillover, as evidenced in the present study. In other words, most goal hierarchy frameworks do not propose that goal processing occurs via affective states (i.e., rapidly). Proponents of goal hierarchy theories suggest that it is possible for spillover to be evidenced such that performance outcomes related to lower-level goals could impact higher order feedback loops, which in turn could influence the way in which an individual engages in goal processing for other lower-level goals of distinct nature (Austin & Vancouver, 1996; Kluger & DeNisi, 1996; Lord & Levy, 1994). However, this series of bottom-up and top-down processing is theorized to involve predominantly cognitive-based mechanisms that operate more gradually than affective states do. Therefore, future research should aim to explore the underlying mechanisms and processing speed of motivational spillover by comparing cognitive-based models (e.g., goal hierarchy frameworks) and cognitive-affective-based models (as presented here) of motivational self-regulation.

More interestingly, the current findings point to a glaring inadequacy of the mechanical

depictions of goal processing proposed by theoretical frameworks such as cybernetic control theory of goal processing (Carver & Scheier, 1981; Powers, 1979). Given that traditional goal hierarchy approaches do little in the way of addressing motivational spillover as discussed above, it could be argued that these approaches suffer from theoretical rigidity in their postulations of how goal processing functions. More specifically, depictions of self-regulatory processes offered by traditional control theorists (e.g., Carver & Scheier, 1981; Powers, 1979; Newell; 1990; Vancouver, 2005) describe cognitive processing in a highly mechanical fashion whereby goal processing is said to occur only bi-directionally (i.e., top down and bottom up), and within a restricted time frame. As such GPDs are theorized to impact cognitive processes via a circuitous route whereby only upward and downward movement through the hierarchy is involved. The utilization of a strictly bi-directional framework to conceptualize the manner by which GPDs influence feedback loops across distinct levels of a goal hierarchy may provide for a highly limited and thus inaccurate portrayal of how GPDs operate within a goal system. What is more, this limitation poses an interesting question: Do traditional goal hierarchy frameworks restrict the way in which research is conducted on goal processing? Findings from the present study would suggest that they do, given that mechanical depictions of goal processing cannot explain the cognitive-affective model of motivational spillover evidenced here.

Self-regulation theorists who are opposed to mechanical models of self-regulation would suggest that a less structured approach to examining goal processing could address the self-regulatory phenomenon that mechanical models cannot explain (Fishbach et al., 2004; Shah & Kruglanski, 2003). For example, goal systems theorists suggest that goal processing across the hierarchy can occur in a lateral or diagonal fashion such that program-level goals may impact other unrelated program-level goals directly, without influencing self-concept feedback loops

(Shah & Kruglanski, 2003). Moreover, this type of processing could be interactive in nature such that feedback loops operate in conjunction with contextual, affective, and/or dispositional factors to govern goal processing. These flexible and dynamic theoretical frameworks suggest that self-regulatory processes operate in ways that are more complex than mechanical control systems models would suggest. However, it should be noted that these frameworks are not explicit in their descriptions of the underlying mechanisms that govern goal systems, or how components interact to influence self-regulation. In addition, no research to date has been conducted to either support or refute these assertions.

Although the present study did not explicitly examine goal processing using a goal hierarchy lens, results of the present study would suggest that affective responses to goal-performance discrepancies are important components of feedback loops and goal systems. This finding indicates that mechanical models of self-regulation should undergo some review if they are to adequately explore phenomenon whereby goal processing is not characterized by strictly top-down and bottom-up cognitive processing. On the other hand, dynamic models of self-regulation could be improved by providing more concrete conceptualizations of the relationships that underlie lateral and diagonal processing, and more specifically describe how cognitive, contextual, affective, and/or dispositional factors can potentially interact to effect self-regulation. Altogether, it is critical for theoretical models of goal processing to strike a balance between concrete and flexible conceptualizations of how goal systems operate in order for the exploration and understanding of motivational self-regulation to be advanced.

Given the novelty of the findings of the present study, another implication is that future research should seek to replicate these results and determine if there are boundary conditions that facilitate or limit these effects. For example, feedback characteristics such as magnitude,

frequency, and type of feedback may serve to strengthen or weaken the spillover effect. The contrast in findings regarding the relationship between GPDs and negative affect, between Quintela and Donovan (2004) and the present study, point to the possibility that certain feedback characteristics could impact the GPD-affect relationship. More specifically, the relationship between these two variables could be moderated by the magnitude (i.e., small vs. large), frequency (i.e., single occurrence vs. repetitive across trials), and type (absolute vs. normative) of performance feedback. According to feedback intervention theory (Kluger & Denisi, 1996), strong affective responses to feedback are likely to be brought about by feedback interventions that involve large discrepancies between an individual's referent and actual performance, repetitive administrations of GPDs, and content that is normative in nature (i.e., performance relative to others). In sum, future research should investigate whether feedback characteristics serve as boundary conditions that facilitate or impede the motivational spillover process observed here.

In addition, although this study focused on affective states as the primary mechanisms of motivational spillover, future research should seek to identify other possible mechanisms by which failure on one task spills over to distinct tasks. For example, generalized self-efficacy (Brockner, 1998), emotionality (Fry & Heubeck, 1998), behavioral inhibition and activation systems (Gray, 1981; 1990), or state-like manifestations of the goal orientation construct (Breland & Donovan, 2005) may provide insights into how goal success/failure on one task may influence motivational processes related to tasks of distinct nature.

Finally, from an applied perspective, the present findings indicate that organizations should be aware that motivational processes are not isolated within the parameters of a given task. Performance feedback that is positively or negatively discrepant from one's goal can

influence performance in other task domains. Given that many employees execute multiple tasks of varying nature in a given day, the potential for positive and negative motivational spillover in organizational settings is substantial. As such, in the case of negative spillover, managers may need to monitor employees' task performance and provide assistance and/or skill training when employees fail to reach their goals. On the other hand, in the case of positive spillover, managers may need to exercise caution if employees seem overconfident in their abilities to perform a new task after receiving success feedback on a completed task, so as to prevent setting the employee up for any failure.

It should also be noted that the effects of spillover could be temporary. For example, it is possible that once employees receive feedback on a second assignment, that intra-task self-regulation will resume. That is, the effects of positive or negative spillover will fade when individuals' affective responses are no longer influenced by previous task performance outcomes but instead by outcomes on the immediate task at hand. As such same-task GPDs will "take over" and influence affective responses, self-efficacy, and goal-related behavior. On the other hand, it could be argued that if GPDs associated with a previous task are sufficiently intense (e.g., resulting in hopelessness) that the effects of spillover would persist, even though individuals find themselves currently engaged in performance episodes on an unrelated task (Kluger & Denisi, 1996; Mikulincer, 1988). Although the longitudinal effects of spillover were not examined in the present study future research should aim to investigate how long spillover effects persist in multiple task settings.

Study Limitations

One limitation of the present study was the floor effect found in the negative affect data. There may be reason to believe that this floor effect may have undermined the presence of the

hypothesized relationships involving negative affect. Although the reason for the low variability in the data is unclear, there is no reason to believe that individuals typically experience low levels of negative affect in performance settings. In fact, in their study, Quintela and Donovan (2004) indicated that a normal distribution for negative affect was evidenced for the baseline and post-manipulation measures, and that negative affect significantly increased among individuals who experienced large, repeated goal failure compared to small goal failures. As implied previously however, the direct relationship between GPDs and negative affect revealed in Quintela and Donovan (2004) may have been a result of the strong negative performance feedback manipulation employed by these researchers. As such, future research on motivational spillover should not omit negative affect as a potential mechanism of spillover, despite the lack of support evidenced for the direct relationship between GPDs and negative affect in the present study.

A second limitation is the small number of practice trials offered in the present study. Participants had no previous knowledge of the tasks and were only granted a limited number of trials to become familiar with tasks. It is possible that individuals with substantial experience with a given task may be more cognizant and certain of their capabilities and therefore less susceptible to the influence of performance outcomes from a previous task. In other words, previous experience may serve as a buffer against the likelihood of motivational spillover (Kluger & Denisi, 1996). It is difficult to tell whether individuals in the present study had performed the creativity and stock-predicting task in the past since previous task experience was not assessed. However, it could be assumed that the affect-self-efficacy link would not have emerged if individuals were familiar with the stock-predicting task. According to SCT, memories regarding previous performance outcomes are likely to be primed when individuals perform the

same task a later period. These primed memories will guide behavior such that they will influence self-efficacy, goals, and future performance (Bandura, 1986, 1991; Locke & Latham, 2002). Given this perspective, future research should aim to examine the process of spillover as it pertains to both novel and more familiar tasks.

Conclusion

In conclusion, the results of the present study provide support for a model of motivational spillover in which goal success/failure for a given task impacts self-efficacy and goal-setting for a distinct task through its effects on positive affect. Given these results, along with previous research demonstrating the existence of motivational spillover, future research should focus on exploring other mechanisms involved in this process, as well as conditions that facilitate or hinder the spillover process.

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Table 1.

Intercorrelations Between Variables

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. PA (Time 1)	28.15	8.91	.92										
2. NA (Time 1)	15.59	5.23	.06	.80									
3. Ability (Task 2)	16.63	2.64	.03	-.04	-								
4. SE (Time 1)	33.93	6.60	.17*	-.11	.43**	.82							
5. GPD (Task 1)	-3.04	5.24	-.17*	.01	-.04	-.12	-						
6. PA	24.53	9.22	.72**	-.04	.06	.25**	.08	.94					
7. NA	14.40	4.82	.03	.58**	-.01	-.18**	-.02	-.05	.81				
8. SE	34.00	6.45	.21**	-.08	.34**	.83**	-.07	.33**	-.15*	.83			
9. Goal (Task 2)	13.87	5.09	.06	-.08	.30**	.35**	-.08	.11	-.05	.37**	-		
10. PERF (Task 2)	14.85	3.49	.12	-.02	.36**	.37**	-.02	.09	.06	.33**	.24**	-	
11. TD	15.31	3.44	-.06	-.03	.06	.05	-.08	-.09	-.09	-.04	-.02	.05	.76

Table 1 (continued).

Note. N = 201. Values on the diagonals represent internal consistency reliability estimates. PA (Time 1) = Positive Affect at baseline, NA (Time 1) = Negative Affect at baseline, Ability (Task 2) = Practice Trial 2 for stock-predicting task, SE (Time 1) = Baseline self-efficacy for stock-predicting task, GPD (Task 1) = Goal Performance Discrepancy on creativity task, PA = Positive Affect, NA = Negative Affect, SE = Self-efficacy, Goal (Task 2) = Performance goal on stock-predicting task, PERF (Task 2) = Performance on stock-predicting task, TD = Task Distinctiveness

*correlation is significant at the .05 alpha level (1-tailed)

**correlation is significant at the .01 alpha level (1-tailed).

Figure Caption

Figure 1. Control system goal hierarchy

Figure 2. Proposed model of motivational spillover.

Figure 3. Proposed model with standardized path coefficients.
Note: * denotes a path coefficient that is significant at the .05 alpha level

Figure 4. Sample Distribution of Negative Affect

Figure 1. Control system goal hierarchy

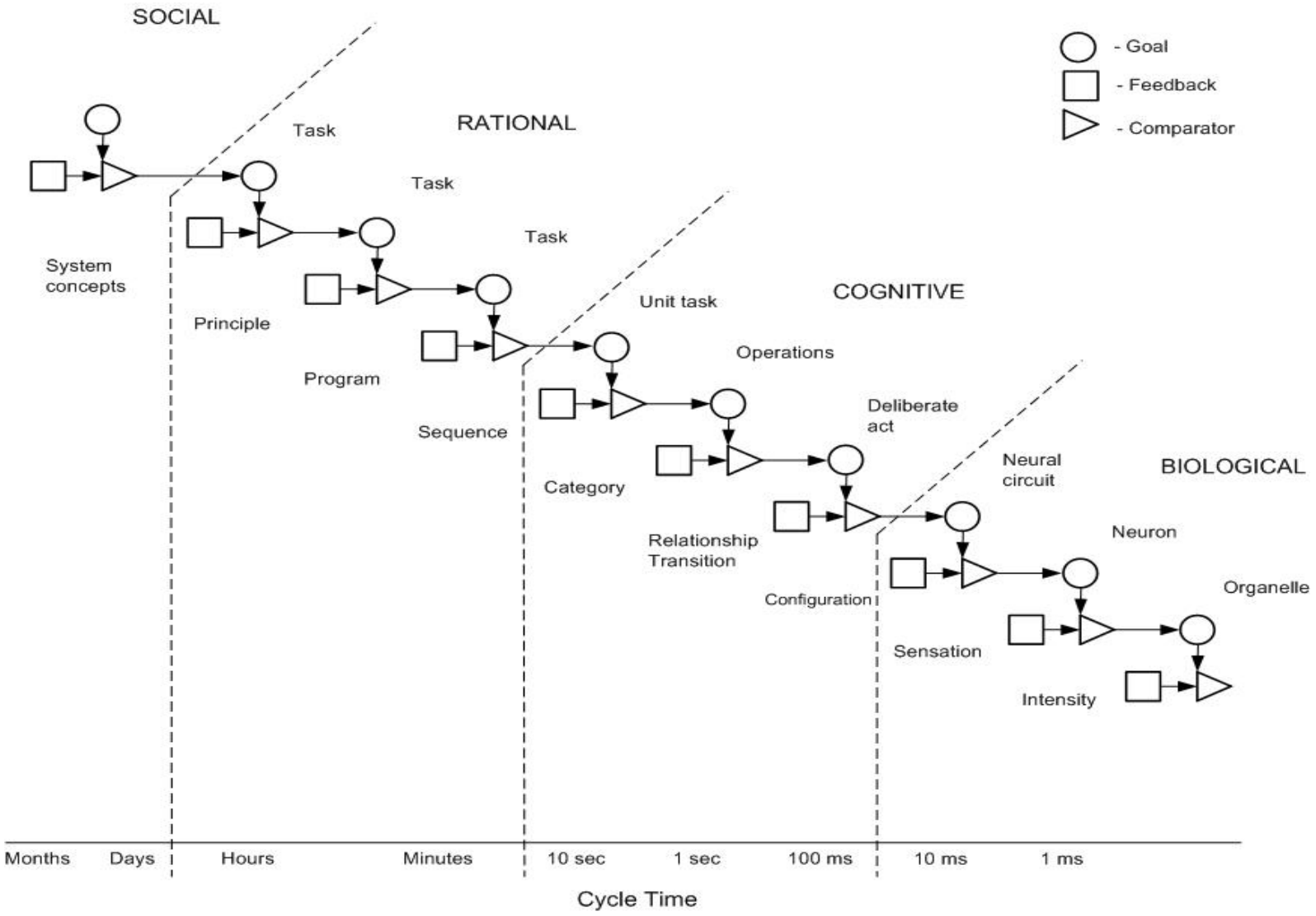


Figure 2. Proposed model of motivational spillover.

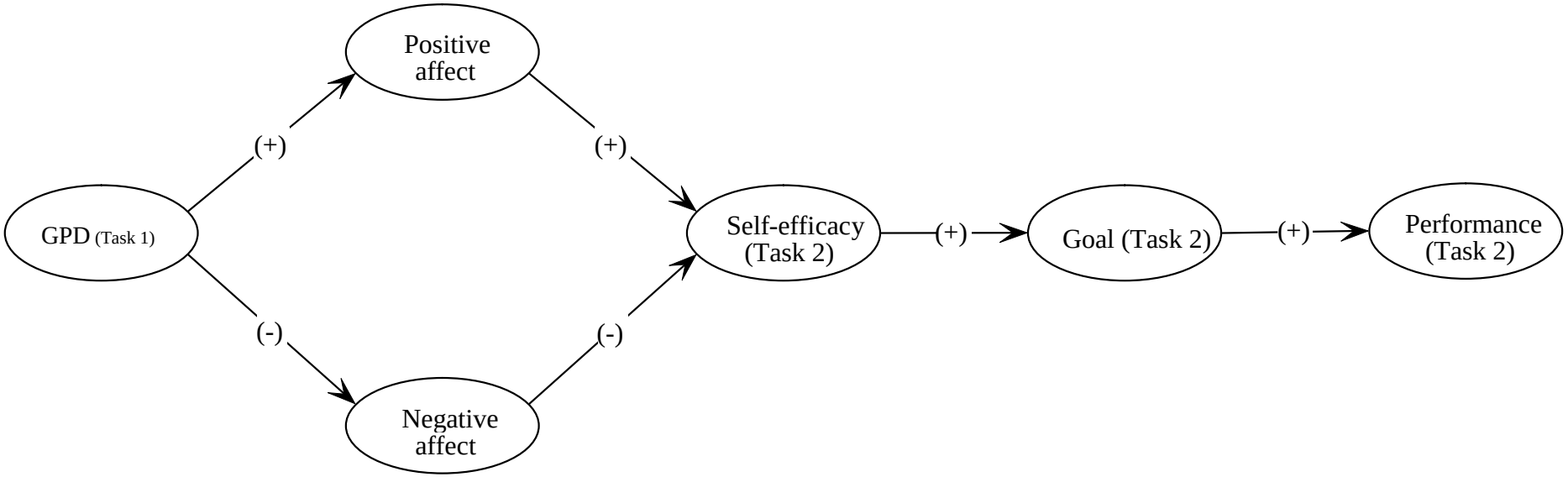


Figure 3. Proposed model with standardized path coefficients.

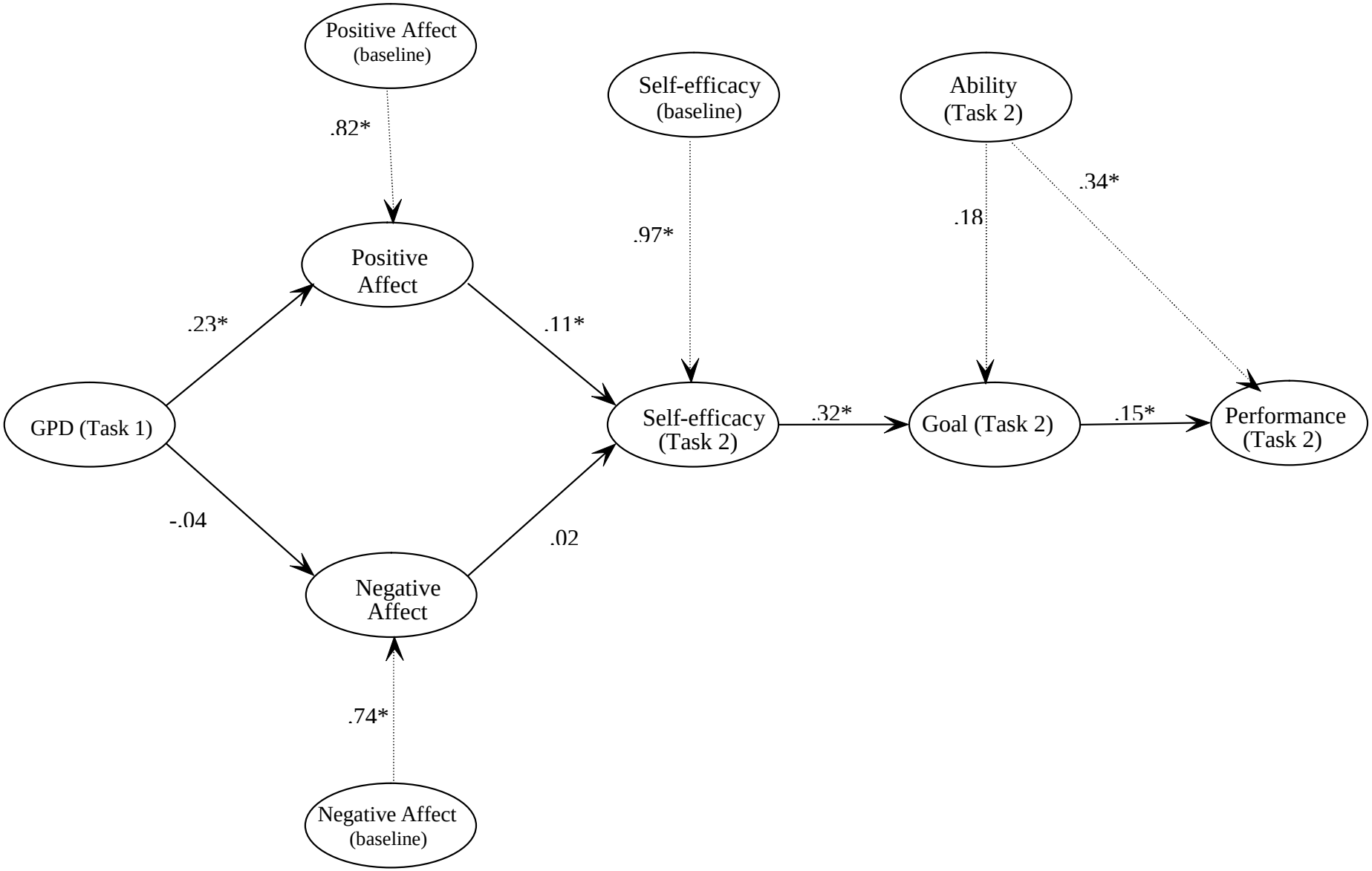
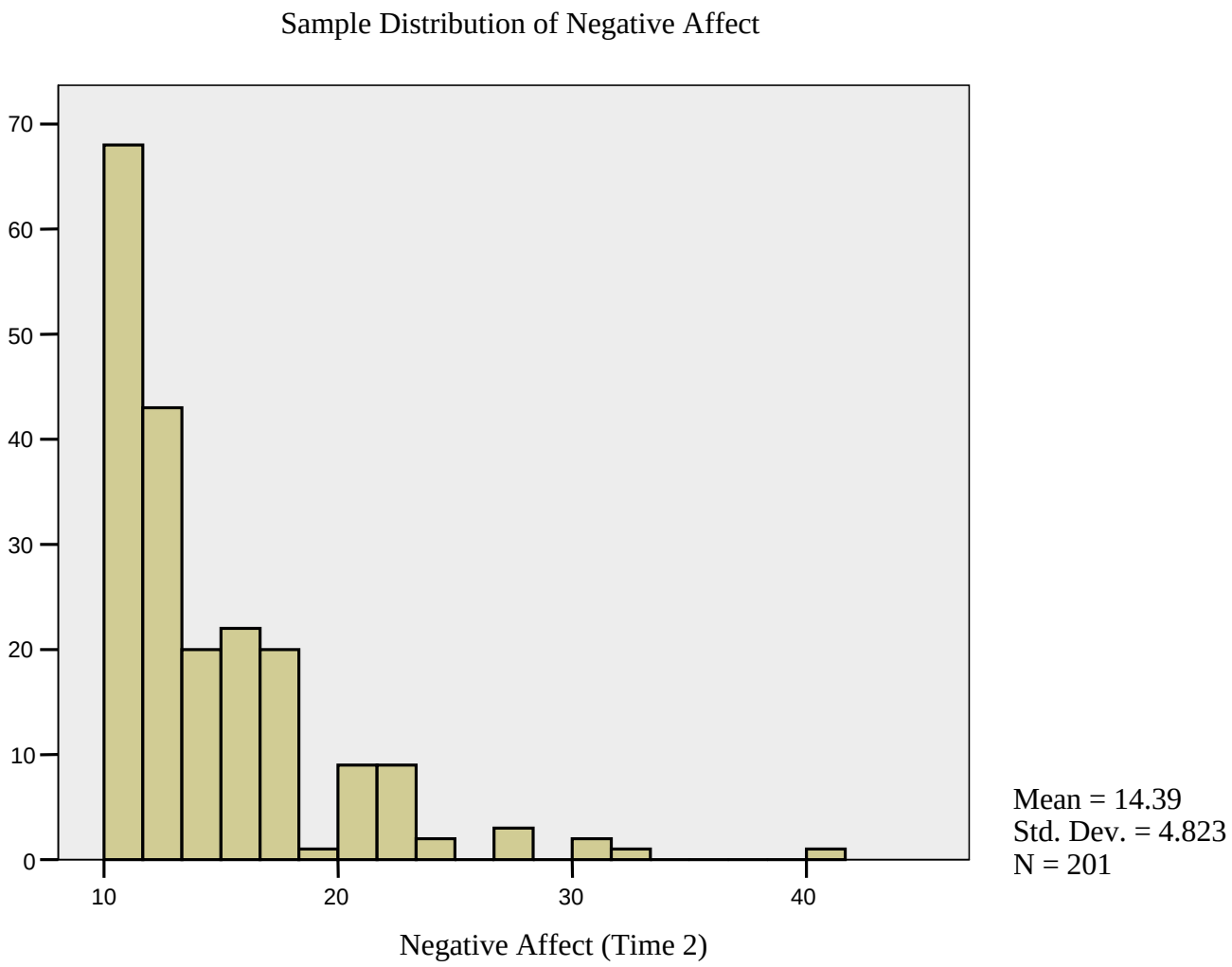


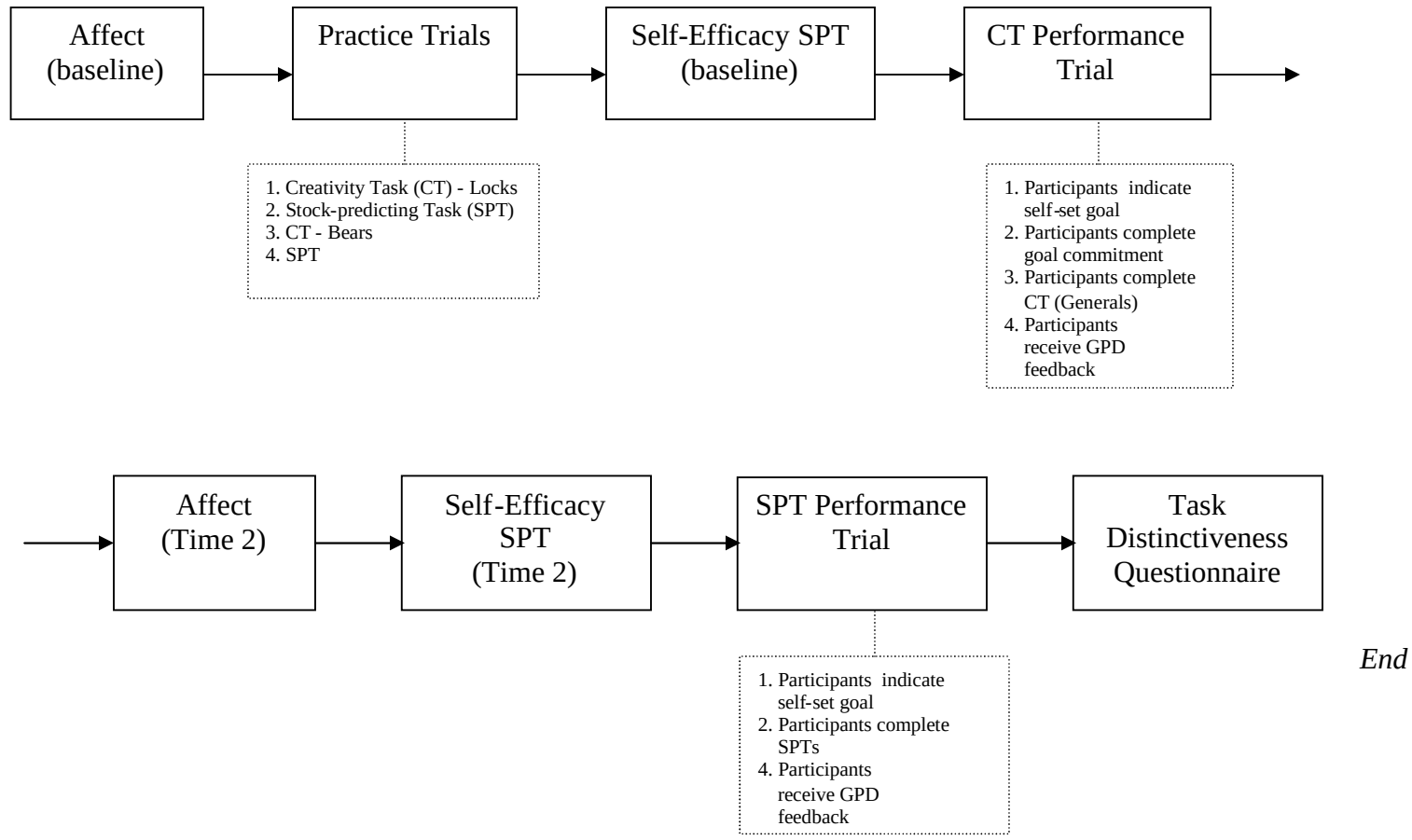
Figure 4. Sample Distribution of Negative Affect



Appendix A

Procedure of Study

Begin



End

Appendix B

Affect

Instructions: This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel this way right now, that is, how you feel at this moment. Use the following scale to record your answers.

1	2	3	4	5
very slightly or not at all	a little	moderately	quite a bit	extremely

_____ interested	_____ irritable
_____ distressed	_____ alert
_____ excited	_____ ashamed
_____ upset	_____ inspired
_____ strong	_____ nervous
_____ guilty	_____ determined
_____ scared	_____ attentive
_____ hostile	_____ jittery
_____ enthusiastic	_____ active
_____ proud	_____ afraid

Appendix C

Specific Self-efficacy

Instructions: Please use the following scale to indicate how well each statement fits you in relation to the stock predicting task you will be performing next. There are no right or wrong answers.

1	2	3	4	5
strongly disagree	slightly disagree	neither agree nor disagree	slightly agree	strongly agree

1. I feel confident in my ability to perform well on the upcoming stock predicting activity.
2. I think that I can earn a satisfactory score on this activity.
3. I am not confident that I will do as well on this activity as I would like.
4. I don't feel as if I am capable of performing as well on the stock predicting activity as other applicants.
5. I am a faster performer for this type of activity, in comparison to other people.
6. I am not sure I can ever do well on these stock predicting activities, no matter how much practice I get.
7. I would have to practice for a long time to be able to do well on these stock predicting activities.
8. I think that my performance will be better on the upcoming stock predicting activity.
9. I am sure that I can improve on the stock predicting activity in a relatively short period of time.
10. On average, other applicants are probably not as capable of doing as well on this activity as I am.

Appendix D

Performance Goal- Creativity Task

Please read the description of the task and set a goal in the appropriate space provided.

TASK: Name as many unusual generals as you can. You must include the word "general" in each response. For example you may say, "General Robert E. Lee" or "General George Washington." You may not use a word merely describing a general such as a tall general or a wounded general.

Please indicate how well you think you can perform on this task.

GOAL: ***My goal is to produce ____ creative responses in naming unusual generals.***

(The hardest goal being 30 creative responses and the easiest goal being 1 creative response)

Appendix E

Performance Goal-Stock Predicting Task

Please read the description of the task and set a goal in the appropriate space provided.

TASK: Use the informational cues to make predictions about the stock values for each of 30 fictitious companies. You will have 10 seconds to make each prediction.

Please indicate how well you think you can perform on this task.

GOAL: ***My goal is to predict ____ stock value(s) within $10 of the correct stock value.***

(The hardest goal is to predict 30 stock values within $10 of the correct value and the easiest goal is to predict 1 stock value within $10 of the correct value)

Appendix F

Task Distinctiveness Questionnaire

Instructions: Please use the following scale to indicate how well each statement fits you. There are no right or wrong answers.

1	2	3	4	5
strongly disagree	slightly disagree	neither agree nor disagree	slightly agree	strongly agree

1. The skills required to do well on the Creativity Task were the same skills required to do well on the Stock-Predicting Task.
2. The strategy required to do well on the Creativity Task was the same strategy required to do well on the Stock-Predicting Task.
3. The Creativity Task and Stock-Predicting Task don't really have anything in common.
4. The Creativity Task and Stock-Predicting task are not similar activities.