

## Performance Incentives and Means: How Regulatory Focus Influences Goal Attainment

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Study 1 demonstrated that as individuals' promotion-related ideal strength increases, performance on an anagram task is greater for a monetary task incentive framed in terms of gains and nongains (i.e., promotion framed) than one framed in terms of losses and nonlosses (i.e., prevention framed), whereas the reverse is true as individuals' prevention-related ought strength increases. Study 2 further demonstrated that with promotion-framed task incentives, individuals' ideal strength increases motivation for promotion-related goal attainment means (gaining points), whereas with prevention-framed task incentives, individuals' ought strength increases motivation for prevention-related means (avoiding losing points). These results suggest that motivation and performance are greater when the regulatory focus of task incentives and means match (vs. mismatch) the chronic regulatory focus of the performers.

There is little question that incentives motivate behavior. But the perceived value of an incentive lies in the extent to which it supports an individual's goals (for a review, see Brendl & Higgins, 1995), and thus the same incentive can motivate individuals differently depending on their personal goals or needs. In fact, many theories of motivation have proposed that individuals' needs moderate the effect of incentives on goal-directed behavior. As early examples, both Tolman (1955) and Atkinson and Litwin (1960) construed motivation as the multiplicative combination of incentive and need, with both being required for motivation.

Examinations of the effect of incentives on task performance have produced varied results. Both Huber (1985) and Pritchard and Curtis (1973) found that incentives for goal attainment led to better task performance. Locke, Bryan, and Kendall (1968), however, did not find that monetary incentives enhanced performance over goal setting alone. Similarly, Mercier and La-Douceur (1983) also failed to find performance enhancement in an incentive condition when examining student study time (for an extensive review, see Locke & Latham, 1990). Expectancy theory has suggested that the effect of task incentives on motivation is dependent on personal values (Vroom, 1964).

One explanation, then, for incentives' inconsistent effects on performance may be their lack of congruence with participants' goals or needs. A number of studies have shown that the existence of a goal or need increases selective responsivity to goal- or need-relevant stimuli. The classic "New Look" studies on perception reported that higher levels of need increased the value of, and thus sensitivity to, need-relevant stimuli (see Allport, 1955; Bruner & Krech, 1950). More recently, Corteen and Wood (1972) found that words previously paired with an electric shock elicited a physiological avoidance response even when presented outside the focus of the participants' attention. Similarly, when Luria and Vinogradova (1959) told participants to respond to a particular word (e.g., *doctor*), they displayed a physiological orienting response to synonyms but not to phonologically similar words (see also Klinger, 1975, 1977; Srull & Wyer, 1986). This goal-related selective responsivity, or goal strength, may determine the type of incentive most likely to motivate action. For instance, Coady and Brown (1978) found that level of need for approval influenced the effects of normative and competitive incentives on children's performance in a number cancellation task.

A different psychological literature suggests that goal strength could moderate the relation between incentive and performance, and that goal strength can be operationalized in terms of goal accessibility. This literature has conceptualized attitude strength in terms of attitude accessibility, proposing that "the latency with which people can respond to an inquiry about their attitude is considered to be a reflection of the accessibility of the attitude" (Fazio, 1986, p. 215). Underlying this operationalization is the well-established assumption that accessibility is activation potential, and stored knowledge with higher activation potentials

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should produce faster responses to relevant inputs (see Higgins, 1996a). Using this operationalization, researchers have shown that attitude strength moderates the relation between attitudes and attitude-related behaviors (see Zanna & Fazio, 1982; Zanna, Higgins, & Herman, 1982). For instance, Fazio has shown that greater chronic accessibility of an association between an attitude object and its evaluation increases the likelihood that behaviors will be consistent with the attitude (see Fazio, 1986, 1995). Behavioral regulation, therefore, is more likely with respect to accessible attitudes than to those that are relatively inaccessible. Analogous to the moderating effect of attitude strength on the relation of attitudes to behavior, goal strength, conceptualized as goal accessibility, may increase the relation between incentives and goal-directed action. That is, the effect of incentives on task performance may increase when the present task is relevant to chronically accessible goals.

One source of goal strength is regulatory need or concern (see Bruner, 1951, 1957). Two fundamental self-regulatory concerns that underlie the regulation of pleasure and pain and of goal-directed action are security and nurturance (see Bowlby, 1969). In various forms, these needs play significant roles in many influential theories of motivation and personality. For instance, Maslow (1955) distinguished "deficit" needs from "growth" needs. The former are described as the physiological and safety requirements for an individual, whereas the latter refer to individuals' self-actualizing needs. Similarly, Murray (1938) distinguished between a need for succorance and a need to avoid humiliation, and Adler (1927) distinguished between a need to compensate for insecurity and a need to strive for superiority. In describing goal-directed thought and action, Rogers (1960) noted the importance of both "the compelling image of what he [or she] ought to be" and the motivation to achieve. These theories share a general assumption that individuals seek both safety and accomplishment, and they suggest that the pursuit of goals may serve either of these basic needs.

Self-discrepancy theory (Higgins, 1987, 1996b; Higgins, Roney, Crowe, & Hymes, 1994) proposes the existence of distinct regulatory systems that are concerned with meeting either nurturance or security needs. The theory distinguishes two types of desired end states: Ideal self-guides are individuals' representations of the attributes that they themselves or another person would like them ideally to possess. These are individuals' hopes, wishes, or aspirations. Ought self-guides are individuals' representations of the attributes that they themselves or another person believe they should or ought to possess. These are individuals' beliefs about their duties, obligations, or responsibilities. The theory proposes that individuals can differ in their focus on their ideal self-guides and promotion versus their ought self-guides and prevention because of different histories of caretaker-child relationships (see Higgins, 1996b). A history of protection and using punishment as discipline produces strong *oughts* representing duties and obligations and a *prevention focus*. In contrast, a child-parent relationship characterized by encouraging accomplishments and withdrawing love as discipline produces strong *ideals* representing hopes and aspirations and a *promotion focus* (see Higgins, 1996b). Thus, a prevention focus and strong oughts versus a promotion focus and strong

ideals may result from a history of safety and punishment versus accomplishment and nonreward, respectively.

Self-regulation in relation to ideal self-guides that represent an individual's hopes and aspirations satisfies nurturance needs. The goal is accomplishment, and the regulatory focus is promotion. Self-regulation in relation to ought self-guides that represent an individual's duties and obligations satisfies security needs. The goal is safety, and the regulatory focus is prevention. The attainment or nonattainment of ideals and oughts have been shown to have different emotional consequences (see Higgins, 1987; Higgins, Shah, & Friedman, 1997). Attaining ideals, where promotion is working, produces cheerfulness-related emotions (e.g., happiness), whereas failing to attain ideals, where promotion is not working, produces dejection-related emotions (e.g., disappointment). In contrast, attaining oughts, where prevention is working, produces quiescence-related emotions (e.g., relaxation), whereas failing to attain oughts, where prevention is not working, produces agitation-related emotions (e.g., nervousness).

On the basis of the logic of the previous discussion of attitude strength, we hypothesized that strength of regulatory focus, conceptualized in terms of self-guide accessibility, would moderate the relation between incentive and performance where an incentive could relate to either promotion focus or prevention focus concerns. The strength of an individual's promotion focus should be related to how much he or she is motivated by incentives seen as accomplishments. In contrast, the strength of an individual's prevention focus should be related to how much he or she is motivated by incentives seen as safety. Specifically, we predicted the following two interactions: (a) an interaction of promotion focus and type of incentive (accomplishment vs. safety) on performance, such that individuals' promotion focus strength would increase task performance when a task incentive is framed in terms of accomplishment but not when it is framed in terms of safety; and (b) an interaction of prevention focus and type of incentive on performance, such that individuals' prevention focus strength would increase task performance when a task incentive is framed in terms of safety but not when it is framed in terms of accomplishment.

To test these predictions, we needed a measure of strength of promotion focus and strength of prevention focus. Fazio (1986, 1995) has demonstrated the predictive utility of operationalizing attitude strength in terms of response latencies, and Bassili (1995, 1996) has provided evidence that the use of response times as an implicit measure of attitude predisposition strength is preferable to explicit measures such as ratings of importance (see also Greenwald & Banaji, 1995). Our studies, then, considered response latencies for the recall of a self-guide to be a measure of the accessibility of the self-guide, with more accessible ideal self-guides reflecting stronger promotion focus and more accessible ought self-guides reflecting stronger prevention focus.

To demonstrate that regulatory focus influences the type of incentive that will most motivate performance, we also needed to vary the perceived type of incentive (accomplishment vs. safety) without varying the actual incentive. Research on message framing has shown that the same objective information can be described in a number of different ways and that these differ-

ent framings can affect responses to the information (see Tversky & Kahneman, 1981; Roney, Higgins, & Shah, 1995; Rothman, Salovey, Antone, Keough, & Martin, 1993). The present studies framed a task incentive either in terms of an accomplishment relevant to promotion or in terms of safety relevant to prevention. A promotion focus is concerned with advancement, growth, aspirations, and accomplishments. The strategic inclination is to make progress by approaching matches to the desired end state. An individual with a promotion focus is in a state of eagerness to attain advancement and gains. In contrast, a prevention focus is concerned with security, responsibilities, and safety. The strategic inclination is to be prudent and precautionary and to avoid mismatches to the desired end state. An individual with a prevention focus is in a state of vigilance to assure safety and nonlosses (see Brendl & Higgins, 1995; Higgins, 1996a; Higgins et al., 1994). With these distinctions in mind, in the present study we framed the task incentive either in terms of gaining or not gaining an extra dollar, for the promotion focus (from a starting point of \$4), or in terms of losing or not losing a dollar, for the prevention focus (from a starting point of \$5). By framing the same objective incentive (i.e., \$5 for success and \$4 for failure) in terms of either the possibility of gaining extra money or not, or the possibility of losing money or not, we were able to examine the interactive effects of person focus and incentive focus independent of differences in the actual incentive.

Support for our predictions would be significant for the following reasons: (a) It would provide evidence that regulatory focus moderates the motivational response to incentives; (b) it would provide specific evidence that both ideal and ought self-guide accessibility uniquely moderate the effect of incentive framing on performance; and (c) it would suggest that incentive effects on performance are greater when the regulatory focus of incentives match (versus mismatch) a performer's chronic regulatory focus.

## Study 1

### Method

#### Overview

Participants completed a self-guide strength measure in Session 1 and were brought back to complete an anagram task in Session 2. Participants were told that payment for Session 2 was dependent on their performance. Participants were randomly assigned to one of two framing conditions. The promotion-framing condition framed the performance contingency in terms of the possibility of gaining extra money or not, whereas the prevention-framing condition framed the performance contingency in terms of the possibility of losing money or not. Performance on the subsequent anagram task served as the measure of motivation.

#### Participants

One hundred four Columbia University students (57 women, 47 men) were paid \$10 each for their participation. (No sex differences were found.) Participants were run on separate IBM XT computers in groups no larger than 6. All participants indicated that they had native language proficiency in English.

#### Materials

*Self-guide strength measure.* A computer measure was developed similar to the Selves Questionnaire (see Higgins, Klein, & Strauman, 1985). Like the Selves Questionnaire, the computer measure was an idiographic measure that asked participants to list traits or attributes describing certain self-representations from their own standpoint (see Higgins et al., 1997). Participants were initially provided with a definition of their ideal and ought self. Their ideal self was defined as the type of person they ideally would like to be, the type of person they hoped, wished, or aspired to be. Their ought self was defined as the type of person they believed they ought to be, the type of person they believed it was their duty, obligation, or responsibility to be. Participants were told that they would provide attributes that described their ideal and ought selves. Unlike the Selves Questionnaire, the attributes describing the ideal self had to be different from those describing the ought self, and all attributes were to be provided as quickly and accurately as possible. Participants were given practice with the general procedure by listing actual self attributes that were unrelated to either their ideal or ought selves (i.e., actual self nonmatches). After listing each attribute, the participants were also asked to rate the extent to which they believed they actually possessed the attribute on a 4-point scale, ranging from 1 (*slightly*) to 4 (*extremely*). These attributes were unrelated to the subsequent ideal and ought attributes and were not used in subsequent analyses. Participants then provided five attributes that described how they ideally would like to be now. These attributes had to be different from those previously listed. After listing each attribute, the participants were asked to rate the extent to which they ideally would like to possess the attribute (ideal extent) and the extent to which they actually possessed the attribute (actual-ideal extent) using the same 4-point scale described above. Finally, participants listed five attributes that described how they ought to be now. Again, these attributes had to be different from any used in the previous two sections.<sup>1</sup> After providing each of these attributes, participants were asked to rate the extent to which they ought to possess the attribute (ought extent) and the extent to which they actually possessed the attribute (actual-ought extent), again using the same 4-point scale.

The computer measure also recorded the time each participant required to produce each attribute and to make the corresponding extent determinations. Because these latency distributions were positively skewed, we first transformed all response time measures using a natural logarithmic transformation (see Fazio, 1990; Judd & McClelland, 1989). Attribute latencies and extent latencies (e.g., ideal extent and actual-ideal extent) were summed across the first three ideal attributes and across the first three ought attributes, separately, resulting in one total ideal strength assessment and one total ought strength assessment. The first three attributes were used because output primacy is one indicator of chronic accessibility (see Higgins, 1996a).<sup>2</sup>

<sup>1</sup> There were no evident differences in the attributes listed as ideals and those listed as oughts by the participants. For example, the attributes *intelligent*, *hardworking*, *considerate*, *truthful*, and *independent* were listed both as ideals and as oughts by different participants.

<sup>2</sup> Alternative methods for calculating ideal and ought strength have been considered. It is important to note that the reported significant two-way interactions of ideal strength and regulatory framing and ought strength and regulatory framing remain significant if ideal strength and ought strength are calculated using all five ideal and all five ought attributes in Study 1. It is also important to note that although we consider the extent ratings for each self-guide attribute to be different judgments, the reported significant two-way interactions also remain significant if ideal and ought strength are calculated excluding the ideal and ought extent rating times.

*Self-guide discrepancy measure.* We calculated self-discrepancy scores by simply summing the differences between each participant's self-guide extent ratings and their corresponding actual state extent ratings for the five ideal self-guides and the five ought self-guides separately. To calculate participants' ideal discrepancy score, we subtracted each actual-ideal extent rating from its corresponding ideal extent rating. The resultant five differences (one for each attribute) were then summed to form a single ideal discrepancy score. Similarly, we calculated a single ought discrepancy score for each participant by summing the five differences between participants' ought extent ratings and their corresponding actual-ought extent ratings. Measures of ideal and ought discrepancy were included to control for any possible effects they might have on performance.<sup>3</sup>

### Procedure

All participants first completed the self-guide strength measure during the initial session. Participants were told that they had earned \$5 for their participation in Session 1 but that they would not receive this money until after they had completed Session 2. They returned 3 or more days later to complete Session 2. Upon returning, all participants were provided with a description of the anagram task that they would be performing. This task involved unscrambling a series of letters to form as many words as possible using all the letters in the series. Participants had as much time as they required to complete each of the anagrams. The participants were shown an example anagram that was unscrambled to form a number of different words. Participants were then given three practice anagrams to familiarize themselves with the task (see Appendix for a list of the anagrams). After completing the three practice anagrams, participants were randomly assigned to either the promotion focus or the prevention focus framing condition and received information about the purpose of the anagram task. This information was informationally equivalent but framed to represent either the possibility of gaining money or not, or losing money or not.

Participants assigned to the promotion-framing condition were told that for this set of anagrams, the experimenter wanted them to find 90% or more of all the possible words. They were told that although the experimenter had agreed to pay them \$4 for Session 2, it was possible for them to earn an extra dollar. They would earn the extra dollar if they found 90% or more of all the possible words, but they would not receive the extra dollar if they failed to find 90% or more of all the possible words. The presentation order of this contingency was varied randomly among participants in the condition and had no effect on the results.

Participants assigned to the prevention-framing condition were told that for this set of anagrams, the experimenter wanted them not to miss more than 10% of all the possible words. They were told that although the experimenter had agreed to pay them \$5 for Session 2, it was possible for them to lose a dollar. They would not lose a dollar if they missed 10% or less of all the possible words, but they would lose the dollar if they missed more than 10% of all the possible words. Again, the order of this contingency was varied among participants, and again it had no effect on the results.

In all conditions, participants were led to believe that the computer would calculate their results and report the percentage of words found (or missed) at the end of the set. Before completing the set, participants were asked about their current mood. Participants were asked to rate how tense, relaxed, discouraged, and happy they were on a 10-point scale, ranging from 1 (*not at all*) to 10 (*extremely*). We calculated separate postmanipulation agitation and dejection-related scores by summing the agitation-related items (tense and relaxed) and the dejection-related items (satisfied and discouraged) after first reverse-scoring the positively valenced items (relaxed and satisfied). All participants then

completed a set of 10 anagrams. After each anagram, they were reminded of the contingency, which was framed in the same manner as before. Participants had as much time as they needed for each anagram.<sup>4</sup>

We determined anagram performance by summing the total number of legitimate words found in the 10 anagrams that constituted the experimental set. Two separate anagram totals were calculated, one for the practice set and one for the experimental set. Each anagram could be unscrambled to create at least two words.

After finishing the set of anagrams, all participants were told that they had reached the performance goal. After receiving this feedback, each participant was asked to rate his or her postmanipulation expectancy of reaching the standard, that is, the likelihood of reaching the standard after completing the practice anagrams and before completing the anagram set. Ratings were on a 10-point scale, ranging from 1 (*not at all*) to 10 (*extremely*). Participants were then asked if they thought the anagram task was fair. This question was meant to probe whether participants had believed the task contingency, which was the case for all but one participant. The participants were then told of the nature of the experiment in a thorough debriefing. All participants were paid \$5 for Session 2 regardless of their performance.

### Results

Three participants were dropped from further analyses for failing to properly understand the experimental procedure or for expressing doubts concerning whether their pay was contingent on their performance.<sup>5</sup>

Initial regression analyses found that our manipulation of regulatory focus was not significantly related to postmanipulation performance expectancy,  $F(1, 98) = 1.76, p > .15$ , postmanipulation dejection,  $F(1, 98) = 1.05, p > .30$ , or postmanipulation agitation,  $F < 1$ .

A regression analysis examined the independent and interactive effects of regulatory focus framing, ideal strength, and ought strength on anagram performance. This analysis controlled for the effects of ideal and ought discrepancy and for performance on the practice set of anagrams.

The analysis revealed that regulatory focus framing did not have a significant independent effect on anagram performance,  $F < 1$ . However, ideal strength had an overall near-significant

<sup>3</sup> It also should be noted that the reported significant two-way interactions of ideal strength and regulatory framing and ought strength and regulatory framing in Study 1 remain significant if self-discrepancy scores are calculated using only participants' first three ideal self-guides and their first three ought self-guides.

<sup>4</sup> The overall time spent on the anagram task was considered a less suitable measure of task motivation because participants' efficiency at finding anagram solutions was thought to be very sensitive to individual differences in ability and because the participants could easily recognize when they had found a solution. Time spent on the task, then, was less directly related to the specific task goal. However, the significance of the two-way interactions of self-guide strength and regulatory framing on anagram task time were similar to those reported for anagram task performance in Study 1. These two-way interactions were not significant in Study 2, although they were in the same direction as those reported for anagram task performance.

<sup>5</sup> If these participants are included in the analyses, the reported significant two-way interactions of ought strength and regulatory framing on anagram performance and ideal strength and regulatory framing on performance remain significant.

positive relation to anagram performance,  $F(1, 91) = 2.85, p < .10$ , and ought strength had a nonsignificant negative relation to anagram performance,  $F(1, 91) = 1.16, p > .25$ . Ideal discrepancy had an overall significant positive relation to anagram performance,  $F(1, 91) = 5.2, p < .05$ , whereas ought discrepancy had an overall significant negative relation to anagram performance,  $F(1, 91) = 7.74, p < .01$ .

Most relevant to our hypothesis, the interaction of regulatory focus framing and ideal strength and the interaction of regulatory focus framing and ought strength both had significant effects on anagram performance in opposite directions,  $F(1, 91) = 8.33, p < .01$ ;  $F(1, 91) = 8.00, p < .01$ , respectively. The direction of these interactions indicated that ought strength was significantly more predictive of anagram performance in the prevention-framing condition than in the promotion-framing condition. Ideal strength, however, was significantly more predictive of performance in the promotion-framing condition than in the prevention-framing condition.

To clarify the nature of these interactions, we examined the effect of ideal strength and ought strength on performance separately in the promotion-framing condition and the prevention-framing condition. Separate regression analyses that again controlled for performance on the practice anagrams, as well as for ideal and ought discrepancy, revealed that ideal strength was positively related to anagram performance in the promotion-framing condition,  $F(1, 43) = 7.2, p = .01$ , and was nonsignificantly negatively related to performance in the prevention-framing condition,  $F < 1$ . Ought strength was found to have a near-significant positive relation to anagram performance in the prevention condition,  $F(1, 43) = 3.12, p = .08$ , and a near-significant negative relation to performance in the promotion condition,  $F(1, 43) = 3.79, p = .06$ . The partial correlations of ideal and ought strength to anagram performance as a function of incentive framing are presented in Table 1.

### Discussion

The results of Study 1 provide evidence that differences in chronic regulatory focus moderate the effect of the regulatory focus framing of incentives on performance. Overall level of chronic ideal discrepancy was found to be positively related to anagram performance, suggesting that for reasons unrelated to incentive framing the task tended generally to be seen as an

opportunity for accomplishment, appealing to those individuals who had chronically failed to reach their ideals. More germane to the present article, chronic regulatory focus moderated the effect of the regulatory focus of incentives induced by framing. Consistent with predictions, ideal strength was more positively related to performance in the promotion-framing condition than in the prevention-framing condition. In contrast, ought strength was more positively related to anagram performance in the prevention-framing condition than in the promotion-framing condition. Moreover, ideal strength was significantly related to performance in the promotion-framing condition but had no significant effect in the prevention-framing condition. Ought strength had a marginally significant relation to performance in the prevention-framing condition and a marginally significant negative relation to performance in the promotion-framing condition. These findings are not due to differences in ideal or ought self-discrepancies or to any expectancies associated with the framing manipulation.

The results of Study 1, then, support the notion that regulatory focus, both as a person and a situational variable, is an important aspect of goal regulation relating incentives to performance. Another important aspect of goal regulation is *equifinality* (Heider, 1958; for a recent discussion, see Kruglanski, 1995). Put simply, task goals may be attained by multiple means. The *contingency principle* states that the choice between means may depend on other characteristics of the situation. Recently, Crowe and Higgins (1997) found in a signal detection task that a chronic prevention focus, compared with a promotion focus, was characterized by a more conservative response bias of ensuring "correct rejections" and ensuring against "errors of commission." In an earlier examination of strategic differences, Higgins et al. (1994) noted that movement toward desired end states (either safety or accomplishment) can be executed through strategies of either approaching matches to these end states or avoiding mismatches to these end states. The avoidance strategies do not simply involve inhibition or suppression but also entail commitment to action. Higgins et al. (1994) found that when a friendship goal was framed as an ideal involving promotion, participants indicated a preference for approach-related strategies for goal attainment (e.g., "Be generous and willing to give of yourself"). When this same goal was framed as an ought involving prevention, however, participants chose more avoidance-related strategies for goal attainment (e.g., "Stay in touch; don't lose contact with friends"). These studies suggest that regulatory focus can influence the strategic choice of means for goal attainment.

The purpose of Study 2, in addition to attempting to replicate the results of Study 1, was to demonstrate that differences in chronic regulatory focus influence not only the performance effects of the regulatory focus of incentives but also which means are used for goal attainment, given strong incentives.

### Study 2

#### Method

#### Overview

Participants completed a self-guide strength measure in Session 1 and were brought back to complete an anagram task in Session 2. Partici-

Table 1  
Partial Correlations of Self-Guide Strength to Anagram Performance as a Function of Regulatory Focus Framing (Study 1)

| Regulatory focus framing | Anagram performance |            |
|--------------------------|---------------------|------------|
|                          | Promotion           | Prevention |
| Self-guide strength      |                     |            |
| Ought strength           | -.28†               | .26†       |
| Ideal strength           | .38**               | -.10       |

†  $p < .10$  (marginally significant). \*\*  $p = .01$ .

pants were told that payment for Session 2 was dependent on their performance. Participants were randomly assigned to one of two framing conditions. The promotion-framing condition framed the performance contingency as the possibility of gaining extra money or not, whereas the prevention-framing condition framed the performance contingency as representing the possibility of losing money or not. Additionally, participants were told that there were two types of anagrams. For each "green" anagram in which they found all the possible solutions they would gain a point. For each "red" anagram in which they found all the possible solutions they would not lose a point. Participants completed an equal number of red and green anagrams. Participants' performance on each type of anagram, separately and combined, served as measures of motivation.

### Participants

Ninety-six Columbia University students (53 men, 43 women) were paid a total of \$10 for their participation in the two-session computer study. (No sex differences were found.) All participants indicated that they had not previously participated in Study 1. Session 1 was completed on IBM-compatible PC computers, and Session 2 was completed on Macintosh Power PC computers.

### Materials

The self-guide strength measure was basically the same as that used in Study 1 except for two changes. First, the participants were not given practice responding on the computer by having them list actual self-attributes unrelated to their self-guides (i.e., actual self nonmatches). We eliminated this part to save time and avoid any possible interference of the practice session on subsequent responses. Second, rather than listing all ideal self-guides before listing the ought self-guides, participants were asked to list these attributes in a seemingly random order. Participants listed one ideal attribute, followed by two ought attributes, another ideal attribute, another ought attribute, and a final ideal attribute. Self-guide strength and self discrepancies were calculated in the same manner as in Study 1, except that self-discrepancy scores were calculated using only three attributes rather than five.

### Procedure

Participants completed the self-guide strength measure as part of a general assessment battery. Participants were told that they would be paid \$5 for their participation in Session 1 but would not receive the money until after they had completed Session 2. Participants returned for Session 2 three or more weeks later and were randomly assigned to one of two experimental conditions. In both conditions, the participants were told that they would be asked to solve six red and six green anagrams and that their goal was to finish the overall anagram set with four points. Participants were told that for each of the green anagrams, if they found all of the possible words they would gain one point, but if they failed to find all of the possible words they would not gain a point. They were also told that for each of the red anagrams, if they found all of the possible words they would not lose a point, but if they failed to find all of the possible words they would lose a point. Finally, participants were told that their payment for Session 2 was contingent on their performance, but this task contingency information was framed differently across the promotion-framing and prevention-framing conditions.

In the promotion-framing condition, participants were told that they were to be paid \$4 but that there was the possibility of gaining a dollar. If they finished with four or more points, they would gain the dollar, but if they failed to finish with four points, they would not gain the

dollar. The presentation order of this contingency was randomly varied among participants. (There was no order effect.)

Participants in the prevention condition were told that they were to be paid \$5 but that there was the possibility of losing a dollar. If they finished with four or more points, they would not lose the dollar, but if they failed to finish with four points, they would lose the dollar. The presentation order of this contingency was also varied between participants. (Again, there was no order effect.)

We measured participants' performance expectancies immediately after the framing manipulation by asking each participant to rate the likelihood that he or she would finish with four points or more. This estimation was made on an 11-point scale (0% to 100%, in increments of 10%). Participants then completed the set of 12 anagrams (6 red and 6 green) and were then told the nature of the experiment in a thorough debriefing.

We determined anagram performance by summing all the legitimate words found over the entire set of anagrams. Separate totals were also calculated for performance on the green anagrams and performance on the red anagrams.

### Results

An initial regression analysis found that regulatory focus framing did not significantly affect postmanipulation task expectancy,  $F < 1$ .

A regression analysis was performed on anagram performance in the same manner described in Study 1. Neither regulatory focus framing, ideal strength, nor ought strength had significant main effects on anagram performance (all  $F$ s  $< 1$ ). Ideal discrepancy was significantly positively correlated with anagram performance,  $F(1, 83) = 5.48, p < .05$ , but ought discrepancy was not related to performance,  $F < 1$ .

As in Study 1, the interactions of regulatory focus framing with ideal strength and with ought strength both significantly predicted anagram performance in opposite directions,  $F(1, 83) = 6.43, p < .05$ , and  $F(1, 83) = 6.43, p < .05$ , respectively. Again, the direction of these interactions indicated that ought strength was significantly more predictive of anagram performance in the prevention-framing condition than in the promotion-framing condition and that ideal strength was significantly more predictive of performance in the promotion-framing condition than in the prevention-framing condition. To clarify the nature of these interactions, we examined the effect of ideal strength and ought strength on performance separately in the promotion-framing condition and the prevention-framing condition. Separate regression analyses that again controlled for performance on the practice anagrams, as well as for ideal and ought discrepancy, revealed that ideal strength was positively related to anagram performance in the promotion-framing condition,  $F(1, 38) = 5.7, p < .05$ , and nonsignificantly negatively related to performance in the prevention-framing condition,  $F(1, 41) = 2.69, p = .11$ . Ought strength was found to have a significant positive relation to anagram performance in the prevention condition,  $F(1, 41) = 4.02, p < .05$ , and a significant negative relation to performance in the promotion condition,  $F(1, 38) = 4.09, p < .05$ . The partial correlations of ideal and ought strength to anagram performance as a function of incentive framing are presented in Table 2.

As suggested earlier, chronic focus and regulatory focus framing might influence not only the extent to which task goals are

Table 2  
*Partial Correlations of Self-Guide Strength to Anagram Performance as a Function of Regulatory Focus Framing (Study 2)*

| Regulatory focus framing | Anagram performance |            |
|--------------------------|---------------------|------------|
|                          | Promotion           | Prevention |
| Self-guide strength      |                     |            |
| Ought strength           | -.31*               | .30*       |
| Ideal strength           | .36*                | -.25       |

\*  $p \leq .05$ .

pursued but also the means by which this pursuit is undertaken. Separate regression analyses examined how chronic focus and regulatory focus framing predicted performance on the red anagrams (prevention-focus means) and on the green anagrams (promotion-focus means), controlling for performance on the alternative colored anagrams. The interaction of regulatory focus framing and ideal strength was found to predict performance on the green anagrams,  $F(1, 83) = 4.9, p < .05$ , but not on the red anagrams,  $F < 1$ . In contrast, the interaction of regulatory focus framing and ought strength was found to predict performance on the red anagrams,  $F(1, 83) = 6.18, p = .01$ , but not on the green anagrams,  $F < 1$ .

To clarify the nature of these interactions, we examined the effect of ideal and ought strength on both red and green performance separately in the promotion- and prevention-framing conditions. In the promotion-framing condition, ideal strength was significantly positively related to performance on the green anagrams,  $F(1, 37) = 4.24, p < .05$ , and was not related to performance on the red anagrams,  $F < 1$ , and ought strength was not related to performance on either the red or the green anagrams,  $F(1, 37) = 1.25, p > .25$ , and  $F(1, 37) = 1.63, p > .20$ , respectively. In the prevention-framing condition, however, ought strength was significantly positively related to performance on the red anagrams,  $F(1, 40) = 5.2, p < .05$ , and not to performance on the green anagrams,  $F < 1$ , and ideal strength was not related to performance on either the red or the green anagrams,  $F < 1$ , and  $F(1, 40) = 1.9, p > .15$ , respectively. These differential partial correlations are summarized in Table 3.

### Discussion

The results of Study 2 are consistent with the findings of Study 1. Again, the effect of the regulatory focus of incentives on performance is moderated by individuals' chronic regulatory focus. Individuals with a strong promotion focus performed better when the incentive was framed in terms of the possibility of gaining extra money or not than when it was framed in terms of the possibility of losing money or not, whereas the reverse was true for individuals with a strong prevention focus. These effects were not the result of differences in participants' post-manipulation expectancies of chronic self-discrepancies.

The results of Study 2 also demonstrated that the interaction

of chronic regulatory focus and regulatory focus framing influences the means by which task goals are pursued. Participants with a predominant promotion focus who were presented with a task incentive framed with a promotion focus more vigorously pursued the green anagrams whose successful completion gained a point and represented an approach means to goal attainment. In contrast, participants with a predominant prevention focus who were presented with a task incentive framed with a prevention focus more vigorously pursued the red anagrams whose successful completion avoided losing a point and represented an avoidance means to goal attainment. It should be noted that success on the red and the green anagrams was equally important for goal attainment and that participants were given no indication that one type of anagram was more difficult than the other.

### General Conclusions

The results of the present studies demonstrate how differences in regulatory focus, both as a person variable and as a situational variable, can influence the effects of goal attainment incentives and means on performance. Although other studies have examined how person-situation effects of different types of rewards vary by need states (see, e.g., Sharma, 1986) or by individual differences (see Terborg, Richardson, & Pritchard, 1980), to our knowledge, none have demonstrated moderation of performance effects of goal incentives and means in terms of a single self-regulatory principle.

The present results are consistent with the Higgins et al. (1994) findings of predilections for distinct self-regulatory means, but they significantly extend them by providing evidence of a strong person-situation effect whereby strategic inclinations are stronger when situationally induced regulatory focus matches (vs. mismatches) performers' chronic regulatory focus. These findings are of practical importance to those attempting to maximize the motivational impact of incentives in suggesting that motivation and performance are greater when chronic predispositions, task incentives, and means of goal attainment all share the same regulatory focus than when they do not. The

Table 3  
*Partial Correlations of Self-Guide Strength to Anagram Performance as a Function of Regulatory Focus Framing and Regulatory Focus of Anagram Means*

| Regulatory focus framing | Anagram performance       |                |              |                |
|--------------------------|---------------------------|----------------|--------------|----------------|
|                          | Promotion                 |                | Prevention   |                |
|                          | Red anagrams <sup>a</sup> | Green anagrams | Red anagrams | Green anagrams |
| Self-guide strength      |                           |                |              |                |
| Ideal strength           | .11                       | .32*           | -.07         | .01            |
| Ought strength           | -.21                      | -.18           | .34*         | .03            |

<sup>a</sup> Red anagrams provided prevention-related means for goal attainment (avoiding losing points); green anagrams provided promotion-related means (gaining points).

\*  $p < .05$ .

distinct manner in which one pursues promotion and prevention could also moderate the effects on performance of other incentive-related variables. Indeed, Shah and Higgins (1997) found that the interactive effect of expectancy and value on both performance and decision making is different when individuals have a prevention focus than when they have a promotion focus.

The present studies represent a first step in considering the role of regulatory focus in linking chronic predispositions, momentary incentives, and strategic means. Many possible causal relations await further study. For example, would priming approach-related means activate higher order promotion concerns (e.g., ideals) in a bottom-up fashion, whereas priming avoidance-related means would activate prevention concerns (e.g., oughts)? To what extent is the moderation of incentive effects due to a heightened sensitivity for incentives framed to match performers' chronic regulatory focus or due to inhibition for incentives framed to mismatch performers' chronic focus, or both (see Brendl, Higgins, & Lemm, 1995)? Although only a beginning, the results of the present studies suggest that exploring such questions with regulatory focus as a principle of self-regulation could be fruitful.

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## Appendix

### List of Anagrams Used in Study 1

| Set          | Examples of possible answers |
|--------------|------------------------------|
| Practice     |                              |
| EACHP        | PEACH CHEAP                  |
| ALSET        | TALES STALE STEAL            |
| IKCTS        | STICK TICKS                  |
| Experimental |                              |
| NELMO        | MELON LEMON                  |
| ANETLM       | MENTAL LAMENT                |
| ILESM        | SMILE LIMES MILES SLIME      |
| OLSPO        | POOLS SPOOL LOOPS            |
| LEESTC       | SELECT ELECTS                |
| NIEDM        | DENIM MINED                  |
| HRBOT        | THROB BROTH                  |
| IDFEL        | FILED FIELD                  |
| VEERL        | REVEL LEVER                  |
| SDETRE       | DETERS DESERT                |

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