When to Begin? Regulatory Focus and Initiating Goal Pursuit

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The authors propose that a prevention focus fosters preferences to initiate action earlier than does a promotion focus. Data from four studies either measuring or manipulating regulatory focus support this proposal. Participants in a prevention focus preferred initiating academic (Studies 1 and 2) and nonacademic (Study 3) actions sooner than did participants in a promotion focus. Participants working through a set of anagrams solved those that were prevention framed before those that were promotion framed (Study 4). Moreover, regulatory focus and perceived task valence each accounted for unique variance in participants' task-initiation preferences (Study 3). The findings' implications are discussed for task choice, susceptibility to distraction, and other aspects of self-regulation.

We all pursue multiple goals while facing varying deadlines. Accordingly, one task for research on self-regulation and decision making is to elucidate processes that influence when we begin goal pursuit. While considering a single goal, for example, what determines when we initiate goal-directed action? While considering an assortment of goals, how do we decide when to begin making progress toward one versus another?

One way to address these questions is to consider how much pleasure or pain people expect actions to provide (e.g., Baron, 1992; Hernstein, 1990; Loewenstein & Frederick, 1997). Although people often inaccurately estimate the severity and durability of emotional responses to events (e.g., Brickman, Coates, & Janoff-Bulman, 1978; Gilbert & Wilson, 2000; Mitchell, Thompson, Peterson, & Cronk, 1997; Wortman & Silver, 1989), they nevertheless use these estimates to help them decide when to pursue particular actions. For example, people usually prefer performing single desirable actions in the immediate rather than distant future (Olson & Bailey, 1981; see also Mischel, Cantor, & Feldman, 1996). Loewenstein (1987), however, showed that when actions are considered parts of sequences, people often prefer to place more desirable actions toward the end of sequences, presumably to attain experiences that improve in hedonic value (see also Loewenstein & Prelec, 1993; Loewenstein & Silcherman, 1991; Ross & Simonson, 1991; Varey & Kahneman, 1992). People also prefer action sequences in which outcomes quickly, rather than slowly, grow increasingly positive or decreasingly negative (Hsee & Abelson, 1991; Hsee, Salovey, & Abelson, 1994; see also Carver, Lawrence, & Scheier, 1996). It also may be true that people

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possess limited resources for processing emotionally impactful events and thus prefer to intersperse positively and negatively valenced events across time (Linville & Fischer, 1991; see also Loewenstein & Prelec, 1993; Thaler & Johnson, 1990).

In addition to the important hedonic considerations noted above, we suggest that one's regulatory focus, or how one regulates pleasure and pain, also can influence when one initiates action. Consistent with most self-regulation models, regulatory focus theory (Higgins, 1997, 1998) seeks to explain how people reduce discrepancies between current and desired states (cf. Carver & Scheier, 1981, 1990; Gollwitzer & Bargh, 1996; Miller, Gallanter, & Pribram, 1960; Pervin, 1989; von Bertalanffy, 1968). However, regulatory focus theory differentiates two types of desired end states, termed "self-guides": (a) ideal self-guides, individuals' representations of desired end states as hopes or aspirations, and (b) ought self-guides, individuals' representations of desired end states as duties or responsibilities. Following an ideal self-guide heightens one's sensitivity to opportunities to advance goal attainment, whereas following an ought self-guide heightens one's sensitivity to impediments to goal attainment (Higgins, Roney, Crowe, & Hymes, 1994). Individuals can differ in their chronic promotion focus on hopes and aspirations and in their chronic prevention focus on duties and obligations (e.g., Higgins, Shah, & Friedman, 1997). Moreover, situations can induce a promotion focus by emphasizing how to take advantage of opportunities for goal attainment, and situations can induce a prevention focus by emphasizing how to avoid impediments to goal attainment (e.g., Shah, Higgins, & Friedman, 1998).

As observed by Gould (1939), people can construe standards as minimal goals they must attain or as maximal goals they hope to attain. Minimal goals thus differentiate negative from nonnegative events, whereas maximal goals differentiate positive from nonpositive events (Brendl & Higgins, 1996; Idson, Liberman, & Higgins, 2000; Preston & Bayton, 1941; Rotter, 1954/1982). Because avoiding impediments to goal attainment is a natural means of prevention-focused goal pursuit, people in a prevention focus should experience objectives as minimal goals. Because taking advantage of opportunities for goal attainment is a natural means of promotion-focused goal pursuit, people in a promotion focus should experience objectives as maximal goals. Consistent with these proposals, Classic Expectancy × Value Effects, whereby people try to maximize utility by selecting actions high in both success likelihood and value, are larger for people in a promotion focus than they are for people in a prevention focus (Shah & Higgins, 1997). This finding suggests that goals within a promotion focus are seen as opportunities to try for optimal outcomes, whereas goals within a prevention focus are seen as basic requirements. Indeed, a prevention focus (relative to a promotion focus) fosters greater reluctance to disengage from one activity to try another, also suggesting that a prevention focus facilitates viewing an adopted goal as a necessity, whereas a promotion focus facilitates viewing an adopted goal as one of many opportunities for accomplishment (Liberman, Idson, Camacho, & Higgins, 1999). Moreover, these effects all obtained both in relation to participants' chronic accessibility of ideal and ought self-guides and as a result of experimental manipulations of tasks as opportunities to advance goal attainment versus as avoiding impediments to goal attainment (Liberman et al., 1999; Shah & Higgins, 1997).

These effects of regulatory focus on people's tendencies to view objectives as minimal or maximal goals should affect when people initiate action. By facilitating construing a goal as a minimal standard one must meet, a prevention focus should lead one to initiate relatively quickly goal-directed action. By facilitating construing a goal as a maximum standard one only hopes to meet, a promotion focus should lead one to feel little pressure to initiate immediately any single action. Accordingly, we propose that a prevention focus fosters preferences to initiate action earlier than does a promotion focus. The primary goal of the research reported in this article was to test this proposal. First, we examined whether people's chronic accessibility of ideal and ought self-guides would be associated differentially with their preferences for when to initiate action (Study 1). We expected increases in participants' accessibility of ideal self-guides to predict later preferences for action initiation but increases in their accessibility of ought self-guides to predict earlier preferences for action initiation. Second, we tested whether framing tasks in terms of avoiding impediments to goal pursuit or in terms of advancing opportunities for goal pursuit would affect people's preferences for when to initiate single actions (Studies 2 and 3) and their action choices as they performed a multitrial laboratory task (Study 4). We expected the former framing to elicit earlier preferences for action initiation than we expected the latter framing to elicit.

A second goal of this research was to examine whether the hypothesized effects of regulatory focus on timing preferences would be independent of any effects of task valence. Accordingly, in Studies 1 through 3, we also assessed various indicators of participants' perceived task valence to test whether any effects of regulatory focus would hold when controlling statistically for these variables' effects. Study 3 was designed with the specific aim of demonstrating unique and independent effects of both regulatory focus and task valence on action-initiation preferences.

STUDY 1

Study 1 tested whether individual differences in regulatory focus accounted for variability in participants' preferences for when to begin a hypothetical task. Asked to imagine that they had decided to write an essay for a fellowship application, participants indicated when they would want to begin writing the essay. As suggested above, we expected increases in chronic prevention focus to predict earlier preferences for writing the essay but increases in chronic promotion focus to predict later preferences for writing the essay. Regulatory focus was assessed via reaction time, as described next.

Fazio (1986, 1990, 2001) operationalized attitude accessibility as the amount of time required to respond to attitude queries, with highly accessible or strong attitudes fostering faster reaction times. Considerable research supports this operationalization (Bassili, 1995, 1996; see also Greenwald & Banaji, 1995). Higgins et al. (1997) constructed an instrument that assesses individual differences in promotion focus strength and prevention focus strength via reaction times to questions about ideal and ought self-guides, respectively. Higgins and his colleagues proposed that chronically accessible ideal and ought self-guides, reflected in fast reaction times to relevant queries, indicate stronger promotion and prevention focuses, respectively. Supporting these proposals, previous research has documented theoretically coherent effects of regulatory-focus accessibility on goal-directed cognitions, behaviors, and emotions (e.g., Förster, Higgins, & Idson, 1998; Higgins et al., 1997; Idson et al., 2000; Liberman et al., 1999; Shah & Higgins, 1997; Shah et al., 1998).

In the current study, we expected faster responses to ought queries to predict earlier preferences for task commencement but faster responses to ideal queries to predict later preferences for task commencement. Because people prefer to begin single positively valenced actions relatively soon (e.g., Loewenstein & Prelec, 1993), we also assessed and controlled for how interesting participants expected the task to be and for how well they expected to perform on it. As noted by Lewin (1935) and others (e.g., Brendl & Higgins, 1996; Roseman, 1991), these two qualities of a task comprise two key aspects of its valence. One's interest in an action denotes the event's response elicitation (i.e., whether one wants to engage in the action), whereas one's expectancy of success at an action denotes the action's goal supportiveness (i.e., whether one expects one's engagement of the action to facilitate goal satisfaction). We predicted that regulatory focus would relate to action-initiation preferences when holding constant these indicators of action valence.

Method

PROCEDURE

The study included 64 Yale University undergraduates (35 women, 29 men; age 18 to 22, $M = 20$) who participated in exchange for course credit. As part of ostensibly separate experiments, participants completed the computer-administered Self-Guide Strength measure (described below) and a paper-and-pencil questionnaire describing a hypothetical academic task and asking when participants would want to begin the task. The order in which participants completed the computer and paper-and pencil measures varied randomly across participants. Participants completed the Self-Guide Strength measure in computer-equipped cubicles and were escorted to different cubicles to complete the paper-and-pencil questionnaire.

MATERIALS

Self-Guide Strength. Similar to the Selves Questionnaire (see Higgins, Klein, & Strauman, 1985), the computer-administered Self-Guide Strength measure is an idiographic measure that asks participants to list attributes describing certain self-representations from their own standpoints (see Higgins et al., 1997; Shah et al., 1998). Participants initially were provided with definitions of their ideal and ought selves. Their ideal self was defined as the 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. They were told that they would be asked to provide attributes that described their ideal and ought selves. Unlike in the original Selves Questionnaire, participants were instructed to use different attributes to describe their ideal and ought selves.

Participants then were asked to list the attributes in a seemingly random order: one ideal attribute, followed by two ought attributes, another ideal attribute, another ought attribute, and a final ideal attribute. After listing each of the ideal attributes, 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) on a 4-point scale (1 = *slightly*, 2 = *moderately*, 3 = *a great deal*, 4 = *extremely*). After listing each of the ought 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) on the same 4-point scale.

For each attribute listed, the computer recorded three response times: (a) the time it took each participant to type each entire attribute after being prompted to do so by the computer, (b) the time it took each partic-

ipant to make the self-guide extent rating for the attribute after being prompted to do so by the computer, and (c) the time it took each participant to make the actual extent rating for the attribute after being prompted to do so by the computer. Total ideal and ought strengths were calculated, separately, by averaging the attribute-listing reaction times, the self-guide extent reaction times, and the actual extent reaction times across the three ideal attributes and across the three ought attributes, respectively. The resulting positively skewed reaction-time composites were subjected to natural logarithmic transformations (see Fazio, 1990; Judd & McClelland, 1989). Both final composites possessed acceptable levels of reliability (promotion $\alpha = .71$, prevention $\alpha = .71$). We reversed the signs of relationships between ideal and ought strength and other variables such that higher scores indicate increases in strength.

Temporal preferences. All participants were asked to imagine the following scenario: "Imagine that you plan to apply for a fellowship. The deadline to submit applications (including an essay) is 3 months from now." Participants next responded to the questions, "When would you most want to begin writing the essay?" (11-point scale: 1 = *today*, 4 = *4 weeks*, 8 = *8 weeks*, 11 = *day before due*); "How interested are you in writing the essay?" (10-point scale: 0 = *not at all interested*, 9 = *extremely interested*); and "How well do you expect to do on the essay?" (10-point scale: 0 = *not at all well*, 9 = *extremely well*).

Results and Discussion

Variables representing participants' ideal and ought strength were entered into a simultaneous regression equation predicting their preferences for when to begin writing the essay. Increases in ought strength were associated with decreases in participants' preferred time to begin writing the essay, $\beta = -.34$, $F(1, 61) = 3.75$, $p < .06$. In contrast, increases in ideal strength were associated with increases in participants' preferred time to begin writing the essay, $\beta = .67$, $F(1, 61) = 14.63$, $p < .01$. Both variables together explained 22% of the variance in participants' timing preferences, $F(2, 61) = 8.45$, $p < .01$. Participants' reported interest in writing the essay and their reported expectancies of success on the essay were combined to form a single index of perceived task valence ($\alpha = .65$). This index of task valence did not correlate significantly with participants' timing preferences, $r(62) = .02$. Moreover, neither ought strength (controlling for ideal strength) nor ideal strength (controlling for ought strength) accounted for significant variance in this index of task valence, $\beta = -.22$, $F(1, 59) = 1.23$, $p > .20$; $\beta = .28$, $F(1, 59) = 2.10$, $p > .15$, respectively. Accordingly, entering the task-valence variable into the regression model predicting timing preferences did not attenuate the effects of either ought strength ($\beta = -.36$), $F(1, 60) = 4.16$, $p < .05$, or ideal strength ($\beta = .70$), $F(1, 60) = 15.37$, $p < .01$. The unique relation between task valence and action initiation preferences was not statistically significant, $\beta = -.10$, $F < 1$.

As predicted, then, increases in the accessibility of participants' ought self-guides were associated with earlier preferences for when to write the essay, whereas increases in the accessibility of participants' ideal self-guides were associated with later preferences for when to write the essay, and these findings were independent of participants' perceptions of the valence of the essay task.

STUDY 2

Regulatory focus theory predicts that situations can induce a promotion focus by emphasizing how to advance goal attainment or a prevention focus by emphasizing how to avoid impediments to goal attainment (e.g., Shah et al., 1998).[1] Accordingly, if regulatory focus affects people's preferences for when to initiate action, then framing a task in prevention terms should lead people to prefer beginning it earlier than should framing it in promotion terms. Using the same task as used in Study 1, we tested this prediction in Study 2.

Method

The study included 93 Columbia University undergraduates (49 women, 44 men; age 17 to 26, $M = 19.58$), who each received $2 for participating. Participants received a questionnaire titled "Academic Imagery Questionnaire," which, as in Study 1, asked them to imagine applying for a fellowship. Unlike in Study 1, however, participants were assigned randomly to receive either promotion- or prevention-focused framings of the fellowship. The promotion-focused framing stated the following:

> In this questionnaire, you will be asked to imagine yourself in a specific academic situation. Please try to imagine, as vividly as possible, the situation described below. When applying for fellowships, lack of acceptance is always a real possibility. But when people are able to attain acceptance, they benefit financially and feel good. Imagine that you plan to apply for a fellowship. The deadline to submit applications (including an essay) is 3 months from now.

In the prevention framing, the second and third sentences were replaced with the following two sentences:

> When applying for fellowships, rejection is always a real possibility. But when people are able to avoid rejection, they avoid suffering financially and feeling bad.

Thus, both framings mention both failure ("lack of acceptance" in promotion framing and "rejection" in prevention framing) and success ("attain acceptance" in the promotion framing and "avoid rejection" in the prevention framing).

As in Study 1, participants next responded to the following questions: "When would you most want to begin writing the essay?" (13-point scale: 0 = *today*, 4 = *4 weeks*, 8 = *8 weeks*, 12 = *day before due*); "How interested are you in writing the essay?" (10-point scale: 0 = *not at all interested*, 9 = *extremely interested*); and "How well do you expect to do on the essay?" (10-point scale: 0 = *not at all well*, 9 = *extremely well*).

Results and Discussion

Participants who received the prevention framing preferred writing the essay significantly earlier (M = 5.00) than did participants who received the promotion framing (M = 6.59), $t(91) = 2.30$, $p < .03$, $d = .48$. Participants' reported interest in writing the essay and their reported expectancies of success were combined to form a single index of perceived task valence ($\alpha = .51$).[2] This index of task valence did not correlate significantly with participants' timing preferences, $r(91) = .01$, *ns*. Moreover, task framing did not affect participants' perceptions of task valence ($t < 1$). Accordingly, regulatory focus framing accounted for a significant, unique portion of variance in timing preferences ($\beta = .30$), $F(1, 90) = 6.74$, $p < .02$, whereas task valence did not ($\beta = .02$), $F < 1$, *ns*.

Converging with findings from Study 1, these data further suggest that people prefer to begin prevention-focused tasks earlier than promotion-focused tasks. In neither Study 1 nor Study 2, however, did participants' perceptions of task valence relate to their timing preferences. Perhaps the latter relation did not obtain because the action examined in these studies, writing an essay, is one for which early commencement can increase one's probability of realizing a successful outcome. A person anticipating a low likelihood of success, for example, might decide to begin the essay particularly early to improve his or her odds of success. However, a more accomplished writer anticipating a higher likelihood of success also might plan to begin the essay early because such a person might enjoy writing essays. For different reasons, then, people with high or low expectancies of task success and interest both could prefer early initiation of tasks when doing so could affect their probability of success. Thus, although the findings from Studies 1 and 2 demonstrate an effect of regulatory focus on action-initiation preferences independent of participants' ratings of action valence, evidence that regulatory focus and task valence both account for unique variance in people's timing preferences would further demonstrate the independent influence of regulatory focus. Study 3 sought such evidence.

STUDY 3

In Study 3, participants indicated their preferences for when during an experimental session they would want to begin an anagram task framed either in promotion or prevention terms. Participants also indicated their anticipated interest, fun, and success concerning the task. Consistent with our theoretical analysis and with results from Studies 1 and 2, we expected participants who received the prevention framing to prefer earlier task initiation than we expected participants who received the promotion framing to prefer, independent of any influence of their task-valence perceptions. Moreover, because participants' timing preferences concerning this task would not affect their success at it, we expected to find a clearer relation between their task-valence perceptions and their task-initiation preferences.

Method

The study included 44 State University of New York, Stony Brook, undergraduates (36 women and 8 men; age 18 to 51, M = 24) who participated in exchange for course credit. As a result of random assignment, each participant received one of two versions of a Puzzle Solutions questionnaire. Both versions of the questionnaire began as follows: "Below on this page, we describe an experiment we are planning to conduct. Please carefully read the description of this experiment and then answer a few questions about it." The prevention-framed version, titled "Avoiding Incorrect Puzzle Solutions," continued as follows:

> In the experiment, you will be asked to solve six word puzzles. For each puzzle, you will see a jumble of mixed-up letters and [should] try to figure out what word it forms. You will begin the experiment with $7 in your "account." Each time you provide an incorrect solution, $1 will be deducted from your account. So your goal in this experiment is to avoid as many incorrect solutions as you can. You will earn a minimum of $1 and a maximum of $7, depending on how well you do at avoiding incorrect solutions.

The promotion-framed version, titled Finding Correct Puzzle Solutions, differed from the prevention-framed version in that its third, fourth, and fifth sentences were replaced with the following three sentences: "You will begin the experiment with $1 in your 'account.' Each time you provide a correct solution, $1 will be added to your account. So your goal in this experiment is to provide as many correct solutions as you can." Finally, in the sixth and final sentence of the promotion-framed

version, the words "avoiding incorrect" were replaced with the words "finding correct."

Participants next used 9-point scales to respond to four questions: (a) "Because this experiment is very brief, we plan on combining it with several others during a 1-hour session. As a potential participant, when would you prefer to do the 'avoiding incorrect [finding correct] puzzle solutions' experiment?" (1 = *at the beginning of the session*, 9 = *at the end of the session*); (b) "How interesting is this experiment?" (1 = *not at all*, 9 = *extremely*); (c) "How successful do you expect to be at solving word jumbles in this experiment?" (1 = *not at all*, 9 = *extremely*); and (d) "How fun is this experiment?" (1 = *not at all*, 9 = *extremely*).

Results and Discussion

Participants' ratings of anticipated interest, success, and fun in the experiment were combined into a single measure of task valence ($\alpha = .74$). Participants in the prevention- and promotion-focused framing conditions perceived the task to be very similar in valence (Ms = 4.91 and 5.03, respectively), $t(42) = 0.28$, *ns*, $d = .08$. Consistent with findings reported in Studies 1 and 2, participants who received the prevention framing reported preferring to perform the anagram task earlier in the experimental session than did those who received the promotion framing (Ms = 2.69 and 4.77, respectively), $t(42) = 2.47$, $p < .02$, $d = .75$. Consistent with previous evidence that people prefer to perform single, positively valenced actions sooner rather than later (e.g., Loewenstein & Prelec, 1993; Mischel et al., 1996; Olson & Bailey, 1981), participants' ratings of task valence correlated negatively with when during an experimental session they would want to perform the task, $r(42) = -.29$, $p < .06$. Finally, both regulatory-focus framing ($\beta = .37$), $F(1, 41) = 7.16$, $p < .02$, and anticipated task valence ($\beta = -.31$), $F(1, 41) = 4.88$, $p < .03$, accounted for unique and significant amounts of variance in participants' timing intentions. Both variables together accounted for 22% of the variance, $F(2, 41) = 5.75$, $p < .01$. This demonstration of independent effects of action valence and regulatory focus on timing preferences suggests that one's regulatory focus, apart from one's perceptions of action valence, can influence when one initiates action.

STUDY 4

Data from Studies 1, 2, and 3 show that regulatory focus can affect when people prefer beginning a single task, with a prevention focus fostering earlier preferences than a promotion focus. In their everyday lives, however, people often confront many tasks simultaneously requiring attention. When planning to attain a goal that requires completing many smaller tasks, for example, which tasks will people perform first? If some tasks are less enjoyable than others, one might maximize the hedonic value of the overall task sequence by choosing to perform first the less enjoyable tasks to stop dreading these tasks and instead savor the upcoming enjoyable tasks (Loewenstein & Prelec, 1993). If the tasks are equally enjoyable and difficult, however, can regulatory focus help explain how people choose to order them? Consistent with the hypothesis that a prevention focus fosters preferences to devote immediate attention to the task at hand, we predicted that when facing an array of tasks, people would complete prevention-focused tasks before promotion-focused tasks.

In Study 4, participants were recruited for a study in which they would solve 20 anagrams and in which their compensation would hinge on their performance. Half of the anagrams were framed in promotion terms (solving these anagrams moved participants closer to a goal of earning \$3) and half were framed in prevention terms (solving these anagrams prevented participants from moving away from a goal of earning \$3). We expected participants to attempt solving the prevention-framed anagrams before the promotion-framed anagrams. Given the lack of evidence from Study 3 that prevention versus promotion framing of anagrams affects how fun, interesting, or successful people perceive solving anagrams to be, differential anticipation of task valence is an unlikely explanation of any effects of regulatory focus on action-initiation preferences in this context. Moreover, asking participants to make 20 ratings of anticipated task valence (i.e., 1 rating before solving each anagram) could have (a) suggested that the experimenter considered task valence an important part of the experiment (Weber & Cook, 1972) and (b) affected the accessibility of participants' attitudes toward and, consequently, their behavior during the anagram tasks (Fazio, 1986). For these reasons, in this study we did not measure task valence.

Method

PROCEDURE

The study included 30 Yale University undergraduates (16 women and 14 men; age 17 to 24, $M = 20$) who expected to earn up to \$3. After arriving at the laboratory, each participant was seated in an individual cubicle. On the desk in each cubicle were 20 2 ¾-inch × 1 ½-inch cards, 10 tan and 10 white, arranged in a checkerboard pattern of alternating colors in four rows by five columns. Because each row contained an odd number of cards, and hence more of one color than of the other, we alternated, across participants, whether the first row contained more tan cards or more white cards. The two different colors of cards reflected two different reward contingencies. On each of one group of 10 cards (either tan or white, counterbalanced across participants) were

printed the words "win 10 cents." On each of the other group of 10 cards (either tan or white, counterbalanced across participants) were printed the words "don't lose 10 cents." On the opposite side of each card was an anagram (e.g., *adir*, which is a jumble of the word *raid*). All 20 anagrams were based on words ranked between 7900 and 8100 for frequency of usage in the English language (Carl, Davies, & Richman, 1971). Given this experiment's aim of investigating the spontaneous order in which people complete tasks, the words were jumbled with the intention that the anagrams were of only moderate difficulty. Pilot testing with six graduate students indicated that the anagrams were difficult enough to captivate one's attention but not so difficult that one could not correctly solve all 20. Each anagram was equally likely to appear within "gain 10 cents" and "don't lose 10 cents" sets. The task instructions are as follows (for one of four versions varying anagram type, as described below):

> In this experiment, we are examining how people unscramble word jumbles (anagrams). The rules are: Each participant begins with $2 in his or her "account." For each tan anagram that you do not solve, 10 cents will be deducted from your account. For each white anagram that you do solve, 10 cents will be added to your account. Thus, by solving the tan anagrams you can avoid losing compensation. By solving the white anagrams you can gain compensation. You will earn a minimum of $1 and a maximum of $3. When you begin, please turn over one card at a time, attempt to recognize the jumbled word within each anagram (all anagrams are legitimate words), and record your answer below, in the spaces numbered 1 to 20. Please record each response in the order in which you answer it. If you cannot solve an anagram, please copy the unsolved anagram in the corresponding space. After you attempt to solve an anagram, place the card in the provided envelope before beginning the next anagram. Please do not go back to an anagram after you have placed it in the envelope.

Four different versions of these instructions were assigned randomly to participants. In two of the versions, tan anagrams were a means of avoiding impediments to goal attainment (as above), whereas in the other two versions, white anagrams served this purpose. In addition, within each reward contingency manipulation, the first type of anagram described was either a means of avoiding impediments to goal attainment (as above) or a means of advancing opportunities for goal attainment. After the experimenter had ascertained that all participants understood the rules and had assured them that all anagrams were equally difficult to solve and occurred equally frequently in the English language, participants began the task.

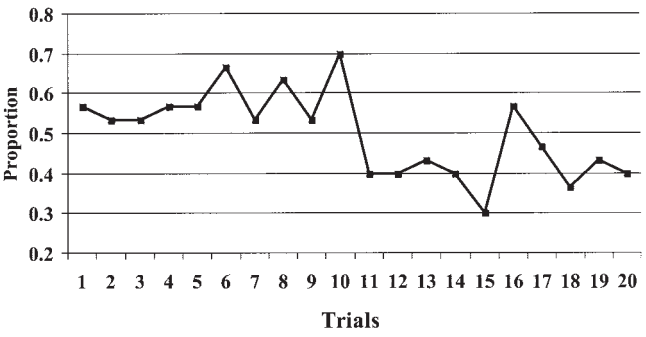

Figure 1 Mean proportions of participants choosing prevention-framed rather than promotion-framed anagrams across 20 ordered trials within a single array.

NOTE: Higher proportions (i.e., > .5) indicate greater proportions of participants choosing prevention-framed anagrams.

Results and Discussion

Figure 1 shows the proportion of participants, at each of the 20 trials, that chose prevention- rather than promotion-framed anagrams. Consistent with the prediction that participants would attempt to solve prevention-framed anagrams before promotion-framed anagrams, across each of the first 10 trials each proportion of participants choosing a prevention-framed rather than a promotion-framed anagram was greater than .5. To test the statistical significance of this effect, we compared the observed frequencies of prevention-framed anagrams solved during the first 10 trials to their randomly expected frequencies.[3] Consistent with our hypothesis, the observed frequencies departed significantly from chance expectations, $\chi^2(2, N = 30) = 10.31$, $p < .01$. Finally, on average, participants correctly solved 18.47 ($SD = 1.41$) out of the 20 anagrams, which indicates that, as intended, our experimental task did not constitute a failure experience. Participants correctly solved similar numbers of the 10 prevention-framed anagrams ($M = 9.21$), as they did of the 10 promotion-framed anagrams ($M = 9.26$, $t < 1$). In summary, participants working through an array of anagrams tended to complete the prevention-framed anagrams before the promotion-framed anagrams.

GENERAL DISCUSSION

Previous research has shown that the pleasure and pain people expect actions to deliver helps determine when they choose to perform single actions and how they choose to arrange actions in temporal sequences (e.g., Carver et al., 1996; Hsee & Abelson, 1991; Hsee et al., 1994; Linville & Fischer, 1991; Loewenstein, 1987; Loewenstein & Prelec, 1993; Mischel et al., 1996; Ross & Simonson, 1991; Thaler & Johnson, 1990; Varey &

Kahneman, 1992). From the perspective of regulatory focus theory, we have suggested that approaching pleasure and avoiding pain in distinct ways also may influence when people initiate action. By facilitating construing a goal as one of many opportunities for accomplishment, a promotion focus should lead people to feel little pressure to initiate immediately any single action. By facilitating construing a goal as a basic necessity, on the other hand, a prevention focus should foster greater impetus to initiate action immediately. We proposed, then, that a prevention focus would lead people to prefer earlier action initiation than would a promotion focus.

Four studies tested these hypotheses. Study 1 showed that increases in chronic prevention focus were associated with earlier preferred dates at which to begin a hypothetical academic task, whereas increases in chronic promotion focus were associated with later preferred dates at which to begin the task. In Study 2, participants who received a prevention-focused framing of the same academic task preferred earlier task commencement than did participants who received a promotion-focused framing. Studies 1 and 2 also assessed participants' perceptions of task valence and found that they were unrelated to participants' action-initiation preferences. The third study showed that regulatory focus and perceived task valence exerted independent effects on participants' preferences for when during an experimental session they would want to perform an anagram task. In Study 4, participants working through an array of 10 prevention- and 10 promotion-framed anagrams tended to complete first the prevention-framed anagrams. In sum, whether regulatory focus was chronically accessible or situationally induced, whether participants faced hypothetical academic tasks or behavioral laboratory tasks, and whether participants considered actions singly or as parts of multiple-action sequences, a prevention focus led to earlier preferences for action initiation than did a promotion focus.

Moreover, regulatory focus theory accounts for the current pattern of results better than do theories distinguishing between self-regulation in relation to positive or negative reference points.[4] Prospect theory, for example, posits that the subjective value function of losses is steeper than is the subjective value function of gains (Kahneman & Tversky, 1979; cf. Wicker, Wiehe, Hagen, & Brown, 1994). Because Study 1's assessments of promotion-focus strength and prevention-focus strength both were based on the accessibility of positive reference points (ideal vs. ought self-guides, respectively) toward which participants were working, its results cannot be interpreted in terms of prospect theory. Studies 3 and 4 similarly provided all participants with the same positive reference points ($7 and $3, respectively) that they could achieve either by preventing impediments to goal attainment (by avoiding incorrect responses) or by promoting the advancement of goal attainment (by providing correct responses). It is possible that the manipulation of regulatory focus in Study 2 also affected participants' reference points. However, previous research has shown that people prefer experiencing highly valuable single actions in the near future but that they prefer saving highly valuable events for the end of action sequences (Loewenstein & Prelec, 1993). Thus, if a prevention focus were to lead one to adopt a negative reference point, thereby increasing one's subjective valuation of an event, then one should prefer experiencing a single prevention-framed event in the near future but saving for the end a prevention-framed event that is part of a sequence. Inconsistent with this prediction, but consistent with our prediction that prevention framing leads events to be experienced as necessities, our findings showed that whether concerning individual actions or actions within sequences, prevention framing led to earlier preferences for action initiation than did promotion framing.

These findings suggest how regulatory focus could influence other goal-pursuit processes. For example, when a person has selected an action to pursue but confronts a situation that also affords other actions, a prevention focus may facilitate devoting immediate attention to the adopted action rather than being sidetracked by potential distractions. This suggestion is consistent with some past findings. In one experiment, children adopted the goal of performing a boring pegboard task to play afterward with attractive toys (Patterson & Mischel, 1976; see also Schaal, 1993, cited in Gollwitzer, 1996). The situation the children confronted, however, also contained an attractive distractor, "Mr. Clown Box," who encouraged the children to pursue other actions, such as pressing his nose. Children equipped with an avoidance strategy (i.e., "I'm not going to look at Mr. Clown Box") warded off the distracting Mr. Clown Box and attended to their work more effectively than did children equipped with an approach strategy (i.e., "I'm going to look at my work"). Patterson and Mischel (1976) offered no theoretical account for these intriguing findings, and subsequent authors have suggested that such an account is needed (Gollwitzer, 1996). Our theoretical framework and empirical findings suggest that using an avoidance strategy could instantiate a prevention focus, causing one to view adopted goals as necessities and, hence, to be less open to engaging in non-goal-related activities. Accordingly, it may be interesting for future research to examine whether the acces-

sibility of people's ideal and ought self-guides influences how susceptible they are to distraction.

This discussion suggests further practical implications. Because a promotion focus fosters viewing activities as interchangeable means of accomplishment, framing a new activity in promotion terms may foster greater willingness to adopt it. Once the activity has been adopted, however, this same reasoning suggests that attempts to persuade individuals to take prompt action in pursuing it may be more effective when the activity is framed in prevention terms. To persuade individuals to adopt a new goal of acquiring vocational training, for example, framing the training in terms of taking advantage of career advancement opportunities, may prove most effective. However, once an individual has signed up for the training, reframing it in terms of avoiding obstacles to a desired future may more effectively motivate the individual to complete assignments on time.

NOTES

1. In unrelated work, Rothman and Salovey's (1997) message-framing research examines the health-behavioral implications of whether people consider the positive (i.e., gain-framed) or negative (i.e., loss-framed) consequences of an event. Within their framework, gain-framed messages highlight both gains and nonlosses, whereas loss-framed messages highlight both losses and nongains (e.g., Detweiler, Bedell, Salovey, Pronin, & Rothman, 1999).

2. Because this level of reliability was somewhat lower than that observed in Study 1, we also recomputed all analyses using task interest and expectancies of task success as two separate, independent variables. This approach did not alter the statistical significance of any results reported herein.

3. Because these observations were not independent of one another, the binomial distribution could not be used to generate randomly expected frequencies. That is, because there were 10 prevention-framed anagrams and 10 promotion-framed anagrams, out of a total of 20 anagrams, once a participant made an initial selection, there no longer remained an equal likelihood of randomly selecting either type of anagram. To generate randomly expected frequencies, we computed the probability that exactly k, or 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10, prevention-framed anagrams (and, therefore, the probability that the $10 - k$ promotion-framed anagrams) would be selected over the first 10 trials, given that there were a total of 10 prevention-framed anagrams that could be chosen from an overall array of 20. As a special case of the hypergeometric distribution (see Berry & Mielke, 1998; Johnson & Kotz, 1969; Wampold & Margolin, 1982), the following equation achieves this aim:

$$p(k) = C(k, 10) * C(10 - k, 10) \,/\, C(10, 20), \quad (1)$$

where k is equal to a given number of prevention-framed anagrams solved over the first 10 trials and each of the three terms of the form $C(x, y)$ indicates the number of distinct combinations of x and y, which is calculated as $(y!)/((x!)*(y - x!))$.

Equation 1 applies to the treatment of a single participant's data. In our sample of multiple participants, we used a chi-square test to compare the observed frequencies of k, across M subjects, with the expected frequencies $p(k)*M$. Equation 2 achieves this comparison, where the sum is from $k = 0$ to $k = 10$.

$$\chi = \Sigma\{(\mathrm{Obs}(k) - p(k)*M) \,/\, (p(k)*M)\} \quad (2)$$

With 30 participants, then, a random model would expect 10.31 participants to attempt five prevention-framed anagrams, 9.84 participants to attempt fewer than five prevention-framed anagrams, and 9.84 participants to attempt more then five prevention-framed anagrams, across the first 10 trials. However, only 5 participants attempted five prevention-framed anagrams, only 7 participants attempted fewer than five prevention-framed anagrams, and 18 participants attempted more than five prevention-framed anagrams, across the first 10 trials. These observed frequencies departed from chance expectations, $\chi^2(2, 30) = 10.31$, $p < .01$.

4. We thank an anonymous reviewer for suggesting this possibility.

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