

## **Achievement orientations from subjective histories of success: promotion pride versus prevention pride**

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### *Abstract*

*A new task goal elicits a feeling of pride in individuals with a subjective history of success, and this achievement pride produces anticipatory goal reactions that energize and direct behavior to approach the task goal. By distinguishing between promotion pride and prevention pride, the present paper extends this classic model of achievement motivation. Regulatory focus theory (Higgins, 1997) distinguishes between a promotion focus on hopes and accomplishments (gains) and a prevention focus on safety and responsibilities (non-losses). We propose that a subjective history of success with promotion-related eagerness (promotion pride) orients individuals toward using eagerness means to approach a new task goal, whereas a subjective history of success with prevention-related vigilance (prevention pride) orients individuals toward using vigilance means to approach a new task goal. Studies 1–3 tested this proposal by examining the relations between a new measure of participants' subjective histories of promotion success and prevention success (the Regulatory Focus Questionnaire (RFQ)) and their achievement strategies in different tasks. Study 4 examined the relation between participants' RFQ responses and their reported frequency of feeling eager or vigilant in past task engagements. Study 5 used an experimental priming technique to make participants temporarily experience either a subjective history of promotion success or a subjective history of prevention success. For both chronic and situationally induced achievement pride, these studies found that when approaching task goals individuals with promotion pride use eagerness means whereas individuals with prevention pride use vigilance means. Copyright © 2001 John Wiley & Sons, Ltd.*

According to McClelland and Atkinson's classic theory of achievement motivation (e.g. Atkinson, 1964; McClelland, 1951, 1961; McClelland, Atkinson, Clark, & Lowell, 1953), over time a new achievement task elicits the feelings associated with past task engagements. For individuals with a subjective history of success, for example, a new achievement task elicits a feeling of pride. This achievement pride produces anticipatory goal reactions that energize and direct behavior to approach

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the new task goal. For individuals with a subjective history of failure, on the other hand, a new task elicits a feeling of shame, and this achievement shame produces anticipatory goal reactions that energize and direct behavior to avoid the new task goal. Decades of research supports this general model of how subjective histories of past success versus failure influence approach versus avoidance of achievement tasks. Can this model be extended from its between-valence concern with histories of success versus failure to a within-valence concern with histories of different types of success? By distinguishing between a subjective history of promotion versus prevention success, we propose a within-valence distinction that can deepen our understanding of the nature of the anticipatory goal reactions that energize and direct task behaviors.

According to regulatory focus theory (Higgins, 1997, 1998), all goal-directed behavior is regulated by two distinct motivational systems. These two systems, termed promotion and prevention, each serve a distinct survival function. The human *promotion* system is concerned with obtaining nurturance (e.g. nourishing food) and underlies higher-level concerns with accomplishment and advancement. The promotion system's hedonic concerns relate to the pleasurable presence of positive outcomes (i.e. gains) and the painful absence of positive outcomes (i.e. non-gains). In contrast, the human *prevention* system is concerned with obtaining security and underlies higher-level concerns with safety and fulfillment of responsibilities. The prevention system's hedonic concerns relate to the pleasurable absence of negative outcomes (e.g. non-losses) and the painful presence of negative outcomes (e.g. losses).

Critically, regulatory focus theory proposes that the promotion and prevention systems employ qualitatively distinct *means* of regulating towards desired end-states (Higgins, 1997). Individuals with a chronic or situationally induced promotion focus are inclined to utilize *approach strategic means* in order to attain their goals. For instance, a promotion-focused student who construes a high exam score as an accomplishment might approach matches to this desired end-state by studying extra material or organizing a study group with fellow classmates. Conversely, individuals with a prevention focus tend to use *avoidance strategic means* in order to attain their goals. For example, a prevention-focused student who construes a high exam score as a responsibility might avoid mismatches to this desired end-state by ensuring that he or she knows the required material and avoids distractions prior to the exam.

In a series of experiments using diverse methodologies, Higgins and his colleagues have found evidence that a promotion focus inclines individuals to approach matches to desired end-states whereas a prevention focus inclines individuals to avoid mismatches to desired end-states (Higgins, Roney, Crowe, & Hymes, 1994; Crowe & Higgins, 1997; Shah, Higgins, & Friedman, 1998; Förster, Higgins, & Idson, 1998). In an early study by Higgins *et al.* (1994), for example, participants whose regulatory focus was experimentally induced read about several episodes that occurred over the course of a few days in the life of another student. In each of these episodes, the student was described as attempting to reach a desired objective by either approaching a match to this desired end-state (e.g. 'Because I wanted to be at school for the beginning of my 8:30 psychology class which is usually excellent, I woke up early this morning') or by avoiding a mismatch to this desired end state (e.g. 'I wanted to take a class in photography at the community center, so I didn't register for a class in Spanish that was scheduled at the same time'). Higgins *et al.* (1994) predicted that individuals would remember better the episodes which contained goal strategies that were consistent with their induced focus. Consistent with this prediction, participants in a promotion focus recalled better the episodes containing approach strategic means whereas participants in a prevention focus recalled better the episodes containing avoidance strategic means.

The promotion versus prevention strategic inclinations can be conceptualized in signal detection terms (e.g. Tanner & Swets, 1954; cf. Trope & Liberman, 1996). Specifically, individuals in a promotion focus are motivated to use *eagerness means* – to ensure 'hits' (representing gains) and to

ensure against errors of omission or ‘misses’ (representing non-gains). In contrast, individuals in a prevention focus are motivated to use *vigilance means* – to ensure ‘correct rejections’ (representing non-losses) and to ensure against errors of commission or ‘false alarms’ (representing losses). Regulatory focus theory proposes (Crowe & Higgins, 1997; Higgins, 1997, 1998) that there is a natural fit between promotion focus concerns and the use of eagerness means because eagerness means ensure the presence of positive outcomes (ensure hits; look for means of advancement) and ensure against the absence of positive outcomes (ensure against errors of omission; don’t close off possibilities). There is also a natural fit between prevention focus concerns and the use of vigilance means because vigilance means ensure the absence of negative outcomes (ensure correct rejections; be careful) and ensure against the presence of negative outcomes (ensure against errors of commission; avoid mistakes).

Crowe and Higgins (1997) tested the predictions that individuals in a promotion focus would be inclined toward eagerness means and individuals in a prevention focus would be inclined toward vigilance means. The participants were first shown a list of target items. Following a delay, they were then given test items that included both old target items from the original list and new distractor items not from the original list. The participants were asked to respond ‘Yes’ if they believed the test item was an old target item and ‘No’ if they believed the test item was a new distractor item.

From a signal-detection perspective, using the eagerness means of ensuring hits and ensuring against errors of omission would produce ‘Yes’ responses (a ‘risky’ bias), whereas using the vigilance means of ensuring correct rejections and ensuring against errors of commission produces ‘No’ responses (a ‘conservative’ bias). The participants were told that they would first perform a recognition memory task and then would be assigned a second, final task. A liked and a disliked activity had been selected earlier for each participant to serve as the final task. The promotion framing of the contingency stated that by doing well on the initial memory task the participant would get to do the liked task. The prevention framing of the contingency stated that by not doing poorly on the initial memory task the participant would not have to do the disliked task. The study found that participants with a promotion focus had a risky bias of saying ‘Yes’ in the recognition memory task whereas participants with a prevention orientation had a conservative bias of saying ‘No’.

The Higgins *et al.* (1994) and Crowe and Higgins (1997) studies, as well as others (e.g. Förster *et al.*, 1998; Liberman, Idson, Camacho, & Higgins, 1999; Shah *et al.*, 1998), demonstrate that individuals in a promotion focus are oriented toward using eagerness approach means of goal attainment whereas individuals in a prevention focus are oriented toward using vigilance avoidance means. In these studies, all participants were motivated to engage the task and to approach the desired goal. In each study, the criterion of success and the incentive for succeeding was the same for all participants. Nonetheless, the strategic inclinations of the participants varied depending on their regulatory focus. Thus, even when individuals are alike in having a motive to succeed and a desire to approach the task goal, their strategic orientations toward success can differ – success through eagerness approach means (promotion) or success through vigilance avoidance means (prevention). What implications does this have for understanding how to extend the classic model of achievement motivation from its between-valence concern with histories of success versus failure to a within-valence concern with different types of histories of success?

As discussed earlier, a new achievement task elicits a feeling of pride in individuals with a subjective history of success and this achievement pride produces anticipatory goal reactions that energize and direct behavior to approach the task goal. But how exactly do individuals with achievement pride energize and direct their self-regulation toward the task goal? What is the specific nature of the orientations (i.e. anticipatory goal reactions)? According to regulatory focus theory, this would depend on whether the individuals have promotion achievement pride or prevention achievement pride (or both). Individuals with a subjective history of success in attaining promotion focus

goals would have promotion pride, and individuals with a subjective history of success in attaining prevention focus goals would have prevention pride. Promotion pride and prevention pride would produce different orientations to new task goals that would energize and direct task engagement differently. Promotion pride would involve pride from a subjective history of past success with promotion-related eagerness. This promotion pride should orient individuals toward using eagerness means to attain new task goals. In contrast, prevention pride would involve pride from a subjective history of past success with prevention-related vigilance. This prevention pride should orient individuals toward using vigilance means to attain new task goals. The purpose of our research program was to test these two predictions that extend the classic achievement motivation model to a within-success difference.

We conceptualize promotion pride and prevention pride as orientations (i.e. anticipatory goal reactions) to new task goals that derive from a subjective history of past success in promotion and prevention goal attainment, respectively. Because it involves a *subjective* history of success, what matters is individuals' own personal sense of their history of promotion or prevention success in goal attainment. In order to measure this, we developed a new questionnaire, the Regulatory Focus Questionnaire (RFQ; Harlow, Friedman, & Higgins, 1997, *The Regulatory Focus Questionnaire*, Columbia University, unpublished manuscript). As discussed in more detail later, the RFQ contains two psychometrically distinct subscales. The Promotion subscale measures individuals' subjective histories of promotion success with items such as 'How often have you accomplished things that got you "psyched" to work even harder?' and 'I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them' (reverse scored). The Prevention subscale measures individuals' subjective histories of prevention success with items such as 'How often did you obey rules and regulations that were established by your parents?' and 'Not being careful has gotten me into trouble at times' (reverse scored). Higher scores on either the Promotion or Prevention subscale reflect individuals' sense of their history of promotion or prevention success in goal attainment, respectively.

Three of the studies reported below examined how promotion pride and prevention pride, as measured by the RFQ, relates to strategic inclinations. We predicted that individuals with high Promotion (subscale) scores would be more inclined to use approach eagerness means of goal attainment than individuals with low Promotion scores, and that, independently, individuals with high Prevention (subscale) scores would be more inclined to use avoidance vigilance means than individuals with low Prevention scores (Studies 1–3). Study 4 examined the subjective experiences of promotion pride and prevention pride. Do the distinct orientations of promotion and prevention pride influence individuals' experiences of goal attainment? Individuals with a subjective history of promotion success should frequently experience eagerness in their goal-attainment activities, whereas individuals with a subjective history of prevention success should frequently experience vigilance in such activities (See also Friedman, 1999). Thus, we predicted that individuals with high Promotion subscale scores would report frequently feeling eager in their past activity engagements (and infrequently feeling apathetic), whereas individuals with high Prevention subscale scores would report frequently feeling vigilant in these engagements (and infrequently feeling careless).

As mentioned earlier, we conceptualize promotion pride and prevention pride as orientations to new task goals that derive from a sense of history of past success in promotion and prevention goal attainment, respectively. Because this sense of history is subjective and the pride is an orientation to a new task goal, it should be possible to manipulate experimentally the sense of history and the orientation. After all, by using priming to make specific past histories momentarily accessible, it should be possible to produce temporary differences in individuals' sense of history that normally reflect chronic individual differences in accessible past histories (see Higgins, 1996). Study 5 experimentally primed past histories of either promotion success, promotion failure, prevention success, prevention

failure. We predicted that using priming to make individuals temporarily experience either a subjective history of promotion success or a subjective history of prevention success would have the same effects on strategic inclinations as predicted for high Promotion scores and high Prevention scores on the RFQ, respectively.

### STUDIES 1a AND 1b

As discussed earlier, we predicted that individuals with high RFQ Promotion scores (i.e. high promotion pride) would be more inclined to use approach eagerness means to attain task goals than individuals with low Promotion scores (low promotion pride), and that, independently, individuals with high RFQ Prevention scores (i.e. high prevention pride) would be more inclined to use avoidance vigilance means to attain task goals than individuals with low Prevention scores (low prevention pride). Studies 1a and 1b test these predictions by examining the relations between Promotion and Prevention scores and the use of eagerness or vigilance means in decision-making tasks. The decision-making task in Study 1a concerned the use of eagerness means; i.e. ensuring against 'errors of omission'. We predicted that higher RFQ Promotion scores, but not higher RFQ Prevention scores, would increase the likelihood of making a decision that ensured against 'errors of omission'. The decision-making task in Study 1b concerned the use of vigilance means; i.e. ensuring against 'errors of commission'. We predicted that higher RFQ Prevention scores, but not higher RFQ Promotion scores, would increase the likelihood of making a decision that ensured against 'errors of commission'. Studies 1a and 1b, as well as Studies 2 and 3, test our proposal by using the RFQ. Because this is a newly developed measure, we first provide some background information about it.

#### Regulatory Focus Questionnaire (RFQ)

Scale construction for the RFQ began with the generation of items designed to assess individuals' subjective histories of success or failure in promotion and prevention self-regulation (for more psychometric details, see Harlow *et al.*, 1997, unpublished manuscript). The original pool of promotion and prevention candidate items was carefully balanced between promotion and prevention in including similar numbers of both parental content and non-parental content items. For instance, parental promotion items included 'My parents rarely listened to my ideas and opinions' and parental prevention items included 'How often did you obey rules and regulations that were established by your parents?' Non-parental promotion items included 'How often have you accomplished things that got you "psyched" to work even harder?' and non-parental prevention items included 'Not being careful enough has gotten me into trouble at times'.

The item pool was administered in successive, iterative waves to large samples of undergraduates in two private urban universities. Psychometric analyses, including analysis of item distributions, exploratory factor analysis and reliability analyses, were conducted following each administration to determine which items provided good variability and formed coherent subscales, and also which items correlated with other self-regulation measures similar to those under investigation. After several iterations, a final scale containing 11 items remained and was administered to a sample of over 207 undergraduate participants. The responses of these individuals were later factor-analyzed.

The final Regulatory Focus Questionnaire (RFQ) is shown in Table 1. Items 1, 3, 7, 9, 10, and 11 are Promotion scale items. Items 2, 4, 5, 6, and 8 are Prevention scale items. The factor loadings from a factor analysis (using Kaiser's extraction (SPSS ALPHA; SPSS, 1990)) and oblimin rotation (allowing for natural correlation among the factors) have been added to Table 1 in square brackets. Items in Table 1 with negative factor loadings are reversed scored for the scale calculations. Of course, the factor

Table 1. Event reaction questionnaire

This set of questions asks you about specific events in your life. Please indicate your answer to each question by circling the appropriate number below it.

1. Compared to most people, are you typically unable to get what you want out of life? [−0.65]	1	2	3	4	5
	never or seldom		sometimes		very often
2. Growing up, would you ever “cross the line” by doing things that your parents would not tolerate? [−0.80]	1	2	3	4	5
	never or seldom		sometimes		very often
3. How often have you accomplished things that got you “psyched” to work even harder? [0.37]	1	2	3	4	5
	never or seldom		a few times		many times
4. Did you get on your parents’ nerves often when you were growing up? [−0.65]	1	2	3	4	5
	never or seldom		sometimes		very often
5. How often did you obey rules and regulations that were established by your parents? [0.56]	1	2	3	4	5
	never or seldom		sometimes		always
6. Growing up, did you ever act in ways that your parents thought were objectionable? [−0.84]	1	2	3	4	5
	never or seldom		sometimes		very often
7. Do you often do well at different things that you try? [0.54]	1	2	3	4	5
	never or seldom		sometimes		very often
8. Not being careful enough has gotten me into trouble at times. [−0.55]	1	2	3	4	5
	never or seldom		sometimes		very often
9. When it comes to achieving things that are important to me, I find that I don’t perform as well as I ideally would like to do. [−0.51]	1	2	3	4	5
	never true		sometimes true		very often true
10. I feel like I have made progress toward being successful in my life. [0.81]	1	2	3	4	5
	certainly false				certainly true
11. I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them. [−0.53]	1	2	3	4	5
	certainly false				certainly true

loadings do not appear on the questionnaire when it is administered to participants. The factor analysis revealed two factors with eigenvalues greater than 1, accounting for 50% of the variance (29% and 21%). It should be noted that *none* of the hypothesized promotion items loaded on the same factor as the prevention items, and *none* of the hypothesized prevention items loaded on the same factor as the promotion items. The two factors exhibited only a modest positive correlation ( $r = 0.21$ ,  $p < 0.001$ ).

Each of the resulting scales exhibited good internal reliability ( $\alpha = 0.73$  for the Promotion scale;  $\alpha = 0.80$  for the Prevention scale). A subsequent confirmatory factor analysis using LISREL 8 (Joreskog and Sorbom, 1993) with 268 undergraduate participants provided support for the hypothesized factor structure. The goodness of fit index suggested an excellent fit, at 0.95, and the adjusted goodness of fit was only slightly lower (0.93). There was also evidence that incorporating the items related to prevention or promotion significantly improved the fit of the latent factor structure over that constructed on the basis of the valence of the items alone (i.e. on just whether an item referred to

success or failure). Finally, a recent test-retest reliability study with 71 University of Maryland undergraduate participants found that over a period of two months the RFQ Promotion scale had a 0.79 correlation ( $p < 0.0001$ ) and the RFQ Prevention scale had a 0.81 correlation ( $p < 0.0001$ ).

Harlow *et al.* (1997) also investigated the convergent and discriminant validity of the RFQ. For the present purpose, only some illustrative relations will be noted. To begin with, let us consider when promotion and prevention pride should not differ. Given that we conceptualize promotion pride and prevention pride as two distinct forms of motive to succeed, RFQ Promotion scores and RFQ Prevention scores should *both* have independent positive relations to achievement motivation. Consistent with this prediction, Harlow *et al.* (1997) found using Jackson's (1974) Personality Research Form (PRF) Achievement scale that higher RFQ Promotion scores (controlling for Prevention scores) and higher RFQ Prevention scores (controlling for Promotion scores) each had a modest but significant positive relation to achievement motivation.

Also using Jackson's (1974) PRF, Harlow *et al.* (1997) found discriminant relations as well. Higher RFQ Prevention scores (controlling for Promotion scores) had a significant positive relation to 'cognitive structure' (with items related to avoiding mistakes), whereas higher RFQ Promotion scores (controlling for Prevention scores) had no relation. Higher RFQ Prevention scores (controlling for Promotion scores) also had a significant *negative* relation to 'impulsivity' (with items related to being careless and reckless), whereas higher RFQ Promotion scores (controlling for Prevention scores) had no relation. These unique relations for higher RFQ Prevention scores are consistent with the proposal that prevention pride relates to a vigilance orientation.

Harlow *et al.* (1997) found additional evidence of discriminant validity using Carver and White's (1994) Behavioral Approach System scales (BAS). For example, higher RFQ Promotion scores (controlling for Prevention scores) had a significant positive relation to both 'Reward Responsiveness' and 'Fun Seeking' (with items related to eagerness in pursuing things and willingness to take risks), whereas higher RFQ Prevention scores (controlling for Promotion scores) did not. For 'Fun Seeking', higher RFQ Prevention scores (controlling for Promotion scores) actually had a significant *negative* relation, which is reasonable given that this scale, especially, reflects a willingness to take risks that is opposite to a vigilance orientation. The unique positive relations for higher RFQ Promotion scores are consistent with the proposal that promotion pride relates to an eagerness orientation.

We also conducted a recent study with 171 Columbia University undergraduate participants to examine the convergent and discriminant relations between the RFQ Promotion and Prevention scales and previously used measures related to promotion and prevention focus – ideal strength, ought strength, ideal discrepancies, and ought discrepancies (for a description and discussion of these measures, see Higgins, 1998). In a simultaneous multiple regression, RFQ Promotion and RFQ Prevention had no significant unique relations to either ideal strength or ought strength (all  $p$ 's  $> 0.40$ ). This was to be expected because ideal strength and ought strength measure the chronic accessibility of ideal and ought goals, respectively, and have been found to be independent of past success or failure in attaining these goals (see Higgins, Shah, & Friedman, 1997). There was some evidence, however, of relations between RFQ Promotion and Prevention and ideal and ought discrepancies. Higher RFQ Promotion scores (controlling for RFQ Prevention) had a significant negative relation to ideal discrepancies (controlling for ought discrepancies),  $r = -0.29$ ,  $p < 0.001$ , but not to ought discrepancies (controlling for ideal discrepancies). The comparable analysis for RFQ Prevention found a borderline significant unique relation to ought discrepancies,  $r = -0.13$ ,  $p = 0.08$ . It is not surprising that RFQ Promotion and Prevention scores, which relate to subjective histories of success, would relate negatively to failures to fulfill current concerns (i.e. ideal and ought discrepancies). What is notable is that the relations are rather modest and that the RFQ is clearly not simply a reverse self-discrepancy measure. Indeed, as will be demonstrated by the results of Study 2, the relations predicted by the RFQ can be obtained even when self-discrepancies are controlled for.

## STUDY 1a

### Method

#### *Participants*

Sixty-four Columbia University students (33 males and 31 females) completed the RFQ and the decision-making task as part of a general battery. Participants were paid a total of \$8 for their participation in the battery. All participants indicated that English was their native language. There were no significant differences between male and female participants in any of the results reported below.

#### *Procedure*

Participants first completed the RFQ, followed by two questionnaires unrelated to the current study. Afterwards, they were then presented with the following scenario from Arkes & Blumer (1985, Experiment 1) that concerns the cost of making an error of omission (i.e. omitting a 'hit'):

Assume that you have spent \$100 on a ticket for a weekend trip to Michigan. Several weeks later you buy a \$50 ticket for a weekend trip to Wisconsin. You think you will enjoy the Wisconsin trip more than the Michigan trip. As you are putting your just-purchased Wisconsin trip ticket in your wallet, you notice that the Michigan trip and the Wisconsin trip are for the same weekend! It's too late to sell either ticket, and you cannot return either one. You must use one ticket and not the other. Which trip will you go on?

After reading the scenario, participants indicated whether they would choose the \$100 trip to Michigan or the \$50 trip to Wisconsin. At the end of the study, all participants were fully debriefed and thanked for their participation.

### Results and Discussion

The error being examined in this study would be to miss the more enjoyable Wisconsin trip simply because you paid more for the Michigan trip. After all, the money has already been spent. All that should matter now is which trip you would enjoy more. To choose Michigan because you paid more for it would involve the error of omitting the 'hit' of Wisconsin for no good reason. Participants' oriented toward eagerness should be less likely to make this error. Thus, we predicted that participants with higher Promotion scores would be more likely to choose Wisconsin and not make this error. Prevention scores should be unrelated to participants' choice.

In this study there was essentially no correlation between the RFQ Promotion scale and the RFQ Prevention scale ( $r = 0.02$ ). Overall, 80% of the participants indicated that they would choose the (\$50) Wisconsin trip. As predicted, this result was influenced by promotion pride. Specifically, we coded a choice of the Michigan (\$100) trip as 0 and a choice of the Wisconsin (\$50) trip as 1, and regressed it on the RFQ Promotion scale and the RFQ Prevention scale in a logistic regression. We found that higher Promotion scores (controlling for Prevention scores) were positively related to choosing the more enjoyable Wisconsin trip,  $\beta = 0.24$ ,  $p = 0.01$ , whereas higher Prevention scores (controlling for Promotion scores) were not,  $\beta = 0.03$ ,  $p > 0.50$ .

To illustrate this pattern of results, we classified participants in terms of whether, compared to others, they were relatively more promotion pride or relatively more prevention pride based on a median split on

the difference between their RFQ Promotion and RFQ Prevention scores. Among the relatively more promotion pride participants, 91% chose the Wisconsin trip. Among the relatively more prevention pride participants, 69% chose the Wisconsin trip. This difference was statistically significant,  $\chi^2(1, 63) = 4.73, p < 0.05$ .<sup>1</sup>

## STUDY 1b

### Method

#### *Participants*

Sixty-four Columbia University students (35 males and 29 females) completed the RFQ and a new decision-making task as part of a general battery. Participants were paid a total of \$8 for their participation in the battery. All participants indicated that English was their native language. There were no significant differences between male and female participants in any of the results reported below.

#### *Procedure*

Participants first completed the RFQ, followed by two questionnaires unrelated to the current study. They were then presented with the following scenario from Arkes & Blumer (1985, Experiment 3, Question 3A) that concerns the cost of making an error of commission (i.e. saying 'yes' when you should say 'no'):

As the president of an airline company, you have invested 10 million dollars of the company's money into a research project. The purpose was to build a plane that would not be detected by conventional radar, in other words, a radar-blank plane. When the project is 90% completed, another firm begins marketing a plane that cannot be detected by radar. Also, it is apparent that their plane is much faster and far more economical than the plane your company is building. The question is: should you invest the last 10% of the research funds to finish your radar-blank plane?

After reading the scenario, participants indicated whether their response was 'yes' or 'no'. At the end of the study, all participants were fully debriefed and thanked for their participation.

### Results and Discussion

The error being examined in this study would be to say 'yes' when you should say 'no'. It is not reasonable to waste additional money on an endeavor with almost no possible gain just because you have already spent (i.e. wasted) money on it. To choose to waste more money, i.e. say 'yes', would involve an error of commission. Participants' oriented toward vigilance should be less likely to make this error. A decision *not* to invest the final research funds would reflect participants' strategic

<sup>1</sup>We also classified each participant in terms of whether the difference between his or her RFQ Promotion and RFQ Prevention scores was absolutely greater than zero (Promotion) or less than zero (Prevention). The distribution turned out to be very skewed because most participants had difference scores greater than zero (90%). Among the promotion pride participants, 82% chose the Wisconsin trip. Among the prevention pride participants, 50% chose the Wisconsin trip. Perhaps because of the skewed distribution, this fairly large difference did not reach significance,  $\chi^2 = 2.32, p < 0.15$ .

avoidance motivation to correctly reject pouring additional money into an endeavor with little possibility of gain. Thus, participants' oriented toward vigilance are more likely to say 'no' (a 'correct rejection'). We predicted, therefore, that participants with higher Prevention scores would be more likely to say 'no'. Promotion scores should be unrelated to participants' choice.

As in the preceding studies, there was virtually no correlation between the RFQ Promotion scale and the RFQ Prevention scale ( $r = -0.007$ ). Overall, 70% of the participants indicated that they *would* invest the last 10% of the research funds to finish the plane. More importantly, this result was influenced by prevention effectiveness. Specifically, we coded a 'yes' response as 0 and a 'no' response as 1, and regressed it on the RFQ Promotion scale and the RFQ Prevention scale in a logistic regression. As predicted, we found that higher Prevention scores (controlling for Promotion scores) were positively related to choosing *not* to invest (saying 'no'),  $\beta = 0.21$ ,  $p = 0.01$ , whereas higher Promotion scores (controlling for Prevention scores) were not,  $\beta = -0.06$ ,  $p > 0.40$ .

To illustrate this pattern of results, we classified participants in terms of whether, compared to others, they were relatively more promotion pride or relatively more prevention pride based on a median split on the difference between their RFQ Promotion and RFQ Prevention scores. Among the relatively more prevention pride participants, 41% chose *not* to invest. Among the relatively more promotion pride participants, 19% chose not to invest. This difference was statistically reliable,  $\chi^2(1, 63) = 3.67$ ,  $p = 0.05$ .<sup>2</sup>

Overall, the findings of Studies 1a and 1b support our predictions that individuals with high RFQ Promotion scores (i.e. high promotion pride) are more inclined to use approach eagerness means to attain task goals than individuals with low Promotion scores (low promotion pride), and that, independently, individuals with high RFQ Prevention scores (i.e. high prevention pride) are more inclined to use avoidance vigilance means to attain task goals than individuals with low Prevention scores (low prevention pride). These predictions were supported in decision-making tasks that involved the possibility of making either an 'error of omission' (Study 1a) or an 'error of commission' (Study 1b). As predicted, higher promotion pride individuals were less likely to make the former error, and, independently, higher prevention pride individuals were less likely to make the latter error. Study 2 tested our predictions in a different manner by examining individuals' inclination to have few or many means to attain each of their goals.

Problem-solving tasks often involve generating various alternative strategies or solutions. The process of alternative generation involves a trade-off – each alternative produced represents a chance to offer a correct solution (i.e. to attain a 'hit'), but it also represents a chance to offer an incorrect solution (i.e. to commit an error). Accordingly, Higgins (1997) postulated that promotion-focused individuals, with their inclination to ensure 'hits' and ensure against errors of omission, should tend to generate more alternatives in the course of problem-solving than prevention-focused individuals, who are inclined to ensure 'correct rejections' and to ensure against errors of commission. Support for this general proposal has been obtained in several studies (e.g. Crowe & Higgins, 1997; Liberman, Molden, Idson, & Higgins, 2000).

Regulatory focus should also influence the critical process of selecting means to attain task goals. Because high promotion pride individuals are inclined to use approach eagerness means and each means could produce a 'hit', they should have more means per goal than low promotion pride individuals. Because high prevention pride individuals are inclined to use avoidance vigilance means and unnecessary means could be a mistake, they should have less means per goal than low prevention pride individuals. Thus, we predicted that higher RFQ Promotion scores would be positively related to

<sup>2</sup>Once again, we classified each participant in terms of whether the difference between his or her RFQ Promotion and RFQ Prevention scores was absolutely greater than zero (Promotion) or less than zero (Prevention). Among the prevention pride participants, 67% chose *not* to continue investing. Among the promotion pride participants, 26% chose not to continue investing. Despite there again being a skewed distribution, this difference was significant,  $\chi^2(1, 63) = 4.34$ ,  $p < 0.05$ .

the number of means per goal, and that, independently, higher RFQ Prevention scores would be negatively related to the number of means per goal.

A secondary purpose of Study 2 was to distinguish between subjective histories of promotion or prevention success as reflected in the general past experiences measured by the RFQ and current concerns with goal attainment as reflected in the self-discrepancies measured by the Selves Questionnaire (Higgins, Bond, Klein, & Strauman, 1986). If promotion pride and prevention pride function like McClelland and Atkinson's achievement pride, then current concerns with goal attainment would not be sufficient to induce the subjective sense of a history of success that is associated with achievement pride. On the other hand, it could be that the predicted effects of promotion and prevention pride as measured by the RFQ are independent of current concerns with goal attainment. By including measures of self-discrepancies in Study 2, these issues could be addressed. Finally, the participants in Study 2 were Columbia alumni who had retired. This allowed us to test our proposed distinction between promotion and prevention pride with an older sample, thereby generalizing any obtained relations.

## STUDY 2

### Method

#### *Participants*

Twenty-eight male Columbia University alumni between the ages of 50 and 70 voluntarily participated in the study, which was part of a larger research project involving Columbia alumni in this age range.

#### *Materials*

Participants were administered the RFQ and the Selves Questionnaire (see Higgins *et al.*, 1986). The Selves Questionnaire measures individuals' current discrepancies between their actual self-representation (the type of person they believe they currently are), and both the type of person they hope to be (their 'ideal' self-guide) and the type of person they believe it is their duty to be (their 'ought' self-guide). The questionnaire asks respondents to list up to eight or ten attributes for each of a number of different self-states, including their actual self, as well as their ideal and ought self-guides. Respondents are additionally asked to rate for each listed attribute the extent to which they actually possessed that attribute, ought to possess that attribute, or ideally wanted to possess that attribute. The procedure for calculating the magnitude of an ideal discrepancy or ought discrepancy involves comparing the actual self attributes to the attributes listed in either an ideal self-guide or an ought self-guide to determine which attributes in the actual self match or mismatch the attributes of that particular self-guide. The self-discrepancy score is basically the number of mismatches minus the number of matches (see Higgins *et al.*, 1986). Conceptually speaking, the ideal self-discrepancy score represents the extent to which an individual is currently failing in promotion self-regulation, whereas the ought self-discrepancy score represents the extent to which an individual is currently failing in prevention self-regulation.

As the dependent measure, the participants filled out the Goals Inventory, a paper-and-pencil measure of each respondent's goals and the means to attain each goal. The Goals Inventory asks respondents to list up to seven of their goals, rate their importance, and, for each goal, to list up to seven activities that they would do to attain each goal. The dependent measures for each participant

were: (1) the number of goals listed (that could range from 0 to 7); and (2) the average number of activity means to attain each goal listed (that could range from 0 to 7).<sup>3</sup>

### *Procedure*

There were two sessions. In the first session, the participants completed the RFQ and the Selves Questionnaire as part of a larger battery of questionnaires. In the second session, which took place 4 to 6 weeks later, the participants completed the Goals Inventory as part of another large battery. (It should be noted in this regard that the measurement of promotion pride and prevention pride with the RFQ is being used to make predictions for a dependent measure collected weeks later.)

### **Results and Discussion**

Once again, there was virtually no correlation between the RFQ Promotion scale and the RFQ Prevention scale ( $r = -0.01$ ). Two separate multiple regressions were performed, one for the number of goals listed by each participant and one for the average number of activity means listed for each goal. The independent variables in each multiple regression were the RFQ Promotion scale, the RFQ Prevention scale, ideal discrepancy, and ought discrepancy. None of these independent variables had a significant relation to the number of goals listed (all  $p$ 's  $> 0.20$ ).

The major predictions were that higher RFQ Promotion scores would be positively related to the number of means per goal, and that, independently, higher RFQ Prevention scores would be negatively related to the number of means per goal. These predictions were confirmed. RFQ Promotion scores (controlling for Prevention scores) had a significant positive relation to the number of activity means listed per goal,  $\beta = 0.19$ ,  $t(1, 27) = 2.27$ ,  $p < 0.05$ ; and RFQ Prevention scores (controlling for Promotion scores) had a significant negative relation to the number of activity means listed per goal,  $\beta = -0.26$ ,  $t(1, 27) = 2.58$ ,  $p < 0.02$ . Not surprisingly, the average importance of participants' listed goals also had a significant positive relation to the number of activity means listed per goal,  $\beta = 0.68$ ,  $t(1, 27) = p < 0.001$ . Neither the interaction of importance with RFQ Promotion nor the interaction of importance with RFQ Prevention contributed significantly beyond RFQ Promotion and RFQ Prevention alone.

The number of goals listed and ideal discrepancies and ought discrepancies were included in another analysis with RFQ Promotion scores and RFQ Prevention scores in order to test whether the predicted effects remained when controlling for these other variables. Controlling for these variables, RFQ Promotion scores (controlling for Prevention scores) had a significant positive relation to the number of activity means listed per goal,  $\beta = 0.19$ ,  $F(1, 24) = 4.38$ ,  $p < 0.05$ ; and RFQ Prevention scores (controlling for Promotion scores) had a significant negative relation to the number of activity means listed per goal,  $\beta = -0.31$ ,  $F(1, 24) = 8.63$ ,  $p < 0.01$ . Thus, the predicted effects of promotion pride and prevention pride are obtained independent of the current concerns with goal attainment reflected in ideal and ought discrepancies. The effects are also independent of the number of goals listed.

<sup>3</sup>It should be noted that the kinds of goals that participants listed were much the same for participants with high Promotion scores and participants with high Prevention scores; namely, family goals, health goals, learning goals, and so on. In addition, the kinds of activities participants listed were also much the same; namely, walking, reading, corresponding, and so on. This is not surprising. One would not expect differences at such high levels of goals and activities. A person could correspond in order to be helpful to a friend or a person could correspond in order not to lose contact with a friend. Higgins *et al.* (1994) found that these different tactics of friendship relate to promotion versus prevention, respectively, but this difference would not be revealed at the higher level of 'correspondence' activity.

This analysis also tested for the unique effects of ideal and ought discrepancies. Controlling for the number of goals listed and RFQ Promotion scores and Prevention scores, ideal discrepancy did not relate to the number of activity means per goal,  $F < 1$ . Ought discrepancy, however, did have a significant positive relation to the number of activity means per goal,  $\beta = 0.27$ ,  $F(1, 24) = 8.07$ ,  $p < 0.01$ . This latter finding is equivalent to ought congruency having a significant negative relation to the number of activity means per goal. Thus for prevention focus we did find some equivalent, and independent, effects of prevention success in current concerns and a subjective history of prevention success on vigilantly reducing the number of means per goal.<sup>4</sup>

The results of Study 2 provide further evidence for the proposal that a subjective history of success with promotion-related eagerness (promotion pride) orients individuals toward using eagerness means to approach a new task goal, and a subjective history of success with prevention-related vigilance (prevention pride) orients individuals toward using vigilance means to approach a new task goal. The higher orientation to use eagerness means of individuals high (versus low) in promotion pride was revealed in their listing relatively many means per goal. The higher orientation to use vigilance means of individuals high (versus low) in prevention pride was revealed in their listing relatively few means per goal. Study 3 further tested the proposal by examining individuals' specific tactics for the same desired goal of maintaining a diet. Maintaining a diet is an interesting goal because there is evidence that some tactics people use clearly advance the goal, but other tactics people use clearly impede the goal. There are two distinct strategies, then, to pursue the goal of maintaining a diet. Individuals can approach the tactics that advance the goal (a promotion-related eagerness strategy) or they can avoid the tactics that impede the goal (a prevention-related vigilance strategy). Individuals can have the same motive to succeed and desire to attain the diet maintenance goal, but still have different strategic inclinations. According to our proposal, individuals high (versus low) in promotion pride should be oriented toward eagerly approaching tactics that advance the goal, and individuals high (versus low) in prevention pride should be oriented toward vigilantly avoiding tactics that impede the goal. Thus, we predicted that higher RFQ Promotion scores would be positively related to using tactics that advance diet maintenance, and that, independently, higher RFQ Prevention scores would be negatively related to tactics that impede diet maintenance.

### STUDY 3

#### Method

##### *Overview*

This study administered the RFQ along with a measure of tendencies to use tactics that advance or tactics that impede successfully maintaining a diet. As discussed above, we predicted that higher RFQ Promotion scores would be positively related to using tactics that advance diet maintenance, and that, independently, higher RFQ Prevention scores would be negatively related to tactics that impede diet maintenance.

##### *Participants*

The participants were 112 Columbia University students (56 males and 56 females) who were paid for their participation in the study. (There were no gender differences in the study.)

<sup>4</sup>Perhaps because of its relatively small sample size, there were no significant unique relations in this study among RFQ Promotion scores, RFQ Prevention scores, ideal discrepancies, and ought discrepancies.

### Materials

The participants were administered the RFQ and the Self-Control Strategies Scale (SCSS; Ayduk, 1999, unpublished dissertation) that measures strategic self-control orientations by assessing tendencies to use tactics that either advance or impede the goal of maintaining a diet as a self-regulatory exemplar. The SCSS consists of a scenario that asks participants to imagine being on a diet and wanting to maintain their diet but being tempted by a slice of pizza when they are hungry. Participants are asked to imagine that they are tempted by the pizza but succeed in maintaining their diet. This imagined scenario is followed by a set of cognitive-attentional tactics that could be used in this situation and are known to empirically vary in their effectiveness (Ayduk, 1999, unpublished dissertation; see also, Mischel, Cantor, & Feldman, 1996). These include: (1) *effective* tactics that advance the diet maintenance goal, such as attending to long-term, superordinate goals of successful diet maintenance (e.g. the 'health/appearance benefits'); and (2) *ineffective* tactics that impede the diet maintenance goal, such as attending to competing short-term goals (e.g. '... [thinking] about how yummy the pizza is ...'). Participants rate the self-descriptiveness of 6 effective and 5 ineffective self-control strategies on a scale from '1' (*not descriptive of me at all*) to '9' (*extremely descriptive of me*). These effective and ineffective strategies have been shown to be statistically orthogonal, suggesting that the two classes of strategies on the SCSS reflect distinct dimensions of self-control, not the endpoints of a single, bipolar continuum (Ayduk, 1999, unpublished dissertation).

### Procedure

Upon arrival at the laboratory, participants completed the SCSS, followed by the RFQ and a series of other survey-based measures unrelated to the current study.

### Results and Discussion

As in Study 1, there was essentially no correlation between the RFQ promotion scale and the RFQ prevention scale ( $r = 0.05$ ). We predicted that higher RFQ Promotion scores would be positively related to using tactics that advance diet maintenance (approach Effective tactics), and that, independently, higher RFQ Prevention scores would be negatively related to tactics that impede diet maintenance (avoid Ineffective tactics). These predictions were confirmed. For the use of Effective tactics (controlling for the use of Ineffective tactics), higher RFQ Promotion scores (controlling for Prevention scores) had a significant positive relation,  $\beta = 1.14$ ,  $F(1, 108) = 7.25$ ,  $p < 0.01$ , whereas higher RFQ Prevention scores (controlling for Promotion scores) did not,  $F < 1$ . For the use of Ineffective tactics (controlling for the use of Effective tactics), higher RFQ Prevention scores (controlling for Promotion scores) had a significant negative relation,  $\beta = -0.47$ ,  $F(1, 108) = 5.36$ ,  $p = 0.02$ , whereas higher RFQ Promotion scores (controlling for Prevention scores) did not,  $F < 1$ . These results support our proposal that individuals high (versus low) in promotion pride are oriented toward eagerly approaching tactics that advance the goal, and, independently, individuals high (versus low) in prevention pride are oriented toward vigilantly avoiding tactics that impede the goal.

Overall, the results of Studies 1-3 support the predictions that individuals with higher Promotion scores are inclined to use approach eagerness means of goal attainment, and that, independently, individuals with higher Prevention scores are inclined to use avoidance vigilance means. More generally, the results support the proposal that a subjective history of success in using promotion-related

eagerness means of goal attainment (promotion pride) orients individuals toward using these strategic approach means in current tasks, and a subjective history of success in using prevention-related vigilance means of goal attainment (prevention pride) orients individuals toward using these avoidance-related means. The purpose of Study 4 was to examine the subjective experiences of promotion pride and prevention pride more directly. If our proposal is correct, then one might expect the different orientations of promotion and prevention pride to be associated with different goal attainment experiences. Individuals with a subjective history of promotion success should frequently experience eagerness in their goal attainment activities, whereas individuals with a subjective history of prevention success should frequently experience vigilance in their goal attainment activities. Thus, individuals with higher Promotion scores should report more frequently feeling eager during the past week, and, independently, individuals with higher Prevention scores should report more frequently feeling vigilant during the past week. These predictions were tested in Study 4 (See also Friedman, 1999).

## STUDY 4

### Method

#### *Participants*

One-hundred and five Columbia University undergraduates (65 males, 40 females) were paid for their participation in the study. (No gender differences were found in the study.) All participants indicated that they were native speakers of English. Six participants were excluded from the analysis, four for leaving survey items incomplete and two for failing to follow instructions.

#### *Materials*

Participants were administered the RFQ and a paper-and-pencil motivational frequency questionnaire. The motivational frequency questionnaire listed eight items and instructed participants to indicate how often they had experienced each motivational state while engaging in their activities during the past week. Their responses were made on a 9-point Likert scale ranging from '0' (*almost never*) to '9' (*almost always*). The eight regulatory states were comprised of four eagerness/apathy-related items ('eager', 'enthusiastic', 'bored', and 'apathetic') and four vigilance/carelessness-related items ('vigilant', 'careful', 'negligent', and 'careless'). Two separate motivational frequency scores were computed, one for the eagerness/apathy items (scored toward eagerness) and another for the vigilance/carelessness items (scored toward vigilance). These distinct scores were calculated, respectively, by reverse-scoring the two apathy-related items and adding their sum to that of the two eagerness-related items, and by reverse-scoring the two carelessness-related items and adding their sum to that of the two vigilance-related items. The internal reliabilities of the motivational frequency ratings were: eagerness/apathy items (0.77) and vigilance/carelessness items (0.68).

The valence (i.e. positive/negative) of the motivational items used to calculate each composite frequency score was included in all analyses as an auxiliary predictor. No effects of item valence *per se* were found. Thus, variation in the eagerness/apathy frequency scores can be interpreted in terms of either greater eagerness or lesser apathy, and variation in the vigilance/carelessness scores can be interpreted in terms of either greater vigilance or lesser carelessness.

### Procedure

Participants were run in groups ranging from one to six individuals, with each participant seated in a separate soundproof experimental chamber. These chambers each contained a small desk, used for filling out the paper-and-pencil measures. Immediately after entering their chambers, participants completed the motivational frequency questionnaire. They then spent approximately 15 minutes performing other tasks (e.g. filling out other paper-and-pencil questionnaires) unrelated to the present study before completing the RFQ.

### Results and Discussion

In this study there was essentially no correlation between the RFQ promotion scale and the RFQ prevention scale ( $r = -0.02$ ). Separate multiple regression analyses examined the relation of each type of scale to each type of motivation, statistically controlling for the alternative scale and the alternative motivation. We predicted that individuals with higher Promotion scores should report more frequently feeling eager during the past week, and, independently, individuals with higher Prevention scores should report more frequently feeling vigilant during the past week. These predictions were confirmed. For the frequency of eagerness-related motivational experiences (controlling for vigilance experiences), higher RFQ Promotion scores (controlling for Prevention scores) had a significant positive relation,  $\beta = 0.338$ ,  $F(1, 95) = 4.00$ ,  $p < 0.05$ , whereas higher RFQ Prevention scores (controlling for Promotion scores) did not,  $F < 1$ . For the frequency of vigilance-related motivational experiences (controlling for eagerness experiences), higher RFQ Prevention scores (controlling for Promotion scores) had a significant positive relation,  $\beta = 0.328$ ,  $F(1, 95) = 6.89$ ,  $p < 0.02$ , whereas higher Promotion scores (controlling for Prevention scores) did not,  $F < 1.5$ .

In sum, the results of Study 4 indicate that a subjective history of promotion success is uniquely related to frequently experiencing eagerness during activity engagement, whereas a subjective history of prevention success is uniquely related to frequently experiencing vigilance during activity engagement. These findings support the proposal that promotion pride relates to eagerness and prevention pride relates to vigilance. They provide further evidence for the proposed differences in the subjective experiences of promotion pride and prevention pride (See also Friedman, 1999).

Studies 1–4 together provide strong support for the proposal that a subjective history of success in using promotion-related eagerness means of goal attainment (promotion pride) orients individuals toward using these means, and a subjective history of success in using prevention-related vigilance means of goal attainment (prevention pride) orients individuals toward these means. A limitation of these RFQ studies, however, is that they leave open the possibility that competence or efficacy in using eagerness or vigilance means underlies, respectively, both a history of promotion or prevention success and an inclination to use eagerness or vigilance means, and that this accounts for the relations obtained in our studies. Distinguishing between promotion pride related to eagerness means and prevention pride related to vigilance means would still be important for the area of achievement motivation. But it would differ from our emphasis on the role of *subjective* histories of promotion or prevention success eliciting promotion or prevention pride that produces distinct strategic motivations.

To provide more direct support for this specific proposal, it is necessary to experimentally manipulate subjective histories of either promotion or prevention success and show that this produces distinct orientations to goal attainment. This was the purpose of Study 5. Study 5 used the same basic paradigm as Study 2, but subjective histories of promotion success (or failure) and prevention success (or failure) were experimentally manipulated through priming rather than being measured with the RFQ. Promotion and prevention items were taken from the RFQ to be used in priming participants'

subjective histories. In this way, we could experimentally manipulate participants' temporary sense of subjective history using the same item content contained in the RFQ chronic measure of subjective history.

## STUDY 5

### Method

#### *Participants*

Sixty-four Columbia University undergraduates (34 males, 30 females) were paid for their participation in the study. (No gender differences were found in the study.) All participants indicated that they were native speakers of English.

#### *Procedure*

Participants were randomly assigned to one of four experimental priming conditions. Those in the *Promotion Success* condition were instructed to write about three different times in their past when they had experienced promotion success: (1) when they felt like they made progress toward being successful in life; (2) when compared to most people they were able to get what they wanted out of life; and (3) when trying to achieve something important to them, they performed as well as they ideally would like to. Those in the *Promotion Failure* condition wrote about times in their past when they had experienced promotion failure: (1) when they felt like they failed to make progress toward being successful in life; (2) when compared to most people they were unable to get what they wanted out of life; and (3) when trying to achieve something important to them, they failed to perform as well as they ideally would like to.

Participants in the *Prevention Success* condition were instructed to write about three different times in their past when they had experienced prevention success: (1) when being careful enough has avoided getting them into trouble; (2) when growing up, they stopped themselves from acting in a way that their parents would have considered objectionable; and (3) when they were careful not to get on their parents' nerves. Participants in the *Prevention Failure* condition wrote about times in the past when they had experienced prevention failure: (1) when not being careful enough has got them into trouble; (2) when growing up, they acted in a way that their parents considered objectionable; and (3) when they got on their parents' nerves.

In a supposedly unrelated study, all participants were then asked to fill out a questionnaire similar to the one used in Study 2. The questionnaire asks respondents to list up to seven of their goals and, for each goal, to list up to seven activities that they would do to attain each goal. The dependent measures for each participant were also similar to those used in Study 2: (1) the number of goals listed (that could range from 0 to 7); and (2) the average number of activity means to attain each goal listed (that could range from 0 to 7).

### Results and Discussion

Two separate 2(Promotion; Prevention)  $\times$  2(Success; Failure) ANOVAs were conducted, one for the number of goals listed by each participant, and one for the average number of activity means listed per

goal. The first analysis revealed, as predicted and found in Study 2, that the number of goals listed did not differ between priming conditions. (The main effects and interaction were all insignificant, all  $F_s < 1$ .) More germane to our predictions, the second analysis revealed, as predicted, a significant interaction of regulatory focus and success/failure,  $F(1, 60) = 9.09, p < 0.01$ . This interaction reflected the fact that participants in the Promotion Success condition listed more means per goal ( $M = 4.87$ ) than those in the Promotion Failure condition ( $M = 3.60$ ), whereas participants in the Prevention Success condition ( $M = 3.29$ ) listed fewer means per goal than those in the Prevention Failure condition ( $M = 4.44$ ). Planned contrast tests showed that the difference in the number of means between the Promotion Success and Promotion Failure conditions was statistically significant,  $F(1, 60) = 5.33, p = 0.02$ , as was the difference between the Prevention Success and Prevention Failure conditions,  $F(1, 60) = 3.87, p = 0.05$ .

These experimental results replicate the RFQ findings of Study 2. A subjective sense of a history of promotion success (versus failure) produced a stronger eagerness orientation, as reflected in generating more means per goal (i.e. more eager for 'hits'). A subjective sense of a history of prevention success (versus failure) produced a stronger vigilance orientation, as reflected in generating fewer means per goal (i.e. more vigilant against 'errors of commission'). Unlike the RFQ findings, however, these predicted relations cannot be reinterpreted in terms of an alternative causal direction because the participants' sense of history was experimentally manipulated. These findings suggest that individuals' strategic competence or efficacy is not critical for their strategic orientation. Rather, individuals' subjective pride in promotion success or prevention success is sufficient to motivate specific strategies of goal attainment (i.e. eagerness and vigilance, respectively).

## SUMMARY AND CONCLUSIONS

Together, the five studies reported in this paper strongly support the proposal that a subjective history of success in using promotion-related eagerness means of goal attainment (promotion pride) orients individuals toward using these means, and a subjective history of success in using prevention-related vigilance means of goal attainment (prevention pride) orients individuals toward these means. Studies 1–4 tested this proposal with the RFQ which measures individuals' (chronic) subjective history of promotion success and (chronic) subjective history of prevention success.

Studies 1a and 1b investigated individuals' strategic inclinations in decision-making tasks. The studies found that participants with higher RFQ Promotion scores were less likely to make an 'error of omission', and, independently, participants with higher RFQ Prevention scores were less likely to make an 'error of commission'. These results are consistent with the proposal that high promotion pride individuals have a strong eagerness orientation, which would reduce errors of omission, and that high prevention pride individuals have a strong vigilance orientation, which would reduce errors of commission.

Study 2 examined individuals' inclination to have few or many means to attain each of their goals. The results showed that higher RFQ Promotion scores were positively related to the number of means per goal, and that, independently, higher RFQ Prevention scores were negatively related to the number of means per goal. These findings support the proposal because the eagerness orientation of high promotion pride individuals should incline them to use more means that could produce a 'hit', and, independently, the vigilance orientation of high prevention pride individuals should incline them to use less unnecessary means that could produce a mistake.

Study 3 investigated individuals' specific tactics for the same desired goal of maintaining a diet. Individuals can approach the tactics that advance the goal (a promotion-related eagerness strategy) or

they can avoid the tactics that impede the goal (a prevention-related vigilance strategy). The results showed that higher RFQ Promotion scores were positively related to using tactics that advance diet maintenance (approach Effective tactics), and that, independently, higher RFQ Prevention scores were negatively related to tactics that impede diet maintenance (avoid Ineffective tactics). Thus, consistent with the proposal, high promotion pride individuals with an eagerness orientation use tactics that advance goal attainment (ensuring 'hits'), and, independently, high prevention pride individuals with a vigilance orientation avoid using tactics that impede goal attainment (ensuring 'correct rejections').

Study 4 examined the subjective experiences of promotion pride and prevention pride more directly by relating the RFQ to participants' motivational experiences during their activity engagements in the past week. The study found that individuals with higher Promotion scores reported more frequently feeling eager during the past week, and, independently, individuals with higher Prevention scores reported more frequently feeling vigilant during the past week. These results support the proposed relations between higher promotion pride and an eagerness orientation and, independently, between higher prevention pride and a vigilance orientation.

Promotion pride and prevention pride are conceptualized as orientations to new task goals that derive from a sense of history of past success in promotion and prevention goal attainment, respectively. Given this, promotion pride and prevention pride should not be restricted to chronic individual differences in accessible past histories, as measured by the RFQ. A sense of history of past success (or failure) in promotion or prevention should also vary situationally as a function of the momentary accessibility of specific past histories. This implication of our proposal was tested in Study 5 by using priming to manipulate participants' temporary sense of subjective history for the same item content contained in the RFQ. Like Study 2, this study examined individuals' inclination to have few or many means to attain each of their goals. The results of Study 5 conceptually replicated the findings of Study 2 with the RFQ, but in this case the participants' sense of history was experimentally manipulated. Study 5 provides strong additional support for our proposal because it directly tested the hypothesized causal directions between promotion pride and eagerness orientation and, independently, between prevention pride and vigilance orientation.

Our findings suggest that there are two kinds of achievement pride – promotion pride and prevention pride. McClelland and Atkinson's classic theory of achievement motivation (e.g. Atkinson, 1964; McClelland, 1951, 1961; McClelland *et al.*, 1953) introduced the important distinction between achievement pride and achievement shame. The theory distinguishes between an achievement pride whose anticipatory goal reactions energize and direct behaviors to approach a new task goal, and an achievement shame whose anticipatory goal reactions energize and direct behaviors to avoid a new task goal.

This classic between-valence distinction has been extraordinarily generative and useful. Our research extends achievement motivation theory by supporting a within-valence distinction between promotion pride and prevention pride. The potential utility of this within-valence distinction lies in its deepening our understanding of the nature of the anticipatory goal reactions that energize and direct task behaviors to approach a new task goal. Although both promotion pride and prevention pride involve a motivation to approach or attain a new task goal, they differ in their orientations toward *how* to successfully attain the goal. Promotion pride is oriented toward eagerness means of success whereas prevention pride is oriented toward vigilance means of success. This strategic difference *within the motive to succeed* has received insufficient attention in the achievement literature. The results of our studies demonstrate that this difference in strategic orientation has important implications for decision making and problem solving, as well as for people's experiences while engaging in activities in their lives. Whether studied as a chronic individual difference variable (e.g. using the RFQ) or as a situationally manipulated variable (e.g. using priming), the implications of this distinction for motivation and well-being need to be examined further.

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## REFERENCES

- Arkes HR, Blumer C. 1985. The psychology of sunk cost. *Organizational Behavior and Human Decision Processes* **35**: 124–140.
- Atkinson JW. 1964. *An Introduction to Motivation*. Van Nostrand: Princeton, NJ.
- Ayduk ON. 1999. *Impact of self-control strategies on the link between rejection sensitivity and hostility: Risk negotiation through strategic control*. Unpublished dissertation, Columbia University.
- Carver CS, White TL. 1994. Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: The BIS/BAS Scales. *Journal of Personality and Social Psychology* **67**: 319–333.
- Crowe E. 1995. *The impact of regulatory focus on decision-making and problem-solving*. Unpublished dissertation, Columbia University.
- Crowe E, Higgins ET. 1997. Regulatory focus and strategic inclinations: Promotion and prevention in decision-making. *Organizational Behavior and Human Decision Processes* **69**: 117–132.
- Förster J, Higgins ET, Idson L. 1998. Approach and avoidance strength as a function of regulatory focus: Revisiting the ‘goal looms larger’ effect. *Journal of Personality and Social Psychology* **75**: 1115–1131.
- Freud S. 1952. *A General Introduction to Psychoanalysis*. Washington Square Press: New York.
- Friedman RS. 1999. *The phenomenological correlates and consequences of distinct self-regulatory systems*. Unpublished dissertation, Columbia University.
- Higgins ET. 1987. Self discrepancy: A theory relating self and affect. *Psychological Review* **94**: 319–340.
- Higgins ET. 1989. Continuities and discontinuities in self-regulatory and self-evaluative processes: A developmental theory relating self and affect. *Journal of Personality* **57**: 407–444.
- Higgins ET. 1996. Knowledge activation: Accessibility, applicability, and salience. In *Social Psychology: Handbook of basic principles*, Higgins ET, Kruglanski AW. (eds). Guilford: New York; 133–168.
- Higgins ET. 1997. Beyond pleasure and pain. *American Psychologist* **52**: 1280–1300.
- Higgins ET. 1998. Promotion and prevention: Regulatory focus as a motivational principle. In *Advances in Experimental Social Psychology* (Vol. 30), Zanna MP (ed.). Academic Press: New York; 1–46.
- Higgins ET, Bond RN, Klein R, Strauman T. 1986. Self-discrepancies and emotional vulnerability: How magnitude, accessibility, and type of discrepancy influence affect. *Journal of Personality and Social Psychology* **51**: 5–15.
- Higgins ET, Roney C, Crowe E, Hymes C. 1994. Ideal versus ought predilections for approach and avoidance: Distinct self-regulatory systems. *Journal of Personality and Social Psychology* **66**: 276–286.
- Higgins ET, Shah J, Friedman R. 1997. Emotional responses to goal attainment: Strength of regulatory focus as moderator. *Journal of Personality and Social Psychology* **72**: 515–525.
- Jackson DN. 1974. *The Personality Research Form*. Research Psychologists Press: Port Huron, MI.
- Joreskog KG, Sorbom D. 1993. *Windows Lisrel 8.14*. Scientific Software International, Inc.: Chicago, IL.
- Kruglanski AW. 1996. Motivated social cognition: Principles of the interface. In *Social Psychology: Handbook of basic principles*, Higgins ET, Kruglanski AW (eds). Guilford: New York; 329–360.
- Lewin K. 1935. *A Dynamic Theory of Personality: Selected papers* (Trans. D.E. Adams, K.E. Zener). McGraw-Hill: New York.
- Liberman N, Idson LC, Camacho CJ, Higgins ET. 1999. Promotion and prevention choices between stability and change. *Journal of Personality and Social Psychology* **77**: 1135–1145.
- Liberman N, Molden D, Idson LC, Higgins ET. 2000. Generating hypotheses: A regulatory focus perspective. *Journal of Personality and Social Psychology*.
- McClelland DC. 1951. *Personality*. Holt, Rinehart & Winston: New York.
- McClelland DC. 1961. *The Achieving Society*. Van Nostrand: Princeton, NJ.

- McClelland DC, Atkinson JW, Clark RA, Lowell EL. 1953. *The Achievement Motive*. Appleton-Century-Crofts: New York.
- Mikulincer M, Kedem P, Paz D. 1990. The impact of trait anxiety and situational stress on the categorization of natural objects. *Anxiety Research* **2**: 85–101.
- Mischel W, Cantor N, Feldman S. 1996. Principles of self-regulation: The nature of willpower and self-control. In *Social Psychology: Handbook of basic principles*, Higgins ET, Kruglanski AW (eds). Guilford: New York; 329–360.
- Mowrer OH. 1960. *Learning Theory and Behavior*. Wiley: New York.
- Shah J, Higgins ET, Friedman R. 1998. Performance incentives and means: How regulatory focus influences goal attainment. *Journal of Personality and Social Psychology* **73**: 447–458.
- Tanner WP, Jr, Swets JA. 1954. A decision-making theory of visual detection *Psychological Review* **61**: 401–409.
- Trope Y, Liberman A. 1996. Social hypothesis testing: Cognitive and motivational mechanisms. In *Social Psychology: Handbook of basic principles*, Higgins ET, Kruglanski AW (eds). Guilford: New York; 239–270.