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Inflating and deflating the self: Sustaining motivational concerns through self-evaluation

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## Abstract

The ways in which individuals think and feel about themselves play a significant role in guiding behavior across many domains in life. The current studies investigate how individuals may shift the positivity of self-evaluations in order to sustain their chronic or momentary motivational concerns. Specifically, we propose that more positive self-evaluations support eagerness that sustains promotion-focused concerns with advancement, whereas less positive self-evaluations support vigilance that sustains prevention-focused concerns with safety. The current studies provide evidence that self-evaluation *inflation* is associated with promotion concerns whereas self-evaluation *deflation* is associated with prevention concerns, whether regulatory focus is situationally manipulated (Studies 1, 2b, and 3) or measured as a chronic individual difference (Study 2a). Following regulatory focus primes, individuals in a promotion focus showed relatively greater accessibility of positive versus negative self-knowledge compared to individuals in a prevention focus (Study 1). In an ongoing performance situation, participants in a promotion focus reported higher self-esteem than participants in a prevention focus (Studies 2a and 2b). Finally, individuals in a promotion focus persisted longer on an anagram task when given an opportunity to focus on their strengths versus weaknesses, which was not the case for individuals in a prevention focus (Study 3). Across studies, the predicted interactions were consistently obtained, although sometimes the effects were stronger for promotion or prevention motivation. We discuss implications for existing models of the motives underlying self-evaluation.

KEY WORDS: self-evaluation, self-regulation, motivation, regulatory focus

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Life provides ample opportunities for boosts and blows to our sense of self, occasions that often prompt self-reflection and assessment. These self-musings cut across domains, influencing behavior in almost every life arena, and can be guided by a number of underlying motivational concerns. Often we just want to feel good about ourselves; we find ways to protect and even enhance our self-views (e.g., Hepper, Gramzow, & Sedikides, 2010). Sometimes we want confirmation that others see us the way we see ourselves, whether that view is positive or negative (e.g., Swann, Rentfrow, & Guinn, 2003). Sometimes we seek accuracy and certainty, even if it does not enhance or verify (e.g., Trope, 1986; Trope & Brickman, 1975). Sometimes we want to know how we can do better in the future (e.g., Taylor, Neter, & Waymant, 1995; Wood, 1989). In general, research in self-evaluation has focused on these four motives underlying self-evaluation—self-enhancement, self-verification, self-assessment, and self-improvement (Gregg, Hepper, & Sedikides, 2011; Sedikides & Strube, 1995; 1997). In this paper, we explore an additional motive underlying self-evaluation—to *sustain underlying motivational concerns*. Specifically, we propose that individuals' self-evaluations can sustain or disrupt their underlying motivational concerns and that, depending on these concerns, individuals may be differentially motivated to enhance or deflate the positivity of self-views.

### **Motivated Self-Evaluation**

There are multiple motives for self-evaluation. Understanding the relation among these motives and the circumstances under which particular motives will dominate has been an aim of self-evaluation research (Chang-Schneider & Swann, 2010; Hepper et al., 2010; Sedikides & Strube, 1995; Stinson et al., 2010; Swann, 1984; Swann & Schroeder, 1995; Taylor et al., 1995; Trope, 1986). In general, motives regarding self-protection (e.g., avoiding negative self-views)

and self-enhancement (e.g., promoting more positive self-views) have been seen as fundamental (Alicke & Sedikides, 2009; Brown, 2010; Hepper et al., 2010; Leary & Baumeister, 2000; Sedikides & Strube, 1995; Steele, 1988; Tesser, 2001; Yamaguchi et al., 2007). There is considerable support for the notion that the motive to protect and enhance a positive self-view is primary, though cultures may differ in the ways in which this motive is expressed (e.g., Chiu, Wan, Cheng, Kim, & Yang, 2011). In general, however, people see more good than bad when they look in the mirror (Alicke, 1985), see their own traits as particularly desirable (Dunning, Leuenberger, & Sherman, 1995), and believe that their future is blessed relative to others (Weinstein, 1980). When cognitive resources are constrained, the self-enhancement motive appears to be the default (Hixon & Swann, 1993; Swann, Hixon, Stein-Seroussi, & Gilbert, 1990; Swann & Schroeder, 1995).

When, then, are individuals motivated to see the darker or weaker sides of themselves? Research suggests that people will evaluate themselves less positively or seek potentially negative self-information primarily in circumstances when motives for self-verification, accurate self-assessment, or self-improvement are activated. For pragmatic reasons, individuals may prefer a relationship partner who contributes to their self-verification, facilitating smooth interpersonal interaction. For instance, although people prefer their dating partners to see them positively (regardless of how they see themselves), people prefer their *married* partners to see them as they see themselves (self-verification) (Swann, De La Ronde, & Hixon, 1994). Epistemic concerns may also support negative self-evaluation; confirming one's views of self, even if negative, can provide a sense of coherence and stability (Swann, Stein-Seroussi, & Giesler, 1992). When traits are seen as important and modifiable, individuals may be willing to see weakness if it corresponds to accurate self-assessment or facilitates self-improvement

(Dunning, 1995; Trope, 1986). This type of research suggests that negative self-views are functional to the extent that they support objective or subjective truths about the self.

However, some evidence suggests that negative self-evaluations might have an additional self-regulatory function beyond their conveyance of some (oft painful) truth. For example, Baumeister, Tice, & Hutton (1989) proposed that expressed self-evaluations might be strategically employed to deflect or create expectations in others; self-evaluation may be self-presentational. Indicating low self-esteem or low confidence in oneself can be one way to manage the expectations of others in the face of possible failure (e.g., “I’m not so hot. Don’t count on me to save the day.”). Dampened self-evaluations may be embraced not only in an attempt to have a balanced or accurate view of oneself, but also because they can be strategically useful in interpersonal interactions. Embracing a dampened view of the self is a cautious tactic that can minimize regret if things go awry (cf. Josephs, Larrick, Steele, & Nisbett, 1992).

Research on defensive pessimism further suggests that negative self-views can be helpful not only to manage the expectations of others, but also to increase one’s own motivation and engagement in goal pursuit (Norem, 2008; Norem & Cantor, 1986a, 1986b; Showers, 1992). Defensive pessimists “expect the worst” when entering a new situation, despite the fact that they generally do not perform differently than those with a more optimistic outlook (Cantor & Norem, 1989; Cantor, Norem, Niedenthal, Langstron, & Brower, 1987). In contrast to “true” pessimism, defensive pessimism serves two goals—a self-protective goal of preparation for possible failure in the future and a motivational goal of increasing vigilance in the present to prevent potential negative outcomes in the future (Seery, West, Weisbuch, & Blascovich, 2008). In support of this idea, it has been shown that when the strategic coping mechanisms of defensive pessimists were disrupted, they performed more poorly (Norem & Cantor, 1986b; Showers, 1992). Simply

pointing out the inconsistency between their current expectations and past performance disrupted their ability to harness vigilance in their preferred way (Norem & Cantor, 1986b). Furthermore, defensive pessimists who focused on negative rather than positive outcome possibilities for an upcoming social interaction talked more, exerted more effort, and had their conversations rated more positively by the confederates with whom they were interacting (Showers, 1992). This research suggests that for some individuals, focusing on negativity may be used to manage the self more effectively.

We propose that the dynamics observed in defensive pessimism (focusing on and harnessing negativity as a way to self-regulate) may be one example of a broader motivation underlying self-evaluation. Specifically, individuals may strategically shift their self-views not only downwards, but also upwards, as a way to sustain and maintain preferred motivational orientations. Our perspective suggests a dynamic, pro-active view of self-evaluation; self-evaluations are not always retrospective reflections on the past, but may be strategically shifted to serve *future* self-regulation and goal pursuit. Furthermore, because individuals may differ in the extent to which inflated versus deflated self-evaluation sustains or disrupts their chronic or momentary motivational concerns, individuals may be differentially motivated to inflate or deflate the self. Individuals may therefore shift the positivity of self-evaluations to support the strategic orientation that best sustains or “fits” their motivational concerns (e.g., Higgins, 2000).

For example, for individuals who need to be eager to sustain their motivational concerns, more positive self-evaluations should support the eagerness they need. In contrast, for individuals who need to be vigilant to sustain their motivational concerns, relatively less positive self-evaluations should support the vigilance they need. Because individuals differ in whether they have motivational concerns that are sustained by either eagerness or vigilance, self-

evaluations could be enhanced or dampened tactically in the service of supporting what people need motivationally. This should be true based on an individual's current motivational state, both when that state arises from chronic individual differences and when it arises temporarily from situational induction. We examined these ideas by taking advantage of past research on regulatory focus theory (Higgins, 1997). In the next section, we outline the connections between regulatory focus theory and the current predictions.

### **Regulatory Focus, Self-evaluation, and Sustaining Motivational Concerns**

Regulatory focus theory (Higgins, 1997) identifies two underlying self-regulatory systems (promotion, prevention) that have been differentially associated with the use of eager versus vigilant strategies (Crowe & Higgins, 1997; Grant & Higgins, 2003; Higgins & Molden, 2003; Liberman, Molden, Idson, & Higgins, 2000; Molden & Higgins, 2005; Scholer & Higgins, 2010). Individuals can differ both chronically and temporarily in their sensitivity to promotion versus prevention concerns (e.g., Higgins, Friedman, Harlow, Idson, Ayduk, & Taylor, 2001; Higgins, Roney, Crowe, & Hymes, 1994; Higgins, Shah, & Friedman, 1997), which in turn influence strategic preferences.

The promotion system is concerned with hopes and aspirations (ideals) and accomplishments. Individuals in a promotion focus are sensitive to gains versus nongains (i.e., the difference between "0" and "+1") and they regulate more effectively using eager approach strategies (Higgins, 2000; 2005; 2009). Eager strategies serve promotion concerns because they are about enthusiastically pursuing potential gain in the pursuit of advancement and growth. Indeed, individuals in a promotion focus are more motivated by positive role models (Lockwood, Jordan, & Kunda, 2002; Schokker et al., 2010) and perform better after receiving success

feedback that increases eagerness (Idson & Higgins, 2000; see also Idson, Liberman, & Higgins, 2004; Van-Dijk & Kluger, 2004).

In contrast, the prevention system is concerned with duties and responsibilities (oughts) and security. Individuals in a prevention focus are sensitive to losses versus nonlosses (i.e., the difference between “0” and “-1”) and they regulate more effectively using vigilant avoidance strategies (Higgins, 2000; 2005; 2009). Vigilant strategies serve prevention concerns because they are about carefully avoiding potential loss and guarding against mistakes in order to ensure safety and maintain a satisfactory state (see also Brodscholl, Kober, & Higgins, 2007). Indeed, individuals in a prevention focus are more motivated by negative role models (Lockwood et al., 2002; Schokker et al., 2010) and perform better after receiving failure feedback that increases vigilance (Idson & Higgins, 2000; Idson et al., 2004; Van-Dijk & Kluger, 2004).

Given that individuals in a promotion versus prevention focus regulate more effectively using eager versus vigilant strategies, respectively, individuals may differ in their need for positive self-evaluation depending on the motivational concern that is most salient in a given situation. Positive or enhanced self-evaluations highlight strengths and anticipated successes, which support the eagerness that sustains promotion concerns. Less positive or dampened self-evaluations highlight weaknesses and potential failures, which support the vigilance that sustains prevention concerns.

If one of the functions of self-evaluation is to help regulate strategic orientations that fit motivational concerns (e.g., eagerness for promotion concerns; vigilance for prevention concerns), then individuals may be motivated to increase or decrease self-evaluations in ways that support the strategic orientation that fits their concerns (cf. Förster, Grant, Idson, & Higgins, 2001). In particular, in order to support the strategic eagerness that sustains or fits promotion



concerns, individuals with a promotion focus (whether from chronic predisposition or situationally induced) should be more likely to inflate positive self-evaluations, such as strongly endorsing positive items on a self-esteem questionnaire or emphasizing strengths instead of weaknesses. In contrast, in order to support the strategic vigilance that sustains or fits prevention concerns, individuals with a prevention focus (again whether from chronic predisposition or situationally induced) should be more likely to deflate or rein in the positivity of their self-evaluations, such as endorsing less positive or negative items on a self-esteem questionnaire or emphasizing weaknesses instead of strengths.

In addition to suggesting a new motivation underlying the self-evaluation process (i.e., self-evaluation as a tactic to sustain individuals' motivational concerns), these predictions also expand existing research relating regulatory focus and self-evaluation. Prior research has investigated the relation between regulatory focus and self-evaluation in terms of preferences for self-protection strategies versus self-enhancement strategies (Hepper et al., 2010) and goals for self-enhancement versus self-certainty (Leonardelli, Lakin, & Arkin, 2007; Leonardelli & Lakin, 2010). Hepper and colleagues (2010) found that promotion-focused individuals, who are more sensitive to gains and nongains, are more likely to report using self-enhancement strategies (e.g., "when you do poorly at something, reminding yourself of your strengths and abilities"), whereas prevention-focused individuals, who are more sensitive to losses and nonlosses, are more likely to report using self-protection strategies (e.g., "associating yourself with people who are successful, but not more successful than you"). Other research (Leonardelli et al., 2007) has shown that individuals in a promotion focus have more highly accessible self-enhancement goals, whereas individuals in a prevention focus have more highly accessible self-certainty goals.

Achieving clarity and certainty about one's self-views may be important to individuals in a prevention focus as a way to achieve a sense of security.

The findings of these research programs are generally consistent with our proposal, to the extent that promotion motivation is associated more with eager-related self-evaluation processes and prevention motivation is associated more with vigilant-related self-evaluation processes. However, although previous research has linked the promotion system to preferences for inflated self-evaluation, this research has not investigated links between the prevention system and deflated self-evaluations. In addition, previous research has not examined how inflated versus deflated self-evaluations relate to sustaining promotion versus prevention motivations, respectively. Prior research has not investigated the idea that self-evaluation may be motivated by the desire to sustain a preferred motivational orientation—both when that motivational orientation is chronic *and* when it is situationally induced. These questions are addressed in the present research.

### **Overview of Studies**

We present four studies that explore the possibility that individuals may be motivated to enhance or deflate positive views of the self in the service of sustaining their chronic or situationally induced motivational concerns. In Study 1, we first tested the idea that individuals in a promotion versus prevention focus should differentially activate positive versus negative aspects of self-knowledge. Activation of positive self-knowledge indicates potential success, supporting eagerness, whereas activation of negative self-knowledge indicates potential failure, supporting vigilance. In Studies 2 and 3, we directly tested the prediction that individuals in a promotion versus prevention focus should be differentially motivated to protect and enhance the self in ongoing, but not completed, performance situations. Study 4 investigated how engaging in

self-inflating or self-deflating activities directly affects the motivational persistence of individuals in a promotion versus prevention focus, respectively.

### **Study 1**

Study 1 examined whether self-knowledge would be selectively activated according to its relevance for motivational concerns. An individual possesses a wide range of self-knowledge, but only a small subset of knowledge is activated at any one time (Markus & Wurf, 1987). Motivation is known to be one of the factors to influence what knowledge becomes accessible, such that the subset of self-knowledge that is most relevant to successful attainment of a current goal is most likely to be activated (Higgins, 1996; Higgins & King, 1981; Kunda & Sanitioso, 1988). Positive self-knowledge implies a possibility of success, while negative self-knowledge implies a possibility of failure. Positive self-knowledge thus has the potential to sustain eagerness, whereas negative self-knowledge has the potential to sustain vigilance; selective activation of self-knowledge is one way to boost or deflate a self-view. Consequently, we predicted that activating promotion concerns should be associated with relatively greater accessibility of positive self-knowledge that promotes eagerness. In contrast, we predicted that activating prevention concerns should be associated with relatively greater accessibility of negative self-knowledge accessibility that sustains vigilance.

A two-session experiment was conducted to test these hypotheses. At session 1, about one week prior to session 2, a baseline measure of self-concept accessibility was administered. At session 2, participants received a situational manipulation of regulatory focus. Immediately after the manipulation, they completed the same measure of self-concept accessibility as session 1. The effect of regulatory focus was examined by investigating how self-concept accessibility changed from session 1 to session 2. We predicted that following the promotion prime,

participants would be relatively faster to evaluate positive versus negative self-descriptive traits. Following the prevention prime, we predicted that participants would be relatively faster to evaluate negative traits versus positive self-descriptive traits.

## **Method**

### **Participants**

Participants were 29 undergraduate students (15 men, 13 women and 1 unknown) at a national university in Tokyo, Japan.<sup>1</sup> They agreed to participate in a two-session experiment, 40 minutes per session, in exchange for payment. All participants present at session 1 completed session 2. Participants were randomly assigned to the promotion prime or to the prevention prime condition. There were no significant main effects or interactions involving gender, so it is not discussed further. All participants were right-handed.

### **Procedure**

Participants were run in individual sessions. In session 1, participants were told that they would be asked to complete the same self-evaluation task twice over a period of a few weeks because the researcher was interested in the stability of various characteristics. They completed a measure of self-knowledge accessibility administered on a computer with Inquisit (2003) software, then made an appointment for the second session (i.e., session 2), approximately one week later ( $M$  interval=7.66 days,  $SD$ =2.09), and were dismissed.

In session 2, participants first received an experimental manipulation of regulatory focus, followed by the self-knowledge accessibility measure identical to the one in session 1 and a measure of current mood. Upon completion of the tasks, participants were questioned about their beliefs about the purpose of the experiment. No participants correctly guessed the purpose

of the study, nor expressed any suspicion about the experimental procedure. They then were fully debriefed and thanked.

### **Measures**

**Measure of self-knowledge accessibility.** A computerized task was designed to measure participants' accessibility of self-knowledge. Each trial began with a fixation point that appeared for 1 second, followed by a personality trait word. Participants had to judge whether they possessed the trait or not, as quickly as possible, by pressing a designated key on the keyboard. If the answer was yes, they pressed the "P" key with the right index finger. If the answer was no, they pressed the "Q" key with the left index finger. When the response was made, the trait word disappeared, and 2 seconds later the next trial began. The first 6 trials served as the practice phase, followed by 40 experimental trials.

Half of the personality traits were positive and half were negative. The items were selected on the basis of a pilot study, in which 24 students rated 149 trait words used in previous personality studies in Japan (Aoki, 1971; Kashiwagi, Wada, & Aoki, 1993). They rated the desirability of the personality traits on 5-point scales from 1 (very undesirable) to 5 (very desirable) and also indicated whether they thought they possessed the traits by circling "me" or "not me." Only traits with the percentage of "me" responses ranging from 33% to 67% were selected, so as to discard the traits that only a few or almost every student considered descriptive of themselves. Within this subset, items with mean scores over 4.0 on the valence rating were labeled as the positive traits, and items with mean scores less than 2.0 were labeled as the negative traits. This selection procedure left 79 items (46 positive and 33 negative) as candidates. Among them, 20 positive and 20 negative items were selected to meet the criteria that the mean length of the words in each group did not differ statistically from each other

( $M_{positive}=4.5$ ,  $SD=1.00$ ;  $M_{negative}=4.2$ ,  $SD=1.15$ ;  $t < 1$ , *ns*). These 40 traits appeared in the experimental trials. Six additional personality traits were used in the practice phase. Each personality trait appeared only once, in a random order. The computer recorded the response latency (i.e., the time elapsed between the appearance of trait word and the key-press by participants) while determining which traits were identified as self-descriptive. A relative accessibility score was computed for each participant by subtracting the mean reaction time for self-descriptive negative traits from the mean reaction time for self-descriptive positive traits.

**Regulatory Focus Prime.** In session 2, participants were first asked to participate in an investigation of “university students’ outlook on life.” Participants were randomly assigned to the promotion prime or to the prevention prime condition. Participants in the promotion prime condition were asked to report the ideals they have pursued or would like to pursue in their life, whereas participants in the prevention prime condition were asked to report the duties they have had or feel they will have to fulfill in their life. Participants described these ideals or duties for three different time spans: in the past (i.e., when they were in high-school), in the present (i.e., while they were in university), and in the future (i.e., after graduation). This procedure was a slightly modified version of a method used effectively in previous studies (e.g., Higgins, Idson, Freitas, Spiegel, & Molden, 2003; Higgins, Roney, Crowe, & Hymes, 1994) to manipulate regulatory focus. Prior research has shown that these prompts lead to reliable differences in the use of prevention versus promotion system language, but do not lead to differences in overall positivity or negativity (Scholer, Zou, Fujita, Stroessner, & Higgins, 2010). Participants were given 8 minutes to complete these prompts.

**Mood measure.** In session 2, current mood state was assessed with twelve mood items, both positive (e.g., calm, happy) and negative (e.g., agitated, sad). Participants rated the current

intensity of each mood item on a 4-point scale from 1 (*not at all*) to 4 (*very much*). Negative mood items were reverse-scored and the mean of all mood items was computed to create an overall mood index (Cronbach's  $\alpha=.91$ ).

### Results and Discussion

**Latency.** Four participants were excluded from the response latency analysis because their responses to positive or negative traits in session 1 and/or session 2 were all *no*. This procedure left 25 participants for the further analysis. We also examined the data for possible outliers and, following convention (cf. Ferguson, 2008), excluded reaction times (7 responses) that were slower by more than 3 *SDs* from each individual's mean.<sup>2</sup>

**Response latencies: Self-Descriptive Traits.** To investigate the relative response latency patterns for positive versus negative traits rated as self-descriptive, a 2 (Time: pre-priming, post-priming) x 2 (Prime: promotion, prevention) ANOVA was performed with the first factor as a repeated measure. Because the mean response time for negative traits was subtracted from the mean response time for positive traits, a negative number on this index reflects greater accessibility (i.e., lower response times) of positive traits. A positive number on this index reflects relatively greater accessibility of negative traits.

There was no significant effect of time,  $F(1,23)<1$ , *ns*, partial  $\eta^2=.006$ , nor prime,  $F(1,23)=1.634$ ,  $p=.214$ , partial  $\eta^2=.07$ . However, as predicted, there was a significant time x prime interaction,  $F(1,23)=5.944$ ,  $p=.023$ , partial  $\eta^2=.21$  (see Figure 1). In session 1 before the priming, there was no difference between participants in the promotion prime condition ( $M=-225.34$ ,  $SD=334.45$ , 95% confidence interval [*CI*]=-479.71, 29.024; all subsequent *CI*s refer to 95% coverage) and participants in the prevention prime condition ( $M=-242.00$ ,  $SD=420.10$ , *CI*=-449.93, -34.55) on the response latency index,  $F(1,23)<1$ , *ns*, partial  $\eta^2<.001$ . Prior to the

regulatory focus priming, all participants showed relatively greater accessibility for positive versus negative traits, consistent with prior research (e.g., Alicke, 1985). In session 2 after the priming, however, participants in the promotion prime condition ( $M=-421.27$ ,  $SD=524.82$ ,  $CI=-771.87$ ,  $-70.66$ ) showed relatively greater accessibility of positive versus negative traits in comparison to participants in the prevention prime condition ( $M=20.87$ ,  $SD=543.00$ ,  $CI=-265.39$ ,  $307.14$ ),  $F(1, 23)=4.08$ ,  $p=.055$ , partial  $\eta^2=.15$ . Notably, there were no significant effects for traits that were judged non-descriptive of the self,  $F_s < 1$ . While positive mood significantly predicted faster response latency to positive versus negative traits,  $F(1,22)=6.26$ ,  $p=.02$ , including mood as a covariate in the model did not change the significance of the prime x time interaction,  $F(1,22)=6.79$ ,  $p=.016$ , partial  $\eta^2=.24$ . Additionally, the regulatory focus prime did not predict mood,  $F(1, 23) < 1$ , *ns*.<sup>3</sup>

To examine whether the shifts in accessibility were driven primarily by changes in the accessibility of positive versus negative self-descriptive traits, we conducted two additional analyses to examine the effects for positive and negative traits separately. A 2 (Time: pre-priming, post-priming) x 2 (Prime: promotion, prevention) ANOVA was performed with the first factor as a repeated measure on the reaction times to positive self-descriptive traits. There was no significant effect of time,  $F(1,23) < 1$ , *ns*, partial  $\eta^2=.001$ , nor prime,  $F(1,23) < 1$ , *ns*, partial  $\eta^2=.001$ . There was also no significant time x prime interaction,  $F(1,23)=1.18$ ,  $p=.289$ , partial  $\eta^2=.05$ . We conducted the parallel analysis for reaction times to negative self-descriptive traits. There was no significant effect of time,  $F(1,23) < 1$ , *ns*, partial  $\eta^2=.013$ , nor prime,  $F(1,23)=1.10$ ,  $p=.31$ , partial  $\eta^2=.046$ . There was a nonsignificant but trending time x prime interaction,  $F(1,23)=2.73$ ,  $p=.11$ , partial  $\eta^2=.11$ . At Time 1 prior to the regulatory focus priming, there was no difference in accessibility of negative traits for participants in the promotion prime



( $M=1452.70$ ,  $SD=540.65$ ,  $CI=1118.94$ ,  $1786.45$ ) versus prevention prime ( $M=1401.91$ ,  $SD=489.62$ ,  $CI=1129.39$ ,  $1674.42$ ) conditions,  $F(1, 23) < 1$ , *ns*, partial  $\eta^2 = .003$ . In contrast, after the regulatory focus priming at Time 2, participants in the prevention prime condition ( $M=1222.65$ ,  $SD=341.74$ ,  $CI=988.14$ ,  $1457.17$ ) showed marginally greater accessibility of negative self-descriptive traits compared to participants in the promotion prime condition ( $M=1541.71$ ,  $SD=557.66$ ,  $CI=1254.49$ ,  $1828.93$ ),  $F(1, 23) = 3.17$ ,  $p = .088$ , partial  $\eta^2 = .12$ . Thus, the RT effects seemed to be driven primarily by changes in the accessibility of negative information, though the effects are stronger when evaluating the relative accessibility index.

As a secondary analysis, we also examined whether there were any changes in the *number* of traits selected as self-descriptive from session 1 to session 2. There were no changes in the total number of traits selected from session 1 ( $M=20.40$ ,  $SD=3.92$ ,  $CI=18.92$ ,  $22.22$ ) to session 2 ( $M=20.28$ ,  $SD=3.74$ ,  $CI=19.08$ ,  $22.06$ ),  $F(1,23) < 1$ , *ns*, nor did the total number of traits change as a function of the interaction of time with the regulatory focus prime,  $F(1,23) < 1$ , *ns*. We then examined whether there were any changes in the number of positive and negative traits selected as self-descriptive as a function of regulatory focus prime and time, conducting three analyses parallel to those conducted on response times.

First, we examined whether there was any significant change in the relative number of positive versus negative traits selected following the regulatory focus priming at Time 2. A 2 (Time: pre-priming, post-priming) x 2 (Prime: promotion, prevention) ANOVA was performed with the first factor as a repeated measure on this trait selection index (positive traits-negative traits). Positive numbers indicate that a higher number of positive versus negative traits were selected. There was no significant main effect of time,  $F(1,23) = 1.88$ ,  $p = .184$ , partial  $\eta^2 = .075$ , nor prime,  $F(1,23) < 1$ ,  $p = .64$ , partial  $\eta^2 = .010$ . However, there was a significant time x prime

interaction,  $F(1,23)=5.07$ ,  $p=.034$ , partial  $\eta^2=.18$ . At Time 1, there was no significant difference between the promotion and prevention prime conditions on this index,  $F(1,23)<1$ , *ns*, partial  $\eta^2=.039$ . At Time 2, there was also no significant difference between the promotion and prevention prime conditions,  $F(1,23)<1$ , *ns*, partial  $\eta^2<.001$ . The interaction was driven by a significant contrast within the prevention prime condition,  $F(1,14)=5.87$ ,  $p=.03$ , partial  $\eta^2=.295$ , such that following the prevention prime at Time 2 the discrepancy between the number of positive versus negative traits selected was reduced ( $M=4.73$ ,  $SD=8.94$ ,  $CI=-.27$ , 9.74) relative to Time 1 before the prime ( $M=7.20$ ,  $SD=6.58$ ,  $CI=2.86$ , 11.53). There was no significant effect of time within the promotion prime condition,  $F(1,23)<1$ , *ns*, partial  $\eta^2=.086$  ( $M_{Time 1}=4.00$ ,  $SD_{Time 1}=10.04$ ,  $CI=-1.31$ , 9.31;  $M_{Time 2}=4.6$ ,  $SD_{Time 2}=10.01$ ,  $CI=-1.533$ , 10.73).

We then examined the effects of time and prime on the number of positive and negative traits separately, conducting two separate repeated measures ANOVAs. For positive traits, there was no significant effect of time,  $F(1,23)=1.201$ ,  $p=.285$ , partial  $\eta^2=.05$ , nor prime,  $F(1,23)<1$ , *ns*, partial  $\eta^2=.001$ . However, there was a significant time x prime interaction,  $F(1,23)=6.27$ ,  $p=.02$ , partial  $\eta^2=.21$ . At Time 1, prior to the regulatory focus prime, there was no difference in the number of positive traits selected by participants in the prevention prime ( $M=13.47$ ,  $SD=4.33$ ,  $CI=10.73$ , 16.21) versus promotion prime ( $M=12.70$ ,  $SD=6.18$ ,  $CI=9.34$ , 16.06) conditions,  $F(1,23)<1$ , *ns*, partial  $\eta^2=.006$ . At Time 2, after the regulatory focus prime, there was also no difference in the number of positive traits selected by participants in the prevention prime ( $M=11.93$ ,  $SD=5.20$ ,  $CI=9.11$ , 14.76) versus promotion prime ( $M=13.3$ ,  $SD=5.42$ ,  $CI=9.84$ , 16.76) conditions,  $F(1,23)<1$ , *ns*, partial  $\eta^2=.017$ . The significant interaction for number of positive traits was driven by a significant reduction in the number of positive traits selected by participants following the prevention prime,  $F(1,14)=7.29$ ,  $p=.017$ , partial  $\eta^2=.342$ . There was no

significant change in the number of positive traits selected by participants following the promotion prime,  $F(1,9)=1, p=.343$ , partial  $\eta^2=.10$ ). There were no significant effects of time or regulatory focus prime on the number of negative traits selected (time:  $F(1,23)<1, ns$ , partial  $\eta^2=.037$ ; prime:  $F(1,23)=1.39, p=.251$ , partial  $\eta^2=.057$ ; time x prime interaction,  $F(1,23)<1, ns$ , partial  $\eta^2=.037$ ).

This study provided initial evidence for changes in self-knowledge accessibility as a function of regulatory focus. As predicted, the relative accessibility of positive and negative self-information shifted following the promotion and prevention primes; on the relative accessibility index, participants displayed an RT advantage ( $p<.06$ ) for positive versus negative self-descriptive traits in session 2 following the promotion versus prevention prime. Thus, on the relative accessibility index we found support for the predicted divergence following the regulatory focus primes. Separate analyses for reaction times to positive and negative traits revealed that these reaction time effects were driven primarily by changes in the accessibility of *negative* self-descriptive trait information; while there was no significant difference in the accessibility of positive traits following the promotion versus prevention prime, there was a marginally significant difference ( $p<.09$ ) in the accessibility of negative traits for individuals in the promotion versus prevention prime conditions.

Supplementary analyses on shifts in the number of positive and negative traits identified as self-descriptive provided further support for self-evaluation shifts after the prevention prime with respect to the *number* of positive traits that participants identified as self-descriptive. After the prevention prime, participants tended to identify fewer positive traits as self-descriptive relative to time 1 before the prime. However, there was not a corresponding increase in the number of positive traits identified as self-descriptive following the promotion prime. It is also

important to note that the prevention focus effects on trait selection were driven by changes in the number of *positive* traits, not negative traits, selected as self-descriptive.<sup>4</sup>

The pattern of results in this study provides initial support for our hypotheses, but is particularly supportive of self-evaluation *deflation* among prevention-focused participants. Although speculative, we believe it is possible that stronger effects were obtained for the prevention motivation prime given that Japan is a predominantly prevention-focused culture (Higgins, 2008). Recent work (Lisjak, Molden, & Lee, 2012) suggests that although primed motivational orientations can produce the same effects as chronic motivational orientations, there may be cognitive costs when a temporary prime conflicts with an individual's chronic orientation. Although there is much yet to explore about how temporary and chronic sources of motivation may interact, it is conceivable that there are conditions under which incongruencies between motivational primes and chronic orientations affect performance and potentially even undermine the power of the motivational prime.

One could argue that the latency pattern does not necessarily reflect the accessibility of *self*-knowledge per se, but rather the sensitivity to positive and negative stimuli more generally. For instance, prior work has shown enhanced sensitivity of promotion-focused individuals to positive consequences and enhanced sensitivity of prevention-focused individual to negative consequences (Idson & Higgins, 2000; Idson, Liberman, & Higgins, 2000). However, because the expected interaction effect was obtained *only* among the *self-descriptive* traits, and *not* among the traits that were *not* descriptive of the self, these general sensitivities cannot fully account for the obtained pattern of results. If the primes affected only general sensitivities, participants' response latencies should show equivalent patterns for the accessibility of both traits that are descriptive and not descriptive of the self.<sup>5</sup>

Another alternative explanation is that the regulatory focus manipulation affected mood and that changes in mood were responsible for changes in response latencies. However, the regulatory focus prime was unrelated to mood. Although mood itself was related to relatively faster responses to positive versus negative traits, the predicted interaction was not affected when mood was included in the model as a covariate. Furthermore, prior research has shown that the promotion and prevention primes employed in this study are uniquely and reliably associated with differences in the use of promotion and prevention language, but *not* in differences in the use of positive and negative words (Scholer et al., 2010). In both priming conditions, participants are writing about desired end-states (ideals versus oughts, respectively); the content of these goals is orthogonal to regulatory focus and to whether participants are currently succeeding or failing at those goals (Scholer & Higgins, 2008). In addition, there is nothing inherent to the primes that should differentially provoke reminders of success or failure for the target goals. For example, the goal to get an A in a course could be represented as an ideal or as an ought; the likelihood that an individual is succeeding or failing at that goal is independent of regulatory focus. Altogether then, there is no reason to believe that the effects could be due to mood or to a semantic priming confound based on the regulatory focus primes.

### **Studies 2a and 2b**

Study 1 provided some initial support for the idea that the activation of the promotion and prevention systems may influence the accessibility of positive and negative self-knowledge, such that prevention system concerns may be linked to a relatively deflated (less positive) self-view, whereas promotion system concerns may be linked to a relatively inflated (more positive) self-view (as reflected in the results on the relative accessibility index). If these shifts serve a strategic self-regulatory function (allowing individuals to maintain and sustain preferred

motivational orientations), we should be able to identify conditions under which this motive will both wax and wane. Specifically, we would expect promotion and prevention motivation to be associated with self-evaluation motivational maintenance tactics (i.e., deflation and inflation, respectively) when it matters most—in a situation where continued performance was on the line. We would also expect that such self-evaluation tactics would *not* be employed in a situation where continued performance was *not* on the line (i.e., a completed performance situation). Participants likely experienced Study 1 as an ongoing performance situation; however, this variable was not manipulated. Studies 2a and 2b directly addressed these issues by examining how promotion or prevention motivation predicts self-inflation or self-deflation in both ongoing and completed performance situations.

### **Study 2a**

When individuals are in an ongoing performance situation, we would expect the greatest difference between individuals in a promotion versus prevention focus in terms of expressed self-evaluation and the need to enhance the self. However, when not in an ongoing performance situation, we would expect the difference between individuals in a promotion versus prevention focus to be reduced or even eliminated. Study 2a was designed to examine the relative predominance of both the promotion and prevention systems in predicting both self-evaluation deflation and inflation. In addition, in Study 2a, we also wanted to examine whether individuals can take advantage of a more global and direct measure of self-evaluation – self-esteem – in order to sustain their eager or vigilant motivation (Rosenberg, 1965).

In this study, participants completed 12 anagrams and received performance feedback. Importantly, half of our participants believed that they had another 12 anagrams to complete (ongoing performance situation), whereas the other half of our participants believed that the task

was over (completed performance situation). We predicted that in the 24-anagram ongoing performance situation, promotion-focused participants should express relatively higher self-esteem following success *or* failure feedback (in order to maintain or increase their eagerness) whereas prevention-focused participants should express lower self-esteem following success *or* failure feedback (in order to maintain or increase their vigilance). In contrast, in the 12-anagram task completed condition, we did *not* expect these regulatory focus differences in self-esteem to be as pronounced; when the task is over the motivation to support the system-sustaining strategy should be reduced or eliminated.

We included the success/failure feedback manipulation because we wanted to examine if the predicted regulatory focus effects would be intensified under specific feedback conditions. In particular, we thought that it was possible that promotion-focused participants might be especially likely to express higher self-esteem following failure and that prevention-focused participants might be especially likely to express lower-self-esteem following success, given that failure tends to be more demotivating for promotion-focused participants and success tends to be more demotivating for prevention-focused-participants (Idson & Higgins, 2000). We thought it was possible that self-evaluation boosting or deflating might be more necessary under conditions that were especially likely to work against eagerness or vigilance. However, given that expressing relatively higher self-esteem should boost eagerness regardless of success or failure feedback and that expressing relatively lower self-esteem should maintain vigilance regardless of feedback, we also thought it was conceivable that the predicted regulatory focus x status effects would not be moderated by feedback.

## **Method**

### **Participants**

Participants were 134 undergraduates at a private university in the northeastern United States (85 females, 49 males) who completed a 45-minute session for credit or payment (\$8). Participants were randomly assigned to condition in a 2 (performance status: ongoing, completed) x 2 (feedback: success, failure) between-participants design. Chronic regulatory focus was assessed using the regulatory focus questionnaire; RFQ (Higgins et al., 2001). In a funnel debriefing (cf. Chartrand & Bargh, 1996), nine participants (7%) expressed strong suspicion that the success/failure feedback was false. The analyses reported exclude these participants; the critical regulatory focus x status interaction on self-esteem remains statistically significant whether these participants are excluded or included.<sup>6</sup>

### **Procedure**

Participants first completed the regulatory focus questionnaire (RFQ; Higgins et al., 2001) to assess chronic promotion and prevention orientations. The RFQ was embedded within a series of other personality questionnaires not relevant for the present study. For this sample, internal reliability of the scales was adequate for the prevention scale, but lower than is ideal or is typically observed for the promotion scale (Cronbach's  $\alpha=.66$  for the promotion focus scale and  $\alpha=.80$  for the prevention focus scale). Given that the RFQ has been well-validated and employed in several studies and indeed, has been shown to be one of the most valid and reliable measures of chronic regulatory focus (Haws, Dholakia, & Bearden, 2010), we proceeded with the traditional computation of the promotion and prevention subscales.

Participants then completed a verbal anagram task, described as one kind of measure of verbal ability, "an important predictor of success in life." Half of the participants were randomly assigned to a condition in which they were told that they would complete 12 anagrams (completed performance status); half of the participants were told that they would complete 24



anagrams (ongoing performance status). At the end of the first 12 anagrams, all participants were given (false) feedback about their performance (1/2 received success feedback (top 10%, based on student sample) and 1/2 received failure feedback (bottom 40%, based on student sample). Participants in the 24-anagram condition believed that this was interim performance feedback, whereas participants in the 12-anagram condition believed that this was their completed performance feedback. All participants were then asked to complete the 10-item Rosenberg (1965) global measure of self-esteem (Cronbach's  $\alpha=.90$ ) on a 7-point scale from 1 (strongly disagree) to 7 (strongly agree). Participants also reported current mood by indicating how much they felt a number of emotions (satisfied, content, happy, disappointed, dissatisfied, frustrated) "right now" on an 11-point scale from 0 (not at all) to 10 (extremely) (Cronbach's  $\alpha=.91$ ). Participants in the 24-anagram condition believed they would return to the anagram task after completing these questionnaires. Following the completion of these measures, participants completed a suspicion check and funnel debriefing (Chartrand & Bargh, 1996). They were then fully debriefed and thanked.

### **Results and Discussion**

*Analysis Overview.* The data were analyzed using a continuous regulatory focus predominance measure (promotion pride – prevention pride), as has been done in other regulatory focus research (e.g., Bohns et al., 2013; Cesario, Grant, & Higgins, 2004; Hong & Lee, 2008). Status and feedback were effect-coded. Rosenberg self-esteem was computed by summing the responses to the 10 items, such that scores could range from 7 to 70.

*Mood Manipulation Check.* As expected, participants who received negative performance feedback reported feeling worse ( $M=5.18$ ,  $SD=2.30$ ,  $CI=4.72$ ,  $5.71$ ) than participants who received positive performance feedback ( $M=7.40$ ,  $SD=1.64$ ,  $CI=6.89$ ,  $7.91$ ),  $\beta=.47$ ,  $CI=.31$ ,  $.63$ ;

$t(117)=5.83, p<.001$ . There were no differences in mood as a function of regulatory focus predominance or performance status (completed *vs.* ongoing), nor were any of the interactions significant (all  $t_s<1$ ).

*Self-esteem.* The primary dependent variable was the 10-item Rosenberg (1965) self-esteem scale, completed after participants received performance feedback. There was a significant effect of regulatory focus, such that as promotion predominance increased, self-esteem increased, standardized  $\beta=.19$  ( $CI = .01, .36$ ),  $t(116)=2.11, p=.037$ . There was also a significant effect of performance status, such that participants in the completed performance (12-anagram) condition reported higher self-esteem ( $M=55.98, SD=9.47, CI=53.15, 58.71$ ) than those in the ongoing performance (24-anagram) condition ( $M=51.12, SD=13.27, CI=48.77, 54.48$ ),  $\beta=-.19$  ( $CI=-.36, -.02$ ),  $t(116)=2.16, p=.033$ . As predicted, these effects were qualified by a regulatory focus x performance status interaction,  $\beta=.22$  ( $CI=.04, .39$ ),  $t(116)=2.45, p=.016$ . There was no significant regulatory focus x performance status x feedback interaction,  $\beta=-.02$  ( $CI=-.20, .15$ ),  $t(116)<1, ns$ .<sup>7</sup>

To clarify the nature of the regulatory focus x performance status interaction, the predicted values for regulatory focus predominance were calculated for one standard deviation above and below the mean (see Figure 2). As predicted, there was no difference in self-esteem in the completed condition,  $\beta=-.03$  ( $CI=-.28, .22$ ),  $t(116)<1, ns$ . However, in the ongoing performance condition, self-esteem was significantly higher for predominantly promotion-focused participants than for predominantly prevention-focused participants,  $\beta=.40$  ( $CI=.16, .64$ ),  $t(116)=3.29, p=.001$ .

As can be seen in Figure 2, the contribution to this effect was more from predominant prevention-focused individuals *reducing* their self-esteem in the ongoing performance situation

than from predominant promotion-focused individuals raising their self-esteem. Indeed, predominant promotion-focused participants showed no difference in self-esteem as a function of ongoing versus completed performance status,  $\beta=.03$  ( $CI=-.22, .28$ ),  $t(116)<1$ , *ns*. Across both conditions, promotion-focused participants (+1 SD above the mean) showed relatively high self-esteem (predicted  $M_{\text{completed}}=55.6$ ,  $M_{\text{ongoing}}=56.3$ ). Although only a speculation, it is possible that self-esteem inflation was difficult to detect given these high scores. Although promotion-focused participants certainly could have shown increased self-esteem (highest possible score = 70), obtaining an *increase* in self-esteem for promotion-focused participants that parallels the *decrease* in self-esteem for prevention-focused participants would have required participants to respond to five or more items on the self-esteem scale with the most extreme response. For this reason, we believe that it may have been more difficult to detect a promotion-focused increase in self-esteem in this study. In contrast, predominant prevention-focused participants showed significantly *lower* self-esteem in an ongoing performance situation than in the completed performance situation,  $\beta=-.40$  ( $CI=-.64, -.16$ ),  $t(116)=3.28$ ,  $p=.001$ . Although mood was also a significant predictor of self-esteem ( $\beta=.66$  ( $CI=.50, .81$ ),  $t(115)=8.36$ ,  $p<.001$ ), the regulatory focus x performance status interaction remained significant when mood was included as a covariate in the analysis  $\beta=.16$  ( $CI=.02, .30$ ),  $t(115)=2.24$ ,  $p<.027$ .

As predicted, in the ongoing performance situation (the unfinished, 24-anagram condition), promotion and prevention participants expressed different levels of self-esteem. We argue that this difference, which importantly appears in the ongoing performance situation but *not* in the completed performance situation, reveals the different strategic ways in which promotion and prevention individuals express self-esteem in order to maintain eagerness or vigilance. Promotion-focused participants, regardless of whether they received success or failure

feedback, expressed higher levels of self-esteem, a way to maintain eagerness. Prevention-focused participants, regardless of whether they received success or failure feedback, expressed lower levels of self-esteem, a way to maintain vigilance. This contrast within the ongoing performance condition supports our core prediction of a divergence in self-evaluation for promotion versus prevention-focused individuals. However, as reported above, when we examined the simple effects within promotion and prevention motivation, there was a difference in self-esteem between the ongoing and completed conditions only for predominantly prevention-focused individuals.

It might seem surprising that there was no main effect of feedback on reported self-esteem, especially in the completed condition. We believe that there are a number of possibilities that could account for this null effect. First, we used the Rosenberg (1965) measure of self-esteem, typically employed as a stable, trait measure of self-esteem. We used this measure as a conservative test of our hypothesis, assuming that finding differences on this measure would be even more convincing of strategic differences in self-evaluation expression between promotion and prevention-focused individuals. However, it is possible that this measure was less sensitive to the feedback manipulation in particular, as other work has shown that trait self-esteem measures are not consistently responsive to self-esteem manipulations (for a review, see Heatherton & Polivy, 1991). Given that this trait measure for self-esteem is believed to be relatively stable, it is all the more interesting that the predicted regulatory focus effects in the ongoing performance condition were obtained. It also suggests the need to further examine whether there might be conditions under which feedback would play an important role, perhaps even intensifying the predicted regulatory focus effects. For instance, there may be situations in which success feedback makes it even more critical for individuals in a prevention focus to

intensify vigilance, leading to stronger self-deflation responses. This possibility should be examined in future research.

### **Study 2b**

Study 2b was conducted to provide a conceptual replication of Study 2a with manipulated rather than measured regulatory focus and with a non-undergraduate student population. In addition, because the feedback manipulation did not interact with regulatory focus in Study 2a, it was not included in this study. The Rosenberg (1965) measure of self-esteem again served as the assessment of self-evaluation (Cronbach's  $\alpha=.94$ ).

### **Method**

#### **Participants**

Participants were 113 individuals (67 females, 2 transgender,  $M_{\text{age}}=31.29$  years,  $SD=12.57$ ) who completed an online study for monetary compensation through the Amazon Mechanical Turk website (see Buhrmester, Kwang, & Gosling, 2011). 16 participants did not complete all items on the Rosenberg self-esteem scale and were excluded from the analyses. The regulatory focus x performance status interaction on self-esteem remains statistically significant with the full sample.<sup>8</sup>

#### **Procedure**

The procedure was identical to Study 2a except that participants first completed a standard regulatory focus manipulation (Freitas & Higgins, 2002; Higgins et al., 1994) rather than measuring regulatory focus using the RFQ. Specifically, participants in the promotion focus condition were asked to write a brief essay (3-5 sentences) in which they thought about “something you would ideally like to do...think about a hope or aspiration that you currently have...and what you are doing to attain this hope or aspiration.” Participants in the prevention

focus condition responded to a prompt in which they thought about “something you think you ought to do...think about a duty or obligation that you currently have...and what you are doing to meet this duty or obligation.”

In addition, the anagram task was shortened so that all participants completed 6 anagrams. In the ongoing performance condition, participants believed that there were 12 anagrams in total. In the completed performance condition, participants believed that there were only 6 anagrams. There was no feedback manipulation prior to the completion of the self-esteem measure. To reduce the likelihood that participants’ own performance evaluations would influence self-evaluation, the anagram task was designed so that it would be virtually impossible for participants to have certainty about their level of performance. Participants were told that anagrams could have from 0 to many solutions. Thus, even a participant who was not able to find solutions for a particular anagram would not know if this was because it was unsolvable. Likewise, even a participant who found multiple solutions for a number of anagrams would not know whether they had found all possible solutions.

### **Results and Discussion**

There was no main effect of performance status,  $F(1, 93)=.05, p=.82$ , partial  $\eta^2=.001$ , nor regulatory focus,  $F(1, 93)=.78, p=.38$ , partial  $\eta^2=.008$ , on self-esteem. As predicted, however, there was a significant performance status x regulatory focus interaction on self-esteem,  $F(1, 93)=5.69, p=.019$ , partial  $\eta^2=.06$  (see Figure 3). As in Study 2a, there was no significant difference in self-esteem between promotion and prevention-focused participants in the completed condition,  $F(1, 52)=1.58, p=.21$ , partial  $\eta^2=.03$ , but there was a marginally significant difference in the ongoing condition,  $F(1, 41)=3.86, p=.056$ , partial  $\eta^2=.09$ , such that promotion-focused participants reported higher self-esteem than prevention-focused participants. We then

examined the contrasts for the promotion and prevention prime conditions. Participants in a promotion focus reported marginally higher self-esteem in the ongoing ( $M=56.42$ ,  $SD=12.25$ ,  $CI=50.60, 62.24$ ) versus completed ( $M=49.54$ ,  $SD=12.64$ ,  $CI=44.36, 54.72$ ) performance situation,  $F(1, 41)=3.23$ ,  $p=.08$ , partial  $\eta^2=.07$ . In contrast, participants in a prevention focus did not significantly differ in their self-esteem in the ongoing ( $M=47.83$ ,  $SD=15.62$ ,  $CI=42.65, 53.01$ ) versus completed ( $M=53.5$ ,  $SD=10.51$ ,  $CI=48.87, 58.13$ ) performance situation,  $F(1, 52)=2.53$ ,  $p=.12$ , partial  $\eta^2=.05$ .

In this study, we also had performance data on the anagram task. There were no significant effects on performance of performance status,  $F(1, 93)=1.96$ ,  $p=.17$ , partial  $\eta^2=.02$ , regulatory focus,  $F(1, 93)=.11$ ,  $p=.74$ , partial  $\eta^2=.001$ , or the regulatory focus x performance status interaction,  $F(1, 93)=.41$ ,  $p=.52$ , partial  $\eta^2=.004$ . In addition, the regulatory focus x performance status interaction remained significant when controlling for performance in the self-esteem analysis,  $F(1,92)=5.48$ ,  $p=.02$ , partial  $\eta^2=.06$ .

Study 2b provided additional evidence that individuals may strategically inflate and deflate self-evaluation to support preferred motivational orientations, using a manipulation rather than a chronic measure of regulatory focus. Replicating the pattern obtained in Study 2a, there was a difference in expressed self-esteem between participants in a promotion versus prevention focus in an ongoing performance situation ( $p<.06$ ), but *not* in a completed performance situation. This pattern of data is important for ruling out the possibility that individuals in a promotion versus prevention focus are simply drawn to positive versus negative self-relevant information generally. If this was the case, self-esteem differences should not be moderated by performance status. However, in both studies the self-esteem differences emerged *only* in the ongoing

performance situation, suggesting that these self-evaluation shifts are adopted to support self-regulatory efforts.

As in Study 2a, we also examined effects of performance status within the promotion versus prevention conditions. Whereas Study 2a found that self-esteem differed for individuals in a prevention focus in an ongoing versus completed performance situation, Study 2b showed a stronger effect for promotion focus: individuals in a promotion focus showed marginally higher self-esteem ( $p=.08$ ) in an ongoing versus completed performance situation. This effect may have emerged more strongly in Study 2b because reported self-esteem was somewhat lower in this sample ( $M=51.69$ ,  $SD=12.98$ ) than in Study 2a. Study 2b also demonstrated that the effects of regulatory focus and performance status on self-esteem were maintained controlling for performance on the anagram task.

### Study 3

Studies 2a and 2b provided evidence that in an ongoing performance situation, individuals may be motivated to maintain a self-evaluation that supports their strategic orientation. In an ongoing performance situation, individuals in a promotion focus reported more positive self-evaluations relative to individuals in a prevention focus. However, these studies did not directly test whether self-evaluation inflation and deflation has an impact on subsequent motivation. Will individuals in a promotion focus be more motivationally engaged when they engage in self-evaluation inflation versus deflation? Will individuals in a prevention focus be more motivationally engaged when they engage in self-evaluation deflation versus inflation?

Study 3 was designed to directly test whether engaging in self-inflation versus self-deflation differentially affects task persistence. Thus, Study 3 builds on the earlier studies to examine how shifts in self-evaluation support self-regulation. Rather than examining these self-



evaluative shifts as our dependent measure, we manipulated self-inflation or self-deflation to directly test the idea that self-evaluative shifts can serve a self-regulatory function. We employed an anagram task that included several difficult anagrams. Persistence on a difficult anagram task is often used as a measure of motivational engagement (e.g., Forster, Higgins, & Idson, 1998). In addition, in this study we wanted to provide additional evidence of the causal role of regulatory focus motivation on the effects of self-evaluation inflation and deflation. Thus, as in Studies 1 and 2b, we manipulated rather than measured participants' regulatory focus.

## **Method**

### **Participants**

Participants were 98 undergraduate students (57 females) at a small liberal arts college in the United States who completed the study for partial course credit or payment. Participants were randomly assigned to condition in a 2 (regulatory focus: prevention, promotion) x 2 (anagram practice type: self-inflating, self-deflating) design.

### **Procedure**

Participants were run in individual sessions. Participants were told that they would be completing a number of brief, unrelated studies associated generally with the study of how personality and situational factors affect task enjoyment and performance. Participants first completed the regulatory focus manipulation and then completed the anagram practice task. After the anagram practice task, participants completed the target anagram task and the anagram practice manipulation check (order was counterbalanced between participants). The length of time spent on the anagram task was recorded for each participant. Participants were then fully debriefed, paid, and thanked.

### **Materials**

**Regulatory focus prime.** Participants were randomly assigned to write a brief essay describing how their hopes and aspirations (promotion manipulation) or duties and obligations (prevention manipulation) had changed since childhood (Higgins et al., 1994; see also Freitas & Higgins, 2002; Freitas, Liberman, & Higgins, 2002).

**Anagram Practice Type.** Participants were randomly assigned to either the self-inflating or self-deflating anagram practice condition. In both conditions, participants were told that they would have an opportunity to complete some practice anagrams before going on to the “real” anagram task. All participants were told that they were to form as many words as possible using each presented string of letters and that each anagram could have no solution, one solution, or multiple solutions. Participants were told that for each anagram, each solution had to use all presented letters.

In the *Self-Inflating* condition, participants were further told: “To do well, it is important to have confidence in your ability. Prepare with this anagram drill that helps to highlight your strengths by providing anagrams on which people often experience success. This practice will help to boost your confidence!”

In the *Self-Deflating* condition, participants were told: “To do well, it is important not to be too confident in your ability. Prepare with this anagram drill that helps to identify your weak points by providing anagrams on which people often experience difficulty. This practice will help to keep your confidence in check.”

After completing four practice anagrams (elive, certa, elam, snire), all participants were presented with the anagram solutions. Participants were then asked to reflect on the practice task. In the *Self-Inflating* condition, participants were told: “Keep your confidence up as you begin the real task! In the space below, briefly discuss some ways in which this practice highlighted your

**strengths** in doing anagrams.” In the *Self-Deflating* condition, participants were told: “Don’t be too confident as you begin the real task! In the space below, briefly discuss some ways in which this practice highlighted your **weaknesses** in doing anagrams.”

**Target Anagram Task.** The target anagram task contained 12 anagrams that ranged in difficulty. Anagrams ranged from 4 letters (e.g., abek) to 8 letters (e.g., reptlaan) and also varied in the number of possible solutions, from 1 to 6. Participants had up to 10 minutes to work on the anagram task. Performance for the anagram task was calculated in terms of total number of solutions generated and in terms of an algorithm that weighted responses by difficulty (participants received 1 point for each correct response for four-letter words, 2 points for each correct response for five-letter words, 3 points for each correct response for six-letter words, and 4 points for each correct response for eight-letter words).

**Anagram Practice Manipulation Check.** Participants indicated how they felt *right now* on four scales designed to measure the extent to which participants felt vigilant (cautious, careful) versus eager (confident, enthusiastic). For each item, participants indicated how they felt on a scale from 1(not at all) to 9(extremely). We computed vigilant (cautious, careful,  $r=.74$ ,  $p<.001$ ) and eagerness indices (confident, enthusiastic,  $r=.46$ ,  $p<.001$ ) and then calculated a difference score (eagerness-vigilance) to assess the predominant motivational state. Positive scores reveal greater predominance of eagerness.

## Results

*Manipulation Check.* To check whether type of anagram practice affected state eagerness and vigilance, we conducted a 2 (regulatory focus) x 2 (practice type) ANOVA on the eagerness/vigilance index. There was a main effect of practice type,  $F(1,94)=10.82$ ,  $p=.001$ , partial  $\eta^2=.10$ , such that participants in the self-deflating condition were relatively more vigilant

( $M=-.16$ ,  $SD=1.99$ ,  $CI=-.71$ ,  $.39$ ) than participants in the self-boosting condition ( $M=1.15$ ,  $SD=1.91$ ,  $CI=.58$ ,  $1.71$ ). There was no main effect of regulatory focus prime and no prime x practice type interaction on the manipulation check index (both  $F_s < 1$ ).

*Persistence on Anagram Task.* On average, participants spent 9 minutes and 15 seconds on the anagram task ( $SD=84.5$  seconds). A 2 (regulatory focus) x 2 (practice type) ANOVA revealed no significant main effects of regulatory focus or practice type ( $p_s > .10$ ) on anagram persistence. As predicted, however, there was a significant regulatory focus x practice type interaction,  $F(1,94)=4.39$ ,  $p=.039$ , partial  $\eta^2=.05$  (see Figure 4). Because persistence times were skewed, we also analyzed the data after log-transforming the length of time spent on the anagram task; the interaction pattern remained statistically significant,  $F(1,94)=4.03$ ,  $p=.048$ , partial  $\eta^2=.04$ . Including the length of time spent on the practice anagram task and performance on the practice anagram task also did not change the significance of the interaction,  $F(1,92)=4.57$ ,  $p=.035$ , partial  $\eta^2=.05$ . In addition, the order in which participants completed the manipulation check and anagram task did not predict persistence nor did order moderate the significant interaction ( $p_s > .10$ ). As predicted, promotion-focused participants persisted longer when given the self-inflating practice ( $M=577.92$ ,  $SD=50.75$ ,  $CI=544.74$ ,  $611.10$ ) versus the self-deflating practice ( $M=529.56$ ,  $SD=100.28$ ,  $CI=496.38$ ,  $562.74$ ),  $F(1,48)=4.63$ ,  $p=.037$ , partial  $\eta^2=.09$ . In contrast, there was no significant difference in persistence for prevention-focused participants when given the self-deflating practice ( $M=567.56$ ,  $SD=82.38$ ,  $CI=534.38$ ,  $600.74$ ) versus the self-boosting practice ( $M=545.13$ ,  $SD=93.00$ ,  $CI=510.54$ ,  $579.72$ ),  $F(1,46)=.79$ ,  $p=.38$ , partial  $\eta^2=.02$ . In an analysis comparing the fit versus nonfit conditions, however, we found, as predicted, that participants in the self-evaluation fit conditions (promotion self-inflating, prevention self-deflating) persisted longer ( $M=572.74$  seconds,  $SD=67.9$ ,  $CI=549.46$ ,  $596.02$ )

than participants in the nonfit conditions (promotion-self-deflating, prevention self-inflating) ( $M=537.02$  seconds,  $SD=96.15$ ,  $CI=513.26, 560.79$ ),  $F(1,96)=.79$ ,  $p=.036$ , partial  $\eta^2=.05$ .

*Anagram Performance.* A 2 (regulatory focus) x 2 (practice type) ANOVA revealed a significant main effect of practice type on total solutions generated,  $F(1,94)=4.85$ ,  $p=.03$ , partial  $\eta^2=.05$ , such that participants in the self-inflating practice generated more solutions ( $M=16.6$ ,  $SD=2.94$ ,  $CI=15.69, 17.47$ ) than participants in the self-deflating practice ( $M=15.2$ ,  $SD=3.24$ ,  $CI=14.33, 16.07$ ). There was no significant main effect of regulatory focus prime and no significant interaction ( $ps > .30$ ). On the weighted performance score, there were no significant main effects or interactions (all  $ps > .20$ ).

### Discussion

Study 3 provides further support for the idea that self-inflation and self-deflation may differentially motivate individuals depending on their motivational state. An analysis comparing fit (promotion-self-inflation; prevention-self-deflation) versus nonfit (promotion-self-deflation; prevention-self-inflation) conditions found the predicted effect. However, the predicted contrasts were statistically significant only for participants in the promotion condition. When individuals in a promotion focus evaluated themselves in a way that maintained a preferred strategic motivational state (eagerness), motivational engagement (as measured via task persistence) was increased. Given that students in the United States tend to be more chronically promotion-focused (Higgins, 2008), it is possible that it was easier to obtain stronger promotion and self-inflation effects than prevention and self-deflation effects, as discussed earlier in reference to Study 1. While only conjecture, we believe that this may have contributed to the asymmetry in the data. In the general discussion, we discuss further the variability in the strength of the promotion and prevention effects across studies.

It may seem somewhat surprising that the task persistence effects were not replicated for anagram performance. We believe that this may have had something to do with the overall difficulty level of the anagrams. Although all anagrams were solvable, many were very difficult (e.g., reptlaan), which may have obscured our ability to see a performance effect. Furthermore, studies using anagram tasks to assess differences in self-regulation often find stronger effects on persistence than on performance (e.g., Hagger et al., 2010).

### **General Discussion**

The current studies provide initial support for the idea that self-evaluation may serve a self-regulatory function of helping individuals maintain the strategic motivational state that fits or sustains their current goal pursuit orientation. In particular, individuals may inflate self-evaluation in order to support eagerness but deflate self-evaluation in order to support vigilance. Individuals in a promotion focus, who regulate more effectively with eager strategies, showed greater accessibility of positive versus negative self-knowledge relative to participants in a prevention focus on a relative accessibility index (Study 1), maintained or increased self-esteem in an ongoing performance situation relative to participants in a prevention focus (Studies 2a and 2b), and persisted longer on an anagram task when given an opportunity to inflate versus deflate self-evaluation (Study 3). In contrast, individuals in a prevention focus, who regulate more effectively with vigilant strategies, showed greater accessibility of negative self-knowledge (Study 1) and reduced self-esteem in an ongoing task situation relative to participants in a promotion focus (Studies 2a and 2b). These relationships were obtained both when regulatory focus was primed (Studies 1, 2b, and 4) and when measured (Studies 2a).

The present work builds on approaches that have suggested that self-evaluation can be motivated by a number of factors—self-enhancement and protection, self-verification, self-

assessment, and self-improvement—by suggesting *strategic motivational maintenance* as an additional motivation that may sometimes influence self-evaluation. In particular, the current work proposes some conditions under which the same motive may lead individuals to decrease or increase the positivity of self-evaluations, depending on their current self-regulatory orientation. The idea that individuals are not always motivated to increase the positivity of self-evaluation is not new, but the current work suggests a new way of understanding conditions under which people may be motivated to both increase and decrease the positivity of self-evaluation.

It has generally been argued that even to the extent that people have motives for accuracy and consistency (Swann & Read, 1981; Swann, Rentfrow, & Guinn, 2002), individuals still *prefer* positive feedback (Swann, Griffin, Predmore, & Gaines, 1987; Swann, Pelham, & Krull, 1989). In contrast, the current work highlights a set of conditions in which the motivation to maintain a preferred strategic state may sometimes lead to actively deflating, rather than maintaining or inflating, the self—what individuals in a prevention focus, relative to individuals in a promotion focus, did in Studies 2a and 2b. Furthermore, the current work provides some initial evidence that when individuals engage in the kind of self-evaluation that sustains their underlying motivational orientation, there are subsequent benefits for motivational strength.

We argue that individuals are particularly likely to engage in this self-evaluation inflation and deflation when it will sustain a motivational system that is needed for an upcoming self-regulatory task (e.g., as in Studies 2a and 2b). But might there be other possibilities that do not involve strategic considerations? When individuals in a promotion focus engage in self-evaluation inflation, for instance, this sustains eagerness, creating regulatory fit (Higgins, 2000). It could be argued, therefore, that engaging in self-inflation simply makes individuals in a

promotion focus “feel right” about what they are doing (Cesario et al., 2004; Higgins et al., 2003); it is not strategic, but rather a reflection of the pull of eagerness-inducing positive self-information for the sake of feeling right from fit. Similarly, engaging in self-deflation might reflect the pull of vigilance-inducing negative self-information for individuals in a prevention focus—simply for the sake of feeling right from fit.

Indeed, given that regulatory fit not only produces an experience of “rightness” but also increases engagement in goal pursuit (Higgins, 2006), it could even be argued that this fit between promotion motivation and self-inflation and prevention motivation and self-deflation reflects some evolutionary adaptation. According to this argument, the promotion and prevention systems would be generally primed to engage in self-inflation or deflation. Our proposal differs from both of these accounts in its conditionality. Rather than suggesting that there is a general tendency for promotion to inflate self-evaluation and prevention to deflate self-evaluation because it “feels right” or reflects a general evolutionary adaptation, we propose that these self-evaluation shifts are *contingent* on what works better for either promotion or prevention *given* what is going to happen next. Studies 2a and 2b provide the strongest support for this strategic conditionality. In both of these studies, we do *not* find differences in self-esteem between participants in a promotion and prevention focus when participants believe that the task is *completed*. Rather, we only find differences when participants believe that the task is ongoing.

These findings do suggest the possibility of an interesting tension between the overall self-evaluation that one may hold (e.g., “I’m a good person”) and the momentary self-evaluation that is *strategically useful* in a given context (e.g., “Watch out, you’re not doing so well. If you are not careful, you could screw up.”). All individuals, regardless of state or trait levels of regulatory focus, should be sensitive to actual successes and failures. The implications of these



experiences for individuals may differ, however, depending on individuals' chronic levels of promotion and prevention motivation. Promotion-focused individuals who have been successful using eager strategies should have relatively positive self-evaluations because they have a history of success in self-regulation (Higgins et al., 2001). They should also be motivated to express positive self-evaluations in order maintain eagerness. Given that both factors work in the same direction, promotion focus and self-esteem should be positively correlated, which has been consistently found across numerous cross-national samples (Higgins, 2008; see also Leonardelli, Lakin, & Arkin, 2007; McGregor, Gailliot, Vasquez, & Nash, 2007). Like promotion-focused individuals with a history of success, prevention-focused individuals who have been successful using vigilant strategies should also have relatively positive self-evaluations because they have a history of success in self-regulation (Higgins et al., 2001). However, they should be motivated to express relatively less positive self-evaluations in order to maintain vigilance. Given that these factors work in opposite directions, prevention focus and self-esteem should be uncorrelated, which has also been consistently found across many cross-national samples (Higgins, 2008).

The differential relation between promotion and prevention and self-evaluation may also provide a fresh perspective on differences between self-evaluation expression in Western versus Eastern cultures. Some evidence suggests that people in the East report lower explicit self-esteem than people in the West (e.g., Heine, Lehman, Markus, & Kitayama, 1999). We also know that Eastern cultures tend to be more predominantly prevention-focused whereas Western cultures tend to be more predominantly promotion-focused (Higgins, 2008; see also Higgins, Pierro, & Kruglanski, 2008). While there are certainly many reasons for differences in self-evaluation expression, the current work suggests the possibility that people in the East guard against expressing high self-esteem as a way to maintain the vigilance that sustains prevention

motivation (see Higgins, 2008). More broadly, the current work builds on previous research on regulatory focus and self-evaluation (e.g., Hepper et al., 2010; Leonardelli et al., 2007) to suggest how inflation and deflation of self-evaluation may differentially support promotion versus prevention concerns, respectively.

The present research also highlights the dynamic nature of this self-evaluation motive to sustain an underlying motivational orientation. Chronic individual differences in promotion and prevention were related to differences in self-evaluation expression, but so too were *situational* manipulations of promotion and prevention. It is not simply that some people will *always* benefit from relatively lower or higher self-esteem or that only personality factors can explain differences in this motivation. Rather, whether or not someone will benefit from self-inflation or deflation depends both on chronic personality factors *and momentary* regulatory focus concerns arising in particular situations.

### **Limitations**

The present work represents just an initial foray into strategic expression of self-evaluation as a way to maintain preferred strategic states that sustain current motivational orientations. Indeed, the present studies have limitations that suggest a number of questions that remain to be explored. For instance, the current research was not able to differentiate between the role that global self-evaluation (e.g., self-esteem) versus domain-specific self-evaluation may play in supporting strategic motivational maintenance. It is possible that these may play different roles in sustaining a preferred self-regulatory state and/or that the implications of harnessing each could have different downstream implications for well-being. This question was not tested empirically in the current studies, but it may be important to identify in future studies

whether global or domain-specific self-evaluation plays the more important role in self-evaluation.

Additionally, while Study 3 suggests that the strategic harnessing of self-evaluation inflation or deflation may affect subsequent motivation in the promotion system, it will be important to examine how to strengthen these effects within the prevention system. It will also be important to examine how these effects play out over time and with additional self-regulation measures. It will also be critical to use other measures that allow for examination of how self-evaluation inflation and deflation affect both persistence and performance. Furthermore, although the current research found support for self-evaluation deflation related to the prevention system and self-evaluation inflation related to the promotion system, the effects were not uniformly strong for both promotion and prevention motivation across all studies. It may be that some situations pull more for promotion versus prevention effects (or vice versa). As noted earlier, for instance, it is possible that chronic orientations influence regulatory focus manipulations (Lisjak et al, 2012); this could contribute to the asymmetries observed in Studies 1 and 3.

The present studies, especially Study 1, also suggest that people need not be aware of strategically inflating versus deflating self-evaluation. However, it remains an open question whether individuals who are particularly effective self-regulators could identify what type of self-evaluation expression would be useful for maintaining eagerness versus vigilance, and whether such explicit understanding of the tactical advantages of self-evaluation relates to actual performance. This should also be investigated in future studies.

### **Concluding Comment**

Historically, more positive self-evaluations have been viewed as an important part of effective functioning (California Task Force, 1990). For example, people with higher self-evaluations tend to have lower levels of anxiety (e.g., Leary & Kowalski, 1995; Pyszczynski & Greenberg, 1987), depression (e.g., Roberts, Gotlib, & Kassel, 1996; Tennen & Herzberger, 1987), negative affect (e.g., Pelham & Swann, 1989), and dissatisfaction with life (e.g., Diener, 1984; Myers & Diener, 1995) (though see Baumeister, Campbell, Kruger, & Vohs, 2005 and Swann, Chang-Schneider, & McClarty, 2007 for debates). Regardless of how one views the benefits of positive self-evaluation, it is generally assumed that people are motivated to see themselves positively (Leary & Baumeister, 2000; Steele, 1988; Tesser, 2001; Yamaguchi et al., 2007). The current studies, by highlighting the potential for an additional self-regulatory function of self-evaluation, support a more nuanced picture of the relation between motivated self-evaluation and effective self-regulation.

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## Footnotes

<sup>1</sup>We acknowledge that this sample size is relatively small and less than ideal; sample size was constrained by participant availability at this university. The sample sizes of all subsequent studies are larger and consistent with most published research on regulatory focus theory (25-30 participants per condition).

<sup>2</sup>With no RTs excluded, the statistical significance of the time x prime interactions across the three analyses remained the same. Relative index: There was no significant effect of time,  $F(1,23) < 1$ , *ns*, partial  $\eta^2 < .001$ , nor prime,  $F(1,23) = 2.08$ , *ns*, partial  $\eta^2 = .08$ . However, there was a significant time x prime interaction,  $F(1,23) = 7.38$ ,  $p = .012$ , partial  $\eta^2 = .24$ . Positive Traits only: There was no significant effect of time,  $F(1,23) < 1$ , *ns*, partial  $\eta^2 < .002$ , nor prime,  $F(1,23) < 1$ , *ns*, partial  $\eta^2 < .001$ . There was also no significant time x prime interaction,  $F(1,23) = 1.19$ ,  $p = .287$ , partial  $\eta^2 = .05$ . Negative Traits only: There was no significant effect of time,  $F(1,23) < 1$ , *ns*, partial  $\eta^2 = .001$ , nor prime,  $F(1,23) = 1.78$ ,  $p = .20$ , partial  $\eta^2 = .072$ . However, there was a marginally significant time x prime interaction,  $F(1,23) = 3.65$ ,  $p = .069$ , partial  $\eta^2 = .137$ .

<sup>3</sup>We also examined whether there were any changes on mood items related to the promotion and prevention systems. There were no significant effects of the regulatory focus prime on positive prevention emotions (calm, relaxed), positive promotion emotions (happy, satisfied), negative prevention emotions (agitated, tense), and negative promotion emotions (sad, discouraged), all  $ps > .2$ . Such null effects are not surprising, given that the prompts prime or strengthen each system but do not activate discrepancies (or congruencies) with promotion-ideals or prevention-oughts. Previous research has shown that regulatory focus strength alone does not predict emotions (Higgins, Shah, & Friedman, 1997).

<sup>4</sup> We conducted two supplementary analyses in which we computed difference scores to look at changes over time for positive and negative traits, respectively (positive RTs time2 – positive RTs time 1; # positive traits time2 - # of positive traits time 1; negative RTs time2 – negative RTs time 1; # negative traits time2 - # of negative traits time 1). These analyses again highlight that the pattern of results was driven by *negative* traits for the RT variable and by *positive* traits for the trait selection variable. For both analyses, we conducted 2 (Time: pre-priming, post-priming) x 2 (Prime: promotion, prevention) ANOVAs with the first factor as a repeated measure. The RT analysis revealed only a significant time x prime interaction,  $F(1,23)=5.944, p=.023, \text{partial } \eta^2=.21$ . After the regulatory focus prime, participants in the prevention prime condition showed a faster response time to negative traits ( $M \text{ change} = -179.26, SD=267.43, CI=-391.52, 33.02$ ) whereas participants in the promotion prime condition showed a slower response time to negative traits ( $M \text{ change} = 89.01, SD=540.67, CI=-170.95, 348.98$ ), although this difference was only marginally significant,  $F(1,23)=2.73, p=.11, \text{partial } \eta^2=.11$ . There was no significant shift in the response times to positive traits by regulatory focus prime,  $F(1,23)=1.18, p=.29, \text{partial } \eta^2=.049$ . The analysis on the number of traits revealed only a significant time x prime interaction,  $F(1,23)=5.067, p=.034, \text{partial } \eta^2=.18$ . After the regulatory focus prime, participants in the prevention prime condition selected a lower number of positive traits as self-descriptive ( $M \text{ change}=-1.5, SD=2.20, CI=-2.65, -.42$ ) relative to participants in the promotion prime condition ( $M \text{ change}=.60, SD=1.90, CI=-.77, 1.97$ ),  $F(1,23)=6.27, p=.02, \text{partial } \eta^2=.21$ . There was no significant change in the number of negative traits selected as self-descriptive following the prevention prime ( $M \text{ change}=.93, SD=2.69, CI=-.37, 2.24$ ) versus the promotion prime ( $M \text{ change}=.00, SD=2.00, CI=-1.60, 1.60$ ),  $F(1,23)<1, ns$ .

<sup>5</sup>Although it could be argued that traits that participants rate as non-self-descriptive also reveal something about the self (“not me”), we did not classify these responses as self-relevant given that not all “not me” information is the same. Some “not me” information is relevant to an individual’s self-schema (e.g., if a core self-schema is “kind,” then responses to “mean” are likely meaningful). However, some “not me” information is irrelevant to an individual’s self-schema and has simply never been considered (e.g., if a core self-schema is “kind,” responses to “funny” may not reveal important information about the self) (Markus, 1977). Thus, while some non-self-descriptive traits may contribute to an understanding of the self, many do not. For this reason, we believe that analyzing the self-descriptive traits alone provides the best test of how participants respond to self-relevant information.

<sup>6</sup>With all participants included, the mood manipulation check remained significant,  $\beta=.49$  ( $CI = .33, .64$ ),  $t(126)=6.33$ ,  $p<.001$ . For self-esteem, the main effect of regulatory focus remained significant,  $\beta=.22$  ( $CI = .06, .39$ ),  $t(125)=2.65$ ,  $p=.009$ . The main effect of performance status became marginally significant,  $\beta=-.15$  ( $CI = -.31, .02$ ),  $t(125)=1.77$ ,  $p=.08$ . The regulatory focus x performance status interaction remained significant in the primary analysis,  $\beta=.20$  ( $CI = .04, .37$ ),  $t(125)=2.40$ ,  $p=.018$ , and when controlling for mood,  $\beta=.14$  ( $CI = .007, .27$ ),  $t(124)=2.09$ ,  $p=.039$ . For the self-esteem analyses, the full sample was 133, not 134, because one of the excluded participants did not complete the Rosenberg self-esteem scale.

<sup>7</sup>There was also a significant performance status x gender interaction,  $\beta=.22$  ( $CI=.05, .39$ ),  $t(113)=2.61$ ,  $p=.01$ , such that women reported lower self-esteem than men in an ongoing performance situation and a significant performance status x feedback x gender interaction,  $\beta=-.20$  ( $CI=-.38, -.03$ ),  $t(109)=2.28$ ,  $p=.02$ , such that women reported the lowest self-esteem after failure in the ongoing performance condition and men reported the lowest self-esteem after

failure in the completed performance condition. Importantly, gender did not interact with regulatory focus and including gender in the model did not affect the significance of the regulatory focus x performance status interaction.

<sup>8</sup>We conducted parallel analyses on the full sample. Because the excluded participants had not completed all items on the Rosenberg self-esteem scale, for these analyses we computed an average self-esteem score. The regulatory focus x performance status interaction on this average self-esteem score remained statistically significant with the full sample,  $F(1, 109)=4.42$ ,  $p=.038$ , partial  $\eta^2=.04$ ; the regulatory focus x performance status interaction also remained significant when controlling for anagram performance,  $F(1, 108)=4.01$ ,  $p=.048$ , partial  $\eta^2=.04$ . There were no significant effects on anagram performance with the full sample, parallel to the analysis reported in the main text.

Figure 1. Relative Response Latencies for Positive - Negative Self-Descriptive Traits by Regulatory Focus and Session (Study 1). Error bars represent two standard errors of the mean.

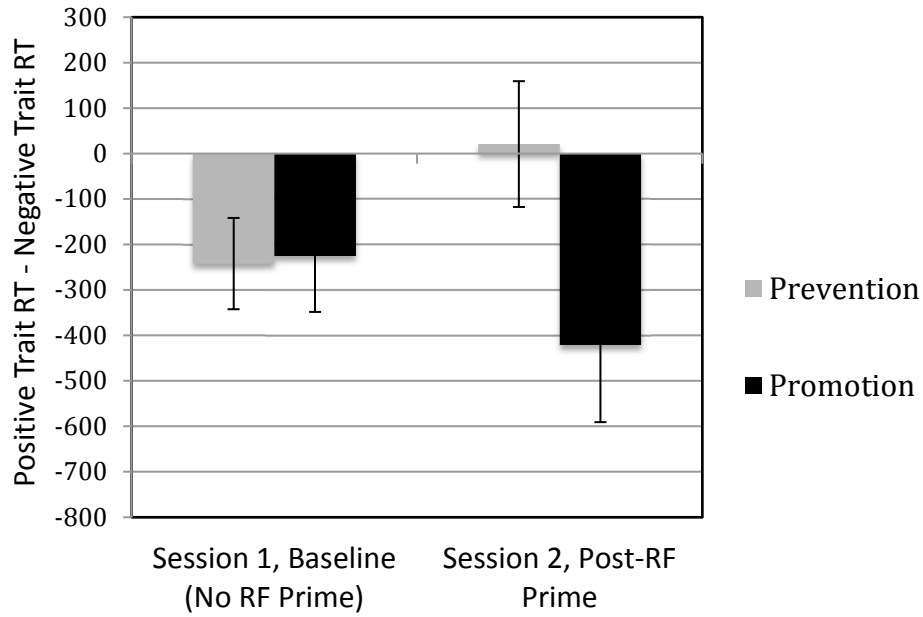


Figure 2. Self-Esteem as a Function of Performance Status and Regulatory Focus Predominance (Study 2a). Figure shows predicted values for self-esteem at one standard deviation above (predominant promotion) and one standard deviation below (predominant prevention) the mean on regulatory focus predominance.

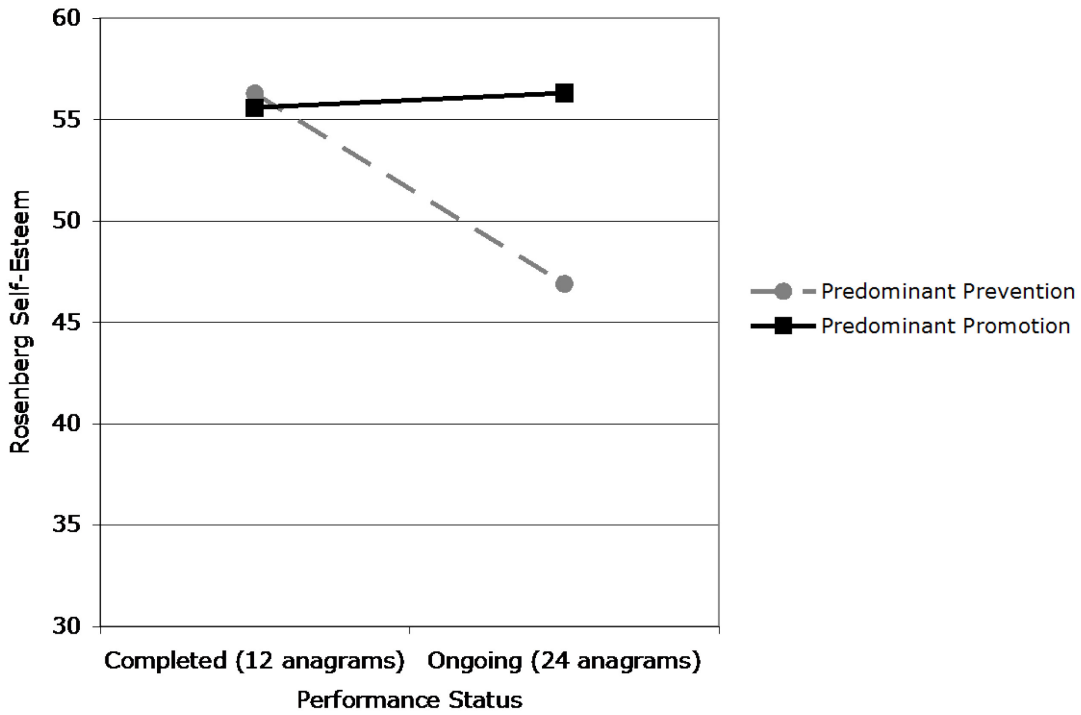


Figure 3. Effect of Regulatory Focus and Performance Status on Self-Esteem (Study 2b). Error bars represent two standard errors of the mean.

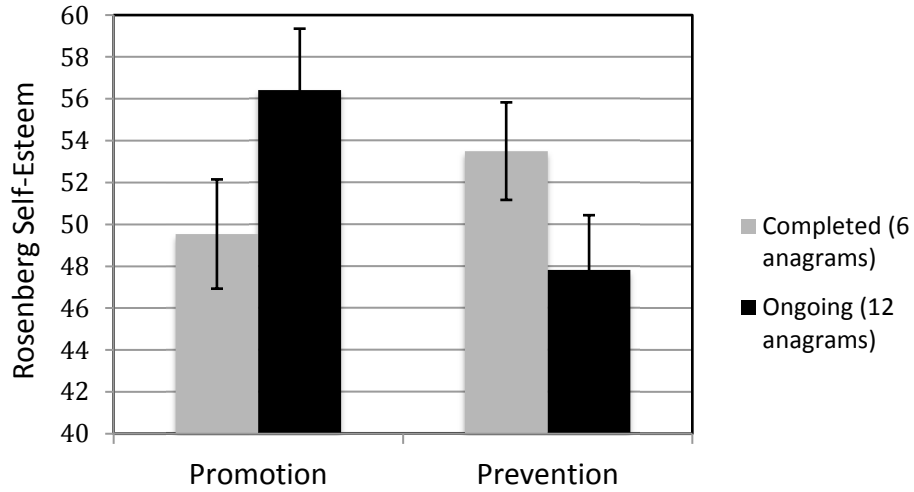


Figure 4. Effect of Regulatory Focus and Self-Evaluation Inflation or Deflation on Persistence on the Anagram Task (Study 3). Error bars represent two standard errors of the mean.

