

Distinguishing Gains from Nonlosses and Losses from Nongains: A Regulatory Focus Perspective on Hedonic Intensity

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We find that the pleasure of a gain is generally greater than the pleasure of a nonloss and that the pain of a loss is generally greater than the pain of a nongain. These patterns were found when participants reported both how they would feel if these outcomes were to happen (Studies 1 and 2) and how they actually felt when they happened (Study 3). Our results also suggest that it is stronger cheerfulness (rather than quiescence) that underlies the greater pleasure of a gain and stronger agitation (rather than dejection) that underlies the greater aversiveness of a loss. This set of findings is predicted by our regulatory focus conceptualization of how gain (promotion success) and nongain (promotion failure) versus nonloss (prevention success) and loss (prevention failure) differ in whether they are experienced in relation to a maximal goal or a minimal goal, respectively. Implications for models of emotional experiences and prospect theory (Kahneman & Tversky, 1979) are discussed. © 2000 Academic Press

There is considerable interest, especially in the area of decision making, in the intensity of people's reactions to gains *versus* losses. Studies have shown that losses generally loom larger than corresponding gains; i.e., losses are experienced more strongly than gains of the same objective magnitude (for a review, see Fishburn & Kochenberger, 1979; see also Galanter & Pliner, 1974). Loss aversion is, in fact, one of the central postulates of Kahneman and Tversky's (1979) influential prospect theory. They propose that the value function is steeper for losses than for gains, so that the subjective experience of pain from a loss of X is greater than the experience of pleasure from a gain of X .

Regulatory focus theory (see Higgins, 1997, 1998) offers a novel perspective

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on this issue of gains and losses. The theory distinguishes between a concern with the presence or absence of positive outcomes (promotion focus) and a concern with the presence or absence of negative outcomes (prevention focus). This distinction suggests the need to consider a fuller picture regarding gains and losses; specifically, to examine people's reactions not only to gains (the presence of a positive outcome) and losses (the presence of a negative outcome), but also to nongains (the absence of a positive outcome) and nonlosses (the absence of a negative outcome). How are the pleasures of gains versus nonlosses experienced? How are the pains of losses versus nongains experienced? Does the intensity of these different pleasures or different pains vary? Regulatory focus theory predicts that they would vary. Before discussing its predictions, we need to describe regulatory focus theory and the logic that underlies the predictions.

Nurturance and security are two fundamental needs that, in various forms, are evident in many influential theories of motivation and personality. Maslow (1955), for instance, distinguished "growth" needs from "deficit" needs when contrasting self-actualization from safety requirements, and Rogers (1960) noted the importance of both one's motivation to achieve ideals and the compelling image of what one ought to be (see also Bowlby, 1969). These theories share the general assumption that individuals seek nurturance and security as desired end-states worthy of active pursuit. Regulatory focus theory (see Higgins, 1997, 1998) proposes the existence of distinct regulatory systems that are concerned with acquiring either nurturance or security through goal attainment. Individuals' self-regulation in relation to their hopes and aspirations (ideals) satisfies nurturance needs. The goal is accomplishment and the regulatory focus is promotion. Success and failure in a promotion focus are experienced as the presence of positive outcomes (gains) and the absence of positive outcomes (nongains), respectively. Individuals' self-regulation in relation to their duties and obligations (oughts) satisfies security needs. The goal is safety and the regulatory focus is prevention. Success and failure in a prevention focus are experienced as the absence of negative outcomes (nonlosses) and the presence of negative outcomes (losses), respectively.

Individuals can differ in their chronic promotion focus on hopes, aspirations, and accomplishments versus chronic prevention focus on duties, obligations, and safety. Differences in chronic regulatory focus can arise from differences in the quality of parental involvement (see Higgins & Silberman, 1998). A child-parent relationship characterized by encouraging accomplishments and withdrawing love as discipline produces strong ideals representing hopes and aspirations and promotion concerns with accomplishments and advancements. In contrast, a history of protection and using punishment as discipline produces strong oughts representing duties and obligations and prevention concerns with safety and security (see Higgins & Silberman, 1998). In addition to varying chronically across individuals, regulatory focus can vary across situations. Regulatory focus can be induced temporarily in momentary situations. Just as the responses of caretakers provide promotion or prevention feedback, task feedback or task

TABLE 1
Predictions of Intensity from Regulatory Focus Theory

Valence of outcome	Type of outcome		
	Gain related		Loss related
Positive	gain	>	nonloss
Negative	nongain	<	loss

instructions concerning which actions will produce which consequences can induce regulatory focus by communicating gain/nongain information (promotion) or nonloss/loss information (prevention). More generally, gain and nongain situations will induce a promotion focus, whereas nonloss and loss situations will induce a prevention focus.

The hopes and aspirations (ideals) of a promotion focus function like maximal goals. In contrast, the duties and obligations (oughts) of a prevention focus function more like minimal goals (see Brendl & Higgins, 1996). Oughts are goals that a person must attain or standards that must be met, whereas ideals are standards one hopes to meet. We propose that for the same goal, inducing a promotion focus will induce representation of the goal as a maximal goal (a standard one hopes to achieve), whereas inducing prevention focus will induce representation of it as a minimal goal (a standard one must achieve). In addition, individuals with a strong promotion focus (compared to prevention focus) will be more likely to spontaneously represent a goal as a maximal goal, whereas those with a strong prevention focus (compared to promotion focus) will be more likely to represent it as a minimal goal.

What are the implications for the intensity of pleasure when promotion versus prevention succeeds (gains versus nonlosses) and the intensity of pain when promotion versus prevention fails (nongains versus losses)? Since success in promotion is success in achieving a maximal goal, whereas success in prevention is success in achieving a minimal goal, the pleasure of promotion success (a gain) should be more intense than that of prevention success (a nonloss). On the other hand, since failure in prevention is failure to achieve a minimal goal, whereas failure in promotion is failure to achieve a maximal goal, the pain of prevention failure (a loss) should be more intense than that of promotion failure (a nongain). Table 1 summarizes these predictions.

Regulatory focus theory not only makes predictions concerning which outcome experiences will be more intense, but it also makes specific predictions about *which types of emotions* will be more intense. There is considerable evidence that promotion success (gain) produces cheerfulness-related emotions and prevention success (nonloss) produces quiescence-related emotions, whereas promotion failure (nongain) produces dejection-related emotions and prevention failure (loss) produces agitation-related emotions (see Higgins, 1998; Higgins, Grant, & Shah, 1999; Higgins, Shah, & Friedman, 1997). However, while

previous studies have identified the types of emotions associated with promotion and prevention focus, none has ever examined the relative intensities of the different emotional experiences. There is evidence that working to attain a goal in a promotion focus is associated with eagerness, whereas working to attain the same goal in a prevention focus is associated with vigilance (Friedman, 1999). We propose that the eagerness involved in trying to attain a maximal goal (promotion focus) is maintained or strengthened when promotion succeeds, and this maintained or strengthened eagerness is experienced as relatively high-intensity joy (or other cheerfulness-related emotion). On the other hand, the eagerness is weakened when promotion fails, and this weakened eagerness is experienced as relatively low-intensity sadness (or other dejection-related emotion). We also propose that the vigilance involved in trying to attain a minimal goal (prevention focus) is weakened when prevention succeeds, and this weakened vigilance is experienced as a relatively low-intensity calmness (or other quiescence-related emotion). On the other hand, the vigilance is maintained or strengthened when prevention fails. This maintained or strengthened vigilance is experienced as relatively high-intensity tenseness (or other agitation-related emotion).

The studies below are designed to test the predictions of regulatory focus theory. Studies 1a and 1b examine the subjective experiences of monetary gains, nongains, losses, and nonlosses. Studies 2 and 3 generalize our test to the experiences of success and failure on an achievement task. In Study 2, success is framed in terms of either a gain or a nonloss and failure is framed in terms of either a loss or a nongain. Study 3 compares the experience of success and failure of chronic promotion versus prevention individuals. It also tests the regulatory focus theory predictions about the types and intensities of specific emotions that are involved in experiences of success and failure. Finally, Studies 1 and 2 involve prospective outcomes, and Study 3 involves actual outcomes.

STUDY 1a

Method

Overview. Each participant was given two scenarios, one involving buying a book and the other paying for a meal at a restaurant, in which they imagined a prospective outcome that was framed either as a gain, nongain, nonloss, or loss (for a similar paradigm, see Brendl, Higgins, & Lemm, 1995). The magnitude of the outcome was the same in all four framing conditions. Participants were randomly assigned to one of the conditions, and they received the same type of framing for both scenarios. After reading each scenario, they were asked to rate their subjective feeling about the outcome.

Participants. One hundred two Columbia University undergraduates (53 males and 49 females) completed the two questionnaires as part of a general battery. Participants were paid a total of \$8 for their participation in the battery. All participants indicated that English was their native language. There were no significant differences between male and female participants in any of the results reported below.

TABLE 2
Scenario 1: Buying a Book (Study 1a)

Getting a discount (gain)	Not getting a discount (nongain)
Imagine the following situation: You are in the bookstore, buying a book that you need for your classes. The book's price is \$65. As you wait in line to pay for it, you realize that the store offers a \$5 discount for paying in cash, and you decide to pay cash.	
You look in your wallet, and you realize that you actually have the cash, so that you will be getting the discount.	You look in your wallet, and you realize that you don't have the cash. You will have to use your credit card, so that you will not be getting the discount.
How would you feel paying in cash and getting the \$5 discount?	How would you feel using your credit card and not getting the \$5 discount?
Not paying a penalty (nonloss)	Paying a penalty (loss)
Imagine the following situation: You are in the bookstore, buying a book that you need for your classes. The book's price is \$60. As you wait in line to pay for it, you realize that the store charges a \$5 penalty for paying in credit, and you decide to pay cash.	
You look in your wallet, and you realize that you actually have the cash, so that you will not be paying the penalty.	You look in your wallet, and you realize that you don't have the cash. You will have to use your credit card, so that you will be paying the penalty.
How would you feel paying in cash and not paying the \$5 penalty?	How would you feel using your credit card and paying the \$5 penalty?

Procedure. Participants were first presented with the scenario involving buying a book. They were asked to imagine one of four situations: (a) getting a discount (gain), (b) not getting a discount (nongain), (c) not paying a penalty (nonloss), or (d) paying a penalty (loss). After reading the scenario, participants indicated on a scale from -9 (very bad) to 9 (very good) how they would feel about the situation. Instructions for the different framing conditions are listed in Table 2.

Participants then completed two other questionnaires that were part of the battery, but were on completely different topics. They were then presented with the second scenario. This scenario had the same structure as the first one, except that it involved paying for a meal at a restaurant. The instructions are listed in Table 3. Again, participants rated on a scale from -9 (very bad) to 9 (very good) their subjective feeling about the outcome. At the end of the study, all participants were fully debriefed and thanked for their participation.

Predictions

The predictions of regulatory focus theory are shown in Table 1. In a Valence of Outcome (positive; negative) \times Type of Outcome (gain-related; loss-related) analysis of variance, if the predictions were correct, then we should find, in addition to a main effect of valence, a main effect of type of outcome. This is because regulatory focus predicts that a loss is a less positive, i.e., more negative,

TABLE 3
Scenario 2: Paying for a Meal (Study 1a)

Getting a discount (gain)	Not getting a discount (nongain)
Imagine the following situation. You have just had a delicious meal at a restaurant. You invited a friend for dinner for his birthday. You ask for the check and look at the amount. It is \$65, service included. You read the check more carefully, and discover a note saying that the restaurant offers a \$5 discount for paying in cash, and you decide to pay cash.	
You look in your wallet, and you realize that you actually have the cash, so that you will be getting the discount.	You look in your wallet, and you realize that you don't have the cash. You will have to use your credit card, so that you will not be getting the discount.
How would you feel paying in cash and getting the \$5 discount?	How would you feel using your credit card and not getting the \$5 discount?
Not paying a penalty (nonloss)	Paying a penalty (loss)
Imagine the following situation. You have just had a delicious meal at a restaurant. You invited a friend for dinner for his birthday. You ask for the check and look at the amount. It is \$60, service included. You read the check more carefully, and discover a note saying that the restaurant charges a \$5 penalty for paying in credit, and you decide to pay cash.	
You look in your wallet, and you realize that you actually have the cash, so that you will not be paying the penalty.	You look in your wallet, and you realize that you don't have the cash. You will have to use your credit card, so that you will be paying the penalty.
How would you feel paying in cash and not paying the \$5 penalty?	How would you feel using your credit card and paying the \$5 penalty?

experience than a nongain, and also that a nonloss is a less positive experience than a gain.

Results

A Valence of Outcome [positive (gain, nonloss); negative (nongain, loss)] \times Type of Outcome [gain-related (gain, nongain); loss-related (nonloss, loss)] \times Scenario (book; restaurant) analysis of variance on participants' subjective feelings was conducted. The first two factors were between subjects, and the third factor was within subjects. The main effect of the within-subjects factor as well as its interactions with valence and type of outcome were all insignificant, $F_s < 1$. Thus, we report in Table 4 the mean ratings of subjective feelings by participants in each of the four framing conditions averaged across the two scenarios. This analysis revealed a main effect of valence, $F(1, 98) = 191.38$, $p < .001$, and a main effect of type of outcome, $F(1, 98) = 9.18$, $p < .001$. The interaction of valence and type of outcome was not significant, $F < 1$. Furthermore, planned contrast tests revealed more positive ratings in gain framing than nonloss framing, $F(1, 98) = 4.43$, $p < .05$, and more negative ratings in loss framing than nongain framing, $F(1, 98) = 5.59$, $p < .05$. These findings are consistent with the predictions of regulatory focus theory.

TABLE 4
Mean Ratings of Subjective Feelings as a Function of Valence of Outcome and
Type of Outcome (Study 1a)

Valence of outcome	Type of outcome	
	Gain-related	Loss-related
Positive	gain	nonloss
	5.56	3.85
Negative	nongain	loss
	-2.50	-4.44

As a simple validation check for our results, we conducted the next study using the same materials but obtained a different dependent measure. Instead of asking participants to rate their subjective feelings, we presented them with two situations that two people faced and asked them to decide who had a more positive experience. If the regulatory focus predictions shown in Table 1 were correct, then we would expect participants given two positive situations to decide that the experience of a gain was more positive than the experience of a nonloss. We would also expect participants given two negative situations to decide that the experience of a loss was more negative (i.e., less positive) than the experience of a nongain.

STUDY 1b

Method

Overview. Participants were presented with two scenarios, one involving buying a book and the other paying for a meal at a restaurant. The scenarios were basically the same as the ones used in Study 1a above, except that they were rewritten in the third person. Each scenario had a positive version in which one target person experienced getting a discount (gain) and another experienced not paying a penalty (nonloss), as well as a negative version in which one target person experienced not getting a discount (nongain) and the other paying a penalty (loss). All the outcomes involved the same amount of money. Participants were presented with either the positive or the negative version of both scenarios and were asked to decide in each case which hypothetical target had a more positive experience.

Participants. Eighty-eight Columbia University undergraduates (42 males and 46 females) completed the two questionnaires as part of a general battery. Participants were paid a total of \$8 for their participation in the battery. All participants indicated that English was their native language. There were no significant differences between male and female participants in any of the results reported below.

Procedures. Participants were presented with the scenarios in a random order; i.e., they either completed the questionnaire concerning buying a book first and

then the one concerning paying for a meal or vice versa. They were also randomly assigned to complete either both of the positive versions or both of the negative versions of the scenarios. As an example, the instructions to participants who received the positive version of the book scenario were as follows:

Chris and Dan needed to buy a book for a class they were both taking. Chris went to a store where the book's price is \$65. As he waited in line to pay for it, he realized that the store offered a \$5 discount for paying in cash, and he decided to pay cash. He looked in his wallet, and realized that he had the cash, so that he would be getting the discount.

Dan went to a store where the book's price is \$60. As he waited in line to pay for it, he realized that the store charged a \$5 penalty for paying in credit, and he decided to pay cash. He looked in his purse, and realized that he had the cash, so that he would not be paying the penalty.

Both Chris and Dan ended up paying \$60 for the book, but nevertheless they had different experiences. Who do you think had a more positive experience?

Note that the first target person in the scenario experienced a gain, whereas the second experienced a nonloss. The instructions to participants who received the negative version of the book scenario were as follows:

Chris and Dan needed to buy a book for a class they were both taking. Chris went to a store where the book's price is \$60. As he waited in line to pay for it, he realized that the store offered a \$5 discount for paying in cash, and he decided to pay cash. He looked in his wallet, and realized that he didn't have the cash, so that he would not be getting the discount.

Dan went to a store where the book's price is \$55. As he waited in line to pay for it, he realized that the store charged a \$5 penalty for paying in credit, and he decided to pay cash. He looked in his purse, and realized that he didn't have the cash, so that he would be paying the penalty.

Both Chris and Dan ended up paying \$60 for the book, but nevertheless they had different experiences. Who do you think had a more positive experience?

Note that the first target person in the scenario experienced a nongain, whereas the second experienced a loss. (The dollar amounts used in this study were slightly different from the ones in the previous study. They were adjusted so that everyone in the different scenarios ended up paying \$60.) After completing the first questionnaire, participants filled out two other questionnaires that were part of the battery, but were on completely different topics, before they completed the second questionnaire. At the end of the study, all participants were fully debriefed and thanked for their participation.

Results

Consistent with our predictions, an overwhelming majority of the participants given the positive versions decided that the situation framed as a gain described a more positive experience than the one framed as a nonloss. Specifically, 41 of the 44 participants given the positive versions chose the experience of a gain over that of a nonloss for the book scenario, binomial probability, $p < .001$, and 42

of the 44 made that choice for the restaurant scenario, binomial probability, $p < .001$.

In addition, an overwhelming majority of the participants given the negative versions decided that the situation framed as a loss described a more negative, or less positive, experience than the one framed as a nongain. Specifically, 40 of the 44 participants given the negative versions chose the experience of a nongain over that of a loss for the book scenario, binomial probability, $p < .001$, and 43 of the 44 made that choice for the restaurant scenario, binomial probability, $p < .001$.

Discussion: Studies 1a and 1b

As a whole, the results of Studies 1a and 1b are consistent with the regulatory focus account of subjective experiences. Specifically, they support the predictions of regulatory focus theory that the pleasure of a gain is stronger than the pleasure of a nonloss and the pain of a loss is stronger than the pain of a nongain.

A limitation of the studies, however, is that the linguistic descriptions of the outcomes could inadvertently introduce an additional variable. Specifically, the framing of the different prospective outcomes differ with respect to describing the experiences in terms of something happening versus not happening. The gains and losses that participants imagine are described in terms of something happening (“I gained” or “I lost”), whereas the nongains and nonlosses that participants imagine are described in terms of something not happening (“I did not gain” or “I did not lose”). There is considerable evidence that people perform better when dealing with information about something that has happened than when dealing with something that has not happened, i.e., the feature-positive effect (for a review, see Hearst, 1984; see also Ross, 1977). Of particular relevance here are the findings by Brendl, Higgins, and Lemm (1995), using psychophysical scaling procedures, that participants discriminated more between different amounts of gains and between different amounts of losses than between different amounts of nongains and different amounts of nonlosses. In terms of our results, then, one may argue that since it is easier to imagine a gain than a nonloss, the former will produce a more positive subjective feeling even if they are of the same objective magnitude. Similarly, since it is easier to imagine a loss than a nongain, the former will produce a more negative subjective feeling. It is important, therefore, to control for this variable by having all outcomes described as something that happened and/or by having the outcomes actually happen to the participants. Such controls are contained in Studies 2 and 3. In Study 2, the final outcomes to which participants responded described something that happened in all the framing conditions. In Study 3, the outcomes actually happened to all participants.

Studies 2 and 3 also generalize our test of the predictions from monetary gains and losses to success and failure on an achievement task. Study 2 examines the prospective experiences of success (framed in terms of either a gain or a nonloss) and failure (framed in terms of either a nongain or a loss). Study 3 examines actual experiences of success and failure.

STUDY 2

Method

Overview. Participants were asked to imagine performing an anagram task, the outcome of which was framed either as a gain, nongain, nonloss, or loss. Specifically, participants in the “gain-related” framing conditions imagined starting with 0 points, being eager to gain 7 or more points, and eventually gaining *either* 9 points (a gain) *or* only 5 points (a nongain). Participants in the “loss-related” framing conditions imagined starting with 10 points, being careful not to lose more than 3 points, and eventually losing *either* only 1 point (a nonloss) *or* 5 points (a loss). (For similar framing paradigms, see Förster, Higgins, & Idson, 1998; Higgins, Shah, & Friedman, 1997; Shah, Higgins, & Friedman, 1998.) Note that the positive outcomes (i.e., gain and nonloss) both involved a final score of 9 points and the negative outcomes (i.e., nongain and loss) both involved a final score of 5 points. Note also that all outcomes involved something that happened. Participants were randomly assigned to one of the four conditions. After reading the scenario, they were asked to rate how they would feel about the outcome of their performance.

Participants. One hundred twenty-three Columbia University undergraduates (62 males and 61 females) completed the questionnaire as part of a general battery. Participants were paid a total of \$8 for their participation in the battery. All participants indicated that English was their native language. There were no significant differences between male and female participants in any of the results reported below.

Procedure. All participants first read a description of the anagram task: “An anagram is simply a scrambled letter string. Your task is to unscramble the string to form a word. The word you form must use all the letters. For example, the letter string CAPK can be unscrambled to form the word PACK. Each anagram has only one solution. You will have a total of 10 anagrams to solve.”

Participants assigned to the “gain-related” framing conditions were told: “In the anagram task, you will start with 0 points. You will gain one point for each anagram you solve. Your goal is to gain 7 or more points. That is, you achieve your goal by solving 7 or more anagrams. Imagine yourself doing each anagram in a few seconds.” Those assigned to imagine the positive outcome of receiving success feedback were then told: “You are very eager to gain 7 or more points, and you actually gain 9 points (gain).” Those assigned to imagine the negative outcome of receiving failure feedback were told: “You are very eager to gain 7 or more points, but you gain only 5 points (non-gain).”

Participants assigned to the “loss-related” framing conditions were told: “In the anagram task, you will start with 10 points. You will lose one point for each anagram you don’t solve. Your goal is not to lose more than 3 points. That is, you achieve your goal by solving 7 or more anagrams. Imagine yourself doing each anagram in a few seconds.” Those assigned to imagine the positive outcome of receiving success feedback were then told: “You are very careful not to lose more

TABLE 5
Mean Ratings of Subjective Feelings as a Function of Valence of Outcome and Type of Outcome (Study 2)

Valence of outcome	Type of outcome	
	Gain-related	Loss-related
Positive	gain 6.65	nonloss 4.97
Negative	nongain -1.19	loss -2.46

than 3 points, and you actually lose only 1 point (non-loss).” Those assigned to imagine the negative outcome of receiving failure feedback were told: “You are very careful not to lose more than 3 points, but you lose 5 points (loss).”

Note that the gain and nonloss framing conditions involve the *same* positive outcome of 9 points, and the nongain and loss framing conditions involve the *same* negative outcome of 5 points. All participants were then asked: “How would you feel about your performance?” and were provided with a response scale from -9 (very bad) to 9 (very good). At the end of the study, all participants were fully debriefed and thanked for their participation.

Results and Discussion

The mean ratings of participants in each of the conditions are reported in Table 5. A Valence of Outcome [positive (gain, nonloss); negative (nongain, loss)] × Type of Outcome [gain-related (gain, nongain); loss-related (nonloss, loss)] analysis of variance on participants’ subjective feelings was performed. As in Study 1a above, we found a main effect of valence, $F(1, 119) = 145.18$, $p < .001$, and more importantly, a main effect of type of outcome, $F(1, 119) = 4.00$, $p < .05$. The interaction of valence and type of outcome was not significant, $F < 1$. In addition, a planned contrast test of the difference in ratings in the gain and nonloss framing conditions replicated the finding in Study 1a that the pleasure of a gain was stronger than the pleasure of a nonloss, $F(1, 119) = 4.10$, $p < .05$. A second planned contrast test of the difference in ratings of participants in the loss and nongain framing conditions revealed a tendency for the pain of a loss to be stronger than the pain of a nongain, $F(1, 119) = 2.80$, $p = .10$.

Once again this pattern of results as a whole is consistent with the predictions of regulatory focus theory. Thus, it provides further support for the regulatory focus account of the subjective experience of different types of positive outcomes and negative outcomes. Furthermore, all the outcomes in this study concerned something that happened (i.e., a score of either 5 or 9). The fact that we replicated the pattern of results of Study 1 supports the idea that this pattern does not depend on the feature-positive effect to be revealed.

Study 3 uses a paradigm similar to Study 2, but extends it from prospective experiences of imagined outcomes to retrospective experiences of actual out-

comes. Since the outcomes actually happen to the participants, the study controls for the feature-positive effect in another way. Study 3 also tests the predictions of regulatory focus theory about the specific types of emotions that are involved in different outcome experiences and the relative intensities of these emotions.

More importantly, Study 3 is designed to test more directly the regulatory focus explanation for our results. It is designed based on the following reasoning: if the explanation is correct, then chronic individual differences in regulatory focus should produce the *same* pattern of results as situational framing (Studies 1 and 2). Specifically, we proposed that an outcome framed as a gain was a more positive experience than an outcome framed as a nonloss because a gain (or promotion success) is success in achieving a maximal goal, whereas a nonloss (or prevention success) is success in achieving a minimal goal. If this explanation is correct, then we should find that when individuals are faced with the same unframed positive outcome, those with a strong promotion focus should feel better about it than those with a strong prevention focus. In addition, we proposed that an outcome framed as a loss was a more negative experience than an outcome framed as a nongain because a loss (or prevention failure) is failure to achieve a minimal goal, whereas a nongain (or promotion failure) is failure to achieve a maximal goal. If this explanation is correct, then we should find that when individuals are faced with the same unframed negative outcome, those with a strong prevention focus should feel worse about it than those with a strong promotion focus.

In order to test these predictions, we need a measure of participants' promotion focus strength and prevention focus strength. As mentioned earlier, regulatory focus theory proposes that individuals can differ in their chronic promotion focus on hopes, aspirations, and accomplishments versus chronic prevention focus on duties, obligations, and safety. Inspired by Fazio's research on attitude accessibility (see Fazio, 1986, 1995), Higgins, Shah, and Friedman (1997) measured individual differences in promotion focus strength and prevention focus strength via reaction times to inquire about ideal and ought self-guides. Fazio (1986, 1990) has used reaction time to measure attitude accessibility, assuming that the latency required to produce a given attitude is a reflection of its accessibility. This operationalization reasonably assumes that accessibility is activation potential and stored knowledge with higher activation potentials should produce faster responses to relevant inputs (see Higgins, 1996).

Fazio (1986, 1995) has empirically demonstrated the predictive utility of this operationalization. Moreover, Bassili (1995, 1996) has also provided compelling evidence that the use of reaction times as an implicit measure of attitude predisposition strength is preferable to explicit measures such as ratings of importance (see also Greenwald & Banaji, 1995). Higgins et al. (1997), then, considered response latencies for the recall of a self-guide to be a measure of the accessibility of the self-guide, with more accessible ideal self-guides reflecting stronger promotion focus and more accessible ought self-guides reflecting stronger prevention focus. Studies on performance and decision making have found

strong support for these proposals (see Shah & Higgins, 1997; Shah, Higgins, & Friedman, 1998).

STUDY 3

Method

Overview

Participants completed the Self-Guide Strength measure in Session 1 and were brought back for an anagram task 5 or more days later. Upon arriving for Session 2, participants were told that their payment would depend on their performance on the anagram task. After they completed the task, participants were given (randomly) either positive or negative feedback about their performance. They then rated how they felt about the outcome of their performance on a set of negative and positive emotions.

Participants

Forty-five Columbia University undergraduates (24 males and 21 females) were paid a total of \$9 for their participation. All participants indicated that English was their native language and that they had not previously participated in a similar study conducted by our lab. Three participants had to be excluded from our analyses because they failed to complete either the Strength-of-Guide Measure or the anagram task properly. Participants were run on Macintosh Power PC machines in separate soundproof chambers in both sessions. There were no differences between male and female participants in any of the results reported below.

Materials

Self-Guide Strength measure. Like the Selves Questionnaire (see Higgins, Klein, & Strauman, 1985), the Self-Guide Strength measure is an idiographic measure that asks participants to list attributes describing certain self-representations from their own standpoint (see Higgins, Shah, & Friedman, 1997). Participants were initially provided with a definition of their ideal and ought self. Their ideal self was defined as the type of person they ideally would like to be, the type of person they hoped, wished, or aspired to be. Their ought self was defined as the type of person they believed they ought to be, the type of person they believed it was their duty, obligation, or responsibility to be. They were told that they would be asked to provide attributes that described their ideal and ought selves. The attributes describing the ideal self had to be different from those describing the ought self (unlike the Selves Questionnaire) and all attributes were to be provided as quickly and accurately as possible.

Participants were then asked to list the attributes in a seemingly random order—one ideal attribute, followed by two ought attributes, another ideal attribute, another ought attribute, and a final ideal attribute. After listing each of the ideal attributes, participants were asked to rate the extent to which they ideally would like to possess the attribute (ideal extent) and the extent to which

they actually possessed the attribute (actual/ideal extent) on a 4-point scale from 1 to 4 (slightly; moderately; a great deal; extremely). Similarly, after listing each of the ought attributes, they were asked to rate the extent to which they ought to possess the attribute (ought extent) and the extent to which they actually possessed the attribute (actual/ought extent) on the same 4-point scale.

The computer measure also recorded the time each participant took to produce each attribute and make the corresponding extent determinations. All reaction-time measures were first transformed using a natural logarithmic transformation since the reaction-time distributions were positively skewed (see Fazio, 1990; Judd & McClelland, 1989). Then one total ideal strength assessment and one total ought strength assessment were calculated by summing attribute reaction times and extent reaction times (e.g., ideal extent, and actual/ideal extent) across the three ideal attributes and across the three ought attributes, separately. Finally, in order to classify participants as strong promotion focus (predominant ideal strength) or strong prevention focus (predominant ought strength), a single variable representing the difference between participants' ideal strength and ought strength was created and a median split was performed on this difference variable.

List of anagrams. Three practice anagrams and a list of 10 anagrams (e.g., EACHP, ALSET) were used in the study. The practice anagrams were always presented in the same order, whereas the experimental anagrams were presented in one of four different orders. The rules we used to construct the four different orders were as follows: an anagram would appear as one of the first five in two of the orderings and one of the last five in the other two orderings, and an anagram would appear only once in a particular position.

Procedure

All participants completed the Self-Guide Strength measure during an initial session. They were told that they had earned \$4 for their participation in Session 1 but that they would not receive this money until after they had completed Session 2.

Participants returned 5 or more days later for Session 2 and were directed to separate computer terminals where they were first asked to rate on a scale from 1 (not at all) to 9 (extremely) how relaxed, tense, discouraged, and happy they felt. After entering the ratings, participants were provided with a description of the anagram task they would be performing. They were told that the task involved unscrambling a series of letters to form as many words as possible using all the letters in the series and that they had as much time as they required to complete each of the anagrams. Participants were then given three practice anagrams to familiarize themselves with the task. After completing the practice anagrams, participants were told that they would be given 10 anagrams to solve and that in order to keep them motivated, they would be paid a total of either \$8 or \$9 depending on their performance. They were led to believe that the computer would convert their score on all 10 anagrams to a percentile score relative to that of other Columbia students who had participated in the experiment. If they scored

above the 70th percentile, they would be paid \$9 dollars, and if they scored below the 70th percentile, they would be paid \$8. Participants were randomly assigned to receive one of four orderings of the anagrams and either positive or negative feedback regarding their performance after they completed the anagrams. Those in the positive feedback condition were told that their score based on their performance on all 10 anagrams was at the 79th percentile, whereas those in the negative feedback condition were told that their score was at the 61st percentile.

Following feedback, participants were asked to rate on a scale from 1 (not at all) to 9 (extremely) how tense, relaxed, discouraged, and happy they felt. (Since these measures of emotions were also taken at the very beginning of the experimental session, their initial magnitudes can be controlled for statistically.) After they completed the task, participants were fully debriefed and thanked for their participation.

Predictions

As noted above, we predict that participants with a strong promotion focus would feel better about the *same* positive outcome of receiving success feedback (and \$9) than those with a strong prevention focus. On the other hand, participants with a strong prevention focus would feel worse about the *same* negative outcome of receiving failure feedback (and \$8) than those with a strong promotion focus. Therefore, in a Valence of Outcome (positive; negative) \times Regulatory Focus (promotion; prevention) analysis of variance, we expect to find a main effect of regulatory focus, in addition to a main effect of valence of outcome.

As discussed earlier, regulatory focus theory also makes predictions about the types of emotions that underlie different outcome experiences. We propose that, in response to a positive outcome, the greater intensity of pleasure felt by participants with a strong promotion focus compared to those with a strong prevention focus is cheerfulness-related pleasure rather than quiescence-related pleasure. Similarly, we propose that, in response to a negative outcome, the greater intensity of pain felt by participants with a strong prevention focus compared to those with a strong promotion focus is agitation-related pain rather than dejection-related pain.

Results and Discussion

Overall Emotional Intensity

We first created for each participant overall measures of their emotional intensity prefeedback and postfeedback. We subtracted, for prefeedback and postfeedback separately, the negatively valenced emotions (tense, discouraged) from the positively valenced emotions (relaxed, happy) such that a higher positive score means a higher positive intensity and a higher negative score means a higher negative intensity. Since our interest was in the effect of the feedback, we statistically adjusted the measure of participants' postfeedback emotions for their prefeedback emotions. Table 6 reports the adjusted means

TABLE 6
Adjusted Means of Overall Emotional Intensity as a Function of Valence of Feedback and Regulatory Focus (Study 3)^a

Valence of feedback	Regulatory focus	
	Promotion	Prevention
Positive	5.71	2.51
Negative	2.30	-0.77

^a The negatively valenced emotions (tense, discouraged) were subtracted from the positively valenced emotions (relaxed, happy) such that a higher positive score means a higher positive intensity and a higher negative score means a higher negative intensity.

separately for positive versus negative feedback and separately for participants with a strong promotion focus versus those with a strong prevention focus. It is evident from Table 6 that overall the participants reported higher positive than negative emotions. This difference does not pose a problem for our analyses because we are not interested in comparing the intensity of the experiences of positive versus negative outcomes.

The adjusted emotions scores were entered into a Valence of Outcome (positive; negative) \times Regulatory Focus (promotion; prevention) analysis of variance. As predicted, we found a main effect of valence of outcome, $F(1, 38) = 54.22, p < .001$, and a main effect of regulatory focus, $F(1, 38) = 12.61, p < .001$. The interaction of valence and regulatory focus was not significant, $F < 1$. In addition, planned contrast tests supported our predictions that participants with a strong promotion focus felt better about the positive outcome of receiving success feedback than those with a strong prevention focus, $F(1, 38) = 4.70, p < .05$, and participants with a strong prevention focus felt worse about the negative outcome of receiving failure feedback than those with a strong promotion focus, $F(1, 38) = 4.44, p < .05$. The fact that chronic individual differences in regulatory focus produced the predicted differences in responses to the *same* positive and the *same* negative feedback is strong support for our regulatory focus account of the differences in responses.

Types of Emotional Intensity

For each of the four types of emotions, we also statistically adjusted each measure of participants' postfeedback emotion for the corresponding prefeedback emotion. Table 7 reports the adjusted means for the four types of emotions separately for positive versus negative feedback and separately for participants with a strong promotion focus versus those with a strong prevention focus. As evident in Table 7, participants with a strong promotion focus felt happier about the positive outcome of receiving success feedback than those with a strong prevention focus (by a *t* test, $p < .05$), which is consistent with our prediction that cheerfulness underlies the greater pleasure of the success experiences of

TABLE 7
Adjusted Means of Different Types of Emotional Intensity as a Function of Valence of Feedback and Regulatory Focus (Study 3)

Valence of feedback	Regulatory focus	
	Promotion	Prevention
Positive outcome		
Happy	6.29	5.46
Relaxed	5.89	5.24
Discouraged	2.97	3.24
Tense	4.47	4.31
Cheerfulness-related emotions	5.96	5.18
Quiescence-related emotions	4.71	4.46
Negative outcome		
Happy	5.35	5.38
Relaxed	5.46	4.19
Discouraged	4.14	4.84
Tense	4.02	5.28
Dejection-related emotions	4.46 (4.54) ^a	4.77 (4.23) ^a
Agitation-related emotions	4.29 (4.71) ^b	5.53 (3.47) ^b

^a In brackets, adjusted mean when scored as cheerfulness-related emotions for analysis.

^b In brackets, adjusted mean when scored as quiescence-related emotions for analysis.

strong promotion focus participants. (In fact, they felt the happiest and the least discouraged.) Table 7 also shows that participants with a strong prevention focus felt more tense and less relaxed about the negative outcome of receiving failure feedback than those with a strong promotion focus (by a *t* test, both p 's < .05), which is consistent with our prediction that agitation underlies the greater aversiveness of the failure experiences of strong prevention focus participants. (In fact, they felt the most tense and the least relaxed.)

In order to test the statistical significance of these patterns overall, we needed to create measures of participants' cheerfulness-related emotions and agitation-related emotions. For pre- and postfeedback separately, we first created a measure of participants' cheerfulness-related emotions (or lack of dejection-related emotions) by averaging their "happy" ratings and "discouraged" ratings, after reverse-scoring the latter (see Higgins, Shah, & Friedman, 1997; Roney, Higgins, & Shah, 1995). Then, in order to have all our measures coded consistently toward positivity, we averaged participants' pre- and postfeedback "relaxed" ratings and "tense" ratings, after reverse-scoring the latter, to create a measure of participants' quiescence-related emotions (or lack of agitation-related emotions). Table 7 reports the adjusted means (i.e., adjusted for prefeedback emotions) for these two types of emotions separately for positive versus negative feedback and separately for participants with a strong promotion focus versus those with a strong prevention focus.

An analysis of variance was performed on these two types of postfeedback emotions, adjusted for prefeedback emotions. This analysis included Valence of Outcome (positive; negative) and Regulatory Focus (promotion; prevention) as between-subjects factors and Type of Emotion (cheerfulness-related; quiescence-related) as a within-subjects factor. We found a significant main effect of Type of Emotion, $F(1, 38) = 10.04, p < .01$, indicating that participants experienced more cheerfulness-related emotions than quiescence-related emotions overall. We also found a significant Valence of Outcome \times Type of Emotion two-way interaction, $F(1, 38) = 15.16, p < .01$, indicating that this difference between cheerfulness-related emotions and quiescence-related emotions was greater for positive outcomes than for negative outcomes.

More germane to our predictions, there was a significant Valence of Outcome \times Regulatory Focus \times Type of Emotion three-way interaction, $F(1, 38) = 4.33, p < .05$. This interaction reflected the fact that participants with a strong promotion focus experienced more cheerfulness-related emotions (compared to quiescence-related emotions) than those with a strong prevention focus in reaction to the positive outcome of receiving success feedback, whereas participants with a strong prevention focus experienced less quiescence-related emotions (compared to cheerfulness-related emotions) than those with a strong promotion focus in reaction to the negative outcome of receiving failure feedback. In fact, planned contrast tests showed that participants with a strong promotion focus experienced more cheerfulness-related emotions than those with a strong prevention focus in reaction to the positive outcome, $F(1, 38) = 4.47, p < .05$, whereas there was no significant difference in the amount of quiescence-related emotions, $F < 1$. Planned contrast tests also showed that participants with a strong prevention focus experienced less quiescence-related emotions, i.e., more agitation-related emotions, than those with a strong promotion focus in reaction to the negative outcome, $F(1, 38) = 11.30, p < .01$, but there was no significant difference in the amount of cheerfulness-related (or dejection-related) emotions, $F < 1$.

Taken together, these results confirm our prediction that cheerfulness underlies the greater intensity of pleasure felt by participants with a strong promotion focus (compared to those with a strong prevention focus) in response to a positive outcome. They also confirm our prediction that agitation underlies the greater intensity of pain felt by participants with a strong prevention focus (compared to those with a strong promotion focus) in response to a negative outcome.

GENERAL SUMMARY AND CONCLUSIONS

Regulatory focus theory predicts that because promotion success (gain) is success in achieving a maximal goal (a standard one hopes to achieve), it should be experienced more intensely than prevention success (nonloss), which is success in achieving a minimal goal (a standard one must achieve). It also predicts that because prevention failure (loss) is failure to achieve a minimal goal, it should be experienced more intensely than promotion failure (nongain), which is failure to achieve a maximal goal.

All three studies supported our predictions. Study 1a showed that participants anticipated feeling better about outcomes framed as gains (getting a discount) than nonlosses (not paying a penalty). They also anticipated feeling worse about outcomes framed as losses (paying a penalty) than nongains (not getting a discount). Study 1b showed that participants chose to experience a gain rather than an objectively similar nonloss and chose to experience a nongain rather than an objectively similar loss. Study 2 examined anticipated responses to prospective success or failure on an anagram task. In this study, success was framed in terms of either a gain or a nonloss and failure was framed in terms of either a loss or a nongain. Participants anticipated feeling better about a success framed as a gain than a nonloss. They also anticipated feeling worse about a failure framed as a loss than a nongain.

Finally, Study 3 provided more direct support for our regulatory focus explanation. The study showed that participants with a chronic tendency to view things in a promotion focus experienced success on a real anagram task more intensely than participants with chronic prevention focus, whereas failure on the task was experienced more intensely by chronic prevention participants than by chronic promotion participants. The study also revealed that the greater intensity of pleasure felt by participants with a strong promotion focus (compared to those with a strong prevention focus) in response to the positive outcome of success was cheerfulness-related pleasure rather than quiescence-related pleasure. In addition, the greater intensity of pain felt by participants with a chronic prevention focus (compared to those with a chronic promotion focus) in response to the negative outcome of failure was agitation-related pain rather than dejection-related pain.

Implications for Models of Emotional Experiences

What are the implications of our results for descriptions in the literature on emotions of how different kinds of emotions vary in experienced intensity or arousal? The classic literature distinguishes between different emotional experiences in terms of pleasure versus pain and high versus low intensity or arousal (for a review, see Feldman, Barrett, & Russell, 1998). Our results are consistent with these descriptions and suggest that regulatory focus theory might provide an account for the differences in experienced intensity (see also Higgins, in press).

The pleasure of success in a promotion focus maintains or even strengthens the eagerness involved in pursuing a maximal goal (a standard one hopes to achieve), and this maintained or strengthened eagerness is experienced as a relatively high-intensity joy (or other cheerfulness-related emotion). The pain of failure in a promotion focus weakens the eagerness, and this weakened eagerness is experienced as a relatively low-intensity sadness (or other dejection-related emotion). The pleasure of success in a prevention focus weakens the vigilance involved in pursuing a minimal goal (a standard one must achieve), and this weakened vigilance is experienced as a relatively low-intensity calmness (or other quiescence-related emotion). The pain of failure in a prevention focus maintains or strengthens the vigilance, and this maintained or strengthened

vigilance is experienced as a relatively high-intensity tenseness (or other agitation-related emotion).

Implications for Prospect Theory

Prospect theory (Kahneman & Tversky, 1979) proposes an asymmetry in the subjective impact of gains versus losses. Specifically, it proposes that losses loom larger than corresponding gains. This notion is captured by a value function that is steeper for losses than for gains. Since prospect theory offers predictions about the subjective impact of gains versus losses, a natural question to ask is whether the theory also has predictions for gains versus nonlosses and nongains versus losses.

Researchers have derived from prospect theory the prediction that a loss is more aversive than an objectively equivalent *foregone gain*. Their explanation is that a loss is evaluated in reference to the steeper “loss” portion of the value function, whereas a foregone gain is evaluated in reference to the gentler “gain” portion (Kahneman, Knetsch, & Thaler, 1986, 1990, 1991; Kahneman & Tversky, 1984; Thaler, 1980; Tversky & Kahneman, 1986). They have also derived the prediction that an *averted loss* is more pleasant than a gain because an averted loss is evaluated in reference to the steeper “loss” portion of the value function, whereas a gain is evaluated in reference to the gentler “gain” portion (Tversky, 1994). It may seem that our finding that a gain is more pleasant than a nonloss contradicts the latter prediction from prospect theory but, in fact, it does not. It is therefore important to clarify this issue.

In the literature on prospect theory, a foregone gain refers to a possible gain that is given up, eliminated, or reduced (see, for example, Kahneman, Knetsch, & Thaler, 1986, 1991; Thaler, 1980). An averted loss refers to a possible loss that is eliminated or reduced (e.g., Tversky, 1994). The prospect of a gain involves moving toward a *desired* reference point or end-state, whereas averting a loss involves moving away from an *undesired* reference point or end-state. Likewise, foregoing a gain involves moving away from a *desired* reference point or end-state, whereas the prospect of a loss involves moving toward an *undesired* reference point or end-state.

Thus, the comparisons that are made in the literature on prospect theory are either between two positive outcomes (a gain versus an averted loss) or between two negative outcomes (a foregone gain versus a loss), and they are made in relation to two different reference points or end-states (a desired versus an undesired end-state). In contrast, the comparisons that we make in the current article are in relation to the *same* desired end-state. For example, in Study 1 the desired end-state in all the conditions is paying \$60 in cash, and in Study 2 it is having 7 or more points. Regulatory focus theory proposes that for the same desired end-state, the experience of success (ending up paying \$60 in Study 1 or ending up with 9 points in Study 2) differs in a promotion versus a prevention focus (gain versus nonloss), and, similarly, the experience of failure (ending up paying \$65 in Study 1 or ending up with 5 points in Study 2) differs in a promotion versus a prevention focus (nongain versus loss). This is because the

same desired end-state is represented as a maximal goal in a promotion focus, whereas it is represented as a minimal goal in a prevention focus. Given that all the outcomes in our studies are experienced in relation to a desired end-state, they do not involve the same comparisons as those in the literature on prospect theory. Thus, our results do not contradict the predictions of prospect theory. They show that *for the same desired end-state* the impact of an outcome depends on whether it is experienced in relation to a maximal goal (gain and nongain) or a minimal goal (loss and nonloss) and thus provide a new perspective on gains and losses that is not captured in prospect theory.

More generally, our studies highlight the importance of distinguishing regulatory focus from regulatory reference (see Higgins, 1997). A “nonloss,” for example, represents successfully attaining a prevention-focus minimal goal from the perspective of regulatory focus, but can also represent eliminating a loss in relation to an undesired end-state from the perspective of prospect theory. Both kinds of “nonlosses” occur in the real world and it is useful to distinguish between them. Future research needs to compare the experiences of pleasure and pain that derive from different combinations of regulatory focus and reference points.

Finally, our paradigm differs from the typical paradigm to which prospect theory has been applied. The typical paradigm in prospect theory involves choosing to pursue or not pursue different options or courses of action. To forego a gain is *choosing not to pursue* a gain; for example, choosing to forego a cash discount in order to use one’s credit card. In contrast, our paradigm involves pursuing a maximal or minimal goal and experiencing (or anticipating) success or failure in the pursuit. For example, in Study 1 the goal is to pay \$60 in cash. A nongain is finding out that one does not have enough cash so that one cannot get the discount. It is a *failure in the pursuit* of a maximal promotion focus goal and is therefore *not* the same as the decision not to pay cash, which is a foregone gain in prospect theory language. In broader terms, our research adopts a goal-attainment perspective on the subjective experiences of gains and losses. It points to the importance of distinguishing between outcome experiences that derive from success and failure in maximal or minimal goal pursuit and the subjective impact of choosing different options (e.g., choosing to pursue or not pursue an action). Future research needs to compare the intensity of these different subjective experiences.

Although our studies involved different comparisons and a different paradigm than typically found in studies to which prospect theory has been applied, it is important to note that both prospect theory and regulatory focus theory could be applied to the same problem. Consider, for example, a company that is planning a new policy where customers would end up paying more for their purchase if they paid with a credit card than with cash. The company wants to know whether they should introduce the new policy as a surcharge for paying with a credit card or as a discount for paying with cash (see Thaler, 1980). Using the case described in Study 1, prospect theory could compare the pain of a loss of \$5 versus the pain of a foregone gain of \$5. Regulatory focus theory could compare failure to pay

\$60 when \$60 is a promotion focus maximal goal versus a prevention focus minimal goal. In this case, the two theories would make the same prediction that customers would feel worse about the surcharge for paying with a credit card. In other cases, however, the two theories might make different predictions and thus have different policy implications. Examining such cases is an important direction for future research.

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