

1-1-2011

Hoping for the Best or Preparing for the Worst? Regulatory Focus and Preferences for Optimism and Pessimism in Predicting Personal Outcomes

Abigail Hazlett
Northwestern University

Daniel C. Molden
Northwestern University

Aaron M. Sackett
University of St. Thomas, Minnesota, sackett@stthomas.edu

Follow this and additional works at: <http://ir.stthomas.edu/ocbmktgpub>

 Part of the [Marketing Commons](#)

Recommended Citation

Hazlett, Abigail; Molden, Daniel C.; and Sackett, Aaron M., "Hoping for the Best or Preparing for the Worst? Regulatory Focus and Preferences for Optimism and Pessimism in Predicting Personal Outcomes" (2011). *Marketing Faculty Publications*. Paper 23.
<http://ir.stthomas.edu/ocbmktgpub/23>

This Article is brought to you for free and open access by the Marketing at UST Research Online. It has been accepted for inclusion in Marketing Faculty Publications by an authorized administrator of UST Research Online. For more information, please contact libroadmin@stthomas.edu.

HOPING FOR THE BEST OR PREPARING FOR THE WORST? REGULATORY FOCUS AND PREFERENCES FOR OPTIMISM AND PESSIMISM IN PREDICTING PERSONAL OUTCOMES

Abigail Hazlett and Daniel C. Molden
Northwestern University

Aaron M. Sackett
University of St. Thomas

People are rarely completely accurate in forecasting their own futures. Instead, past research has demonstrated tendencies for both optimistic and pessimistic bias in thinking about one's own outcomes. Furthermore, both biases are thought to be potentially functional. Recently, an "intuitive functionalist" account of forecasting biases has been proposed (Sackett & Armor, 2010; see also Armor, Massey, & Sackett, 2008), which posits that individuals flexibly shift between optimistic or pessimistic outlooks based on the perceived value of each outlook. The present research examines people's chronic motivational orientations as one factor that influences perceptions of the functional value of optimistic or pessimistic outlooks. Across three studies, we demonstrate that those primarily concerned with growth and advancement (i.e., *promotion*) prefer optimistic forecasts and perform better when adopting an optimistic outlook, whereas those primarily concerned with safety and security (i.e., *prevention*) prefer pessimistic forecasts and perform better when adopting a pessimistic outlook.

Understanding how people anticipate the consequences of their behaviors is of great importance for understanding what behaviors they choose. Individuals who make different predictions concerning the actions they take are also likely to make different decisions about which goals to pursue, what strategies to use in working toward these goals, and whether to persist in the face of obstacles.

Correspondence concerning this article should be addressed to Abigail Hazlett, Northwestern University, Psychology Department, 2029 N. Sheridan Rd., Swift Hall, Room 102, Evanston, IL 60208. E-mail: a-hazlett@u.northwestern.edu.

When predicting their own future, people may err in the direction of optimism (“I’ll shed these extra pounds quickly”) or they may err in the direction of pessimism (“I’m never going to lose these last 5 pounds”). Previous literature has focused primarily on determining which of these errors is most common (e.g., Scheier & Carver, 1985; Taylor & Brown, 1988; Weinstein, 1980) or most beneficial (e.g., Colvin & Block, 1994; Norem & Illingworth, 1993; Scheier & Carver, 1993; Taylor & Armor, 1996). The present research, however, builds on more recent efforts to determine *when* individuals might desire to be optimistic or pessimistic (Armor, Massey, & Sackett, 2008; Sackett & Armor, 2010) to investigate whether people’s basic motivational concerns influence *why* individuals gravitate toward one outlook or the other. Specifically, the present research proposes that one function of an optimistic outlook is to support a motivational orientation toward advancement (i.e., *promotion*) and that this outlook is therefore preferred by promotion-focused individuals, whereas one function of a pessimistic outlook is to support a motivational orientation toward security (i.e., *prevention*) and that this outlook is therefore preferred by prevention-focused individuals.

THE PREVALENCE AND CONSEQUENCES OF OPTIMISTIC AND PESSIMISTIC BIASES

Optimism about future outcomes is one of several well-established self-serving biases (see Taylor & Brown, 1988), at least among people with Western European cultural backgrounds (see Heine & Lehman, 1995; cf. Rose, Endo, Windschitl, & Suls, 2008). Weinstein (1980) found that participants in his studies were optimistic about their chances of achieving positive outcomes (e.g., landing a good job) and avoiding negative outcomes (e.g., getting divorced) across a wide variety of important life domains including work, relationships, and health (see also Dunning & Story, 1991). Moreover, some researchers have proposed that, in addition to being prevalent, these types of optimistic biases are functional and adaptive because they sustain coping and well-being in times of stress (Taylor & Armor, 1996; Taylor & Brown, 1988). Indeed, Scheier and Carver (1993) have even argued that optimism has not only psychological but also physical benefits, and have shown that dispositional optimists had better health outcomes in the days and months following open heart surgery than did pessimists (Scheier et al., 1989). Although others have argued that optimism can also have drawbacks for mental and physical health (e.g., Colvin & Block, 1994; Weinstein, Marcus, & Moser, 2005), the prevailing view seems to be that optimism often serves a positive, functional purpose for well-being (see Taylor & Armor, 1996).

Complementing these studies on optimism, additional research has demonstrated the functionality of pessimism as well; Norem and Cantor (1986) have observed that although optimism may be a common bias, (a) many individuals are dispositionally pessimistic, and (b) these individuals may use pessimism as a buffer against potentially debilitating performance anxiety. In studies supporting these observations, not only were a distinct group of *defensive pessimists* identified, but, for these individuals, taking a pessimistic viewpoint was found to improve their performance (Norem & Illingworth, 1993). Furthermore, a series of studies on *pref-actual* thinking (i.e., considerations of what may happen) by Sanna (1996) showed that defensive pessimists performed better when asked to think of upward pref-

actuals (e.g., "If only I was more prepared for this task") rather than downward prefactuals (e.g., "There are a number of people who will do worse than me on this task"), while the reverse pattern was observed for optimists.

Thus, overall, both systematic optimism and systematic pessimism have been found with some prevalence, and each of these biases has been associated with certain benefits. Whereas optimism may buffer stress and contribute to positive coping and persistence (e.g., Scheier & Carver, 1993; Taylor & Armor, 1996), pessimism may buffer anxiety and aid in the management of expectations (e.g., Norem & Illingworth, 1993; Sanna, 1996).

UNDERSTANDING PREFERENCES FOR OPTIMISTIC OR PESSIMISTIC FORECASTS

Given that optimism and pessimism may serve different functions, it is possible that individuals could selectively favor optimism or pessimism depending on their perceptions of the usefulness or appropriateness of either of these outlooks for a given situation. Indeed, Sackett and Armor (2010) have recently proposed an "intuitive functionalist" account of forecasting biases that attempts to explain how this selection occurs (see also Armor et al., 2008). Although people may value accuracy as an ideal, they also recognize the difficulty of achieving complete accuracy in predicting the future; therefore, they may implicitly or explicitly choose to err on the side of optimism or pessimism (i.e., display a *forecasting preference*) based on what they believe to be the immediate consequences of either of these biases.

For example, in a study by Shepperd, Ouellette, and Fernandez (1996), college students were asked to predict their exam scores one month before the exam and then again at intervals that grew increasingly closer to actually receiving their true exam score. Results showed that students began with more optimistic predictions, which may have functioned to keep their confidence elevated going into the exam, but they progressively shifted to more pessimistic predictions the closer they got to receiving the true scores, which may have functioned to manage their anxiety (for related examples of situational shifts in prediction biases, see Armor & Sackett, 2006; Gilovich, Kerr, & Medvec, 1993). Thus, people do appear to be sensitive to the possible consequences of optimism or pessimism and to gravitate toward either outlook based on which of these consequences is currently more advantageous.

One important implication of the intuitive functionalist framework is that people may selectively use optimistic or pessimistic outlooks as strategies to aid self-regulation (see also Norem & Cantor, 1986). That is, people may specifically choose to adopt optimistic or pessimistic outlooks as a means to help themselves sustain a particular motivational orientation. If people are motivated to maximize their efforts toward ensuring positive outcomes, then it would be more advantageous to adopt an optimistic outlook that allows them to maintain their orientation toward attaining these outcomes better than a pessimistic outlook. Alternatively, if people are motivated to maximize their efforts for guarding against negative outcomes, then it would be more advantageous to adopt a pessimistic outlook that allows them to maintain their orientation toward protecting against these outcomes better than an optimistic outlook. The present research investigates this self-regu-

latory perspective on forecasting preferences by examining how motivations for attainment, growth, and advancement versus for maintenance, safety, and security are associated with people's use of optimistic or pessimistic outlooks during goal pursuit.

MOTIVATING OPTIMISTIC OR PESSIMISTIC FORECASTING PREFERENCES

Regulatory focus theory (Higgins, 1997) posits two distinct motivational orientations that determine how people approach desired outcomes and avoid undesired outcomes. A *promotion* orientation is centered on advancement concerns and the focus is on approaching the presence of gains and avoiding the absence of gains (i.e., non-gains). Promotion-oriented goal pursuit is thus characterized by motivations for attaining growth and supports *eager strategies* of seeking possible gains even at the risk of committing errors or accepting some loss. In contrast, a *prevention* orientation is centered on security concerns and the focus is on approaching the absence of losses (i.e., non-losses) and avoiding the presence of losses. Prevention-oriented goal pursuit is thus characterized by motivation for maintaining security and supports *vigilant strategies* of protecting against possible losses even at the risk of missing opportunities or potential gains. Much research has confirmed that both chronic and temporarily induced concerns with promotion or prevention consistently produce these types of strategic preferences during goal pursuit (Crowe & Higgins, 1997; Liberman, Molden, Idson, & Higgins, 2001; see Molden, Lee, & Higgins, 2008).

We propose that preferences for an optimistic outlook will be associated with a promotion orientation because optimism maintains eager goal pursuit. That is, an optimistic outlook orients people toward potential gains and motivates them to pursue strategies to achieve these gains. Therefore optimism should be perceived as more functional when motivated by promotion concerns. Moreover, these gain-focused, optimistic mindsets should provide a better match to promotion-focused individuals' current self-regulatory state and thus create greater experiences of engagement, or regulatory fit (Higgins, 2000), which can then lead to improved performance (Bianco, Higgins, & Klem, 2003; Freitas & Higgins, 2002; Freitas, Liberman, & Higgins, 2002). Similarly, we propose that preferences for a pessimistic outlook will be associated with a prevention orientation because pessimism maintains vigilant goal pursuit. That is, a pessimistic outlook orients people toward potential losses and motivates them to pursue strategies that guard against such losses. Therefore, pessimism should be perceived as more functional when motivated by prevention concerns, and these loss-focused, pessimistic mindsets should create greater engagement and regulatory fit for prevention-focused individuals, which could again lead to improved performance.

Several lines of existing research on regulatory focus support these proposed links between promotion concerns and a preference for optimism, and between prevention concerns and a preference for pessimism. First, Grant and Higgins (2003) found that although both a stronger chronic focus on promotion and a stronger chronic focus on prevention are correlated with indices of well-being and an active coping style, only a promotion focus is correlated with dispositional optimism. That is, the positive outcomes associated with a promotion focus were

found to be at least partially mediated by an optimistic outlook, but the positive outcomes associated with a prevention-focus were not related to this outlook. Although this study did not include any measure of dispositional pessimism (e.g., Norem & Cantor, 1986), it does provide suggestive evidence that the motivational benefits of a promotion focus are at least partially due to increased optimism but that the motivational benefits of a prevention focus are unrelated to optimism.

Further work by Forster, Grant, Idson, and Higgins (2001) shows that whereas positive, success-oriented feedback maintains a promotion orientation, negative, failure-oriented feedback maintains a prevention orientation. In two studies, Forster and colleagues (2001) measured motivational intensity using arm pressure (Study 1) and task persistence (Study 2) while participants solved anagrams after being primed with promotion or prevention concerns. As predicted, promotion-focused participants showed more motivational intensity and engagement following the success (versus failure) feedback, while prevention-focused participants showed more motivational intensity and engagement following the failure (versus success) feedback. Similarly, Idson and Higgins (2000) demonstrated that chronically promotion-focused individuals show increased performance over time after success feedback, whereas chronically prevention-focused individuals show increased performance after failure feedback. Because an optimistic mindset essentially involves generating one's own internal positive expectancies and thoughts about success, these findings suggest that such a mindset might also produce regulatory fit and improve performance when promotion-focused. In contrast, because a pessimistic mindset essentially involves generating one's own internal negative expectancies and thoughts about failure, these findings suggest that such a mindset might also produce regulatory fit and improve performance when prevention-focused (see also Langens, 2007).

In summary, incorporating a regulatory focus perspective with the intuitive functionalist account of forecasting preferences leads to the hypotheses that (a) promotion-focused individuals will be more likely to prefer optimistic forecasting preferences and will show increased engagement and performance when adopting such preferences, whereas (b) prevention-focused individuals will show more pessimistic forecasting preferences, and will show increased engagement and performance when adopting such preferences.

These hypotheses were tested across three studies. Study 1 examined the simple associations between chronic motivations for promotion or prevention and general preferences for optimistic, pessimistic, or realistic outlooks during goal pursuit. Study 2 then examined these same associations in the context of people's performance on an upcoming task and further tested the impact of such associations on performance. Finally, Study 3 more closely investigated the impact of optimistic or pessimistic mindsets on promotion- or prevention-focused individuals' engagement and performance by directly manipulating these mindsets in the context of a problem-solving task.

STUDY 1

The purpose of Study 1 was to establish initial evidence for the predicted relationships between promotion motivations and optimism and between prevention motivations and pessimism. To do this, we tested for correlations between indi-

viduals' chronic regulatory focus and their stated preferences for optimism and pessimism over realism. To the extent that these two different outlooks are specifically seen as functional for promotion or prevention motivational orientations, then optimism should be preferred over realistic forecasting by those who are promotion-oriented, while pessimism should be preferred over realistic forecasting by those who are prevention-oriented. Furthermore, promotion-focused individuals should report a greater tendency to engage in optimistic thought, whereas prevention-focused individuals should report a greater tendency to engage in pessimistic thought.

METHOD

Participants. Participants were 361 students from the Psychology 110 subject pool at Northwestern University who completed the study for partial fulfillment of course credit. The sample was 41% male ($N = 147$) and 58% female ($N = 210$) with 1% ($N = 4$) not reporting gender. The mean age of the sample was 18.72 ($SD = .91$) years and ranged from 18 to 22 years.

Materials and Procedure. As part of a large group-testing session, participants first completed a previously validated 11-item measure of chronic regulatory focus (RFQ; Higgins et al., 2001; see also Grant & Higgins, 2003). Items on this scale ask participants to read a series of statements that tap into their general tendency to engage in promotion-focused self-regulation (e.g., "I have often accomplished things that got me 'psyched' to work even harder") or prevention-focused self-regulation (e.g., "I often obeyed rules and regulations that were established by my parents") and rate the extent to which each statement is generally true of them on a 1 (*Completely Disagree*) to 5 (*Completely Agree*) scale.

After completing several unrelated measures, participants then were given a 5-item measure of forecasting preferences adapted from Sackett and Armor (2010). The instructions first read: "When thinking about how things will turn out in the future it is not always possible to be completely accurate. Please answer the following questions based on how you generally think about future events in your life." Participants were then asked "When making predictions about future events it is better to be . . ." and made ratings on two different 7-point scales, one of which had the endpoints *pessimistic* and *realistic*, and one of which had the endpoints *realistic* and *optimistic*. Both scales were numbered from -3 to +3 with the midpoint (i.e., 0) labeled *indifferent*, indicating no preference between the two choices at the endpoints. In this way, we were able to assess people's preferences for optimism or pessimism in comparison to a more realistic outlook, which is the most direct way to test how functional individuals perceive these outlooks to be.¹ After these measures, participants then completed three additional items that asked them to rate how often their own predictions about the future tended to be "optimistic," "pessimistic," and "realistic" on a scale from 1 (*Never*) to 7 (*Always*).

1. Although some research suggests that optimism and pessimism are a single construct (see Scheier, Carver, & Bridges, 1994), there is also compelling evidence that when treated as two separate variables they predict different things (e.g., Kubzansky, Kubzansky, & Maselko, 2004; Robinson-Whelen, Kim, MacCallum, & Kiecolt-Glaser, 1997). Thus, we chose to measure them separately to allow for the best understanding of how each construct is related to the outcomes of interest.

TABLE 1. Correlations Between Predominant Promotion Concerns, Personal Forecasting Tendencies, and General Forecasting Preferences (Study 1)

	Optimism	Pessimism	Realism	Optimism > Realism	Pessimism > Realism
Promotion Concerns	.26**	-.19**	.03	.12*	-.10 [†]
Optimism	—	-.61**	.08	.43**	-.16**
Pessimism		—	-.09 [†]	-.35**	.15**
Realism			—	-.18**	-.20**
Optimism > Realism				—	.06
Pessimism > Realism					—

Note. [†] $p < .08$; * $p < .05$; ** $p < .01$.

RESULTS AND DISCUSSION

Following the procedures established in previous research, participants' chronic motivations for promotion or prevention scores were calculated by separately averaging their scores on the promotion-oriented ($\alpha = .67$) and prevention-oriented items ($\alpha = .79$). An index of participants' predominant regulatory focus was then created by subtracting the prevention score from the promotion score.² Although people can vary in the strength of both their promotion and prevention motivations, in the current research we are interested in the relative strength of participants' preference for eager versus vigilant modes of goal-pursuit, and how this relative preference is related to the optimistic or pessimistic mindsets that might fit with such modes of goal pursuit. This index of predominant regulatory focus has been used in numerous published studies (see Cesario, Grant, & Higgins, 2004; Cesario & Higgins, 2008; Higgins et al., 2001; Molden & Higgins, 2008). More positive scores on this index indicate a predominant promotion focus, whereas more negative scores indicate a predominant prevention focus.

Table 1 shows that, as predicted, a predominant promotion focus was associated with favoring optimistic forecasting and with reporting a greater tendency to personally adopt an optimistic outlook, whereas a predominant prevention focus was associated with favoring pessimistic forecasting and with reporting a greater tendency to personally adopt a pessimistic outlook. That is, more positive scores on the regulatory focus index showed significant positive correlations with (a) general preferences for optimistic as compared to realistic forecasting strategies, and (b) reports of personally making optimistic predictions. In contrast, more positive scores on the regulatory focus index showed significant (or marginal) negative correlations with (a) general preferences for pessimistic as compared to realistic forecasting strategies, and (b) reports of personally making pessimistic predictions. There was no correlation between participants' scores on the regulatory focus index and their reports of generally making realistic predictions.

This pattern of results indicates that, as hypothesized, motivations for promotion or prevention were related to preferences for optimistic or pessimistic self-

2. Scores on the promotion and prevention subscales had a small but marginally significant positive correlation in this sample, $r = .10$, $t(359) = 1.85$, $p = .06$.

regulatory strategies, respectively, even when judged against the alternative of attempting to be as realistic (i.e., accurate) as possible. Furthermore, these general preferences were also reflected in participants' reports of their own forecasting behavior. However, although Study 1 provides evidence for the general association between regulatory focus and preferences for particular forecasting strategies, it did not assess whether these same preferences are evident during pursuit of a specific goal or how using one's preferred strategies might further influence goal pursuit. Study 2 was therefore designed to address these limitations by measuring forecasting preferences for performance on a specific task and investigating how the predicted differences in forecasting preferences for those with a predominant promotion or prevention orientation relate to actual task performance.

STUDY 2

In Study 2, chronically promotion-focused or prevention-focused participants were again asked to report their preferences for optimistic or pessimistic forecasting strategies, but this time concerning an upcoming problem-solving task. After stating their preferences, participants then completed this task, which consisted of solving a series of anagrams. If promotion-focused individuals not only prefer optimistic forecasting strategies, but also benefit motivationally from using such strategies, then these individuals should perform better when displaying an optimistic forecasting preference. Similarly, if prevention-focused individuals not only prefer pessimistic forecasting strategies, but also benefit motivationally from using such strategies, then these individuals should perform better when displaying a pessimistic forecasting preference.

METHOD

Participants. Participants were 32 volunteers who completed the study online after following a link from the Social Psychology Network website (www.social-psychology.org). Participants were not compensated for their participation in this study. No demographic information was recorded.

Materials and Procedures. Participants were told that the purpose of the study was "to help us learn more about the psychological processes that occur when people think in optimistic, pessimistic, or realistic ways." They then completed the same measure of their promotion or prevention motivations as in Study 1 (RFQ; Higgins et al., 2001). Following the RFQ, participants read a brief explanation of anagram word problems and were told that they would complete 12 anagrams and answer questions about their predictions for their own performance on this task. All the anagrams used in this study had multiple solutions (some using all of the letters, some using only a subset of the letters) and participants were instructed to find as many solutions as they could.

Before beginning the anagram task, participants completed a two-item measure of forecasting preferences similar to the measure used in Study 1. Participants first read the following instructions: "We're interested in how people make predictions about their performance on this task. Naturally, it's rare for such predictions to be 100% accurate. Instead, people's predictions are usually either somewhat optimis-

TABLE 2. Correlations between Predominant Promotion Concerns and Forecasting Preferences (Study 2)

	Optimism > Realism	Pessimism > Realism
Promotion Concerns	.49**	-.55**
Optimism > Realism	—	-.62**
Pessimism > Realism		—

Note. ** $p < .01$.

tic (i.e., expecting a better outcome than is achieved) or somewhat pessimistic (i.e., expecting a worse outcome than is achieved). On the page that follows, we would like you to answer some questions about your own predictions with these definitions of 'optimistic' and 'pessimistic' in mind." Participants then rated their own forecasting preferences for (a) pessimism versus realism and (b) realism versus optimism using the same scale as described in Study 1. Following the forecasting preference ratings participants completed the anagram task and their correct solutions were tallied.

RESULTS AND DISCUSSION

An index of participants' predominant regulatory focus was calculated from responses to the promotion ($\alpha = .73$) and prevention ($\alpha = .75$) subscales of the RFQ in the same way as described in Study 1.³ More positive scores on this index again indicated a predominant promotion focus whereas more negative scores indicated a predominant prevention focus.

Forecasting Preferences for a Specific Goal. Table 2 shows that, again as predicted, a predominant promotion focus was associated with more optimistic forecasting preferences, whereas a predominant prevention focus was associated with more pessimistic forecasting preferences. More positive scores on the regulatory focus index showed significant positive correlations with greater preferences for optimistic as compared to realistic forecasting strategies. In contrast, more positive scores on the regulatory focus index showed a significant negative correlation with greater preferences for pessimistic as compared to realistic forecasting strategies.

This pattern of results replicates and extends the findings of Study 1. In addition to the broad preferences for optimistic forecasting preferences previously observed, promotion-focused individuals also displayed similar preferences for a specific upcoming task. Thus, regulatory focus is related not only to an abstract endorsement of optimism or pessimism, but also to the specific choice of these outlooks in preparation for goal pursuit.

Effects of Regulatory Focus and Forecasting Preferences on Performance. On average, participants found 16.91 ($SD = 11.01$) correct solutions to the anagram problems. In order to further examine whether the forecasting preferences chosen by promotion-focused or prevention-focused individuals were related to the number of solutions found, a series of hierarchical linear regression analyses were conducted

3. Scores on the promotion and prevention subscales were not significantly correlated in this sample, $r = .11$, $t(30) = .59$, $p = .56$.

in which the total number of correct solutions was predicted by the main effects of forecasting preferences and regulatory focus in a first step, followed by the forecasting preference x regulatory focus interaction in a second step.

When considering effects on performance of preferences for realism versus optimism, there were marginal main effects for forecasting preference, $\beta = -.35$, $t(27) = -1.71$, $p = .10$, and regulatory focus, $\beta = .38$, $t(27) = 1.71$, $p = .10$; however, these trends were qualified by a significant interaction, $\beta = .43$, $t(26) = 2.28$, $p = .03$. To determine the nature of this interaction, follow-up simple-slope tests (Aiken & West, 1991) were performed at 1.5 *SD* above and below the zero point on the regulatory focus index (indicating promotion-focused and prevention-focused individuals, respectively) and at 1.5 *SD* above or below the midpoint of the forecasting preference measure (indicating a preference for optimistic or realistic forecasts, respectively).⁴ As shown in Figure 1a, among those who preferred optimistic forecasts, performance was significantly higher if they also were promotion-focused as compared to prevention-focused, $\beta = 1.65$, $t(26) = 2.91$, $p < .01$. In contrast, as shown in Figure 1b, among those who preferred realistic forecasts there was no significant performance difference between those who were promotion-focused as compared to prevention focused, $\beta = -.27$, $t(26) = -.56$, $p = .58$.

When considering effects on performance of preferences for pessimism versus realism, there were no significant main effects for forecasting preference, $\beta = .03$, $t(27) = .13$, $p = .90$, or for regulatory focus, $\beta = .03$, $t(27) = .15$, $p = .88$; however, there was a significant interaction, $\beta = .42$, $t(26) = 2.30$, $p = .03$. To further explore the nature of this interaction, follow-up simple-slope tests (Aiken & West, 1991) were again performed at 1.5 *SD* above and below the zero-point on the regulatory focus index and at 1.5 *SD* above or below the midpoint of the forecasting preference measure (indicating a preference for realistic or pessimistic forecasts, respectively). As shown in Figure 2a, among those who preferred pessimistic forecasts, performance trended lower (albeit only suggestively instead of significantly) if they also were promotion focused as compared to prevention focused, $\beta = -.83$, $t(26) = -1.67$, $p = .11$. In contrast, as shown in Figure 2b, among those who preferred realistic forecasts performance was marginally higher if they were also promotion-focused as compared to prevention focused, $\beta = 1.06$, $t(26) = 1.96$, $p = .06$.

Overall, these results suggest that favoring optimistic forecasts over realistic forecasts was associated with higher performance for promotion-focused than prevention-focused participants, whereas favoring realistic forecasts over pessimistic forecasts was associated with lower performance for prevention-focused than promotion-focused participants. This pattern of results lends support to our hypothesis that, in addition to associations with the types of forecasting strategies that are preferred, people's predominant regulatory focus is also associated with how the use of these strategies relates to performance.

⁴Although simple effects are commonly tested at ± 1 *SD*, Aiken and West (1991) note that the selection of these values is essentially arbitrary. We chose to conduct these analyses at ± 1.5 *SD* because these values better capture people who are clearly predominant in one motivational orientation and/or mindset. That is, values of ± 1 *SD* are roughly equivalent to the 25th and 75th percentiles of the scale assuming a normal distribution. Using ± 1.5 *SD* shifts the focus to the 15th and 85th percentiles of the scale; thus examining these more extreme points in the distribution better represents the concept of predominant orientations that is the focus of these analyses. When the same analyses were conducted at ± 1 *SD* the pattern that emerged was virtually the same as the findings reported here.

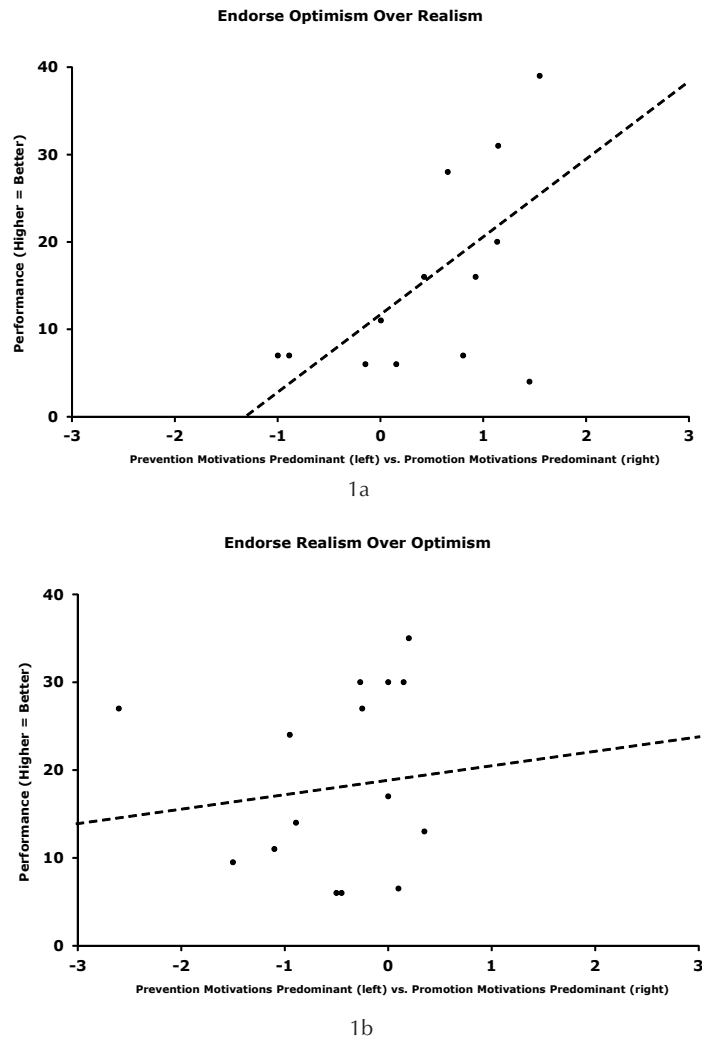


FIGURE 1. The association between regulatory focus and performance among (a) those who preferred optimism over realism and (b) those who preferred realism over optimism (Study 2).

In Study 2, we measured people's reports of their general forecasting preferences for optimism or pessimism before an anagram task and then used these preferences to predict performance on the task. Although participants who endorsed optimistic or pessimistic preferences were presumably more likely to generate optimistic or pessimistic thoughts in anticipation of the anagram task, we do not yet have any direct evidence that these thoughts are what caused the performance differences. To provide such evidence, Study 3 further tests the relationship between regulatory focus, optimistic or pessimistic forecasting preferences, and performance by manipulating the forecasting preferences that participants used before a task. Furthermore, if performance differences associated with forecasting preferences and regulatory focus are indeed due to regulatory fit, then these dif-

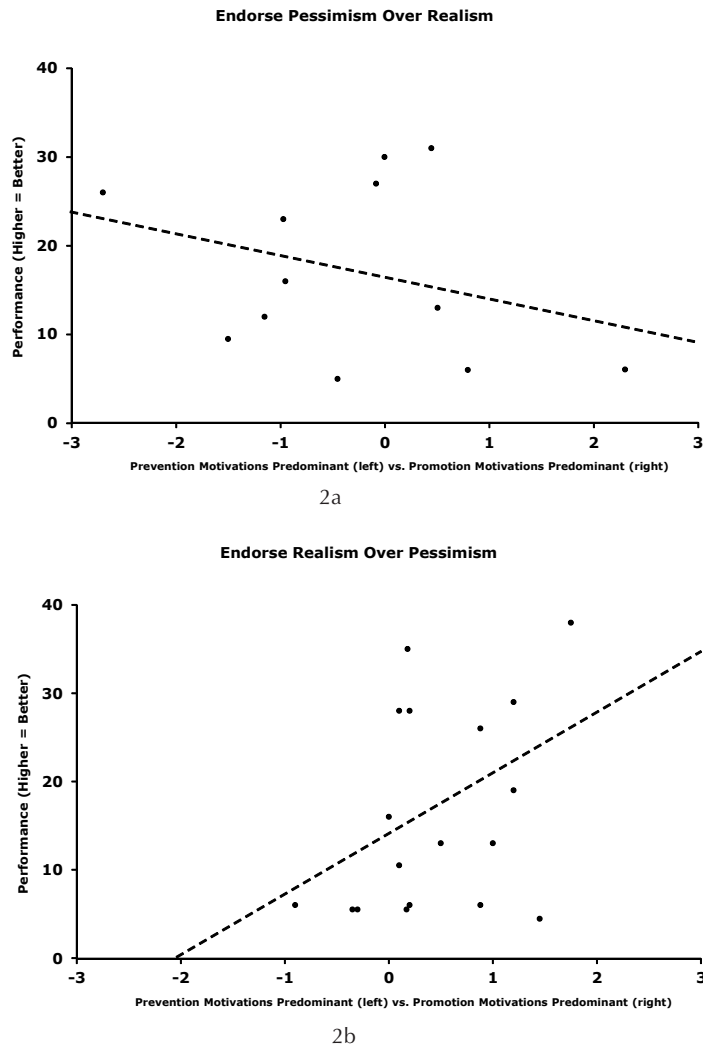


FIGURE 2. The association between regulatory focus and performance among (a) those who preferred pessimism over realism and (b) those who preferred realism over pessimism (Study 2).

ferences should be mediated by differences in task engagement (Freitas & Higgins, 2002; Freitas et al., 2002; see Higgins, 2006). Therefore, Study 3 tests this additional possibility as well.

STUDY 3

In Study 3, chronically promotion-focused or prevention-focused participants were informed that they would be completing a problem-solving task and then asked to rehearse either a set of optimistic or pessimistic thoughts. If it is these types of thoughts that are responsible for the association of people's forecasting preferences with their task performance demonstrated previously, then after rehears-

ing optimistic thoughts, promotion-focused participants should perform better than prevention-focused participants, but after rehearsing pessimistic thoughts, prevention-focused participants should perform better than promotion-focused participants. In addition, to assess participants' engagement as well as their performance, this study also included measures of task engagement in terms of persistence at the task.

METHOD

Participants. Participants were 84 students from the Psych 110 subject pool at Northwestern University who took part in this study for partial fulfillment of course credit. The sample was 48% male ($N = 40$) and 50% female ($N = 42$) with 2% ($N = 2$) not reporting gender. The mean age of the sample was 19.05 ($SD = 1.28$) years and ranged from 17 to 25 years.

Materials and Procedure. Participants reviewed all instructions and completed all tasks on a computer in a private cubicle. To provide additional convergent validity for our general findings, participants completed a different measure of chronic regulatory focus than was used in Studies 1 and 2. Instead of participants' self-reports of their promotion or prevention motivations, this measure, developed by Higgins, Shah, and Friedman (1997) is based upon the chronic activation (i.e., *accessibility*) of participants' own promotion-focused and prevention-focused goals. Just as chronic attitude accessibility can serve as an index of attitude strength (e.g., Fazio, 1995), much research has shown that chronic accessibility for promotion- and prevention-relevant goals can serve as indices of motivational strength (e.g., Higgins et al., 1997; Liberman et al., 2001; Molden & Higgins, 2004, 2008). The regulatory-focus strength measure used in Study 3 therefore asked participants to list, one at a time and in a seemingly random order, four of their own promotion-relevant goals (i.e., their advancement-oriented hopes and aspirations) and four of their own prevention-relevant goals (i.e., their security-oriented duties and obligations). After each entry, participants rated both the extent to which they aspired (or felt obligated) to achieve this goal, and the extent to which they had actually achieved it. Participants' reaction times (RTs) for both the goal-listing and goal-rating tasks were recorded by the computer. After log-transforming all RTs and multiplying them by -1 so that higher values (i.e., smaller response latencies) equal greater strength, all the RTs concerning aspirations were then summed to calculate promotion strength ($\alpha = .73$), and all the RTs concerning obligations were then summed to calculate prevention strength ($\alpha = .67$; for complete details see Higgins et al., 1997).⁵

Following the regulatory-focus strength measure, participants then read a brief description of an anagram task they were about to perform. Before engaging in this task, half of the participants were randomly assigned to generate optimistic thoughts about their performance on this task and the other half were assigned to

5. Scores on the promotion and prevention subscales were significantly positively correlated in this sample, $r = .55$, $t(82) = 5.92$, $p < .001$. However, this correlation is to be expected given that the measure of regulatory focus in this study was based off of reaction times on which people show stable individual differences. The primary consequence of such colinearity is to reduce power and make differential effects more difficult to detect, making the differences observed in this study all the more notable.

generate pessimistic thoughts about their performance. Optimistic or pessimistic thoughts were elicited using a procedure adapted from Sanna (1996). Participants were presented with five statements (e.g., "I am confident that I can accomplish this task well"; "I have a bad feeling about my performance on this task") one at a time on the computer screen and then were asked to write at least one sentence describing how the statement might be true for them in the upcoming task. The full text of all of the statements is included in Appendix A. In this way, participants in the optimism condition were guided to take an optimistic outlook on their performance and those in the pessimism condition were guided to take a pessimistic outlook on their performance.

Participants next completed a set of 16 anagrams taken from Shah, Higgins, and Friedman (1998), all of which had multiple possible solutions. They were told to find as many solutions as they could for each anagram. As a measure of engagement on the task, the computer recorded how much time participants spent on each anagram before moving onto the next one. Overall engagement and task persistence was determined by calculating the total time participants spent on the anagram task. To create a measure for performance, the total number of valid solutions found for all 16 anagrams were summed. Finally, as a manipulation check, participants rated how they would describe the statements they made about their potential performance before the task on a -3 (*Pessimistic*) to +3 (*Optimistic*) scale.

RESULTS AND DISCUSSION

Similar to Studies 1 and 2, an index of participants' predominant regulatory focus was calculated from their RTs on the regulatory focus strength measure by subtracting their transformed RTs to their prevention-focused goals from their transformed RTs to their promotion-focused goals (see Higgins et al., 1997; Molden & Higgins, 2008). More positive scores on this index again indicate a predominant promotion focus, whereas more negative scores indicate a predominant prevention focus.

Manipulation Checks. In order to ensure that the optimistic versus pessimistic outlook manipulation was effective, a hierarchical linear regression was conducted in which responses to how participants characterized the preparatory statements before the task were predicted by the main effects of the outlook condition (coded as 0 for pessimism or 1 for optimism) and predominant regulatory focus in a first step, followed by the outlook condition \times regulatory focus interaction in a second step. There was no significant main effect of regulatory focus strength, $\beta = -.05$, $t(81) = -.61$, $p = .54$, but a significant main effect for outlook condition, $\beta = -1.16$, $t(81) = -6.47$, $p < .001$: Those in the optimistic outlook condition rated the statements as being significantly more optimistic ($M = 1.41$, $SD = 1.26$) than those in the pessimistic outlook condition ($M = -1.05$, $SD = 2.02$). There was no significant interaction between regulatory focus strength and outlook condition, $\beta = -.24$, $t(80) = -1.34$, $p = .18$. Thus, as expected, those in the optimism condition rated the statements as more optimistic than those in the pessimism condition regardless of their regulatory focus.

Task Performance. On average, participants found 18.67 ($SD = 7.33$) correct solutions to the anagram problems. A hierarchical linear regression was conducted

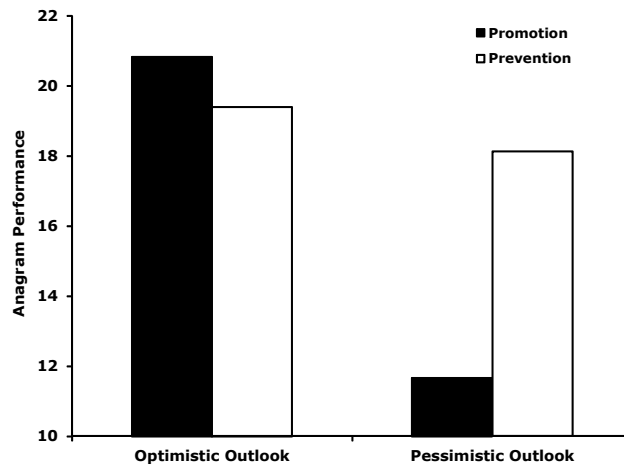


FIGURE 3. The interaction between induced optimistic or induced pessimistic forecasts and regulatory focus on task performance (Study 3).

in which participants' correct solutions were predicted by the main effects of the outlook condition (coded as 0 for pessimism or 1 for optimism) and their predominant regulatory focus in a first step, followed by the outlook condition \times regulatory focus interaction in a second step. There was no significant main effect for regulatory focus strength, $\beta = -.10$, $t(81) = -.93$, $p = .35$, nor for outlook condition, $\beta = -.08$, $t(81) = -.15$, $p = .88$. However, there was a significant interaction effect between regulatory focus and outlook condition, $\beta = -.67$, $t(80) = -2.11$, $p = .04$. To determine the nature of this interaction, follow-up simple-slope tests (Aiken & West, 1991) were performed at 1.5 *SD* above and below the zero point on the regulatory focus index (indicating promotion-focused and prevention-focused individuals, respectively) within each of the outlook conditions. As shown in Figure 3, in the optimism condition, performance was nonsignificantly higher for promotion-focused participants ($M_{\text{predicted}} = 20.83$) than prevention-focused participants ($M_{\text{predicted}} = 19.40$), $\beta = .23$, $t(80) = 0.99$, $p = .32$. In contrast, in the pessimism condition, performance was significantly higher for prevention-focused participants ($M_{\text{predicted}} = 18.13$) than promotion-focused participants ($M_{\text{predicted}} = 11.67$), $\beta = -.44$, $t(80) = -2.03$, $p = .04$.

Task Engagement. On average, participants spent 451.56 seconds ($SD = 252.35$) working on the anagram problems. A hierarchical linear regression was conducted in which participants' engagement (total time) was predicted by the main effects of the outlook condition (coded as 0 for pessimism or 1 for optimism) and their predominant regulatory focus in a first step, followed by the outlook condition \times regulatory focus interaction in a second step. There was no significant main effect for regulatory focus strength, $\beta = .06$, $t(81) = .59$, $p = .55$, and there was a marginally significant main effect for outlook condition, $\beta = -.39$, $t(81) = -1.79$, $p = .08$. However, this effect was again qualified by a significant interaction effect between regulatory focus and outlook condition, $\beta = -.47$, $t(80) = 2.22$, $p = .03$. To determine the nature of this interaction, follow-up simple-slope tests (Aiken & West, 1991) were again performed at 1.5 *SD* above and below the zero point on the regulatory

focus index (indicating promotion-focused and prevention-focused individuals, respectively) within each of the outlook conditions. As shown in Figure 4, in the optimism condition, engagement was significantly higher for promotion-focused participants ($M_{\text{predicted}} = 687.90$) than prevention-focused participants ($M_{\text{predicted}} = 446.04$), $\beta = .48$, $t(80) = 2.04$, $p = .04$. In contrast, in the pessimism condition, engagement was nonsignificantly higher for prevention-focused participants ($M_{\text{predicted}} = 419.02$) than promotion-focused participants ($M_{\text{predicted}} = 302.35$), $\beta = -.23$, $t(80) = -1.06$, $p = .29$.

Mediation Analyses. The effect of the interaction between regulatory focus and optimistic or pessimistic forecasts on performance and engagement as established in the previous sections suggest the possibility that engagement may mediate the relationship between the regulatory focus and forecasting and performance. In other words, it may be that when promotion-oriented individuals make optimistic forecasts and prevention-oriented individuals make pessimistic forecasts, engagement in the task increases and their performance is improved. This mediational relationship would be consistent with previous regulatory fit findings and would support our hypothesis that different forecasting preferences serve to maintain difference modes of self-regulation.

In order to test for mediation, a linear regression was conducted in which participants' correct solutions were predicted by the main effects of outlook, chronic regulatory focus, and task engagement (time spent on the problem set), along with the outlook condition \times regulatory focus interaction. In this analysis, the main effect of engagement on performance was significant, $\beta = .49$, $t(79) = 4.87$, $p < .001$, and the previously significant outlook condition \times regulatory focus interaction was no longer significant, $\beta = -.21$, $t(79) = -1.06$, $p = .29$, suggesting mediation (Baron & Kenny, 1986). A follow-up Sobel test demonstrated that the indirect effect of regulatory focus on performance through task engagement was indeed significant, $z = 1.99$, $p = .04$.⁶

The results of Study 3 thus provided additional evidence for the different influence of optimistic or pessimistic forecasts on engagement and performance for promotion-focused versus prevention-focused individuals. Prevention-focused individuals were nonsignificantly more engaged and performed significantly better than promotion-focused individuals when asked to generate pessimistic thoughts before an anagram task, whereas promotion-focused individuals were significantly more engaged and performed nonsignificantly better than prevention-focused individuals when asked to generate optimistic thoughts before this task. Moreover, supporting a regulatory fit interpretation of these effects, the pattern of differences in performance shown by promotion-focused and prevention-focused participants were mediated by the pattern of differences in their engagement with (i.e., persistence on) the anagram task.

6. Recently, the use of bootstrapping techniques for mediational analysis (Preacher & Hayes, 2008) has been recommended by many. We therefore also tested for mediation using the MCMAM method (Bauer, Preacher, & Gil, 2006) and the results reconfirmed significant mediation, with a 95% confidence interval for the indirect effect between -1.5 and $-.08$.

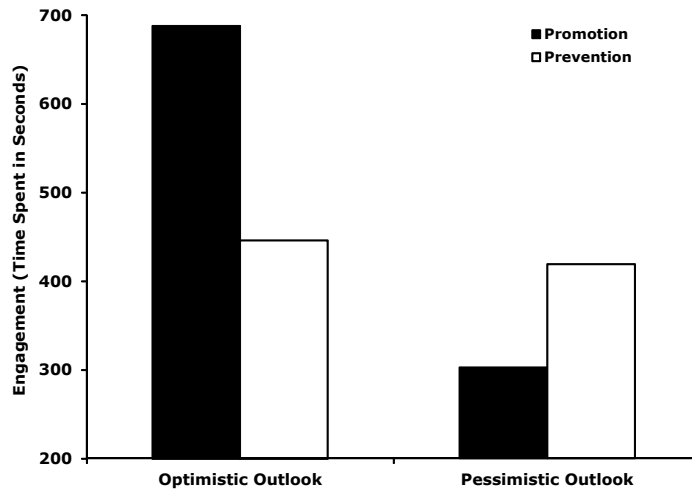


FIGURE 4. The interaction between induced optimistic or induced pessimistic forecasts and regulatory focus on task engagement (Study 3).

GENERAL DISCUSSION

Past research has demonstrated the presence of optimistic (e.g., Weinstein, 1980) and pessimistic (e.g., Norem & Cantor, 1986) biases and provided arguments for the functionality of both outlooks (see Norem & Illingworth, 1993; Scheier & Carver, 1993). Given that both outlooks may convey some benefits, Sackett and Armor (2010) have more recently begun to develop a framework for understanding when and why people might selectively shift between an optimistic or pessimistic outlook (see also Armor et al., 2008). The present research expands on this perspective by investigating motivational orientations that help predict when one outlook over the other may be beneficial during goal pursuit. Specifically, we hypothesized that motivations for promotion, which focus on gains and advancement, should be related to and sustained by a preference for optimistic forecasts, which tend to produce eagerness for gains. In contrast, we hypothesized that motivations for prevention, which focus on security and protection from loss, should be related to and sustained by a preference for pessimistic forecasts, which tend to produce vigilance against loss.

These hypotheses were generally supported across three studies using two different measures of chronic motivations for promotion or prevention. Studies 1 and 2 demonstrated that a chronic focus on promotion was correlated with reported preferences and tendencies toward making optimistic forecasts, whereas a chronic focus on prevention was correlated with reported preferences and tendencies toward making pessimistic forecasts. This favoring of optimistic or pessimistic forecasts was found when each was contrasted with realistic forecasts, which we interpret as evidence that participants view these outlooks as potentially more beneficial than being accurate in their forecasts. We suggest that this added value over realism may reflect the motivational maintenance function of optimism for promotion-oriented individuals and pessimism for prevention-oriented individuals. Further supporting this motivational maintenance prediction—as shown in

Study 2—this pattern of results emerged not only for people's generally stated preferences, but also for their preferences concerning a specific task that they were preparing to complete.

Studies 2 and 3 further demonstrated that optimistic forecasting preferences led to greater engagement and performance among promotion-focused participants, whereas pessimistic forecasting preferences led to greater engagement and performance among prevention-focused participants. Because all of the specific comparisons between the associations between the forecasting preferences of promotion-focused and prevention-focused participants and their performance did not always reach conventional levels of statistical significance within each study, we conducted separate meta-analyses of these comparisons for optimistic and pessimistic mindsets. To derive the meta-analytic effect size across studies, the standardized regression coefficients for the regulatory focus index in each of the relevant analyses was weighted by the reciprocal of its variance and then averaged across studies. The standard error for this average effect was calculated as the average of the square root of the reciprocal of the weights (see Greenland & Longnecker, 1987). Combining the regulatory focus effect among those preferring optimistic over realistic forecasts in Study 2 and those induced to make optimistic forecasts in Study 3 revealed a significant overall effect, $z = 2.22, p = .03$. Similarly, combining the regulatory focus effect among those preferring pessimistic over realistic forecasts in Study 2 and those induced to make pessimistic forecasts in Study 3 also revealed a significant overall effect, $z = -2.40, p = .02$. Thus, overall, these studies support the conclusions that optimistic mindsets improved performance for promotion-focused individuals and that pessimistic mindsets improved performance for prevention-focused individuals to a generally equivalent degree. Finally, Study 3 provided direct evidence that these performance differences shown by promotion- or prevention-focused individuals were mediated by differences in task engagement, which supports a regulatory fit interpretation of these effects.

The present research extends prior research on optimism and pessimism in several ways. First, the consideration of motivational influences on forecasting preferences extends the framework proposed by Sackett and Armor (2010; Armor et al., 2008) by providing a general motivational perspective that explains why optimistic or pessimistic outlooks are beneficial when adopted by those with a promotion or prevention focus, respectively. Because optimism encourages a focus on potential positive outcomes, it generally fits a promotion focus and is functional for maintaining promotion-oriented goal pursuit. On the other hand, because pessimism encourages a focus on potential negative outcomes, it generally fits a prevention focus and is functional for maintaining prevention-oriented goal pursuit (see Higgins, 2000). Thus, the present research incorporates research on regulatory fit (Higgins, 2000) with current perspectives on the function of optimistic and pessimistic biases (Sackett & Armor, 2010).

A second contribution of the present studies to research on optimism and pessimism is that they help to unify the somewhat conflicting literature on the benefits of optimism (e.g., Scheier & Carver, 1993) and the benefits of pessimism (e.g., Norem & Illingworth, 1993). On the whole, our findings suggest that optimistic and pessimistic forecasting preferences can each serve an important functional purpose depending upon one's current motivational orientation. Optimism can

perhaps allow people to engage in positive coping and adjustment (e.g., Taylor & Armor, 1988), as long as people are promotion-focused and disposed toward more eager, gain-focused means of goal pursuit. However, when people are prevention-focused, our findings suggest that these eager means may not motivate the same coping and adjustment when challenged. Furthermore, pessimism can perhaps allow people to reduce their anxiety (e.g., Norem & Illingworth, 1993) about engaging in particular activities that help them achieve their goals, as long as people are prevention-focused and disposed toward more vigilant, loss-focused means of goal pursuit. However, when people are promotion-focused, our findings suggest that these vigilant means might not motivate anxiety reduction or task engagement in the same way. Therefore, the present studies help to integrate the sometimes disparate perspectives on the functional value of optimism and pessimism by providing a motivational account of when and why each outlook can sustain engagement and performance.

Beyond these contributions to research on optimism and pessimism, the present studies also extend previous research on regulatory focus and goal pursuit. Previous studies (Forster et al., 2001; Idson & Higgins, 2000) have shown that promotion-focused individuals are more engaged and persistent when they receive positive feedback about their initial performance, whereas prevention-focused individuals are more engaged and persistent when they receive negative feedback. The present studies suggest that not only do people respond in this manner to different types of external feedback, but that they also attempt to internally generate this feedback themselves by adopting optimistic or pessimistic mindsets. That is, as most directly indicated by Study 2, at times people may attempt to self-generate regulatory fit to maintain persistence and performance. Furthermore, these results were demonstrated across multiple methodologies with both self-report measures of chronic regulatory focus (Studies 1 and 2) and an implicit response-time measure of chronic regulatory focus activation (Study 3).

Although the present work suggests that promotion motivations are related to optimism and prevention motivations are related to pessimism, it is important to note that these motivational orientations are not simple proxies for dispositional optimism or pessimism. Indeed, while Grant and Higgins (2003) found that chronic promotion orientation was related to dispositional optimism, the size of this correlation was modest ($r = .33$) and suggests that these constructs are not entirely overlapping. Additionally, while defensive pessimism is usually defined and measured in the relatively narrow terms of a disparity between positive performance history and negative performance expectancy (see Norem & Cantor, 1986), the present work provides a broader motivational framework (i.e., prevention motivations) for understanding the origins and strategic value of this type of response.

The theoretical advances in predicting and understanding people's forecasting preferences that are provided by the present findings thus open the door to additional studies that further elaborate on the motivational dynamics of optimism and pessimism. That is, individual differences in motivations for promotion or prevention is just one of many factors that might explain when and why people choose optimistic or pessimistic outlooks. Given that all existing research on the intuitive functionalist perspective on forecasting preferences has been conducted in the United States, one clear direction for future research would be to examine

whether different cultural contexts can also motivate different forecasting preferences through lay theories or cultural norms.

Future research could also address some of the limitations of the present studies. The scales used to measure preferences for optimism and pessimism were quite short and relied on simple self-report. While these scales have the advantage of being face-valid and easy to administer, it is also possible that using more comprehensive measures of preferences for optimism and pessimism would enhance our understanding of the relationship between motivational orientation and forecasting preferences. Additionally, while optimistic and pessimistic outlooks were both measured (Studies 1 and 2) and manipulated (Study 3) in the present research, regulatory focus was always measured and never manipulated. Therefore, another important direction for future research is to further examine how and why systematic differences in optimistic or pessimistic forecasting preferences shift in response to different situations in which broader motivations relevant for these preferences might be temporarily activated. Much previous research has shown that a promotion or prevention focus can be temporarily activated by a variety of momentary experiences or incentives (e.g., Lee, Aaker, & Gardner, 2000; Molden, Lucas, Gardner, Dean, & Knowles, 2009; Seibt & Forster, 2004; Shah et al., 1998; see Molden et al., 2008). If such temporary activation of people's regulatory focus can reproduce the same forecasting preferences and performance differences as demonstrated here, it would further extend the intuitive functionalist perspective proposed by Sackett and Armor (2010) and have important implications for designing interventions to boost performance in circumstances that generally evoke promotion motivations (e.g., making new friends, increasing one's physical fitness) or prevention motivations (e.g., saving for retirement, maintaining one's health). In addition, circumstances in which other broad motivations that activate more optimistic or pessimistic outlooks could be identified as well.

CONCLUSION

Given the difficulty of accurately predicting the future, people may instead be left with a choice of whether to try to err on the side of optimistic or pessimistic forecasts. The present research reveals both theoretical and behavioral implications of such choices by demonstrating that motivations for advancement (e.g., promotion) are more compatible with, and better sustained by, an optimistic outlook, whereas motivations for security (e.g., prevention) are more compatible with, and better sustained by, a pessimistic outlook. Future research along these lines could lead to a better understanding of when and why people adopt and communicate particular expectations about important goals as well as the impact of these expectations on whether or not they succeed at these goals.

APPENDIX A. STATEMENTS USED IN THE OUTLOOK MANIPULATION IN STUDY 3

Optimistic

- I will perform better than I expect on this task.
- Most people will perform worse than me on this task.
- This task will not be challenging for me.
- I am confident that I can accomplish this task well.
- I have a good feeling about my performance on this task.

Pessimistic

- I will perform worse than I expect on this task.
- Most people will perform better than me on this task.
- This task will be challenging for me.
- I am not confident that I can accomplish this task well.
- I have a bad feeling about my performance on this task.

REFERENCES

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, CA: Sage.
- Armor, D. A., Massey, C., & Sackett, A. M. (2008). Prescribed optimism: Is it right to be wrong about the future? *Psychological Science, 19*, 329-331.
- Armor, D. A., & Sackett, A. M. (2006). Accuracy, error, and bias in predictions for real versus hypothetical events. *Journal of Personality and Social Psychology, 91*, 583-600.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.
- Bauer, D. J., Preacher, K. J., & Gil, K. M. (2006). Conceptualizing and testing random indirect effects and moderated mediation in multilevel models: New procedures and recommendations. *Psychological Methods, 11*, 142-163.
- Bianco, A. T., Higgins, E. T., & Klem, A. (2003). How "fun/importance" fit affects performance: Relating implicit theories to instructions. *Personality and Social Psychology Bulletin, 29*, 1091-1103.
- Cesario, J., Grant, H., & Higgins, E. T. (2004). Regulatory fit and persuasion: Transfer from "feeling right." *Journal of Personality and Social Psychology, 86*, 388-404.
- Cesario, J., & Higgins, E. T. (2008). Making message recipients "feel right": How nonverbal cues can increase persuasion. *Psychological Science, 19*, 415-420.
- Colvin, C. R., & Block, J. (1994). Do positive illusions foster mental health? An examination of the Taylor and Brown formulation. *Psychological Bulletin, 116*, 3-20.
- Crowe, E., & Higgins, E. T. (1997). Regulatory focus and strategic inclinations: Promotion and prevention in decision-making. *Organizational Behavior and Human Decision Processes, 69*, 117-132.
- Dunning, D., & Story, A. L. (1991). Depression, realism, and the overconfidence effect: Are the sadder wiser when predicting future actions and events? *Journal of Personality and Social Psychology, 61*, 521-532.
- Fazio, R. H. (1995). Attitudes as object-evaluation associations: Determinants, con-

- sequences, and correlates of attitude accessibility. In R. E. Petty & J. A. Krosnick (Eds.), *Attitude strength: Antecedents and consequences* (pp. 247-282). Mahwah, NJ: Erlbaum.
- Forster, J., Grant, H., Idson, L. C., & Higgins, E. T. (2001). Success/failure feedback, expectancies, and approach/avoidance motivation: How regulatory focus moderates classic relations. *Journal of Experimental Social Psychology, 37*, 253-260.
- Freitas, A. L., & Higgins, E. T. (2002). Enjoying goal-directed action: The role of regulatory fit. *Psychological Science, 13*, 1-6.
- Freitas, A. L., Liberman, N., & Higgins, E. T. (2002). Regulatory fit and resisting temptation during goal pursuit. *Journal of Experimental Social Psychology, 38*, 291-298.
- Gilovich, T., Kerr, M., & Medvec, V. H. (1993). Effect of temporal perspective on subjective confidence. *Journal of Personality and Social Psychology, 64*, 552-560.
- Grant, H., & Higgins, E. T. (2003). Optimism, promotion pride, and prevention pride as predictors of quality of life. *Personality and Social Psychology Bulletin, 29*, 1521-1532.
- Greenland, S., & Longnecker, M. P. (1987). Methods for trend estimation from summarized dose-response data, with applications to meta-analysis. *American Journal of Epidemiology, 135*, 1301-1309.
- Heine, S. J., & Lehman, D. R. (1995). Cultural variation in unrealistic optimism: Does the West feel more invulnerable than the East? *Journal of Personality and Social Psychology, 68*, 595-607.
- Higgins, E. T. (1997). Beyond pleasure and pain. *American Psychologist, 52*, 1280-1300.
- Higgins, E. T. (2000). Making a good decision: Value from fit. *American Psychologist, 55*, 1217-1230.
- Higgins, E. T. (2006). Value from hedonic experience and engagement. *Psychological Review, 113*, 439-460.
- Higgins, E. T., Friedman, R. S., Harlow, R. E., Idson, L. C., Ayduk, O. N., & Taylor, A. (2001). Achievement orientations from subjective histories of success: Promotion pride versus prevention pride. *European Journal of Social Psychology, 31*, 3-23.
- Higgins, E. T., Shah, J., & Friedman, R. (1997). Emotional responses to goal attainment: Strength of regulatory focus a moderator. *Journal of Personality and Social Psychology, 72*, 515-525.
- Idson, L. C., & Higgins, E. T. (2000). How current feedback and chronic effectiveness influence motivation: Everything to gain versus everything to lose. *European Journal of Social Psychology, 30*, 583-592.
- Kubzansky, L. D., Kubzansky, P. E., & Maselko, J. (2004). Optimism and pessimism in the context of health: Bipolar opposites or separate constructs? *Personality and Social Psychology Bulletin, 30*, 943-956.
- Langens, T. A. (2007). Regulatory focus and illusions of control. *Personality and Social Psychology Bulletin, 33*, 226-237.
- Lee, A. Y., Aaker, J. L., & Gardner, W. L. (2000). The pleasures and pains of distinct self-construals: The role of interdependence in regulatory focus. *Journal of Personality and Social Psychology, 78*, 1122-1134.
- Liberman, N., Molden, D. C., Idson, L. C., & Higgins, E. T. (2001). Promotion and prevention focus on alternative hypotheses: Implications for attributional functions. *Journal of Personality and Social Psychology, 80*, 5-18.
- Mednick, S. A., & Mednick, M. T. (1967). *Examiner's manual: Remote Associates Test (RAT)*. Boston: Houghton Mifflin.
- Molden, D. C., & Higgins, E. T. (2004). Categorization under uncertainty: Resolving vagueness and ambiguity with eager versus vigilant strategies. *Social Cognition, 22*, 248-277.
- Molden, D. C., & Higgins, E. T. (2008). How preferences for eager versus vigilant judgment strategies affect self-serving conclusions. *Journal of Experimental Social Psychology, 44*, 1219-1228.
- Molden, D. C., Lee, A. Y., & Higgins, E. T. (2008). Motivations for promotion and prevention. In J. Shah & W. Gardner (Eds.), *Handbook of motivation science* (pp. 169-187). New York: Guilford.
- Molden, D. C., Lucas, G. M., Gardner, W. L., Dean, K., & Knowles, M. L. (2009). Motivations for prevention or promotion following social exclusion: Being rejected versus being ignored. *Journal of Personality and Social Psychology, 96*, 413-431.
- Norem, J. K., & Cantor, N. (1986). Defensive pessimism: Harnessing anxiety as mo-

- tivation. *Journal of Personality and Social Psychology*, 51, 1208-1217.
- Norem, J. K., & Illingworth, K. S. S. (1993). Strategy-dependent effects of reflecting on self and tasks: Some implications of optimism and defensive pessimism. *Journal of Personality and Social Psychology*, 65, 822-835.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40, 879-891.
- Robinson-Whelen, S., Kim, C., MacCallum, R. C., & Kiecolt-Glaser, J. K. (1997). Distinguishing optimism from pessimism in older adults: Is it more important to be optimistic or not be pessimistic? *Journal of Personality and Social Psychology*, 73, 1345-1353.
- Rose, J. P., Endo, Y., Windschitl, P. D., & Suls, J. (2008). Cultural differences in unrealistic optimism and pessimism: The role of egocentrism and direct versus indirect comparison measures. *Personality and Social Psychology Bulletin*, 34, 1236-1248.
- Sackett, A. M., & Armor, D. A. (2010). Reasoned optimism: The "intuitive functionalist" account of personal predictions. Manuscript under review.
- Sanna, L. J. (1996). Defensive pessimism, optimism, and simulating alternatives: Some ups and Downs of prefactual and counterfactual thinking. *Journal of Personality and Social Psychology*, 71, 1020-1036.
- Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology*, 4, 219-247.
- Scheier, M. F., & Carver, C. S. (1993). On the power of positive thinking: The benefits of being optimistic. *Current Directions in Psychological Science*, 2, 26-30.
- Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test (LOT). *Journal of Personality and Social Psychology*, 67, 1063-1078.
- Scheier, M. F., Matthews, K. A., Owens, J. F., Magovern, G. J., Lefebvre, R., Abbott, R. C. et al. (1989). Dispositional optimism and recovery from coronary artery bypass surgery: The beneficial effects of optimism on physical and psychological well-being. *Journal of Personality and Social Psychology*, 57, 1024-1040.
- Seibt, B., & Forster, J. (2004). Stereotype threat and performance: How self-stereotypes influence processing by inducing regulatory foci. *Journal of Personality and Social Psychology*, 87, 38-56.
- Shah, J., Higgins, E. T., & Friedman, R. (1998). Performance incentives and means: How regulatory focus influences goal attainment. *Journal of Personality and Social Psychology*, 74, 285-293.
- Shepperd, J. A., Ouellette, J. A., & Fernandez, J. K. (1996). Abandoning unrealistic optimism: Performance estimates and the temporal proximity of self-relevant feedback. *Journal of Personality and Social Psychology*, 70, 844-855.
- Taylor, S. E., & Armor, D. A. (1996). Positive illusions and coping with adversity. *Journal of Personality*, 64, 873-898.
- Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin*, 103, 193-210.
- Weinstein, N. D. (1980). Unrealistic optimism about future life events. *Journal of Personality and Social Psychology*, 39, 806-820.
- Weinstein, N. D., Marcus, S. E., & Moser, R. P. (2005). Smokers' unrealistic optimism about their risk. *Tobacco Control*, 14, 55-59.

Copyright of Social Cognition is the property of Guilford Publications Inc. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.