Abandoning Unrealistic Optimism: Performance Estimates and the Temporal Proximity of Self-Relevant Feedback

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Although evidence for unrealistic optimism is considerable, there is reason to believe that individuals will abandon their optimism and may even become pessimistic in anticipation of self-relevant feedback. The authors propose and provide preliminary test of a model of the temporal transition from optimism to accuracy to pessimism in outcome predictions. In Study 1, college sophomores, juniors, and seniors estimated their likely salary at their first full-time job after graduation. Only seniors became less optimistic as graduation approached. In Study 2, students estimated their exam score a month before the exam, then again several times after completing the exam yet prior to receiving feedback. As the proximity of feedback neared, students abandoned their optimistic forecast in favor of a pessimistic forecast. Study 3 showed that, in anticipation of self-relevant feedback, participants with low self-esteem lowered their performance estimates more readily than did those with high self-esteem.

People are constantly requested to make predictions about future events. Coaches, players, and fans alike are queried for their predictions regarding the outcome and likely score of sporting events. Physicians and other health specialists routinely must supply their opinion of the prognosis of a disease or illness. Meteorologists must predict the weather; auto mechanics must estimate the cost of repairs.

When making predictions about the self, people can be quite optimistic in their predictions of future outcomes and risk, perceiving that good things are more likely and bad things are less likely to happen to them. For example, people tend to believe that they are more likely than others to have gifted children (Weinstein, 1980), to get a good first job (Weinstein, 1980), and to do well on future tasks (Crandall, Solomon, & Kelleway, 1955; Irwin, 1944, 1953; Marks, 1951). People also believe that they will be happier, more confident, more hardworking, and less lonely in the future than their peers (Perloff, 1987). A similar optimism pervades evaluations of negative events. People tend to believe that they will live longer than their cohorts (Snyder, 1978), that they will not be victims of auto accidents (Robertson, 1977), crime (Perloff & Fetzer, 1986), and earthquakes (Burger & Palmer, 1992), and that they will not fall prey to illness (Perloff & Fetzer, 1986), depression (Kuiper, MacDonald, & Derry, 1983), or unwanted pregnancies (Burger & Burns, 1988). These unrealistic views about the future may stem from a desire for personal control, egocentric thinking, downward social comparison, or from the fact that optimistic predictions are gratifying (Perloff, 1987; Weinstein, 1980, 1984).

Realistic and Pessimistic Predictions

Although the evidence for unrealistic optimism is considerable, people will forsake their optimism and become more realistic or accurate in their perceptions, at least temporarily, immediately after some personal experience with a negative event (Burger & Palmer, 1992) or when they are made aware of other’s preventive or goal directed behavior (Weinstein, 1980). In both cases, optimism is reduced by the introduction of new information from which to draw inferences. In addition, research on self-verification theory (Swann, 1984) and other consistency theories (Aronson, 1969) suggests that people are motivated, at least in part, to perceive themselves accurately. As such, they may be inclined to make predictions that are more realistic than optimistic. Moreover, Tetlock (1992) has argued that accountability concerns can motivate people to be more accurate in their judgments. According to Tetlock, the prospect of being held accountable for one’s actions increases self-critical thinking. When accountability demands are high, people think about issues more carefully, consider both sides of arguments, and consider alternative outcomes. This increase in self-critical thinking can be induced by an audience that is internal or external to the self. Moreover, when accountability demands are
high, individuals show a reduction in a variety of biases in perceptions and decision processes (Tetlock & Kim, 1987). Presumably, accountability concerns will lead to a decrease in unrealistic optimism.

Although people sometimes will make accurate rather than optimistic predictions about future events, research on defensive pessimism suggests that some people may be inclined to adopt a pessimistic outlook regarding future events even when such outcomes are objectively unlikely (Cantor & Norem, 1989; Cantor, Norem, Niedenthal, Langston, & Brower, 1987; Norem, 1989; Norem & Cantor, 1986a, 1986b). Apparently this pessimistic orientation serves an adaptive function, prompting the pessimist to intensify his or her efforts or preparations to avoid an anticipated negative outcome. From another perspective, research by Feather (1967, 1969) suggests people might be motivated in some situations to adopt a pessimistic outlook regarding future events. Specifically, Feather (1967, 1969) has demonstrated that satisfaction with a particular outcome is determined in part by expectations about the occurrence of that outcome (see also Diener, Colvin, Pavot, & Allman, 1991; Pyszczynski, 1982). Negative outcomes are perceived as more unpleasant if they are unexpected than if they are expected. This research suggests that individuals may be motivated to make pessimistic predictions regarding future events to avoid unpleasant affect associated with unexpected negative outcomes.

Expectations in Anticipation of Performance and Feedback

Most investigations of optimism have examined predictions about the likelihood of some event (e.g., being the victim of a violent crime) occurring in the future. Optimism is operation- alized in terms of participants' estimates of the likelihood that the event will happen to them relative to the likelihood that the event will happen to someone else (a friend, the average person, etc.). Typically, there is no standard against which to judge whether the predictions expressed by any one individual are accurate, optimistic, or pessimistic. For example, there is no way of knowing in advance whether a specific individual will or will not be the victim of a violent crime. Nor do participants making predictions typically anticipate feedback informing them of the accuracy of their predictions. With no feedback available or anticipated, people have considerable leeway in making predictions, allowing them room to make predictions that err on the side of optimism.

In performance domains, however, one can gauge the accuracy of one's predictions by comparing the predicted performance outcome with the actual performance outcome. If the predicted performance exceeds the actual performance, then the prediction can be regarded as optimistic. If the predicted performance is comparable to the actual performance, then the prediction can be regarded as accurate. Finally, if the predicted performance falls short of the actual performance, then the prediction can be regarded as pessimistic.

The few studies that have examined predictions in performance domains where feedback is anticipated at some point have yielded optimism, accuracy, and pessimism in participants' predictions. The crucial determinant of what participants predict appears to be the timing of the prediction. For example, in one study (Nisan, 1972, 1973) participants reported how confident they were that they would correctly answer a random item from an exam that was anticipated immediately or in 4 weeks. Participants who anticipated taking the exam immediately were less confident that they would answer the item correctly than were participants who anticipated taking the exam in 4 weeks. More recently, Gilovich, Kerr, and Medvec (1993) found that participants' confidence about how they would perform on the tasks dropped markedly from the beginning of the semester to the time of the performance. It seems that participants tempered their optimistic outlook as the moment of performance approached.

Although the research just described reveals a reduction in optimism as performance nears, other research has demonstrated pessimism. Specifically, in a study by Spencer and Steele (1994), participants anticipating feedback on an exam that they had just taken estimated that they would receive a lower score than did participants who did not anticipate receiving feedback. Of note, the effect was attributable entirely to the estimates of low-self-esteem participants. Specifically, whereas low-self-esteem participants estimated a lower score when anticipating feedback about their score, high-self-esteem participants did not. Indeed, the score low-self-esteem participants estimated receiving was lower than the score they actually received (personal communication, S. J. Spencer, June 7, 1994), suggesting that low-self-esteem participants were not just realistic in their predictions about forthcoming feedback, they were pessimistic. The study by Spencer and Steele (1994) is noteworthy because it suggests that low-self-esteem participants may be more inclined than high-self-esteem participants to abandon their optimism in anticipation of evaluative information, an idea we will return to later.

The Transition From Optimism to Pessimism

Our examination of these studies leads us to propose a model of the temporal transition from optimism, to accuracy, to pessimism in future predictions. Specifically, whether individuals make optimistic, accurate, or even pessimistic predictions about future outcomes is a function of three conditions: (a) whether self-relevant feedback is anticipated, (b) the temporal proximity of behavior that will culminate in self-relevant feedback, and (c) the temporal proximity of self-relevant feedback. If no self-relevant feedback is expected or if behavior that will culminate in self-relevant feedback is temporally distal, then optimistic predictions should prevail. In such cases, individuals are not constrained by the desire to predict accurately or be consistent. For example, a college-bound student might be quite confident in her ability to gain acceptance at a prestigious university when the application deadline is months away, or if she has no intention of applying to the school.

However, if self-relevant feedback is anticipated and the behavior that will produce the feedback is temporally proximal, then an optimistic outlook should be replaced by a more conservative, realistic outlook. Temporally proximal means that the behavior (often a performance) has just occurred or is just about to occur. In the college application example, as the application deadline approaches, the student should become more
realistic in her predictions of admission. The greater realism likely occurs for two reasons. First, individuals are likely to acquire additional information from which to make judgments. As the application deadline nears, for example, the college-bound student is more likely to have examined the rejection rate of the university and is also more likely to have received her college board scores, computed her high school grade point average, and summarized her life accomplishments. When comparing these bits of information with the profile of the typical student admitted to the university, she can judge more accurately her likelihood of admission. Second, as Gilovich et al. (1993) have noted, as the temporal proximity of the behavior increases, so too do accountability demands. The greater accountability concerns should produce a more realistic appraisal of one’s performance or standing on a particular dimension. When individuals gain additional information and begin consideration of alternative outcomes, they are no longer free to think what they want to think about themselves but instead are constrained to make more realistic predictions.

Finally, if self-relevant feedback is anticipated and is temporally proximal, individuals may exchange an optimistic or accurate forecast in favor of a pessimistic forecast. When self-relevant feedback is imminent, individuals face the possibility that their expectations will exceed their performance, resulting in negative affect (Feather, 1967, 1969). The analog in the admissions example is the student’s prediction about her likelihood of acceptance just before opening the letter from the admissions department announcing the decision on her application. We anticipate that any remaining optimism will be abandoned and that the student will embrace a pessimistic outlook to brace herself for the possibility of negative feedback.

The transition from optimism, to accuracy, to pessimism in performance estimates is likely driven by some underlying psychological variable such as focus of attention, anxiety, saliency of the event or outcome, or greater information processing. The most promising of these variables appears to be anxiety in that two studies have uncovered an inverse relationship between anxiety and optimism: As anxiety over an event or its outcome increases, optimism decreases (Butler & Mathews, 1987; Dewberry, Ing, James, Nixon, & Richardson, 1990). Indeed, anxiety may moderate responses in the proposed model. That is, as feedback draws near, optimism should decline only to the extent that the person feels anxious. Likewise, any factor that minimizes anxiety over the performance or outcome (e.g., high confidence of a desired outcome, low value attached to the outcome), or that reduces the ability to experience anxiety (e.g., alcohol or other drugs with anxiety-reducing effects) may eliminate the tendency to abandon optimism as performance and self-relevant feedback near.

Overview of the Present Research

We report three studies examining the degree to which the proximity of self-relevant feedback affects performance estimates. Studies 1 and 2 examined whether individuals become less optimistic and more pessimistic as the timing of evaluative feedback approaches. Study 3 examined whether performance expectations are moderated by individual differences in self-esteem, as suggested by Spencer and Steele (1994), and examined the relationship of anxiety to performance estimates in anticipation of evaluative feedback.

Study 1

Study 1 examined the effect of the proximity of self-relevant feedback on performance predictions. The research by Gilovich et al. (1993) suggests that individuals reduce their optimism about a forthcoming performance as the timing of the performance nears. However, it is unclear whether individuals discard their optimistic outlook entirely. To examine this possibility, we asked college students to estimate their starting salary as they began looking for their first job. We predicted that, as the end of the academic year neared, seniors would lower their estimates of their starting salary but that sophomores and juniors would not.

Method

Participants were 82 students (31 sophomores, 22 juniors, 29 seniors) enrolled in an upper level psychology class at a large university in the Southwest. As part of a classroom demonstration, participants responded to two questionnaires: one administered in January at the beginning of the semester and one administered in late April at the end of the semester, 2 weeks prior to graduation. Embedded in both questionnaires was an item asking participants whether they planned to search for a permanent, full-time job within 2 months of graduation. This item was followed by a second item prefaced by instructions for participants to imagine they were graduating in May and were looking for a permanent, full-time job. Implicit for participants planning on graduate school after graduation was that they would be looking for a job with only a bachelor’s degree. Participants then estimated what they believed their starting salary would be. A final item asked participants whether they already had found a job after graduation. Those who responded “yes” were omitted from the study. The findings were discussed with the students as part of lecture after all data were collected.

Results

Did seniors lower their estimated starting salary as graduation approached? The results in Figure 1 suggest that they did. Indeed, a series of planned contrasts revealed that although the difference in estimates at Time 1 and Time 2 did not approach significance among sophomores and juniors (both ts < 1), the estimate at Time 2 was significantly lower than the estimate at Time 1 among seniors, t(28) = 2.81, p < .01. Of note, sophomores estimated a higher starting salary than did seniors at both time periods (both ps < .05). However, juniors did not differ from sophomores or seniors in their salary estimates.

Although the change in estimates from Time 1 to Time 2 suggests that seniors lowered their estimates as graduation neared, it does not reveal the extent to which the estimates are optimistic, accurate, or pessimistic. We hypothesized that all participants would display unrealistic optimism in their estimates at Time 1 but that seniors (unlike sophomores or juniors) would show less optimism at Time 2. To examine this hypothesis, we obtained from the university placement center statistics compiled several months after graduation regarding the average starting salary reported by students who had graduated that spring. Because most participants in Study 1 belonged to the college of liberal arts, our average was based on the salary for
liberal arts students only. Of note, the average starting salary of graduating seniors across the university was noticeably higher. Excluding non-liberal-arts graduates thus provided a conservative test of our hypothesis.

The average starting salary reported by liberal arts graduates was $20,073. A series of planned \( t \) tests revealed that this average salary was significantly lower than the salary that sophomores, juniors, and seniors had estimated they would receive at Time 1. For sophomores, \( M = 28,468, t(30) = 6.91, p < .0001 \); for juniors, \( M = 25,909, t(21) = 5.50, p < .0001 \); and for seniors, \( M = 23,544, t(28) = 2.83, p < .01 \). Clearly, all students displayed unrealistic optimism at Time 1. At Time 2, sophomores and juniors continued to display unrealistic optimism. Seniors, however, did not. Specifically, at Time 2 the actual starting salary of college graduates was significantly lower than the estimated starting salary of sophomores, \( M = 27,661, t(30) = 5.57, p < .0001 \), and juniors, \( M = 25,227, t(21) = 3.95, p < .001 \), but not significantly different from the estimated starting salary of seniors, \( M = 21,638, t(28) = 1.48, ns \).

As noted earlier, our sample included participants who did not plan to search for a permanent job on graduation. Among sophomores and juniors, including these additional participants (16 sophomores, 13 juniors) made no difference. Sophomores and juniors who planned to search for a job did not differ significantly in their salary estimates from their counterparts who did not plan to search for a job (all \( t \)s < 1). Among seniors, however, the difference was significant. At Time 2, seniors who planned to find a job after graduation \( (n = 14) \) estimated a lower starting salary \( (M = 19,642) \) than did seniors who did not plan to find a job after graduation \( (n = 15; M = 23,500) \), \( t(27) = 1.95, p < .06 \). Moreover, when we compared the estimated starting salary with the actual salary supplied by liberal arts seniors, we found that seniors who were not looking for a job continued to display optimism, \( t(14) = 2.01, p = .06 \), whereas seniors who were looking for a job did not, \( t(13) < 1 \).

**Discussion**

All participants displayed unrealistic optimism at Time 1, four months before the May graduation date. This was particularly true among college sophomores and juniors, for whom graduation was a year or more in the future. As the end of the academic year approached, however, college seniors became more conservative in their estimates, abandoning their optimistic outlook in favor of a more accurate estimate of their likely starting salary. Sophomores and juniors, by contrast, continued to be optimistic in their salary estimates at Time 2. It is noteworthy that the seniors most likely to abandon their optimistic outlook were those already searching for a job or who planned to search for a job after graduation. Seniors not planning to look for a job after graduation continued to display optimism in their estimated starting salary. The seniors likely lowered their estimates for two reasons. First, they undoubtedly acquired new information at Time 2 about the average starting salary of college graduates either from their own or from acquaintance employment inquiries. Second, in the process of their search and perhaps after some initial rejections, the seniors may have begun considering the possibility of receiving a less lucrative job than they had hoped. Entertain-
ing this alternative possibility may have prompted seniors to become more conservative in their expectations, resulting in a more accurate estimate of their likely starting salary.

The seniors did not become pessimistic in their predictions, estimating a starting salary lower than the salary liberal arts graduates later reported receiving, nor would we expect to find pessimism in their salary estimates. It is likely that many of the seniors had only recently begun their job search. For some the search may have been weeks or even months away. As they completed the questionnaire at Time 2, it is unlikely that any were anticipating a job interview or offer to emerge at that very moment. With no imminent self-relevant feedback, there was no reason to expect a display of pessimism.

In Study 2 we examined whether the anticipation of imminent self-relevant feedback would prompt participants to abandon an optimistic or accurate appraisal of a forthcoming outcome in favor of more pessimistic appraisal. We also eliminated participants’ ability to acquire additional information before their final estimate. We did this by changing the task from estimating one’s starting salary to estimating one’s grade on a classroom exam.

**Study 2**

Participants in Study 2 estimated their score on a classroom exam on four occasions: once 1 month before the exam and three times after completing the exam but before receiving feedback. We predicted considerable optimism in predictions 1 month before the exam. Following the exam, however, we predicted that reality constraints and accountability concerns would lead participants to abandon their optimistic outlook in favor of a more realistic one. That is, we predicted that participants generally would be accurate in their estimates of their exam score after the exam was over. Finally, as the timing of evaluative feedback became proximal, we predicted that participants would change their predictions once more, moving from accuracy to pessimism in predicting their exam performance.

**Method**

Participants were 144 students enrolled in two upper level psychology courses: one at a small New England college (n = 53) and one at a large university in the Southwest (n = 91). Participants from the large university (but not the small college) estimated their exam initially at the beginning of the semester, 1 month before the exam date (Time 1). As part of a classroom demonstration, all participants estimated their score on a class exam on three subsequent occasions: (a) immediately following taking the exam (Time 2), (b) 3 days later and 50 min before receiving their exam score (Time 3), and (c) 3 s before receiving their exam score (Time 4). At Time 2, a single item appeared at the end of the exam asking participants to provide a numerical estimate of the grade they believed they would receive on the exam. At the beginning of the next class, the instructor entered the classroom, placed the exams on a table in the front of the class, and explained that the exams would be returned at the end of class. He then distributed written instructions stating that students were to estimate their exam score twice during the class: once at the beginning of class (Time 3) and once at the end of class when the instructor called the students by name to return the exam (Time 4). The instructions also stated that he was not interested in the consistency of responding and that the items were part of a research project that was independent of the class. At the bottom of the instruction sheet were spaces for participants to write their Time 3 and Time 4 estimates. After all students had supplied a Time 3 estimate, the instructor proceeded to lecture on a topic relevant to the course for 50 min. After 50 min, the instructor reminded students to estimate their exam score a final time as he called their name. He then called each student by name (in alphabetical order) to return the exams. When all exams were returned, the instructor collected the instruction sheet and the students were dismissed. As part of lecture, a detailed explanation of the study was provided during a later class.

**Results**

Preliminary analyses revealed no differences between participants from the two institutions in their three estimates or in the actual score they received (all ts < 1). Consequently, with one exception, the data were collapsed across institutions and analyzed using a one-way repeated measures analysis of variance (ANOVA) in which participants’ three estimates and their actual score were treated as a repeated measure. The exception was an analysis conducted only on participants from the university sample. This analysis compared the Time 1 estimate with the Time 2 estimate and the actual exam score.

Did participants become less optimistic and more pessimistic in their performance estimates as evaluative feedback approached? Figure 2 displays participants’ exam estimates at the three time periods. The average exam score received by students is represented as a dotted line. Consistent with prior research (Gilovich et al., 1993; Nissan, 1972, 1973), participants were very optimistic about their performance when making their estimate 1 month before the exam date. The score participants estimated receiving at Time 1 was dramatically higher than both the estimate made immediately after taking the exam (Time 2) and the score actually received. In addition, as expected, the scores participants estimated receiving at Time 2 and Time 3 were relatively accurate. At Time 4, however, participants lowered their performance estimates. Indeed, the score participants estimated receiving at Time 4 was significantly lower than the score they actually received on the exam.

Statistical analyses revealed that the Time 1 estimate was significantly higher than the Time 2 estimate, t(88) = 4.98, p < .01, and significantly higher than the exam score actually received, t(88) = 5.91, p < .01. In addition, a one-way ANOVA based on data from all participants and comparing the scores estimated at Times 2, 3, and 4 with the score actually received revealed a significant effect of estimate, F(3, 435) = 4.14, p < .01. A series of planned comparisons comparing participants’ estimates across the three postexam time periods revealed that the score estimated at Time 4 was significantly lower than the score estimated at Time 2, t(145) = 4.80, p < .01, and Time 3, t(145) = 5.07, p < .01. Moreover, a comparison of participants’ actual exam scores with their estimated exam scores revealed that participants estimated accurately at Time 2 and Time 3 (both ts < 1), yet underestimated their score at Time 4, just seconds before receiving their actual score, t(145) = 1.87, p < .05, one-tailed.

**Discussion**

Consistent with Study 1, participants initially displayed optimism in their estimates of their exam score, estimating a score
that was higher than the score they actually received. On the day of the exam, however, the optimism gave way to a more accurate appraisal of performance. Finally, as evaluative feedback became imminent, participants became pessimistic in their performance estimates, estimating a score that was lower than the score estimated on two prior occasions and lower than the score they actually received. What makes this finding striking is that nothing happened between Time 3 and Time 4 that would have led participants to reevaluate their estimates. The instructor lectured and students took notes. The instructor did not discuss the exam, nor did students have an opportunity to discuss the exam among themselves. In short, students acquired no new information about the exam between Time 3 and Time 4. All that happened between Time 3 and Time 4 was that the temporal proximity of the feedback decreased. As evaluative feedback became imminent, participants no longer had the luxury of being optimistic about their performance.

We believe that the acquisition of new information and concerns with accuracy prompted participants to provide lower yet more accurate estimates at Time 2 and Time 3 relative to Time 1. Having just taken the exam prior to the Time 2 estimate and having had ample opportunity to examine their text and notes and to discuss the exam with classmates before the Time 3 estimate, participants had additional information on which to base their estimates. In addition, anticipating feedback likely prompted participants to imagine both positive and negative outcomes of their performance. Consideration of alternative outcomes may have elicited greater accuracy in appraisals. We believe that concerns with regulating affect prompted participants to lower their estimate even further at Time 4. Faced with the now-loomimg prospect that their estimate might exceed their performance, participants lowered their estimate to a level significantly below their actual performance to diminish negative affect associated with performing below expectations. In short, when evaluative feedback became imminent, participants became pessimistic in their estimate, expecting the worst in an attempt to brace themselves for unpleasant feedback.

One might argue that participants altered their estimates for self-presentational reasons, to appear more modest or less self-aggrandizing to the instructor. Although we cannot completely rule out a self-presentational explanation for the findings, if participants were concerned with appearance, it seems more likely that they would have been concerned more with appearing consistent than with appearing modest. After all, they made their Time 4 estimate on the same sheet of paper as their Time 3 estimate. Yet, rather than make the same estimate again, participants chose to lower their estimate at Time 4.

**Study 3**

*Self-Esteem and Estimating Self-Relevant Feedback*

Not everyone in Study 2 lowered their estimate from Time 3 to Time 4. Fully 38% of participants did not change their estimate and 15% of them raised their estimate between Time 3 and Time 4. The variability in responses suggest important individ-
ual differences in how people respond to approaching self-relevant feedback. Research by Norem and Cantor (1986a, 1986b) suggests that defensive pessimists might be especially inclined to make pessimistic performance estimates as self-relevant feedback approaches. However, as noted by Gilovich et al. (1993), studies investigating defensive pessimism typically identify only 3% to 4% of the undergraduate population as defensive pessimists. Our research suggests that a far higher proportion of participants supply pessimistic estimates when evaluative feedback is imminent. Thus, defensive pessimism is unlikely to be useful in uncovering widespread individual differences in predictions of future events.

An alternative source of individual differences in how people approach self-relevant feedback is self-esteem. Numerous researchers have documented self-esteem differences in the tendency to make self-serving biases (see Blaine & Crocker, 1993). Whereas people with high self-esteem tend to internalize responsibility for positive outcomes and externalize responsibility for negative outcomes, people with low self-esteem do not, appearing instead to be more even handed in their attributions for positive and negative outcomes. Drawing on Arkin's theorizing on social anxiety (Aarkin, 1981; Shepperd & Aarkin, 1990), Baumeister, Tice, and Hutton (1989) suggested that the self-esteem differences in the tendency to make self-serving attributions reflects a fundamental difference in the orientation or style of individuals with high versus low self-esteem. Specifically, high-self-esteem individuals are characterized by an acquisitive style directed toward garnering approval and enhancing self-esteem. Low-self-esteem individuals, by contrast, are characterized by a cautious, protective style directed toward avoiding social disapproval and protecting identity.

The different styles of high- and low-self-esteem individuals might result in different responses in anticipation of self-relevant information. The cautious, conservative style of low-self-esteem individuals may lead them to be less optimistic, perhaps even a little pessimistic, in the face of evaluative information. That is, low-self-esteem individuals may be more inclined than high-self-esteem individuals to lower their performance estimates as evaluative feedback becomes imminent. Preliminary evidence supporting this hypothesis is provided by Spencer and Steele (1994), who showed that low-self-esteem individuals were more likely than high-self-esteem individuals to underestimate their score on a test they had taken, but only when they anticipated feedback. When no feedback was anticipated, the estimates of low- and high-self-esteem individuals were similar.

Yet there is another reason to expect that people with low self-esteem will be more inclined to lower their performance estimate as evaluative feedback becomes imminent. There is mounting evidence that individuals with low-self-esteem are less certain than those with high self-esteem about which attributes do and do not describe them (Baumgardner, 1990; Campbell, 1990; Campbell & LaVallee, 1993). Indeed, the uncertainty of low-self-esteem individuals is posited as an explanation for why they are more affected by external, self-relevant feedback (see Campbell & LaVallee, 1993; Jones, 1973; Shrauger, 1975; Swann, Pelham, & Krull, 1989, for reviews). That is, people with low self-esteem respond more positively to favorable feedback and more negatively to unfavorable feedback. Their greater uncertainty about their standing on various dimensions may increase the tendency for low-self-esteem individuals to entertain negative outcomes when accountability demands are high. Alternatively, their greater reactivity to external positive and negative feedback may encourage them to abandon their optimistic outlook in favor of a more realistic or perhaps pessimistic outlook in an attempt to avoid the negative feelings associated with falling short of one's expectations. This alternative explanation is consistent with the argument offered by Blaine and Crocker (1993) that successful affect regulation on the part of low-self-esteem individuals involves acknowledging the possibility of future negative outcomes by preemptively preparing for failure.

**Overview**

Study 3 examined whether performance estimates vary as a function of self-esteem. Study 3 goes beyond prior research by Spencer and Steele (1994) in that we investigated estimated exam performance across time, thus permitting examination of changes in performance estimates as a function of self-esteem. We predicted the low self-certainty and cautious, protective style of low-self-esteem individuals would lead them to be more conservative than high-self-esteem individuals in their performance estimates regardless of the timing of the estimate. More important, we predicted that their lower self-certainty and greater sensitivity to external cues would make low-self-esteem individuals more responsive to the timing of self-relevant feedback. As a consequence, low-self-esteem individuals would be more likely than high-self-esteem individuals to lower their performance estimates as the timing of evaluative feedback approached.

Study 3 also sought to examine the mechanisms underlying the tendency to lower performance estimates in anticipation of evaluative feedback. We propose that people lower their performance estimates as feedback becomes imminent in an attempt to regulate affect. That is, people adopt a pessimistic outlook to brace themselves for disappointment or negative affect arising from undesired feedback. Presumably, the lower estimates are driven by negative emotions such as anxiety. As individuals anticipate forthcoming feedback, anxiety about the possibility of negative feedback increases. Individuals subsequently lower their estimates to regulate their anxiety. To investigate this possibility, Study 3 included measures of anxiety to examine whether participants' performance estimates are related to feelings of anxiety.

Finally, Study 3 was designed to examine more directly a self-presentational explanation for the greater pessimism displayed in the final estimate in Study 2. Participants in Study 2 may have offered a lower estimate at Time 4 to appear modest to the instructor. As noted earlier, it is possible that the desire to appear modest in one's estimates outweighed the desire to be consistent. In Study 3, we attempted both to control and examine more closely self-presentation as an explanation for the greater pessimism emerging as self-relevant feedback becomes imminent.

**Method**

**Participants.** From an initial pool of 191 students enrolled at a large university in the Southeast, we selected students with scores falling in
the upper and lower third of the Rosenberg Self-Esteem Scale (Rosenberg, 1965). Recently, Shedler, Mayman, and Manis (1993) have suggested that some people who score high on mental health inventories such as self-esteem inventories are actually psychologically distressed but are maintaining an illusion of mental health. Consistent with this hypothesis was a finding in a preliminary analysis of our data that a few participants with high self-esteem scores also scored very high on a measure of depressive symptoms. To reduce the possibility of misclassification of participants, we excluded from our group of high-self-esteem individuals any person who did not also receive a score in the lower third on the Center for Epidemiological Studies measure of depression (CES-D; Radloff, 1977). Likewise, we excluded from our group of low-self-esteem participants any person who did not also receive a score in the upper third of the CES-D measure of depression. Thus, our high-self-esteem participants were both high in self-esteem and low in depression, and our low-self-esteem participants were both low in self-esteem and high in depression. The resulting sample consisted of 35 participants classified as high in self-esteem (M = 47.3) and 36 participants classified as low in self-esteem (M = 33.1).

Procedures. The procedures were similar to those used in Study 2, with a few notable exceptions. First, because of the size of the class, it was necessary to have a teaching assistant post exam grades outside of the classroom rather than call students by name and return the exams individually. Thus, at the end of the class period and after supplying their final estimate, participants were permitted to leave the classroom to examine their exam grades. Second, the instructor stressed the confidentiality of the estimates and instructed participants to provide only the last four digits of their student identification number with their estimates. Third, participants made their estimates at Time 2 and Time 3 on separate forms that were collected by the instructor after they had supplied responses.

Fourth, participants responded to several additional nine-step items while making their estimates. The additional items were designed to address various hypotheses regarding why participants reduced their estimates across the three time periods. Specifically, at Times 1, 2, and 3, they were asked to report (a) how important it was for them to do well on the exam (1 = not at all, 9 = very important), (b) how anxious they were feeling at this moment about their exam score (1 = not anxious, 9 = very anxious), and (c) how certain they were that their estimate was accurate (1 = not certain, 9 = very certain). In addition, to probe whether changes in performance estimates were spurred by self-presentation concerns, participants responded to items at Times 2 and Time 3 that asked (d) how likely it was that their professor would connect their name with their estimate (1 = very unlikely, 9 = very likely) and (e) whether they care if their professor connected their name with their estimate (1 = not at all, 9 = very much). Finally, at Time 3 students were asked, “If the estimated exam score you just provided differs from the estimate you last provided, please state why you changed your estimate.” After all data collection, the results were discussed with the class as part of a lecture.

Results

Consistent with Study 1 and 2, participants lowered their exam estimates as evaluative feedback became imminent. Specifically, the score they estimated at Time 3 (M = 80.8), just before receiving feedback, was significantly lower than the score estimated at Time 1, M = 82.5; t(70) = 3.54, p < .001, and Time 2, M = 81.7; t(70) = 2.84, p < .01. Of interest, the score estimated at Time 3 was not significantly lower than participants' actual exam score (M = 81.6, t < 1).

Our primary interest in Study 3, however, was whether the scores estimated at the three time periods varied as a function of self-esteem. The pattern of means in Figure 3 provides strong evidence that they do. Moreover, statistical analysis revealed a significant interaction of self-esteem and timing of the estimate, F(2, 68) = 3.42, p < .05. Whereas high-self-esteem participants showed no change in their estimates across the three time periods, low-self-esteem participants significantly lowered their estimates, estimating a lower score at Time 3 than at Time 1, t(35) = 4.20, p < .001, and Time 2, t(35) = 2.28, p < .05. Indeed, although the estimates of low- and high-self-esteem participants did not differ at Time 1, t(69) = 1.15, ns, low-self-esteem participants supplied estimates significantly lower than did high-self-esteem participants at Time 2, t(69) = 1.67, p < .05, one-tailed, and Time 3, t(69) = 1.76, p < .05, one-tailed. Likewise, Figure 3 reveals a nonsignificant trend for low-self-esteem participants to estimate a score at Time 3 that was lower than their actual score, t(35) = 1.31, p < .13, one-tailed. High-self-esteem participants estimated a more realistic score at Time 3. Finally, it is worth noting that exam scores of low- and high-self-esteem participants were not significantly different, t < 1.

The pattern of effects in Study 3 was weaker than expected and weaker than the effects that emerged in Study 2. The weaker pattern of effects is likely due to several differences in the procedures of Study 3. First, in Study 3 the scores were posted outside of the classroom, permitting participants to examine their scores with some degree of privacy. In Study 2, by contrast, the instructor could obviously inspect participants' scores as he returned the exams, resulting in greater accountability concerns on the part of the respondents. Second, the instructor in Study 2 called participants by name. Hearing their name called likely increased self-awareness among participants, which may have further intensified accountability concerns. Third, and perhaps most important, whereas participants in Study 2 made their final estimate while anticipating receiving their score immediately from the instructor, participants in Study 3 undoubtedly anticipated some delay (perhaps a minute or more) between the time they made their final estimate and the time they found their score on the list posted outside of the classroom. Although a minute may seem trivial, we believe it is crucial. With feedback still at some distance, participants in Study 3 were likely just beginning to brace themselves for the possibility of unpleasant feedback. Consequently, the motivation to lower their estimates was as yet only moderately high.

Performance estimates and affect. We proposed earlier that the tendency to lower performance estimates as feedback becomes imminent may be driven in part by a desire to avoid feelings of disappointment associated with finding that one's performance falls short of one's expectations. That is, people may lower their performance estimates to regulate affect. Consistent with the affect-regulation hypothesis, self-reported anxiety was significantly higher at Time 3 (M = 6.8), when participants supplied their lowest estimates, than at Time 1, M = 5.7; t(69) = 5.30, p < .0001, and Time 2, M = 5.3; t(69) = 7.50, p < .0001. Likewise, anxiety and the degree of optimism (the difference between estimated and actual score) were uncorrelated at Time 1 (r = −.14, p > .20) and Time 2 (r = −.15, p > .20) but were correlated at Time 3 (r = −.20, p < .08). This finding suggests that the increase in anxiety expressed at Time 3 was associated with a decrease in optimism at Time 3.

Finally, low-self-esteem participants reported significantly
higher anxiety at Time 2 and Time 3 than did high-self-esteem participants. At Time 2 the mean anxiety ratings were 6.0 for low-self-esteem participants and 4.6 for high-self-esteem participants, t(68) = 2.70, p < .01. At Time 3 the mean anxiety ratings were 7.3 for low-self-esteem participants and 6.3 for high-self-esteem participants, t(68) = 2.07, p < .05. We reanalyzed participants' estimates of their exam scores across the three time periods including self-reported anxiety as a covariate and using hierarchical multiple regression analyses. Both Time 2 and Time 3 anxiety were entered as covariates to partial out changes in anxiety. Analysis revealed that the significant interaction of self-esteem and time of estimate was no longer significant when anxiety was included as a covariate, F(2, 66) = 1.76, ns.

Moreover, when we asked those participants who lowered their estimate at Time 3 why they changed their estimate, the most common response, supplied by 44% of respondents, was nervousness or anxiety. Other responses included less confidence or doubt (22%) and a desire to avoid disappointment (11%). Indeed, the response supplied by several participants (e.g., "I'll feel better if I underestimate than if I overestimate") seemed to express exactly the affect-regulation hypothesis.

Ancillary measures. The changes in estimates do not appear attributable to self-presentation concerns. Neither participants' reports of whether they believed their exam estimate could be connected with their name by the experimenter nor their reports of whether they cared whether the two could be connected predicted participants' estimated scores across the three time periods (all Fs < 1). It is significant that low-self-esteem participants (M = 3.0) were somewhat more likely than high-self-esteem participants (M = 2.1) to report that they would care if the experimenter connected their estimates with their name, t(69) = 1.86, p < .07. However, when responses to this item were included in the model as a covariate (see Hull, Tedlie, & Lehn, 1992), the interaction of self-esteem and time of estimate remained significant.

There was a tendency for participants to become less certain of the accuracy of their estimates as the time of evaluative feedback approached, F(2, 138) = 2.95, p < .06. Specifically, participants were somewhat more certain of the accuracy of their estimated score at Time 1 (M = 5.5) than at Time 2 (M = 5.2) and Time 3 (M = 5.2), both ts > 1.58, p < .07, one-tailed. In addition, participants' ratings of how important it was to do well on the exam were higher at Time 1 (M = 8.0) than at Time 2 (M = 7.8), t = 2.70, p < .01. However, their certainty and importance ratings did not predict changes in exam score estimates (all Fs < 1). Moreover, when certainty and importance were included as covariates in the model, the interaction of self-esteem and time of estimate again remained significant. Finally, the extent to which participants rated that they were certain that their estimate was accurate at Time 3 was uncorrelated with the extent to which their estimated score deviated from their actual score (r = -.14) or changed from their estimate at Time 1 (r = .05) or Time 2 (r = .03).

Discussion

The results from Study 3 replicate the results from Study 2. As self-relevant feedback became imminent, participants lowered their performance estimates, exchanging an accurate appraisal of their performance for a pessimistic appraisal.
over, the results provide support for the hypothesis that self-esteem moderates the tendency to lower performance estimates in anticipation of self-relevant feedback. Specifically, low-self-esteem participants significantly lowered their performance estimates as feedback became imminent. High-self-esteem participants did not. This latter finding provides empirical support for recent theorizing that individuals with low self-esteem are more likely than those with high self-esteem to prepare preemptively for negative feedback (Blaine & Crocker, 1993). In the present study, low-self-esteem participants appeared to prepare themselves for a poor performance by altering their performance estimates. As performance feedback neared, low-self-esteem participants were more likely than high-self-esteem participants to estimate a lower test score.

We cannot conclude from our data that low-self-esteem participants anticipating imminent feedback will lower their estimates, whereas high-self-esteem participants will not. It is possible that the difference in final estimates merely reflects the tendency for low-self-esteem participants to lower their performance estimates more quickly than high-self-esteem individuals. As noted earlier, there remained some time between when participants made their final estimate and when they saw their score. Had we assessed their final estimate the moment before they observed their score (as in Study 2), we might have found that high- and low-self-esteem participants lowered their performance estimates equally. This notwithstanding, the finding that low-self-esteem participants lowered their estimates more than high-self-esteem participants suggests that low-self-esteem participants respond more readily to the prospect of threatening information.

This study also found that the decline in performance estimates in anticipation of feedback corresponded to an increase in anxiety. As the time between estimate and receipt of feedback decreased, reported anxiety increased. In addition, low-self-esteem participants, who were most inclined to lower their performance estimates in anticipation of feedback, also reported the highest level of anxiety. Finally, when participants' self-reported anxiety was entered into the regression model as a predictor, the interaction of self-esteem and time of prediction no longer significantly predicted their estimated scores. Likewise, the most frequently reported reason for a change in estimate from Time 2 to Time 3 was nervousness or anxiety. Taken together, these findings suggest that participants may have changed their performance estimates to regulate affect. By providing a lower performance estimate just before feedback, they prepared themselves for the possibility of negative feedback.

General Discussion

This research provides an intriguing extension of theorizing on defensive pessimism (Norem & Cantor, 1986a, 1986b). Most investigations of defensive pessimism have focused on two highly capable groups of students who are generally indistinguishable in their task performance yet differ markedly in the performance expectations. Most notable are defensive pessimists, who typically make unrealistically low predictions about a forthcoming performance and then subsequently channel their anxiety about the prospect of failure toward ensuring that the negative outcome does not occur. The present study, by contrast, focused on the forecasts made by high- and low-self-esteem individuals after a performance but before receiving feedback. Anxiety about the prospect of failure could not be channeled toward additional preparation because the performance was already complete. Thus, predicting a poor performance could not affect performance. Nevertheless, we found evidence of pessimism. Low-self-esteem participants lowered their performance estimates as self-relevant feedback became temporally proximal. The possibility that the lower performance estimates were motivated by a desire to regulate affect suggests that the form of pessimism we uncovered might also be regarded as defensive.

Although we believe that participants lowered their performance estimates as feedback became imminent to regulate affect, it is possible that the approaching feedback initiated a self-perception process as they searched for an explanation for their elevated anxiety. Some of them may have inferred from their increasing anxiety that they had performed worse than they thought on the exam; otherwise, why would they feel so anxious (Gilovich et al., 1993; Schwartz, 1990)? As such, the lower estimates in anticipation of feedback do not reflect a motivation to regulate affect but an attempt to explain increasing anxiety feelings. Accordingly, low-self-esteem participants displayed greater pessimism than did high-self-esteem participants because they experienced greater anxiety and were thus more active in their search for a cause.

Teasing apart cognitive and motivational explanations for apparently self-serving behavior is notoriously difficult, and previous researchers have noted the problems with conducting crucial tests to this end (Anderson & Slusher, 1986; Tetlock & Levi, 1982). Although our experiments were not designed to examine cognitive versus motivational explanations for the changes in performance estimates, the responses of participants to the open-ended question seem to favor a motivational interpretation. Specifically, a sizable portion of participants in Study 3 reported that they had lowered their performance estimates during the final estimate period to avoid feeling bad should they do worse than they had hoped. These reports suggest that participants lowered their estimates to brace themselves for failure. Admittedly, participants' explanations for their behaviors should be viewed cautiously; individuals often do not know the true reason for why they behave as they do (Nisbett & Wilson, 1977). Of course, the tendency to lower performance estimates in anticipation of self-relevant feedback may have multiple causes, stemming in part from a desire to explain anxiety feelings and in part from a desire to regulate those feelings. A clearer understanding of the reasons participants alter their performance estimates as feedback approaches awaits further research.

If participants are indeed making pessimistic predictions to regulate affect, the question becomes one of what affect participants are attempting to regulate. On the one hand, the lower performance estimates may reflect an attempt to alleviate mounting anxiety stemming from imminent and potentially undesirable feedback. That is, anxiety in anticipation of feedback may have become so uncomfortably high that participants lowered their performance estimates in an attempt to control it. The finding that those who reported the highest anxiety before receiving feedback were also most likely to lower their perfor-
performance estimates is consistent with this explanation. On the other hand, the lower performance estimates may reflect a preemptive attempt to regulate disappointment and negative affect arising from performing below expectations. That is, participants may have anticipated the disappointment they would feel if their expectations exceed their performance. They consequently reduced their performance estimates to minimize the possibility of performing worse than expected and to avoid disappointment arising as a consequence. The reasons offered by some participants for why they lowered their performance estimates are consistent with this second explanation. Specifically, some reported that they lowered their performance estimates because they would feel bad if they received a score lower than they expected. Moreover, the increase in anxiety as feedback became proximal may represent anticipatory anxiety over the prospect of disappointment.

The distinction we make between reducing mounting anxiety and reducing anticipated disappointment is similar to the distinction made by reinforcement theorists between escape and avoidance. Lowering performance estimates to control mounting anxiety is a means of escape, whereas lowering performance estimates to control anticipated disappointment is a means of avoidance.

Although the present data do not provide conclusive evidence supporting one explanation over the other, we suspect that participants lowered their estimates immediately before feedback primarily to avoid disappointment rather than to escape existing anxiety. We reason that supplying a lower performance estimate would be ineffective in reducing (and may in fact increase) mounting anxiety over forthcoming feedback. The mounting anxiety likely stems from imminent evaluation on a dimension highly relevant to identity. Yet, estimating a lower score does not forestall the feedback, nor does it change the implications of the feedback for identity. The desire to escape mounting anxiety feelings would be better served by delaying receipt of the feedback (perhaps by not looking at one's exam score) or by altering one's assessment of the validity of the feedback, the cause of the performance, or the relevance of the feedback to identity. That is, participants seeking to reduce their current anxiety could derogate the test, embrace unstable or external (i.e., nonability) explanations for a poor performance, or redefine the meaning or implications of the performance so that a poor performance is no longer threatening to identity. In this vein, responses to the ancillary measures suggests that participants did attempt to escape existing anxiety feelings. Specifically, they reported that it was less important for them to do well on the exam at Time 3, just before feedback, than at Time 2, when the feedback was still 50 minutes away.

We believe that participants who wished to regulate disappointment and negative affect arising from performing worse than expected had only one means at their disposal: lowering their performance estimates. Although a lower estimate would not change the meaning of the feedback, and likely would not eliminate disappointment over a poor performance entirely, it would eliminate negative feelings stemming from an unexpected unfavorable outcome.

These studies examined the predictions individuals make about their likely starting salary and the score they will receive on a classroom exam. We suspect, however, that the proposed model of the temporal transition from optimism to pessimism in outcome predictions extends to a variety of self-relevant dimensions. That is, we would anticipate observing a transition from optimism to accuracy, and eventually from accuracy to pessimism among, for example, high school students awaiting responses from potential prom dates, homeowners awaiting a carpenter’s estimate of the cost of home improvements, and authors awaiting an editor’s publication decision. We would particularly expect a decrease in optimism and increase in pessimism among individuals awaiting feedback following medical tests such as pregnancy tests and cancer screenings. An anecdotal example of the transition from optimism (or at least accuracy) to pessimism is provided by an acquaintance of James Shepperd who is a nurse at a clinic that tests for AIDS. After providing test results, the nurse routinely asks patients testing positively to imagine that she had asked them before providing their results to rate on a scale from 1 to 10 the likelihood that they had AIDS. Virtually all patients, even those who have no risk factors, respond with a rating of 10 or higher, indicating that they were certain before receiving their test results that they had AIDS. Moreover, these patients acknowledge that their conviction of having AIDS came about after being tested and increased as the date of their appointment to receive their test results approached. We can imagine no purpose that such a grim and often unrealistic prognostication serves other than to brace the individual for the prospect, no matter how unlikely, of undesired feedback.

References

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