

Positive Illusions About the Self: Short-Term Benefits and Long-Term Costs

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Two studies addressed parallel questions about the correlates and consequences of self-enhancement bias. Study 1 was conducted in a laboratory context and examined self-enhancing evaluations of performance in a group-interaction task. Study 2 assessed students' illusory beliefs about their academic ability when they first entered college and then followed them longitudinally to test claims about the long-term benefits of positive illusions. Both studies showed that self-enhancement bias was related to narcissism, ego involvement, self-serving attributions, and positive affect. Study 2 found that self-enhancement was associated with decreasing levels of self-esteem and well-being as well as with increasing disengagement from the academic context. Self-enhancement did not predict higher academic performance or higher graduate rates. Thus, the findings suggest that self-enhancing beliefs may be adaptive in the short term but not in the long term.

Individuals differ dramatically in how positively they evaluate their abilities. Some individuals have highly inflated views of themselves, whereas others have fairly realistic self-appraisals. Who is likely to be happier and more successful in life—the individual with the overly positive self-perception or the one with an accurate self-view? Recently, some psychologists have reached the conclusion that people with “positive illusions” may be better off in a number of ways. Taylor and Brown (1988, 1994) proposed that positive illusions promote psychological well-being as well as “higher motivation, greater persistence, more effective performance and ultimately, greater success” (Taylor & Brown, 1988, p. 199). This perspective has become entrenched in the literature. A National Institute of Mental Health report (1995) on the current state of behavioral science concluded that “considerable evidence suggests positive psychological benefits for people who believe their future will be rosier than they have any right to expect. Such optimism keeps people in a positive mood, motivates them to work toward future goals, fosters creative, productive work, and gives them a sense of being in control of their destiny” (p. 182).

Despite this conclusion, there are several reasons to question the claim that positive illusions are adaptive (Colvin & Block, 1994). First, many studies cited in support of the adaptive benefits of positive illusions do not adequately measure positive *illusions*. As Taylor and Armor (1996) noted, many studies of illusory beliefs do not “identify the illusion component of these beliefs, but rather show simply that beliefs in personal control over a traumatic event, optimism about the future, and positive self-perceptions are asso-

ciated with good psychological outcomes” (p. 885). For example, Aspinwall and Taylor (1992) used Rotter's Locus of Control Scale to measure exaggerated perceptions of control, Carver and Scheier's Life Orientation Test to measure unrealistic optimism, and the Rosenberg Self-Esteem Scale to measure unrealistically positive self-evaluations. These studies show that positive beliefs, regardless of their basis in reality, have positive consequences, but they do not identify a subset of individuals whose positive beliefs about themselves are unwarranted. To do this, some external criterion, such as judgments by others or an objective task outcome, is required. External criteria are essential in studies of positive illusions because they provide an explicit standard for gauging bias in a person's self-evaluations and thus provide a way to separate those who are truly biased from those who have accurate positive beliefs about themselves.

Second, many of the relevant studies were conducted in the laboratory and may have limited external validity. Although these studies provide greater experimental control and can help elucidate the underlying mechanisms, what is illusory in the laboratory may not be illusory in real-world settings (Funder, 1987). In addition, laboratory studies necessarily focus on short-term outcomes, and the long-term consequences of positive illusions may be different.

Third, many studies documenting a link between positive illusions and adaptive outcomes rely on self-report measures of adjustment. However, individuals prone to positive illusions may also positively inflate their self-reports (Shedler, Mayman, & Manis, 1993). In other words, positive illusions may reflect a more general tendency to bolster self-esteem by denying information that threatens self-worth, and this tendency may manifest itself on a wide range of self-report measures. Thus, some of the supposed benefits of positive illusions, such as subjective well-being, may merely reflect defensive denial rather than actual psychological adjustment.

In addition to these methodological limitations, recent research has provided contrary evidence, indicating that individuals with

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positive illusions may be less well-adjusted in some ways. Several studies have demonstrated that self-enhancing illusions are related to narcissistic personality traits. For example, individuals who overestimate their performance in a competitive group task are more likely to be narcissistic, according to ratings by a team of psychologists and self-report measures of narcissism (Gosling, John, Craik, & Robins, 1998; John & Robins, 1994; Robins & John, 1997a). The link with narcissism suggests that unrealistically positive self-views may reflect a maladaptive self-regulatory style because narcissistic tendencies are indicative of a long-term pattern of psychological distress and dysfunction. To provide a more direct test of the maladaptive aspects of positive illusions, Robins and John (1997b) reanalyzed data from John and Robins (1994) and found that individuals who held inflated views of themselves were described by psychologists not only as more narcissistic but as less well-adjusted overall than individuals with more accurate self-appraisals.

Consistent with these findings, Colvin, Block, and Funder (1995) found that self-enhancing individuals were described by their peers in narcissistic terms (e.g., hostile, defensive, condescending), whereas individuals who did not have self-enhancing beliefs were described as cheerful and considerate. Johnson, Vincent, and Ross (1997) found that the trait of self-deceptive enhancement was associated with higher levels of hostility following a failure experience, after controlling for self-esteem. In an intriguing study, Paulhus (1998) showed that self-enhancing individuals were viewed positively by their peers after a brief interaction but that this initial favorable impression deteriorated after a few more hours of contact, and self-enhancers were eventually viewed as hostile, defensive, and tending to brag. Paulhus' research raises the possibility that self-enhancing illusions may be beneficial in the short term but maladaptive over the long-term (Colvin, Block, & Funder, 1995).

In summary, the research literature does not support unequivocal claims about either the positive or the negative consequences of illusory beliefs about the self, and the question of whether positive illusions are adaptive remains open to empirical inquiry. Reconciling the literature may require a more complex conceptualization of positive illusions and their consequences. As Taylor and Armor (1996) noted, a more fruitful direction would be to examine the conditions under which positive illusions are adaptive. Thus, rather than pitting the two opposing claims against each other, research should turn toward more specific questions. For example, do positive illusions have short-term benefits but long-term costs? Is distorting reality adaptive in some contexts but maladaptive in others? Do the consequences depend on the specific form of illusory self-view and the criteria for adaptiveness? Which cognitive and motivational mechanisms underlie self-enhancing illusions? Which individual differences and situational factors play a role in generating positive illusions and their consequences? Further research is needed to evaluate these various questions.

The present research reports two studies that examined parallel questions about the correlates and consequences of positive illusions: One does so in a laboratory context (Study 1), and the other in a real-world, longitudinal context (Study 2). Both studies focused on one form of positive illusion, self-enhancement bias (i.e., unrealistically positive self-evaluations), and on several variables believed to play a central role in the self-evaluation process (narcissism, ego involvement, causal attributions, affect). In Study 1,

participants evaluated their performance in a group task; self-enhancement bias was operationalized as the discrepancy between self-evaluations of performance and evaluations of performance by the other group members. In Study 2, we assessed students' beliefs about their academic ability when they first entered college, and then we followed them throughout college to test claims about the long-term benefits of self-enhancement; self-enhancement was operationalized as the discrepancy between self-evaluated academic ability and objective indicators of academic ability.

The two studies addressed the following set of questions. First, are individuals generally biased in their self-evaluations, and to what extent are there systematic individual differences in the level of bias? Second, are narcissistic individuals particularly likely to have inflated self-evaluations? Third, are individuals more biased about themselves when they are ego-involved (i.e., when success is important to them)? Fourth, do individuals who positively distort their self-evaluations also tend to make self-serving attributions for their successes and failures? Fifth, what are the emotional consequences of positive illusions? In Study 1, we focused on short-term affective consequences (i.e., a posttask rise in positive affect). In Study 2, we focused on long-term changes in self-esteem and well-being. Finally, in Study 2, we also examined whether self-enhancing beliefs assessed at the beginning of college predicted two academic outcomes: cumulative grades and graduation from college.

Study 1

Study 1 examined self-enhancement bias and its correlates in a group-decision-making task. In this task, participants worked toward a consensual solution about how best to use their available resources to survive after crash landing on the moon. Following the task, participants evaluated their own performance in the task (*self-evaluations*) and the performance of each other group member (*peer evaluations*). Participants also estimated how their performance was evaluated by the other group members (*perceived-peer evaluations*). Using these three sets of performance ratings (i.e., self, peer, perceived peer), we examined several questions about how people protect their self-worth and bolster their self-esteem in this context.

First, is there a general self-enhancement effect? That is, do individuals have unrealistically positive perceptions of their task performance? We examined this question by comparing self-evaluations of performance with peer evaluations of performance (e.g., Colvin, Block, & Funder, 1995; John & Robins, 1994; Paulhus, 1998; Robins & John, 1997a). Self-esteem maintenance processes are likely to be operating in this task because performance has implications for self-worth. One way for participants to avoid the potentially adverse effects of failure is to positively distort their self-evaluations. In general, therefore, we expected people on average to show self-enhancement bias. However, we also expected to find substantial individual differences in both the magnitude and the direction of the self-enhancement effect (John & Robins, 1994).

Second, do individuals inflate their self-evaluations even relative to how they *think* their peers evaluate their performance (cf. Kenny & DePaulo, 1993)? Although the perceived peer evaluations do not themselves constitute an adequate criterion for establishing self-enhancement bias, they do help address the question of

how deep-seated the bias is (i.e., are self-enhancers aware that their self-perceptions are idiosyncratic, or do they believe that everyone sees them as positively as they see themselves?).

Third, are narcissistic individuals particularly inclined to show a self-enhancement bias? One path to exploring the psychological roots of self-enhancement is to search for personality characteristics that may predispose certain individuals toward biased self-views. Narcissists are prone to self-aggrandizement because their inflated sense of self-importance is easily threatened (Westen, 1990). Previous research has demonstrated a link between narcissism and self-enhancement bias in a group-interaction task (John & Robins, 1994; Robins & John, 1997a). In these studies, self-enhancement was defined relative to psychologists' assessments and peer evaluations of task performance. The present study extended this research by examining whether narcissistic individuals show a self-enhancement bias relative to both peer and perceived-peer evaluations.

Fourth, are highly ego-involved individuals more likely to show a self-enhancement bias than are less ego-involved individuals? In general, ego involvement in a task (i.e., the belief that performing well is very important) should increase perceived threats to self-worth. Therefore, we predicted a positive relation between individual differences in ego involvement and individual differences in self-enhancement bias. Ego involvement may also play a role in the link between narcissism and self-enhancement bias. Specifically, narcissists may self-enhance because their easily threatened self-esteem predisposes them to be more ego-involved across different situations. This chronic ego involvement might compel them to positively inflate their self-perception more frequently than do individuals who are less easily threatened. Therefore, we predicted that ego involvement would mediate the relation between narcissism and self-enhancement bias.

Fifth, do self-enhancing individuals make self-serving attributions for their task performance? The self-serving attributional pattern—in which people take credit for success but externalize or discount the implications of failure—is hypothesized to be one way in which people maintain a biased view of themselves (e.g., Brown, 1998; Brown & Rogers, 1991). Additionally, self-serving attributions have been linked in previous research to self-esteem (e.g., Tice, 1991) and to narcissism (Farwell & Wohlwend-Lloyd, 1998; Rhodewalt & Morf, 1998). However, no studies have directly tested whether self-serving attributions are linked to self-enhancement bias. We predicted that self-enhancers form a distorted view of their abilities in part because they attribute positive aspects of their performance to ability and negative aspects to bad luck or lack of effort.

Sixth, what are the affective consequences of self-enhancement bias in the group-interaction task? Positive illusions are assumed to reflect a self-regulatory strategy for coping with stress and negative feedback, and thus to play a role in the regulation of affect. For example, self-enhancement bias can protect self-esteem after a threatening event such as a failure experience (Taylor, Wayment, & Collins, 1993). If positive illusions play a role in affect regulation, then one possible consequence of self-enhancement may be a posttask rise in positive affect and a decline in negative affect. If individuals convince themselves that they have performed well, then it is likely that they will feel happier after the task. A link between self-enhancement bias and posttask mood would support

the view that positive illusions are adaptive in terms of emotional well-being.

Method

Participants

A total of 360 individuals (57% women) participated in the study in exchange for course credit.

Group Task

Participants interacted in groups of 5 in a decision-making task entitled "Lost on the Moon." The instructions for the task were as follows:

You are a member of a space crew originally scheduled to rendezvous with a mother ship on the lighted surface of the moon. Due to mechanical difficulties, however, your ship was forced to land at a spot 200 miles from the rendezvous point. The rough landing has ruined your ship and damaged much of the equipment aboard. Only the 15 items listed below were undamaged by the landing. Your crew's survival depends on reaching the mother ship, so the most critical items available must be chosen for the 200-mile trip.

Your group's task is to rank the 15 items in terms of their importance for the crew's survival. When your group has come to an agreement, indicate your group's rankings in the space below. Put a number 1 by the most important item, a number 2 by the second most important item and so on through number 15, the least important item. Do not give the same ranking to more than 1 item; that is, no ties are allowed. You have 20-minutes to complete the rankings.

Measures

Self-peer and perceived-peer evaluations of task performance. Following the task, participants ranked themselves and other group members ("peers") on the extent to which each of them had contributed to the overall effectiveness of the group. The self- and peer rankings ranged from 1 (*most effective*) to 5 (*least effective*). The ranking procedure required participants to directly compare their own performance with those of the other group members, rather than to some unspecified reference group or norm. Prior or privileged knowledge about the self (e.g., intentions, motives, past behavior) was irrelevant to the performance evaluations made in this task (see John & Robins, 1994, pp. 209–210). The peer rankings were composited across the four raters in each group. To measure perceived-peer evaluations, participants were asked, "How do you think other members of your group ranked your overall contribution to the discussion?" Response options ranged from "First (greatest contribution)" to "Fifth (least contribution)." The self-evaluation of performance correlated .63 with the mean peer evaluation and .67 with the perceived-peer evaluation. The mean peer evaluation correlated .63 with the perceived-peer evaluation.¹

Individual differences in self-enhancement bias. We computed two indices of individual differences in self-enhancement bias: one represents overestimation (vs. underestimation) of performance relative to the actual peer rankings and the other represents overestimation (vs. underestimation) relative to the perceived peer rankings. Both indices were computed using residual scores reflecting the discrepancy between the self-evaluation of performance and the mean peer (or perceived-peer) evaluation of performance (John & Robins, 1994; Paulhus, 1998; Robins & John, 1997a).

¹ The respective correlations computed using Spearman's rank-order correlation were .64, .67, and .65. The analyses of mean differences to be reported were also conducted using nonparametric statistics, and in no case did the findings differ from those based on parametric statistics.

Specifically, the self-rankings were regressed on the peer rankings and the residuals were retained. Positive values indicate self-enhancement (overestimation by the self) and negative values indicate self-diminishment (underestimation by the self).

Narcissism. Narcissism was measured using the 33-item version of the Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988). The NPI was designed for nonclinical populations, and it is the most widely used and thoroughly researched measure of narcissism. In the present sample, the NPI had a mean of 13.3 ($SD = 5.5$) and a coefficient alpha reliability of .80.

Ego involvement. Participants were asked, "How important was it to you to perform well (i.e., contribute a great deal) in this task?" The rating scale ranged from 1 (*not at all important*) to 10 (*extremely important*).

Attributions for task performance. Participants were asked the following:

How important do you think the following were in influencing your performance in the task?: your intellectual *ability*, the amount of *effort* you put into the task, the *mood* you were in, the *difficulty* of the task, your *knowledge* of the moon, your *personality*, the way the *other members* of your group acted.

Each of the seven causal factors was rated on a scale ranging from 1 (*not at all important*) to 10 (*extremely important*).

Dispositional and task-specific affect. Affect was measured using the Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988). The PANAS requires participants to rate themselves using a set of 20 emotion words, including *irritable*, *distressed*, *active*, and *enthusiastic*. To assess dispositional affect, participants completed the PANAS several weeks prior to the group task, with the following instructions: "Below are a number of words that describe different feelings and emotions. Consider to what extent you generally feel this way, that is, how you feel on the average." Participants rated the emotion words on a 5-point scale ranging from 1 (*very slightly*) to 5 (*extremely*). The alpha reliability was .88 for both the 10-item positive affect scale and the 10-item negative affect scale.

To assess task-specific affect, participants completed an abbreviated version of the PANAS after participating in the group exercise. The instructions specified that participants should rate how they felt during the task: "Please use the following words to describe the feelings and emotions you experienced during the group discussion." The alpha reliabilities were .91 and .82 for the 5-item positive affect scale and the 5-item negative affect scale, respectively. The task-specific and dispositional affect measures correlated .31 for positive affect and .23 for negative affect.

We operationalized change in affect as the discrepancy between task-specific affect and dispositional affect. Specifically, task-specific positive (or negative) affect was regressed on dispositional positive (or negative) affect and the residuals were retained. Positive residuals indicate increases in positive (or negative) affect, and negative residuals indicate decreases in positive (or negative) affect.

Results and Discussion

General Self-Enhancement Effect

Do individuals generally evaluate themselves more positively than they are evaluated by their peers? To test this, we compared the mean self-ranking with the mean peer ranking of performance. As expected, there was a general self-enhancement effect: The mean self-ranking was 2.69 ($SD = 1.20$), whereas the mean peer ranking was 3.08 ($SD = 1.17$), paired samples $t(356) = 7.31$, $p < .05$. Thus, on average, participants overestimated their performance in the task by more than one third of a rank, which is comparable to the effect size reported by John and Robins (1994;

Robins & John, 1997a). A test of the interaction between gender and rater (self vs. peer) was not significant, $F < 1$, indicating that there was no gender difference in the magnitude of the self-enhancement effect. The absence of a gender difference is consistent with results from previous research (John & Robins, 1994; Robins & John, 1997a).

Do individuals evaluate themselves more positively than they think their peers evaluated them? The mean self-ranking ($M = 2.69$) was significantly more positive than the mean perceived peer ranking ($M = 3.01$, $SD = 1.07$), $t(337) = 6.17$, $p < .05$. There was no gender difference in the magnitude of this self-enhancement effect, $F < 1$. The difference between the actual and perceived peer rankings was not significant, $t(337) = 1.59$, $p = .11$. In other words, participants maintained positively biased beliefs about their performance while reporting that their peers did not see them in an equally positive manner. This finding is consistent with results from previous research showing that individuals maintain biased beliefs about themselves even when they evaluate their performance from the visual perspective of their peers (Robins & John, 1997a).

Individual Differences in Self-Enhancement Bias

In the previous section, we found a general self-enhancement effect: On average, participants overestimated their performance in the task. This finding tells us little, however, about the extent to which there were individual differences. Indeed, we found substantial individual differences. Relative to the actual peer rankings, 31% overestimated their performance by more than one rank, 9% underestimated by more than one rank, and 60% were accurate within one rank. The perceived peer rankings yielded similar proportions: 37% overestimated, 11% underestimated, and 52% were accurate. These values are comparable to those reported by John and Robins (1994).

To what extent are these individual differences correlated? That is, were the individuals who self-enhanced relative to how their peers evaluated them the same individuals who self-enhanced relative to how they thought their peers evaluated them? This appears to be the case: The peer-based measure of self-enhancement bias correlated .56 with the perceived peer measure.

Self-Enhancers Are More Narcissistic

Narcissism had a weak, positive relation with self-enhancement bias relative to actual-peer rankings ($r = .13$, $p < .05$) and relative to perceived-peer evaluations ($r = .11$, $p < .05$). Thus, narcissistic individuals evaluated themselves more favorably than their peers evaluated them and more favorably than they thought their peers evaluated them.

Self-Enhancers Are More Ego Involved in the Task

As expected, ego involvement was positively correlated with both measures of self-enhancement bias; the correlation was .24 ($p < .05$) relative to actual peer rankings and .18 ($p < .05$) relative to perceived peer rankings. These findings indicate that individuals who felt highly invested in doing well in the task were more likely to inflate their self-perceptions. It is possible that high ego involvement combined with the threat of failure may result in self-

enhancement as a defensive strategy to maintain positive self-worth.

Narcissists showed a weak tendency to feel more ego involved in the task ($r = .11, p < .05$), which raises the possibility that ego involvement mediates the relation between narcissism and self-enhancement bias. However, controlling for ego involvement did not significantly affect the relation between narcissism and self-enhancement bias (partial $r = .13, p < .05$). Ego involvement also did not moderate the relation between narcissism and self-enhancement bias ($\Delta R^2 = 0.3\%, ns$).

Self-Enhancers Explain Their Task Performance in Terms of Their Own Ability

Do self-enhancers make self-serving attributions to explain their performance on the task? Both measures of self-enhancement bias correlated with attributions to intellectual ability, $r = .28$ ($p < .05$) and $.13$ ($p < .05$) for the actual and perceived-peer indices, respectively. Given that self-enhancers had a positive view of their task performance, this suggests that self-enhancing individuals explain their success in terms of high ability. Narcissism was not significantly correlated with any of the other attributions (r s ranged from $-.03$ to $.09$).

Self-Enhancers Experience a Rise in Positive Affect

We hypothesized that one consequence of self-enhancement bias would be a rise in positive affect. Consistent with this hypothesis, individuals who overestimated their performance in the task tended to experience an increase in positive affect relative to baseline (i.e., dispositional) affect; this relation held for both the actual-peer measure of self-enhancement ($r = .23, p < .05$) and for the perceived-peer measure of self-enhancement ($r = .14, p < .05$).

Individuals who perceived their peers as having evaluated them positively also experienced a rise in positive affect ($r = .33, p < .05$). In addition, actually performing well in the task (as judged by the peers) was associated with a rise in positive affect ($r = .28, p < .05$). That is, individuals who were evaluated positively by their peers tended to report feeling more positive affect after the task.

These findings raise the question of whether the effects are independent of each other. A multiple regression analysis predicting change in positive affect showed significant independent effects of self-evaluation ($\beta = .14$), peer evaluation ($\beta = .14$), and perceived-peer evaluation ($\beta = .15$). This finding suggests that the level of positive affect experienced after a task is a joint function of how people evaluate their own performance, how they are evaluated by their peers, and how they believe they were evaluated by their peers. None of the relations with change in negative affect was significant (all p s $> .10$), except that perceived-peer evaluations correlated $-.13$ ($p < .05$) with increases in negative affect.

The absence of a relation between negative affect and self-enhancement bias is inconsistent with traditional psychoanalytic accounts of the operation of defense mechanisms. The findings suggest instead that self-enhancement bias may have operated in the present context as an offense mechanism (an attempt to bolster self-worth) rather than as a defense mechanism (an attempt to deny threatening information about the self). It is also plausible that the

causal direction is reversed: An increase in positive affect leads to inflated self-evaluations. This interpretation is consistent with selective affect-cognition priming models (e.g., Bower, 1991) in which positive affect can prime positive self-evaluation. It is important to note, however, that the priming model would also predict that negative affect would prime negative self-evaluation.

The link between self-enhancement bias and positive affect supports Taylor and Brown's (1988) claim that self-enhancement bias is adaptive: People who convinced themselves that they did well, regardless of reality, felt better after the task. More generally, the findings suggest that both reality and perception independently influence posttask mood.

In summary, Study 1 demonstrated a link between self-enhancement bias and several variables hypothesized to play a role in the self-enhancement process. The findings showed that self-enhancers tended to be narcissistic and ego-involved in the task, attributed their performance to their ability, and experienced a rise in positive affect after the task. The findings further our understanding of the self-evaluative processes linked to biased self-perception and support claims about the psychological benefits of positive illusions.

Study 2

The purpose of Study 2 was to extend the findings from Study 1 to a real-world academic context, using a sample of students followed longitudinally through college. In this study, we examined whether students who entered college with self-enhancing beliefs about their academic ability were more narcissistic, more ego involved in their academic performance (i.e., grades), more inclined to make self-serving attributions for their performance, and more likely to maintain their self-esteem and well-being over time. In addition, we examined whether self-enhancement had adaptive benefits for two outcomes specific to the college environment: college grade point average (GPA) and graduation status.

We chose the college environment to study self-enhancement for two reasons. First, in the college environment the accuracy of self-perceived academic ability can be gauged against relatively objective criteria (standardized tests of ability and prior academic achievement), whereas in Study 1 we had to rely on peer reports as a criterion for accuracy. Second, the college environment provides a realistic and ego-involving context in which to examine self-evaluative processes. Academic achievement has important consequences for self-worth because most students believe their performance in college reflects their general intellectual competence and influences significant life outcomes. The experience of academic failure, therefore, should chip away at an individual's self-esteem, whereas academic success should boost self-esteem. Consequently, many individuals will be motivated to convince themselves that they are more academically competent and successful than they actually are.

Method

Sample and Procedure

This research used data from the Berkeley Longitudinal Study (Robins, Hendin, & Trzesniewski, 2001), an ongoing study designed to examine the development of self-esteem and personality during college. The sample comprises 508 undergraduate students who entered the University of

California at Berkeley in 1992. This sample is diverse in terms of ethnicity (43% Asian, 36% Caucasian, 13% Chicano/Latino, 7% African American, 1% Native American), gender (56% female), socioeconomic status (20% came from families with household incomes below \$25,000, and 20% from families with household incomes above \$100,000), and academic ability (combined SAT scores ranged from 650 to 1540; $M = 1183$, $SD = 181$).

Participants were recruited during the first week of their first year of college and then assessed annually throughout college. Participants were contacted by mail and asked to complete an extensive questionnaire in exchange for money (the financial incentive ranged from \$6 to \$20). Six assessments were conducted over a 4-year period: first week of college ($N = 508$); end of the first semester ($N = 455$); and end of the first ($N = 306$), second ($N = 260$), third ($N = 200$), and fourth ($N = 303$) years of college.

Despite the attrition that occurred in particular assessments, most of the analyses to be reported are based on more than 90% of the total sample, because most analyses used (a) data from the first (Week 1) assessment; (b) data from university records that were available for almost all participants (e.g., SAT scores, high school GPA, college GPA, graduation status); and/or (c) growth curves that modeled individual trajectories using all available data (e.g., if an individual participated in the Week 1, Year 3, and Year 4 assessments, then a growth curve would be computed on the basis of those three time points).

Measures

Self-perceived academic ability. Self-perceived ability was measured in the first assessment, using a standardized composite of eight items ($\alpha = .79$), tapping two facets of perceived ability: (a) direct self-reports of ability ("I am confident of my ability to do well in school," "Compared to the average student in your high school, how would you rate your academic ability," "Compared to the average UC Berkeley student, how would you rate your academic ability?" "Do you think you have the ability to compete in college?" "I often worry about not being bright enough" [reverse scored]) and (b) expected performance in college ("What overall GPA do you think you are capable of attaining?" "Realistically, what overall GPA do you think you will attain?" "What is the lowest overall GPA you would be satisfied attaining?").

Academic ability. Academic ability was measured using a standardized composite of combined SAT scores (SAT-Verbal plus SAT-Math) and high school GPA, which were obtained from university records. Academic ability correlated .33 ($p < .05$) with self-perceived ability.

Self-enhancement bias. Self-enhancement bias was defined as the degree to which self-perceived academic ability was higher than actual academic ability (i.e., SAT scores and high school GPA). As in Study 1, we used a residual score (computed using multiple regression) reflecting the discrepancy between self-perceived ability and actual ability. Positive values indicated self-enhancement (i.e., overestimation by the self); negative values indicated self-diminishment (i.e., underestimation by the self).

Narcissism. Narcissism was measured in the first assessment, using the 33-item Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988). The NPI used in the present sample had a mean of 13.6 ($SD = 5.6$) and an alpha reliability of .80.

Self-serving attributions for academic performance. Achievement attributions were measured in the first assessment using the Multidimensional-Multiattributonal Causality Scale (MMCS; Lefcourt, von Baeyer, Ware, & Cox, 1979). The MMCS assesses causal attributions to two internal factors (i.e., ability, effort) and two external factors (i.e., situation, luck), separately for success and failure experiences. Self-serving attributional bias was computed as the sum of four scales: Internal Attributions for Success, External Attributions for Failure, External Attributions for Success (reverse scored), and Internal Attributions for Failure (reverse scored).

Ego involvement in academic achievement. Participants were asked three questions about the importance of academic achievement: "How

important is it to you to get good grades this semester?" "How important is it to you to get As at UC Berkeley?" and "How important is your academic ability to your sense of self-worth?" A standardized composite of these three questions was used to measure ego involvement in all six assessments. Alpha reliabilities ranged from .61 to .75 ($Mdn = .70$).

To examine change in ego involvement over 4 years of college, we used growth curve modeling with ordinary least-squares regression (Willett, 1997; see also, McFayden-Ketchum, Bates, Dodge, & Pettit, 1996 [appendix]). By modeling individual trajectories over multiple waves of data, growth curve modeling is less confounded by regression to the mean and provides a more reliable index of change than difference or residual change scores. Growth curve modeling also helps deal with missing data, because trajectories are computed using all available data for each participant. To compute growth curves for each participant, we regressed ego-involvement scores on assessment period (centered at the midpoint of the time period). Positive slopes (i.e., standardized regression weights) indicate increases in ego involvement over 4 years of college; negative slopes indicate decreases in ego involvement. The y -intercept represents the participant's mean ego involvement level across the 4-year period. The slope and y -intercept correlated .40 ($p < .05$). This same procedure was used to compute growth curve trajectories and intercepts for all subsequent variables.

Self-esteem. Participants completed the 10-item Rosenberg Self-Esteem scale (RSE; Rosenberg, 1965). Items were rated on a scale from 1 (*not very true of me*) to 5 (*very true of me*). The RSE was administered in all six assessments (α range = 88--90). Growth curve modeling was used to examine change in self-esteem during college. Positive slopes indicate increases in self-esteem; negative slopes indicate decreases in self-esteem. The y -intercept represents the participant's mean self-esteem level across the 4-year period. The slope and the y -intercept correlated .38 ($p < .05$).

Subjective well-being. Subjective well-being was measured in five assessments. In the first assessment, well-being was measured using a standardized composite of Overall Life Satisfaction (Campbell, Converse, & Rodgers, 1976); the Positive and Negative Affect (reverse scored) scales from the PANAS (Watson, Clark, & Tellegen, 1988); and the Neuroticism scale from the NEO-Five Factor Inventory (reverse scored; Costa & McCrae, 1992). In the Year 1, 2, 3, and 4 assessments, well-being was assessed using a standardized composite of Overall Life Satisfaction (Campbell, Converse, & Rodgers, 1976); Adjustment to College scale (adapted from Aspinwall & Taylor, 1992); Perceived Stress Scale (reverse scored; Cohen, Kamarck, & Mermelstein, 1983); and the Center for Epidemiological Studies Depression scale (reverse scored; Radloff, 1977). Growth curve modeling was used to examine change in well-being during college. Positive slopes indicate increases in well-being; negative slopes indicate decreases in well-being. The y -intercept represents the participant's mean well-being level across the 4-year period. The slope and y -intercept correlated .26 ($p < .05$).

Academic achievement. College achievement was measured using the students' cumulative GPA after 5 years of college. (This information was obtained from university records.) Cumulative GPA correlated .53 ($p < .05$) with academic ability and .22 ($p < .05$) with self-perceived ability. Growth curve modeling was used to examine change in GPA during college. Positive slopes indicate increases in GPA; negative slopes indicate decreases in GPA. Change in GPA correlated .00 (*ns*) with cumulative GPA, $-.09$ ($p = .05$) with academic ability, and $-.04$ (*ns*) with self-perceived ability.

Graduation status. Graduation status (obtained from university records) was a dichotomous variable indicating whether the student had graduated within 5 years after entering college.

Results and Discussion

Table 1 shows correlations between self-enhancement bias and narcissism, self-serving attributions, ego involvement, self-esteem, well-being, college GPA, and graduation status.

Table 1
*Correlates and Consequences of Self-Enhancement Bias
 in the College Context*

Variable	<i>r</i>
Narcissism	.36*
Self-serving attribution	.42*
Ego involvement	
Intercept	.04
Slope	-.15*
Intercept partialled	-.18*
Self-esteem	
Intercept	.20*
Slope	-.21*
Intercept partialled	-.31*
Subjective well-being	
Intercept	.27*
Slope	-.18*
Intercept partialled	-.27*
College grades	
Cumulative GPA	.06
Slope	.00
Intercept partialled	.00
Graduation status	-.07

Note. *Ns* ranged from 394 to 508 because of missing data and sample attrition. GPA = grade point average.

* $p < .05$.

Individual Differences in Self-Enhancement Bias and Narcissism

The academic challenge of college is likely to threaten self-esteem, and we thus expected that narcissists would have more inflated perceptions of their academic ability than nonnarcissistic individuals. Narcissism correlated .36 ($p < .05$, $N = 486$) with self-enhancement bias. Thus, as hypothesized, narcissists tended to appraise their academic ability in an overly positive manner. This finding extends previous research showing that narcissists have biased views of their performance in specific tasks, and it suggests that narcissists also have more globally distorted impressions of their abilities in real-world contexts.

Self-Enhancers Make Self-Serving Attributions for Their Academic Task Performance

Self-enhancement bias correlated .42 ($p < .05$, $N = 505$) with self-serving attributions for academic performance. In terms of specific causal attributions, self-enhancers explained their success in terms of their ability ($r = .24$) and effort ($r = .19$) and discounted the importance of the situation ($r = -.22$) and luck ($r = -.25$); they tended not to attribute failure to ability ($r = -.37$), all $ps < .05$. The positive relation between self-enhancement and self-serving attributions is consistent with the findings from Study 1.

Self-Enhancers Disengage From the Academic Context

Are self-enhancers more ego involved in the academic domain; that is, do they care more about getting good grades than non-self-

enhancers? In contrast to the findings from Study 1, self-enhancement bias was not associated with higher ego involvement (i.e., importance of grades), correlating .04 (*ns*, $N = 482$) with the y -intercept of the growth curve trajectory.

The longitudinal design of Study 2 allowed us to examine whether self-enhancing individuals become more or less ego involved in their academic performance as they go through college. Self-enhancers showed a tendency to view grades as less important over time; the correlation between self-enhancement and the ego-involvement slope was $-.15$ ($p < .05$, $N = 482$). Moreover, the tendency for self-enhancers to decrease in ego involvement relative to non-self-enhancers was independent of differences in their average level of ego involvement during college; the correlation with the ego-involvement slope held when we controlled for the y intercept (partial $r = -.18$, $p < .05$). Disengaging from the academic context may be one way in which self-enhancers maintain their self-worth when they fail to live up to their unrealistically high expectations. In a sense, they are acting like Aesop's fox, deciding that the grapes that are out of reach must be sour.²

Self-Enhancers Decline in Self-Esteem

Self-enhancement bias was associated with generally higher self-esteem during college ($r = .20$ with y -intercept, $p < .05$, $N = 482$). However, self-enhancement was negatively associated with self-esteem change ($r = -.21$ with self-esteem slope, $p < .05$, $N = 482$), indicating that self-enhancers were on a downward trajectory relative to non-self-enhancers (there was no normative mean-level change in self-esteem). This negative correlation was even stronger when we controlled for the y -intercept (partial $r = -.31$, $p < .05$), indicating that the tendency for self-enhancers to decrease in self-esteem was independent of differences in their average level of self-esteem during college. Thus, college adversely affected the self-esteem of self-enhancers.

Self-Enhancers Decline in Well-Being

One proposed consequence of self-enhancement is greater emotional well-being (Taylor & Brown, 1988). Consistent with this, Study 1 showed that inflated self-perceptions of task performance were associated with increased positive affect after the task. Does this same relation hold up in the academic context and over the

² Self-enhancement also predicted declining satisfaction with the university, which could be interpreted as another indicator of disengagement from the college context. Satisfaction was measured by a composite of three items: "How satisfied are you with your experience at the University?" "How much do you feel the University has made an effort to help you succeed here?" and "How much do you think the University cares about you as an individual?" (coefficient alpha ranged from .65 to .70 across assessments; $Mdn = .69$). Self-enhancement bias did not correlate with the intercept ($r = .07$, *ns*), but it did correlate with the slope ($r = -.22$, $p < .05$; $N = 299$), indicating that self-enhancers became increasingly dissatisfied with the university environment.

long-term? That is, are individuals who enter college with unrealistic beliefs about their academic ability higher in well-being, and do they maintain their well-being throughout college?

Self-enhancement bias was associated with generally higher well-being across the 4-year period ($r = .27$ with y -intercept, $p < .05$, $N = 394$). However, self-enhancement bias was negatively associated with well-being change ($r = -.18$ with well-being growth curve trajectory, $p < .05$, $N = 394$), indicating that self-enhancers were on a downward trajectory relative to non-self-enhancers. The correlation with change in well-being held when we controlled for the y -intercept (partial $r = -.27$, $p < .05$); that is, the tendency for self-enhancers to decrease in well-being relative to non-self-enhancers was independent of differences in their average level of well-being. Thus, self-enhancement bias may promote well-being in the short term, but this effect diminishes over time.

Overall, the findings for the growth curve analyses show a coherent pattern. Self-enhancers gradually declined in ego involvement, self-esteem, and well-being over the course of college. Although the magnitude of these changes is not large, over long periods of time, even relatively small differences in trajectories can lead to large discrepancies.³

One concern about the variables we have examined thus far—ego involvement, self-esteem, and well-being—is that they are based on self-reports. In a sense, then, they derive from the same self-evaluative mechanisms that produced self-evaluations of academic ability. For example, participants who report high subjective well-being may be truly well-adjusted, but they may also be intentionally positively distorting their self-reports, or they may be repressors who are unaware of deeper psychological problems (Shedler et al., 1993). Seen in this light, it is impressive that self-enhancing individuals are reporting (and perhaps even conscious of) decreased self-esteem and well-being during college. However, it is also important to examine non-self-report outcomes to fully explore the adaptive benefits of self-enhancement. Thus, we next examined two more objective indicators of adaptation to the college environment: academic achievement and graduation status.

Self-Enhancers Do Not Perform Better Academically

Taylor and Brown (1988, 1994) claimed that positive illusions are motivating and result in better performance. Previous research suggests that positive achievement-related cognitions (e.g., perceived ability, self-efficacy, performance expectations) motivate people to work longer and harder on tasks, which should promote improved performance (e.g., Bandura, 1977; Felson, 1984; Weiner, 1979). From this perspective, self-enhancers should perform better academically than individuals with accurate or self-diminishing beliefs about themselves. To test whether self-enhancement is associated with better academic performance, we conducted a hierarchical multiple regression analysis predicting GPA from the linear and quadratic (i.e., curvilinear) effects of self-enhancement bias. The beta weights of the linear ($B = .04$) and quadratic ($B = -.06$) terms were both nonsignificant ($p > .05$; $N = 500$). Self-enhancement bias also did not correlate with change in grades ($r = .00$ with GPA slope, $N = 483$).

Thus, self-enhancement bias did not promote superior academic performance. At the end of college, individuals with inflated

perceptions of their academic ability did not receive higher grades than did individuals with more realistic appraisals of their ability. It is important to note that self-perceived academic ability did correlate ($r = .22$) with cumulative GPA. However, this relation was due almost entirely to the relation between self-perceived and actual ability ($r = .32$); the partial correlation between self-perceived ability and GPA, controlling for actual ability, was .07. In other words, people who think they have high academic ability do in fact receive higher grades, but this is because their highly positive beliefs are in part reflections of higher academic competence. Thus, in this study at least, it is actual ability, not perceived ability, that matters.

Self-Enhancers Are Not More Likely to Graduate From College

Another objective measure of adjustment to the college environment is graduation status (i.e., finishing college vs. dropping out). We speculated that self-enhancers might not adjust well in the long term, because eventually they would face the reality that they are less competent than they thought and thus would exhibit higher attrition rates than individuals who were already aware of their limitations. On the other hand, if positive illusions are adaptive in the college environment, then self-enhancers should be more likely to finish college and self-enhancement should be positively associated with graduation status.

A multiple logistic regression analysis ($N = 505$) predicting graduation status showed a trend toward a negative linear relation with self-enhancement (logistic regression coefficient = $-.20$, $p = .05$) and no significant quadratic relation (logistic regression coefficient = $-.09$, ns). Thus, self-enhancers were not more likely to graduate from college and may even have been slightly less likely to graduate. However, this trend was weak in magnitude and must be replicated before reaching firm conclusions about the implications of self-enhancement bias for college graduation rates.

General Discussion

The present research reports two studies that address parallel questions about the correlates and consequences of self-enhancing beliefs. Study 1 was conducted in a laboratory context and examined the relation between self-enhancement and several variables involved in the self-evaluation process, including narcissism, performance attributions, ego involvement, and affect. Study 2 extended the findings from Study 1 to a real-world context. Individuals who entered college with overly positive beliefs about their academic ability were followed longitudinally to determine whether they were happier and more successful in college than individuals with accurate or self-diminishing beliefs. Together the two studies suggest several conclusions about the nature of posi-

³ To ensure that the findings held when the growth curves covered the full 4 years of college, we reran the analyses, selecting only participants who had data at the very beginning and the very end of college; all effects remained significant ($r = -.17$ with importance of grades, $-.16$ with self-esteem, and $-.23$ with well-being, all $ps < .05$).

tive illusions, their role in the self-evaluation process, and their short-term and long-term consequences. We first discuss some conceptual issues regarding the measurement of illusory self-perception, and then we turn to the implications of the findings for the self-enhancement process and for the adaptive value of positive illusions.

Criterion Issues

In much of the early research on positive illusions, claims were made about the pervasiveness and strength of the general self-enhancement effect without an adequate external criterion for establishing bias. However, since the positive-illusions debate fomented in the late 1980s and early 1990s, a number of studies have been conducted that directly compared self-evaluations with some explicit external criterion (Robins & Paulhus, in press). In all of these studies, the criterion used to gauge self-enhancement was fallible and posed its own set of interpretational problems. In the present research, one can question whether our self-enhancement measures truly reflect illusory beliefs. In the absence of a perfect criterion for reality, we can never know whether self-enhancers simply have more knowledge about reality than is captured by our criteria. This is particularly true in the real-world longitudinal study, because the context is more abstract and the dimension being evaluated (academic ability) is more ambiguous than in laboratory study.

In the longitudinal study, we used a combination of high school GPA and SAT scores as our standard for actual academic ability. These are established measures of academic ability that are used as the basis for admissions decisions at universities all over the country. Nonetheless, it is possible that the self-enhancers in our study did not consider objective test scores and prior performance when evaluating their ability and instead considered other factors that were not incorporated into our criterion measure. To address this possibility, we conducted a series of analyses using the longitudinal data set. First, in the Year 1 assessment, participants rated the degree to which they believed that SAT scores and high school GPA predict college grades. If self-enhancers do not consider SAT scores and prior academic performance to be diagnostic of their academic potential, then we would expect to find negative correlations with self-enhancement. Instead, self-enhancement was positively correlated with viewing both the SAT ($r = .17, p < .05$) and high school GPA ($r = .17, p < .05$) as good predictors of college grades.

Second, in the Year 3 and Year 4 assessments, participants were asked which factors they consider when evaluating their academic ability. They rated the importance of seven factors, including "I consider my scores on various measures of academic aptitude (e.g., SAT)" and "I consider my course grades (i.e., my GPA in college)." If self-enhancers evaluate their ability using criteria different from those of non-self-enhancers, then we would expect to find significant correlations (either positive or negative) between the self-enhancement index and at least some of the factors. However, only 1 of the 14 correlations was significant: In Year 4, self-enhancers were more likely to say "I think about the feedback I receive from others about how good a student I am" ($r = .16, p < .05$), but this result was not found in Year 3 ($r = .06, ns$). Thus, self-enhancers and non-self-enhancers used similar criteria to evaluate their academic ability.

Third, we tested the possibility that self-enhancers had knowledge about how well they would perform in college that was not captured by their SAT scores or their high school GPA. This interpretation is plausible given that our self-enhancement index was based on expectations about future performance, as well as on direct ratings of current ability. To explore this issue, we created two more specific self-enhancement indices (partialing out actual ability), one based on the three expected performance items and the other based on the five direct ratings of ability. All of the findings in Study 2 were replicated for both indices, except that the expected performance index did not correlate significantly with the self-esteem intercept ($r = .07$) or with the adjustment slope ($r = -.08$), although both were in the predicted direction. Finally, it is important to note that the expected performance index did not predict college grades. This indicates that even if self-enhancers thought they had extra knowledge about how well they would perform in college, they ultimately turned out to be wrong.

Together these three sets of analyses support the validity of the self-enhancement measure used in Study 2. When evaluating their academic ability, the self-enhancers do not appear to have used distinctive, relevant information or discounted the importance of SAT scores and high school GPA. Instead, they simply had unrealistic beliefs about themselves.

General Effects and Individual Differences: Toward a Lewinian Perspective on Positive Illusions

The present findings contribute to a growing body of research documenting positive illusions: On average, people tend to have inflated beliefs about themselves. However, most studies that have compared self-evaluations with an explicit external criterion have found a relatively small self-enhancement effect (Robins & Paulhus, in press). One explanation for the weak effect is that people generally show only mild forms of positive illusions; that is, it is normative to be somewhat unrealistic, but few people have severely distorted views of themselves (e.g., Taylor & Armor, 1996). Another possibility involves the presence of substantial individual differences in both the magnitude and the direction of the effect; that is, some people have extremely inflated self-views, some have only mild illusions, and others have accurate or even overly negative self-views. In fact, both Studies 1 and 2 showed that individual differences in self-enhancement bias were systematically related to individual differences in narcissism. The link with narcissism demonstrates that the individual variability found in measures of positive illusions is not simply due to random fluctuations around the general effect but rather is psychologically meaningful.

The individual-differences approach to self-enhancement has been criticized. For example, Taylor and Armor (1996) argued that

the short answer to the question, "Are positive illusions statelike or traitlike?" is that they are statelike. Moreover, given that situational factors can greatly enhance or virtually obliterate their existence, the individual difference question is somewhat less interesting than it might otherwise be. (p. 890)

However, virtually all stable traits (e.g., subjective well-being) can be greatly enhanced or diminished by situational factors. Similarly, many individual-differences variables (e.g., public and private

self-consciousness) have been conceptualized as states that can be manipulated experimentally and as stable traits that can be assessed by self-report questionnaires (Buss, 1980). To say a trait is stable does not imply that it manifests itself independently of the situational context. In the same way, self-enhancement bias can be particularly pronounced in some contexts and virtually absent in others. The question at issue is not whether the general tendency varies across contexts but whether individual differences in the tendency are systematic and linked to psychologically meaningful constructs and outcomes. In our view, the present findings and those from previous studies support the importance of examining individual differences in illusory self-perception and their relation to stable personality characteristics. As Lewin (1935, 1946) emphasized, psychological phenomena should be studied at both the aggregate level (situational main effects) and at the individual level (stable individual differences) in order to understand the general laws governing behavior and the individual variability that may qualify these laws and help elucidate the underlying mechanisms.

One implication of the Lewinian perspective is that the magnitude and even the direction of self-enhancing (vs. self-diminishing) tendencies is likely to vary as a function of the person, the situation, and their interaction. So far, most research on personality factors has focused on narcissism and self-esteem, but other variables related to self-perceptual style and motivation may also play a role. Plausible candidates include need for closure, need for cognition, private self-consciousness, self-esteem stability, self-monitoring and self-concept differentiation. Similarly, positive illusions have been studied in a wide range of situational contexts, but there has been no systematic attempt to document the conditions under which people show positive illusions and the conditions under which they do not. Relevant variables include properties of the dimension being judged (e.g., evaluativeness, observability, content domain), ego involvement, attentional focus and attentional load, novelty and ambiguity of the context, controllability of the outcome, time orientation (past, present, future), implemental versus deliberative mindset, and the broader cultural context (e.g., individualistic vs. collectivistic cultures). Many of these variables can be considered as both person and situation variables; for example, people vary in how ego involved they tend to be, and situations vary in how threatening they are to self-worth. Moreover, the possibility of person-situation interactions needs to be explored more fully. For example, Robins and John (1997a) found evidence for an interaction between narcissism and attentional focus (self-focused vs. non-self-focused). In the self-focused condition, narcissists became even more positively biased, whereas nonnarcissists became more accurate.

Another implication of the Lewinian perspective is that research on individual differences can provide insights into the nature of the self-enhancement process. Much of the research literature on self-enhancement has focused on understanding the underlying self-evaluative processes and mechanisms. The present research examined a number of factors believed to play a role in the self-enhancement process. Specifically, individual variability in self-enhancing tendencies was related to narcissistic tendencies, ego involvement in the task, self-serving attributions for performance, and posttask affective responses. These findings provide clues to the psychological factors underlying positive illusions.

The link with narcissism contributes to growing evidence that self-enhancement biases provide a mechanism for regulating affect in response to the threat of failure. Self-enhancement bias has been conceptualized as a mechanism for regulating self-esteem, and indeed it may be. However, narcissistic self-esteem regulation has a maladaptive quality to it. Our findings suggest that self-enhancement bias may be in the service of regulating unrealistically high levels of self-esteem of a rigidly defended nature, which is in contrast to the view of self-enhancers as individuals with genuinely high self-esteem who have simply "overshot" reality by a little. The narcissistic interpretation of self-enhancers suggests that positive illusions may rest on a foundation of fragile self-esteem (e.g., Farwell & Wohlwend-Lloyd, 1998; John & Robins, 1994; Raskin, Novacek, & Hogan, 1991; Robins & John, 1997a) and that self-enhancing individuals may be likely to chronically seek affirmation of their positive self-views (e.g., Sedikides & Strube, 1997).

Individual differences in self-enhancement bias were also related to the types of attributions participants made for their successes and failures. Self-enhancing individuals, in comparison to accurate and self-diminishing individuals, were more likely to attribute their success, but not their failure, to ability (cf. Farwell & Wohlwend-Lloyd, 1998). These findings support the idea that self-serving attributions are one mechanism individuals use to arrive at biased self-views in the face of information that threatens their self-worth (Brown, 1998; Sedikides & Strube, 1997; Taylor & Armor, 1996). Self-serving attributions allow self-enhancers to fuel their narcissistic pride by basking in the glow of successes while excusing away failures that threaten self-worth. Thus, in the short term at least, self-serving attributions may be one way in which people justify and sustain their self-enhancing evaluations.

However, over time, excuses for failure may no longer be possible in the face of continual negative feedback (e.g., failing to achieve high grades in college). Faced with unrealistic performance expectations and environmental demands that are beyond their abilities, self-enhancers may eventually respond to self-esteem threats by disengaging from the tasks that were once so important (Sedikides & Strube, 1997). Consistent with this, Study 2 showed that self-enhancers became progressively less ego involved in their academic performance over the course of college. It may be that self-enhancers engage in important life tasks as long as they are able to perform at a level that does not threaten their self-view, but then disengage when they do not live up to their expectations. In some ways, overly high expectations can be a double-edged sword, motivating achievement behavior in the short term but contributing to disengagement (and perhaps a helpless response pattern) over the long-term when expectations are not met. As Trillin (1993) noted about the paradoxical effects of high expectations, "whom the gods wish to destroy they first call promising" (p. 208).

We also found that self-enhancers tended to inflate their self-evaluations even relative to how they *thought* their peers evaluated them. This finding implies that self-enhancers are generally aware that their peers do not share their rosy self-views, which seems contrary to the assumption that self-evaluations are reflected appraisals of the views of others (Mead, 1934). Another implication of this finding is that assumed similarity—a form of projection commonly found for other types of personality judgments (Kenny & DePaulo, 1993)—is not entirely driving the perceived-peer

ratings. That is, individuals with distorted self-appraisals do not assume that others see them in exactly the same way they see themselves. This raises a puzzling question: How do people maintain an overly positive view of themselves while recognizing that their peers see them in a more negative light? One possibility, based on narcissism theory, assumes that narcissists will derogate others and discount the validity of their perceptions. For example, narcissists claim that "sometimes my talents are not recognized" on the NPI (Raskin & Terry, 1988). Thus, self-enhancers might narcissistically maintain their positive self-views by discounting the relevance of negative peer judgments.

Overall, then, the present findings provide several insights into the interplay between positive illusions and other aspects of the self-evaluation process. By linking individual differences in positive illusions with self-evaluative factors, we gain a better understanding of the self-worth dynamics that drive self-enhancing thoughts and behaviors. Further research on the role of individual differences and contextual factors should help us understand the conditions under which people distort reality and the cognitive and affective mechanisms that serve to create and maintain illusions (Robins, Norem, & Cheek, 1999, pp. 461–467). We now turn to the broader question of whether positive illusions have adaptive or maladaptive consequences for the individual.

What Have We Learned About the Consequences of Positive Illusions?

The present research has three relatively unique features with regard to studying the consequences of positive illusions. First, we used explicit external criteria to identify individuals with self-enhancing beliefs: consensual judgments by peers in Study 1 and objective indicators of academic ability in Study 2. Many previous studies have related positive self-conceptions to adaptive outcomes, but only a few studies have taken into account the veracity of those self-conceptions (e.g., Colvin, Block, & Funder, 1995). It is possible that individuals who have highly positive, but nonetheless accurate, beliefs about themselves account for the apparent adaptive benefits of positive illusions found in previous research.

Second, we related individual differences in self-enhancement bias to a wide range of outcomes, including both subjective and objective indicators of adjustment. We thus circumvented some of the problems arising from the exclusive use of self-report measures of adjustment. Shedler et al. (1993), for example, have argued that self-report measures of psychological adjustment may fail to distinguish truly well-adjusted individuals from individuals who are repressing distress.

Third, we related self-enhancement bias to change over time in several theoretically relevant variables. We used a pretest–posttest design in Study 1 to examine whether self-enhancers reported more positive affect (controlling for baseline affect) than individuals with accurate or self-diminishing perceptions of their performance. In Study 2, the longitudinal design allowed us to test claims about the long-term benefits of self-enhancement by using growth curve modeling of subjective well-being, self-esteem, and ego involvement over 4 years of college. Although all of these variables reflect subjective experience, changes in the way people feel about themselves can dramatically alter the goals they pursue and the choices they make in life. Thus, subjective aspects of

adjustment are important outcomes even if they do not correspond to traditional clinical notions of what constitutes psychological adjustment.

Overall, the findings from Studies 1 and 2 paint a complex picture of the adaptive benefits of positive illusions. In terms of the subjective indicators of adjustment, the findings support the adaptive value of self-enhancement. In Study 1, self-enhancement in a specific task predicted a posttask rise in positive affect, even when dispositional affect was taken into account. In other words, individuals who thought they did better than they actually did felt happier after the task than they typically do. Thus, self-enhancement seems to be associated with successful short-term affect regulation.

Study 2 provides further support for the link between self-enhancement and subjective aspects of well-being. Individuals who entered college with self-enhancing beliefs about their academic ability reported higher levels of well-being and self-esteem. However, the growth curve analyses reported in Study 2 showed that self-enhancers' ratings of their well-being and self-esteem were on a downward trajectory when compared with those of individuals with accurate self-perceptions. Together these findings suggest that self-enhancing individuals may experience more positive feelings about themselves in the short term but that this advantage lessens over time. It is possible that unrealistically positive beliefs may help an individual regulate affect for a time, but at some point the individual may be forced to realize that such beliefs are never going to come true, a realization that may diminish well-being and self-esteem. Thus, the present findings provide further evidence that positive illusions are adaptive in the short term but not in the long term (Colvin & Block, 1994; Paulhus, 1998).

Self-enhancement had no clear benefits in terms of the two more objective indicators of adjustment to college: Self-enhancing individuals did not receive better grades in college, and they were not more likely to graduate. Thus, even though self-enhancers entered college believing they would receive higher grades than did individuals with accurate or self-diminishing beliefs, they failed to meet their high expectations. Although in some sense these results constitute null findings, they are nonetheless of theoretical interest when considered in light of the claim that positive illusions promote higher levels of performance and task persistence.

The tendency of self-enhancers to disengage from the academic context (i.e., to perceive grades as progressively less important) provides another clue to their self-regulatory style. One could argue that this disengagement is adaptive, because it may maintain self-esteem in the face of failure. However, this argument seems circular given that these individuals need to disengage only because they set unrealistic goals in the first place. Moreover, in the extreme, this tendency toward disengagement might lead to a complete withdrawal from the academic context; the marginally higher dropout rate shown by self-enhancers provides some hint of this. Thus, we see the decrease in ego involvement as part of a more general maladaptive response pattern.

Overall, then, the findings do not entirely support either the view of positive illusions as promoting happiness and success or the traditional clinical view of distorted self-perception as fundamentally maladaptive. Rather, they suggest that positive illusions have both adaptive and maladaptive consequences, and they lead

us to reiterate the conclusion that "self-enhancement is best viewed as a mixed blessing" (Paulhus, 1998, p. 1207).⁴

Conclusion

The present research suggests several future directions for the study of positive illusions. First, we need to acknowledge the central role of both the person and the situation and to systematically explore the independent and interactive effects of relevant individual-difference and contextual factors. Second, we need to move beyond the general question of whether self-enhancement biases are adaptive or maladaptive. Instead, claims about the adaptive or maladaptive consequences of positive illusions need to specify the particular type of positive illusion (i.e., according to what criteria is the person biased?) and the particular operationalization of adjustment (i.e., subjective vs. objective, short term vs. long term, intrapsychic vs. task vs. interpersonal). More generally, researchers need to consider under what circumstances, for which individuals, and in which domains positive illusions are adaptive. For example, our research suggests that positive illusions are not particularly beneficial in the academic domain, whereas positive illusions may be advantageous in health contexts (Aspinwall & Brunhart, 1996; Taylor, Kemeny, et al., 1992; Taylor, Lichtman, & Wood, 1984). Third, we need to better understand the mediating mechanisms through which positive illusions influence adaptive and maladaptive outcomes. For example, what are the cognitive and affective processes through which positive illusions contribute to subjective well-being? In our view, the best way to address these various questions is through a combination of experimental and longitudinal research, that is, by combining process-oriented and life-history approaches to the study of the self.

⁴ The present research suffers from a problem endemic to nonexperimental research: The causal direction of the effects cannot be established. For example, we cannot determine from Study 1 whether self-enhancement increases positive affect, whether positive affect increases self-enhancement, or whether some third variable produces both. On the basis of previous research and theory, we have assumed that self-enhancement promotes positive affect (e.g., Taylor & Gollwitzer, 1995). However, evidence that positive illusions produce positive mood does not preclude the possibility that positive mood also causes positive illusions. Research on mood-congruent cognition suggests that positive affect may color people's perceptions of their behavior, suggesting that positive affect could play a role in the genesis of positive illusions. The longitudinal study helps address the causality issue, because changes in well-being or self-esteem over 4 years of college could not have caused self-enhancing tendencies at the beginning of college. Nonetheless, longitudinal designs are hardly a foolproof way to establish causality (e.g., Rogosa, 1995).

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