

Emotional Costs of Inaccurate Self-Assessments: Both Self-Effacement and Self-Enhancement Can Lead to Dejection

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Despite the popularity of the idea in American culture that self-enhancement confers psychological benefits, the evidence for this idea is mixed. In the present research, we tested the contention that overly positive self-assessments could lead to psychological distress. In two correlational studies (Studies 1 and 2), we addressed some previous problems related to the measurement of self-enhancement. By measuring self-enhancement through the discrepancy between self-assessments of relative task performance and actual relative task performance, we found that self-enhancement, like self-effacement, was associated with greater vulnerability to depression. In two subsequent experiments (Studies 3 and 4), we found that leading low (or high) performers to perceive their performance as high (or low) through providing bogus performance feedback produced analogous effects on the magnitude of experienced dejection.

Keywords: self-enhancement, self-effacement, positive self-perceptions, dejection, self-assessment

Mrs. Bucholtz said, “Remind them constantly . . . about how they can achieve anything that they want to,” and Mrs. Ryan emphasized the importance of “giving them enough love and praise so that they feel good about themselves, and then they can go and master the world.” (Miller, Wang, Sandel, & Cho, 2002, p. 23)

This quote epitomizes the popular belief that feeling good about the self is a key to fulfilling one’s potentials. Accordingly, praise and positive feedback should be generously dispensed to children, students, employees, colleagues, and friends to make them feel good about themselves. This folk theory, aside from being widely publicized in media of public culture, is also widely practiced (Miller, Fung, & Mintz, 1996; Miller, Wiley, Fung, & Liang, 1997; Brophy, 1981; Koestner, Zuckerman, & Koestner, 1987). For example, teachers who are motivated to protect students’ self-esteem may be reluctant to provide accurate negative feedback to low performers (Hong, Chiu, & Dweck, 1995). Many parents also feel compelled to make their children feel good about themselves by praising their abilities (Mueller & Dweck, 1996). Similarly, under the influence of the self-esteem movement, teachers are often pressured to provide unfounded positive performance feedback to their students (Seligman, Reivich, Jaycox, & Gillham, 1995).

Some evidence seems to support the folk theory that self-enhancement is beneficial to individuals’ emotional well-being (Brown & Dutton, 1995; Taylor & Brown, 1988; Taylor, Lerner,

Sherman, Sage, & McDowell, 2003a; 2003b; Gramzow, Willard, & Mendes, 2008). For example, research has linked positive illusions of the self to lower depression, higher happiness, lower anxiety, lower neuroticism, and lower hostility (Taylor et al., 1988; 2003a; 2003b). However, other findings have called for a critical reexamination of the psychological benefits of excessive self-enhancement (Colvin & Griffo, 2008; Colvin, Block, & Funder, 1995; Colvin & Block, 1994a; Colvin & Block, 1994b; Greham, Lane, ManMillan, Bocian, & Ward, 2000; Robins & Beer, 2001; Klein & Cooper, 2008; Klein & Cerully, 2007; Kurt & Paulhus, 2008; Kwan, John, Robins, & Kuang, 2008; McNulty, O’Mara, & Karney, 2008; McNulty & Karney, 2004; Kim, Zou, & Chiu, 2010). For example, the degree of overly positive self-assessments of personality characteristics predicts more maladjustment and relational problems (Colvin et al., 1995; Greham et al., 2000). A positive association has also been found between the degree of self-enhancement and overt (and covert) narcissism/ defensiveness among students pursuing master’s degrees in business administration (Kwan, John, Robin, & Kuang, 2008), and narcissists (individuals with exaggerated and inflated positive self-views) are particularly likely to become aggressive when their self-esteem is under threat (Bushman & Baumeister, 1998).

In the present article, we argue that one reason for these inconclusive results regarding the emotional consequences of self-enhancement has to do with the way the extent of self-enhancement has been measured in past research. When these measurement issues are resolved, there are theoretical reasons to expect that self-enhancement, like self-effacement, would be associated with negative emotional consequences, whereas accurate self-assessment would be associated with lower depression levels and higher self-esteem.

In the following sections, we will first elaborate on the measurement issues and explain why self-enhancement and self-effacement could have negative emotional costs. To test the idea that both self-enhancement and self-effacements would be associated with negative emotional consequences, in Studies 1 and 2, we

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measured participants' self-assessments of test performance in relation to their actual performance to form a continuous measure that ranges from overly positive, to relatively accurate, and overly negative self-assessments. With this measure, we tested the hypothesis that as compared with relatively accurate self-assessments, both self-effacement and self-enhancement would be associated with higher depression levels. In Studies 3 and 4, we used bogus positive or negative performance feedback to lead high (or low) performers to perceive their performance as low (or high). We predicted that when the feedback is not consistent with actual performance, both positive and negative feedback would increase deception.

Methodological Issues

The ways in which self-enhancement is measured have been critically evaluated (Borkenau, Zaltauskas, & Leising, 2009; Colvin & Block, 1994a; Colvin & Block, 1994b; Colvin et al., 1995; Kwan et al., 2008; Kwan et al., 2004). One frequently used measure of self-enhancement is the extent to which individuals report positive self-perceptions. For example, scores on Rosenberg's (1965) Self-Esteem Scale were often used as a measure of self-enhancement. Many studies that used such measures have found support for the psychological benefits of self-enhancement. However, as Colvin and his colleagues (Colvin & Block, 1994a; Colvin, Block, & Funder, 1995) have pointed out, the validity of these measures is questionable because they do not distinguish "self-enhancers" (those who overstate their positive qualities) from "accurate positive self-assessors" (those who accurately report their positive qualities). For example, having high self-esteem does not necessarily entail having a positive illusion of the self—A high achiever reporting high self-esteem should not be regarded as a self-enhancer. Thus, a valid measure of self-enhancement requires comparing self-perceptions of performance against a performance criterion.

Two commonly used approaches to assessing self-enhancement and self-effacement that do include a performance criterion are social comparison (comparing the target's self-appraisal of performance to the target's appraisal of others' performance) and self-insight (comparing self-appraisal and observer evaluation of the target's performance). However, as Kwan and her colleagues (2004, 2008) noted, both the social comparison and self-insight approaches have limitations. For example, individuals who rate their performance more (less) favorably than others' are not self-enhancers (self-effacers) if their performance is actually better (worse) than others. That is, the social comparison measure does not take into account the individuals' actual relative performance (the target effect). Likewise, individuals who rate themselves more (less) favorably than do others are not necessarily self-enhancers (self-effacers) because people have different evaluative standards (the perceiver effect). For example, if as compared with his peers, Donald uses a more liberal standard to evaluate the self and his peers, Donald's self-ratings will be higher than his peers' ratings of Donald, giving rise to an apparent self-enhancement by Donald. Thus, the apparent lack of self-insight may be an artifact of the perceiver effect.

To avoid these confounds, investigators have been advised to determine the extent of self-enhancement and self-effacement by directly comparing the participants' self-appraisal of performance

with their actual performance (Gramzow et al., 2008; Kwan et al., 2004; Kwan et al., 2008; Robins & Beers, 2001). Kwan et al. (2008) further noted that although using actual performance as the comparison standard takes care of the target effect, it does not remove the perceiver effect. For example, it is possible that "individuals who believe they are more academically competent than their actual grades indicate may believe that individuals are generally more academically competent than their grade" (p. 1075). To control the perceiver effect, Kwan et al. (2008) recommended the use of a componential approach based on the social relations model (SRM) in assessing self-enhancement, because the self-enhancement component of the SRM can effectively remove the perceiver and target effects in the social comparison and self-insight measures. Unfortunately, the application of the componential approach requires the implementation of the round-robin research design, which requires each participant to rate every other participant in the sample. This design is costly if not impracticable in studies with large sample sizes.

Thus, Kwan et al. (2008) have proposed using estimated ranks as a quick proxy for their self-enhancement index based on the SRM, because rankings require all individuals to anchor their self-ratings on the same mean. Thus, although the ranking procedure might not be very sensitive in capturing self-enhancement of high performers due to the ceiling effect and self-effacement of low performers due to the floor effect, "the ranking procedure fully controls for the confounding problems of the self-insight index with the perceiver effect and makes it equivalent to the SRM index" (Kwan et al., 2008, p. 1074).

Following Kwan et al.'s suggestions, in Studies 1 and 2, we had the participants estimate the percentile scores of their performance and compared the participants' self-reported performance assessments with their actual performance. Specifically, we asked participants to take an objective test and assess their performance on the test in a percentile rank that ranges from 0 ("I am at the bottom") to 100 ("I am on the top") as compared with other students in their school. Next, we calculated participants' actual performance percentile rank. Finally, a measure of self-enhancement was constructed by comparing actual performance against self-appraisal of performance. We will refer to this measure as the *self-enhancement score*.

In past studies, to determine the emotional effects of self-enhancement, a common practice is to examine the linear association between the extent of self-enhancement and emotional well-being. The results from studies employing this analytic strategy are not easy to interpret. For example, it is unclear from this positive correlation whether (a) self-enhancement (the extent to which self-assessment is more favorable than actual performance) is associated with better emotional well-being or (b) self-effacement (the extent to which self-assessment is less favorable than actual performance) is associated with poorer emotional well-being. Furthermore, because the self-enhancement score pits self-enhancement against self-effacement, a positive correlation between this measure and the outcome variable does not imply that accurate self-perceptions are associated with poorer emotional well-being. An alternative interpretation is that self-effacement is linked to worse outcomes. Similarly, it is impossible to decide from a negative correlation between the self-enhancement score and emotional well-being whether (a) self-effacement is associated with better emotional well-being, or (b) self-enhancement is asso-

ciated with poorer emotional well-being. Again, a negative correlation between the self-enhancement score and the outcome variable does not imply that accurate self-perceptions are associated with better emotional well-being. An alternative interpretation is that self-enhancement is linked to worse outcomes.

Thus, aside from examining the linear relationship between the self-enhancement score and the outcome variable, it is important to examine nonlinear relationships (quadratic association). Examining nonlinear relationships allows us to determine whether (a) a positive correlation between the self-enhancement score and the outcome variable, if present, are due to the positive effects of self-enhancement or to the negative effects of self-effacement, and (b) a negative correlation between the self-enhancement score and the outcome variable, if present, are due to the negative effects of self-enhancement or to the positive effects of self-effacement.

Emotional Costs of Self-Enhancement and Self-Effacement

In the present investigation, we hypothesize that both self-effacement and self-enhancement would be accompanied by increased vulnerability to dejection, whereas relatively accurate self-assessments would be accompanied by fewer dejection-related emotions. The prediction regarding the emotional costs of self-effacement is not controversial. Past research has provided ample evidence that people who understate their ability tend to be depressed and have low self-esteem (Taylor & Brown, 1988). However, as noted, the evidence for the emotional costs of self-enhancement is mixed. Some studies have found a negative relationship between self-enhancement and depression (Taylor et al., 2003a), but this finding is difficult to interpret due to the measurement issues reviewed above.

There are several reasons why excessive self-enhancement can produce emotional distress. Specifically, excessive positive self-evaluations can heighten concerns with self-evaluations (Dweck, 2002, 2006; Kamins & Dweck, 1999; Mueller & Dweck, 1998), increases vulnerability of the self to the emotional impacts of the circumstances that may expose one's personal inadequacy, and divert attention away from diagnostic task information that can improve one's ability (Kim, Chiu, & Zou, 2010). For example, it has been suggested that although making slightly positive self-assessments can protect individuals against dejection, distortions beyond this optimal level of positive illusion could lead to psychological distress (see Baumeister, 1989; McAllister, Baker, Mannes, Stewart, & Sutherland, 2002 for the optimal margin of illusion hypothesis). As Baumeister (1989) argues,

the highly inflated views of self are harder to sustain, so vulnerability to stress may increase. A substantially inflated view of self is difficult to sustain on a day-to-day basis, for even mediocre performance threatens the public and private image of self that one has cultivated" (p. 184).

Furthermore, those with unrealistic positive self-assessments are pressured to protect their public self-image by engaging in self-defeating behaviors (e.g., self-handicapping; Baumeister, 1989; Kim, Chiu, & Zou, 2010). Thus, individuals with unrealistic (vs. realistic) positive self-assessments would experience more distress.

If both self-effacement and self-enhancement can increase the vulnerability to dejection, there should be a quadratic relationship between the self-enhancement score and the magnitude of dejection. When self-assessments are more favorable than actual performance, the magnitude of the discrepancy between self-assessment and actual performance should be positively related to chronic levels of depression (i.e., the self-enhancement score should be positively correlated with depression). However, when self-assessments are less favorable than actual performance, the magnitude of the discrepancy between self-assessment and actual performance should be positively related to chronic levels of depression (i.e., the self-enhancement score should be positively correlated with depression). Individuals with the lowest depression levels should be those with relatively accurate self-assessments. We tested this hypothesis in Studies 1 and 2.

This hypothesis provides a possible explanation for the mixed results regarding the relationship between self-enhancement and emotional well-being. If most participants in the sample are self-effacers, the self-effacers' responses would dominate the correlation between the self-enhancement score and dejection, resulting in a positive correlation between the self-enhancement score and dejection. In contrast, if most participants in the sample are self-enhancers, the self-enhancers' responses would dominate the correlation between the self-enhancement score and dejection, resulting in a negative correlation between the self-enhancement score and dejection.

Two subsequent experiments (Studies 3 and 4) were carried out to test the causal effects of excessively positive or negative perceptions of one's performance on dejection-related emotions. In these experiments, participants took an achievement task and were provided with either bogus positive or negative performance feedback. The positive (negative) feedback would reinforce high (low) performers' accurate positive (negative) perception of their performance. The bogus positive (negative) feedback provided to low (high) performers would lead them to misperceive their performance as higher (lower) than their actual performance, creating an experimental analog of "self-enhancement" ("self-effacement") experience. We hypothesized that like chronic self-enhancement and self-effacement, experimental induction of excessively positive or negative perceptions of performance would evoke dejection-related emotions.

Study 1

Method

Study 1 was designed to test the hypothesis that both self-effacement and self-enhancement, as compared with accurate self-assessments would be associated with higher depression levels. To test this hypothesis, we had 95 undergraduates (59 women, age range from 18 to 33 years, mean [M] = 19.19, standard deviation [SD] = 2.02) from a public university in the Midwest work on a verbal task. The participants took 10 min to complete 10 randomly selected verbal problems from the Scholastic Aptitude Tests. Next, they estimated on a percentile rank how well their performance was compared to the performance of other students in their school. Specifically, the participants indicated their answer on a percentile scale that ranged from 0 (*I'm at the very bottom*) to 50 (*I'm better than half and worse than half of other students*) and 100 (*I'm on*

the top). In addition, they indicated how many questions they thought they had answered correctly.

Finally, the participants filled out the Beck's Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996, $\alpha = .88$ in the current study) and the 10-item Rosenberg Self-Esteem Scale (Rosenberg, 1965). The BDI-II is a widely used scale to measure individuals' chronic levels of depression. The BDI-II consists of 21 items; each item measures the severity of a depression symptom. The value of each item ranges from 0 (least severity) to 3 (most severity). Therefore, the total score, the sum of the item scores, ranges between 0 and 63.

The Rosenberg Self-Esteem Scale measures global aspects of self-worth, confidence, and self-approval. The scale includes five positive items (e.g., "I am able to do things as well as most people."), and five reversely scored negative items (e.g., "I feel that I do not have much to be proud of."). This scale is a widely used self-report measure of individuals' global self-esteem (Corwyn, 2000; Hagborg, 1993). A 7-point Likert scale was used in the present study, ranging from 1 (*not at all*) to 7 (*a lot*). The internal reliability of the scale was α of .86, and the average self-esteem level was 5.74 ($SD = 0.91$). At the conclusion of the study, the participants received course requirement credits for their participation.

Results and Discussion

We assigned an actual performance percentile rank to each participant based on their actual performance on the verbal test relative to that of other participants. The mean number of correct answers of the verbal test was 4.47 ($SD = 1.64$). Men and women did not differ on their actual performance on the test, $F(1, 93) = 0.38, ns$. The average perceived performance percentile was 63.32 ($SD = 16.91$). The average depression level was 6.50 ($SD = 5.23$). No gender differences were found on perceived performance, $F(1, 93) = 1.13, ns$, or depression, $F(1, 93) = 1.84, ns$.

To construct a measure of inflated versus deflated self-assessment, we regressed perceived performance on actual performance. Participants who performed better on the test estimated their performance to be better, $r = .34, p < .001$. We used the unstandardized residuals of the regression equation as an index of self-enhancement (vs. self-effacement). The residuals ranged from -44.69 to 44.91 ($M = 1.66, SD = 15.94$). Participants with positive residuals were self-enhancers; they estimated their performance to be higher than what would be expected from their actual performance. Those with negative residuals were self-effacers; they estimated their performance to be worse than what would be expected from their actual performance. We will refer to the residuals as *inflated (vs. deflated) self-assessment*.

Although unstandardized residuals reflect the extent of self-enhancement (self-effacement) relative to the predicted level of self-assessment based on the participants' actual performance, they do not capture the magnitude of overly positive or negative self-assessments relative to the participants' actual performance. Therefore, we also subtracted actual performance from perceived performance and used the difference scores to form another index of self-enhancement. Unlike unstandardized residuals, the difference scores are highly correlated with both actual and perceived performance, and it is difficult to examine the amount of the variance of the dependent variable explained by perceived perfor-

mance after controlling for the effect of actual performance (Zuckerman & Knee, 1996). Thus, we used as the difference scores as a secondary measure of self-enhancement and self-effacement in the current and the next study. The difference scores ranged from -53.00 to 80.60 ($M = 4.00$ and $SD = 27.87$).

To test our hypothesis, we fitted a polynomial regression equation to depression levels with the linear and quadratic effects of inflated self-assessment as predictors (depression = $a + bX + cX^2$, where X = inflated self-assessment and a, b, c are empirically estimated parameters). When inflated self-assessment measured by unstandardized residuals was used as the predictor (X), the linear effect of inflated self-assessment was not significant, $\beta = -0.05, t(93) = -1.47, ns$, but the predicted quadratic effect was, $\beta = 0.004, t(93) = 4.37, p = .01$. We obtained the same results when inflated self-assessment measured by the difference scores was used as the predictor (X): The linear effect of inflated self-assessment was not significant, $\beta = -0.04, t(93) = -1.37, ns$, but the predicted quadratic effect was, $\beta = 0.002, t(93) = 2.73, p < .01$. Figure 1a depicts the estimated depression level at each level of inflated (vs. deflated) self-assessments, using unstandardized residuals as the measure of inflated (vs. deflated) self-assessments. In Figure 1a, negative values on the horizontal axis indicate deflated self-assessment, whereas positive values indicate inflated self-assessment. As shown in the figure and as predicted, the extent of deflated self-assessments was related to higher depression levels—participants who underevaluated their relative performance to a greater extent were more depressed. Also as

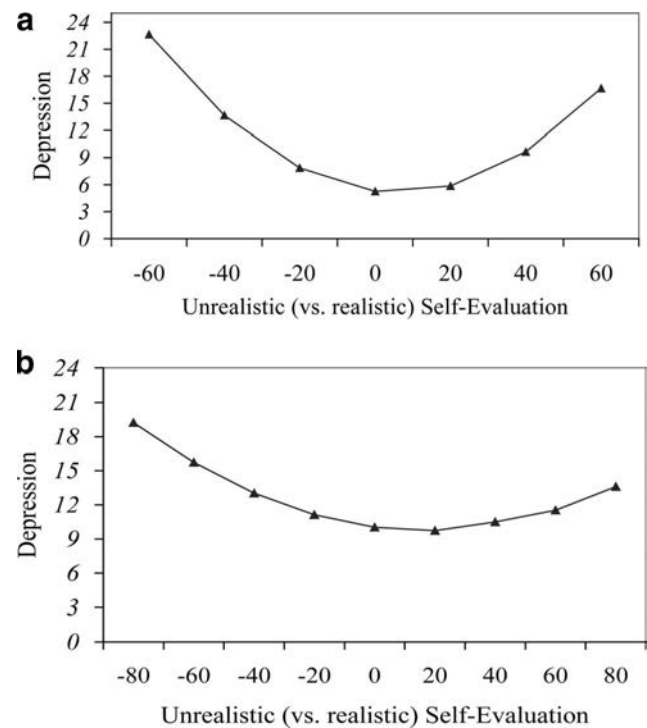


Figure 1. Depression levels as a function of accuracy and directional biases in self-assessments of performance: (a) Study 1 results and (b) Study 2 results. The numbers on the x-axis represent the sizes of the unstandardized residuals obtained from regressing perceived performance on actual performance.

predicted, the extent of inflated self-assessment was also related to higher depression levels—participants who overevaluated their relative performance to a greater extent were also more depressed.¹

We also fitted a polynomial regression equation to self-esteem with the linear and quadratic effects of inflated self-assessment as predictors (self-esteem = $a + bX + cX^2$). When inflated self-assessment measured by unstandardized residuals was used as the predictor (X), the linear effect was not significant, $\beta = 0.008$, $t(93) = 1.47$, *ns*, but the predicted quadratic effect was significant, $\beta = -0.0005$, $t(93) = -2.05$, $p < .05$. Again, we obtained similar results when inflated self-assessment measured by the difference scores was used as the predictor (X): The linear effect and the quadratic effect were significant, $\beta = 0.01$, $t(93) = 2.68$, $p < .01$, $\beta = -0.0002$, $t(93) = -2.69$, $p < .01$, respectively. Figure 2 depicts the estimated self-esteem level at each level of inflated (vs. deflated) self-assessments, using unstandardized residuals as the measure of inflated (vs. deflated) self-assessments. Both deflated and inflated self-assessments were negatively related to self-esteem, whereas accurate self-assessments were associated with the highest level of self-esteem. In short, the results showed that both self-effacement and self-enhancement were associated with higher levels of depression and lower levels of self-esteem, whereas relatively accurate self-assessments predicted the lowest depression levels and the highest self-esteem.²

Study 2

Method

To demonstrate the generality of Study 1 results, we repeated Study 1 in Hong Kong. The participants were 2,780 high school students (939 girls). Among them, 639 were 7th graders, 654 were 8th graders, 564 were 9th graders, 394 were 10th graders, and 529 were 11th or 12th graders. These students were recruited from four local high schools in different districts in Hong Kong, with 707 students from School 1, 626 students from School 2, 592 students from School 3, and 855 students from School 4.

The study was conducted during a regular class meeting. The participants were asked to answer 10 multiple choice questions on English grammar and estimated their performance on the task as compared with that of other students in the same grade on a percentile scale that ranged from 0 (*I'm at the very bottom*) to 50 (*I'm exactly average*) and 100 (*I'm on the very top*). Finally, the

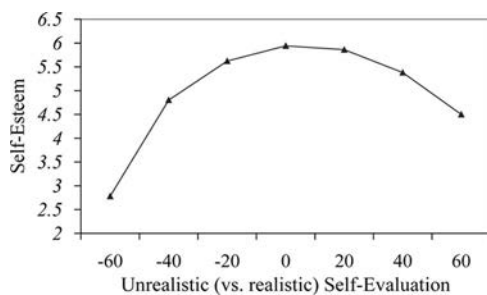


Figure 2. Self-esteem levels as a function of accuracy and directional biases in self-assessments of performance (Study 1). The numbers on the x -axis represent the sizes of the unstandardized residuals obtained from regressing perceived performance on actual performance.

participants completed the Chinese version of the Beck Depression Inventory-II (Beck et al., 1996, $\alpha = .89$ in the current study).

Results and Discussion

The mean number of correct answers in the English test was 7.00 ($SD = 2.03$). Female students performed better than male students ($M_{\text{Female}} = 7.42$, $SD = 1.65$ vs. $M_{\text{Male}} = 6.78$, $SD = 2.17$), $F(1, 2778) = 63.55$, $p < .001$, $\eta_p^2 = .022$. The average perceived performance percentile was 48.76 ($SD = 30.52$). Female students perceived their performance to be higher ($M = 52.29$, $SD = 27.11$) than did male students ($M = 46.94$, $SD = 31.97$), $F(1, 2778) = 19.62$, $p < .001$, $\eta_p^2 = .007$. The average depression score was 10.89 ($SD = 8.92$). No gender differences in depression were found, $F(1, 2778) = 0.36$, *ns*.

As in Study 1, we first regressed perceived performance on actual performance. Participants who performed better on the test estimated their performance to be better, $r = .29$, $p < .001$. We used both the unstandardized residuals obtained from the regression equation and difference scores between perceived performance and actual performance as indices of inflated (vs. deflated) self-assessments. The unstandardized residuals ranged from -61.64 to 67.63 ($M = 0.04$, $SD = 29.05$), and the difference scores ranged from -100.00 to 98 ($M = -9.21$ and $SD = 35.80$). Again, to test our hypothesis, we fitted a polynomial regression equation to depression levels with the linear and quadratic effects of inflated self-assessment as predictors (depression = $a + bX + cX^2$). When unstandardized residuals were used as the measure of inflated (vs. deflated) self-assessments, both the linear effect and the quadratic effect were significant (for the linear effect, $\beta = -.035$, $t(2778) = -6.19$, $p < .001$; for the quadratic effect, $\beta = .001$, $t(2778) = 5.61$, $p < .001$). When the difference scores were used as the measure of inflated (vs. deflated) self-assessments, the linear effect was not significant, $\beta = -0.006$, $t(2778) = -1.19$, $p > .10$, but the quadratic effect was, $\beta = 0.0003$, $t(2778) = 3.76$, $p < .001$. Figure 1b depicts the estimated depression level at each level of inflated (vs. deflated) self-assessments measured by the unstandardized residuals. As shown in Figure 1b, the extent of deflated self-assessment was related to higher depression levels. Similarly, the extent of inflated self-assessment was related to higher depression levels. In short, the results from Studies 1 and 2 consistently showed that both self-effacement and self-enhancement were associated with higher levels of depression,

¹ We repeated our analysis, replacing the self-reported percentile ranks with the participants' self-reported number of correct items. We obtained the same results: The linear effect was not significant, $\beta = 0.02$, $t(89) = 0.04$, but the predicted quadratic effect was, $\beta = 0.46$, $t(89) = 2.25$, $p < .05$. That is, both deflated and inflated self-assessments were positively related to depression, whereas accurate self-assessments were associated with the lowest level of depression.

² To examine the emotional effects of inaccurate self-perceptions regardless of the direction of the bias, we took the *absolute* values of the unstandardized residuals, and correlated them with the depression and self-esteem scores. In Study 1, the absolute values of unstandardized residuals were positively correlated with depression ($r = .31$, $p < .01$) and negatively correlated with self-esteem ($r = -.24$, $p < .05$). In Study 2, the absolute values of unstandardized residuals were positively correlated with depression ($r = .11$, $p < .001$).

whereas accurate self-assessments predicted the lowest depression level.

Study 3

In Studies 1 and 2, both self-effacement and self-enhancement predicted higher levels of depression. To provide evidence for the emotional consequences of inaccurate self-assessments, in the present study, we used bogus performance feedback to lead the participants of varying performance levels to perceive their performance as high or low and assessed the affective consequences of the manipulation. We hypothesized that both guiding high performers to perceive their performance as low and low performers to perceive their performance as high would increase the magnitude of experienced dejection.

Method

The participants were 40 undergraduates (25 women) students from an introductory psychology class in a public university in the United States. Their age ranged from 18 to 22 years ($M = 19.08$, $SD = 1.10$). In each experimental session, two to three participants, seated in separate cubicles, were given 10 min to solve 27 anagrams. Each anagram had two or three solutions, and the participants were asked to identify as many solutions as they could by rearranging a string of letters into meaningful words. They were told in advance that we were interested in how many solutions they could find in the given time and they would receive performance feedback in private after completing the task.

At the completion of the task, the experimenter collected the tests from the participants, and graded them in another cubicle. Next, the experimenter provided "performance feedback" to each participant in private. The participants were informed of the number of correct anagrams they had solved (e.g., 20 out of 65). Independent of the participants' actual performance, the participants who were randomly assigned to the high (low) performance feedback conditions were told their performance was good (bad) as compared with others. In the high performance feedback condition ($N = 12$), the experimenter told the participants, "This is a very good score. You did really well on this test." In the low performance feedback condition ($N = 12$), the experimenter told the participants, "This is not a good score. You didn't do well on this test." There was also a no-feedback condition ($N = 16$), in which the participants were only informed of their scores.

Finally, the participants filled out a survey that ostensibly asked for their reflections on the study. Embedded in the survey was a measure of dejection-related emotions Higgins, Bond, Klein, and Strauman (1986) developed from the Multiple Affect Adjective Checklist (Zuckerman & Lubin, 1965). Specifically, four dejection-related emotions (disappointed, blue, discouraged, and low) were included. The participants were asked to indicate the extent to which they experienced the emotions at that moment on a 6-point Likert scale that ranged from 0 (*not at all*) to 5 (*a great deal*). The reliability of the dejection-related emotions in the present study was .89. Upon completing the task, the participants answered a manipulation check question: "How well do you really think you performed on the Anagram test?" on a 7-point Likert scale from 1 (*really bad*) to 7 (*very good*).

Results and Discussion

The performance feedback manipulation was successful. Participants in the low performance feedback condition perceived their performance less favorably ($M = 2.90$, $SD = 1.45$) than did those in the high performance condition ($M = 4.33$, $SD = 1.00$), $F(1, 17) = 6.15$, $p < .05$. No gender differences in the anagram test performance were found, $F < 1$, *ns*. The mean number of correct solutions for all participants was 24.14 ($SD = 6.03$). Female participants experienced more the dejection-related emotions ($M = 1.93$, $SD = 1.10$) than did male participants ($M = 1.04$, $SD = 1.18$), $F(1, 35) = 4.47$, $p < .05$.

To test our hypotheses, we regressed the dejection measure on the participants' actual performance on the anagram test (mean-centered), performance feedback (high, low, or no feedback, coded as two dummy variables), and their interaction. The main effect of performance feedback was significant, $F(2, 34) = 7.08$, $p < .01$, $\eta_p^2 = .18$. Participants in the low performance feedback ($M = 2.63$, $SD = 1.01$) experienced more dejection-related emotions than did participants in the high performance feedback condition ($M = 1.25$, $SD = 1.16$), $F(1, 22) = 9.62$, $p < .01$, and the no-feedback condition ($M = 1.48$, $SD = 1.13$), $F(1, 26) = 7.64$, $p < .01$.

More important, the predicted interaction between actual performance on the anagram task and performance feedback was significant, $F(2, 34) = 5.89$, $p < .01$, $\eta_p^2 = .26$. The nature of this interaction is illustrated in Figure 3. To understand the nature of this interaction and test our hypotheses, we regressed dejection-related emotions on participants' actual performance in each of the experimental conditions. Results of this analysis revealed that among those who were led to believe that they had high performance, those who did not perform well reported more dejection-related emotions ($B = -0.13$, $r = -.67$, $p < .05$). In contrast, a marginally significant trend was obtained among those who were led to perceive their performance was bad. Among these participants, those with higher performance experienced more dejection-related emotions ($B = 0.13$, $r = .54$, $p = .06$). These results are consistent with the hypothesis that both experimentally induced overly negative self-assessments (high actual performance-low performance feedback) and overly positive self-assessments (low actual performance - high performance feedback) can evoke more dejection-related emotions. Finally, in the no-feedback condition,

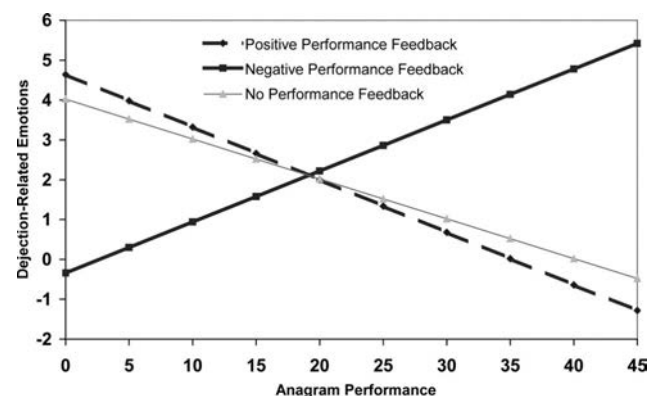


Figure 3. Dejection-related emotions as a function of actual performance and performance feedback on the anagram test (Study 3).

those who had higher performance reported fewer dejection-related emotions ($B = -0.10$, $r = -.58$, $p < .05$).

Study 4

Although Study 3 results supported our hypothesis, because the participants had access to their actual performance score, participants who received high scores might feel good about their performance and reported fewer dejection-related emotions (as the result in the no-feedback condition indicates). Thus, the negative relationship between actual performance and dejection in the high performance feedback condition may reflect the effect of the performance score instead of the effect of induced overly negative self-assessments. The present study was designed to address this issue.

Method

The procedures in the present study were identical to those in Study 3, with the exception that the participants were not provided with their actual performance score. One hundred sixty (102 women) students from an introductory psychology class in a public university in the United States were randomly assigned to one of the three experimental conditions (56 participants in the high performance feedback condition, 48 participants in the low performance feedback condition, 56 participants in the control condition). Their age ranged from 18 to 23 years ($M = 18.82$, $SD = 1.09$).

Results and Discussion

The performance feedback manipulation was successful. Participants in the low performance feedback condition perceived their performance less favorably ($M = 3.87$, $SD = 1.63$) than did those in the high performance condition ($M = 4.63$, $SD = 1.07$), $F(1, 155) = 8.11$, $p < .01$. No gender differences in the anagram test performance and the measure of dejection-related emotions ($\alpha = .88$) were found, $F_s < 1$, ns . The mean number of correct solutions for all participants was 26.79 ($SD = 6.47$). The mean level of dejection-related emotions was 1.20 ($SD = 1.10$).

Again, we regressed dejection on the participants' performance on the anagram task (mean-centered), the performance feedback they received (high, low, no performance feedback, coded as two dummy variables), and their interaction. As in Study 3, the main effect of performance feedback was significant, $F(2, 154) = 21.72$, $p < .001$, $\eta_p^2 = .22$. Participants in the low performance feedback condition ($M = 2.00$, $SD = 1.27$) reported more dejection-related emotions than did participants in the high performance feedback condition ($M = 0.84$, $SD = 0.74$), $F(1, 103) = 34.33$, $p < .001$, and the no-feedback condition ($M = 0.94$, $SD = 0.92$), $F(1, 102) = 24.23$, $p < .001$.

Again, the predicted interaction between actual performance and performance feedback was significant, $F(2, 155) = 6.65$, $p = .002$, $\eta_p^2 = .08$. To understand the nature of this interaction, which is illustrated in Figure 4, we regressed the dejection-related emotions on participants' actual performance in each of the experimental conditions. The results revealed a marginally significant trend among participants who received high performance feedback. These participants reported more dejection-related emotions if

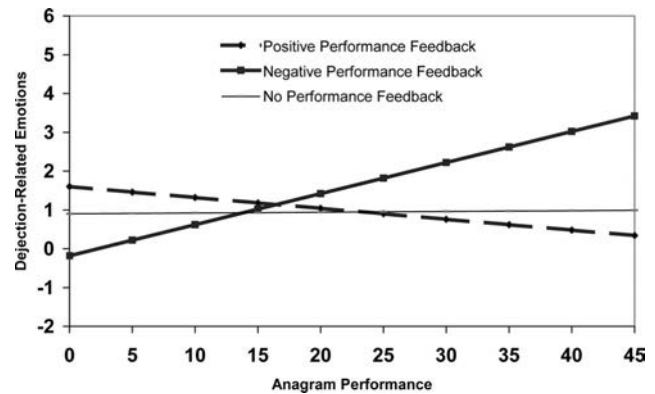


Figure 4. Dejection-related emotions as a function of actual performance and performance feedback on the anagram test (Study 4).

they had poorer performance ($B = -0.03$, $r = -.23$, $p = .09$), suggesting that experimentally induced overly positive self-assessment can increase dejection-related emotions. In contrast, participants who received low performance feedback reported more dejection-related emotions if they had higher actual performance ($B = 0.08$, $r = .40$, $p < .01$), suggesting that experimentally induced excessive negative self-assessment can also increase dejection-related emotions. Finally, in the no performance feedback condition, there was no association between actual performance and dejection-related emotions ($B = 0.002$, $r = .01$, ns). This result confirms that the negative relationship between actual performance and dejection in the high performance feedback condition in Study 3 did not result from the effect of the performance score per se.

General Discussion

Summary and Implications

The mass media have popularized the idea that self-enhancement confers psychological benefits. Nevertheless, the evidence for this idea is mixed. Various issues related to the measurement of self-enhancement have obscured the psychological effects of self-enhancement, leading to the inconclusive results. When self-enhancement is properly measured by comparing self-assessment of relative task performance to actual relative task performance, we found in both Studies 1 and 2 that like self-effacement, self-enhancement is associated with greater vulnerability to depression. This result is consistent with the idea that although making slightly positive self-assessments can protect individuals against dejection, distortions beyond this optimal level of positive illusion could lead to psychological distress (Baumeister, 1989). Furthermore, in Studies 3 and 4, inducing high performers to perceive their performance as low and low performers to perceive their performance as high produced analogous effects on the magnitude of experienced dejection. Taken together, these results challenge the popular notion that self-enhancement and providing positive performance feedback to low performers is beneficial to emotional health. Instead, our results underscore the emotional benefits of accurate self-assessments and performance feedback. In short, our results have important implications for

measuring biased and accurate self-assessments, for theorizing the emotional costs of self-enhancement versus accurate self-assessments, and for rethinking the value of a popular belief and practice in our society.

The results also speak to cross-cultural differences in self-enhancement. The participants in Study 1 were American undergraduates. When asked to estimate their relative performance, their mean response was 63.32%. When the Hong Kong Chinese participants were asked to estimate their relative performance, the mean response was 48.76%. The lower mean response among the Hong Kong Chinese students is consistent with the past finding that Asians are more humble than Americans when making self-assessments (Chiu & Kim, in press; Kim, Chiu, Peng, Cai, & Tov, 2010; Kim, Peng, & Chiu, 2008), although given the differences in the participants' age and the experimental tasks used in the two studies, direct cross-cultural comparison is not warranted. Nevertheless, our results show that in both American and Hong Kong Chinese contexts, both self-enhancement and self-effacement are related to higher levels of depression. This result supports the idea that although cultures differ in the extent of self-effacement and self-enhancement, the psychological effects of these two manners of self-expression may be the same (Chiu & Kim, in press).

Although our results show that excessive positive self-evaluations have emotional costs, these results should not be taken to suggest that positive self-evaluations per se are harmful to emotional health. Excessive positive self-evaluations refer to positive self-evaluations that are not supported by personal achievements. Excessive positive self-evaluations have emotional costs because they heighten concerns with self-evaluations (Dweck, 2002, 2006; Kamins & Dweck, 1999; Mueller & Dweck, 1998), divert attention away from diagnostic task information that can improve one's ability (Kim, Chiu, & Zou, 2010), and increases vulnerability of the self to the emotional impacts of the circumstances that may expose one's personal inadequacy. In short, maintaining favorable perceptions of the self with little substance could be an emotional burden. However, our results also show that individuals with relatively high performance would be less depressed if they acknowledge their strengths than if they hold excessive negative self-assessments. Similarly, holding critical views of the self may not always lead to dejection. For example, self-critical low performers would be less depressed if they can (vs. cannot) acknowledge their weaknesses and strive to improve their future performance (Kamins & Dweck, 1999; Mueller & Dweck, 1998).

Limitations and Future Directions

The present research is concerned with the effects of excessive positive self-perceptions on intrapersonal outcomes (e.g., depression, self-esteem). Future research is needed to examine whether our results also generalize to interpersonal outcomes (e.g., hostility, defensiveness, social skills). Available evidence suggests that excessive positive self-perceptions are accompanied by poor interpersonal outcomes. For example, Kwan et al. (2008) found that after controlling for both perceiver effect and target effect, the extent of excessive positive self-perceptions predicts both negative intrapersonal outcomes (e.g., overt narcissism) and maladaptive interpersonal outcomes (e.g., defensiveness, poor social skills). Therefore, we expect to find the same quadratic relationship be-

tween the extent of self-enhancement and interpersonal outcomes in future research.

In addition, in Studies 1 and 2, we used self-report measures to assess both the predictors and the dependent variables (although the measures of overly positive/negative self-assessments were based partly on the participants' actual task performance). Thus, common method variance is a potential threat to the validity of the results from these two studies. The convergent results obtained from the subsequent experimental studies help to assuage this concern. Nonetheless, it is important that in future research, we also use other measures of emotional outcomes that do not rely on self-reports, including measures of behavioral and psychophysiological manifestations of emotional vulnerability, and observer ratings of depression levels.

Conclusive Remarks

The forecourt of the Temple of Apollo at Delphi is inscribed with the ancient Greek aphorism "Know thyself." This inscription invites the visitors to the Temple to acknowledge their strengths and weaknesses. By focusing on the emotional costs of self-effacement and self-enhancement, we have obtained results that resonate with the wisdom of this Greek aphorism.

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