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Conceptualizing and Assessing Self-Enhancement Bias: A Componential Approach

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Abstract

Four studies implemented a componential approach to assessing self-enhancement and contrasted this approach with 2 earlier ones: social comparison (comparing self-ratings with ratings of others) and self-insight (comparing self-ratings with ratings by others). In Study 1, the authors varied the traits being rated to identify conditions that lead to more or less similarity between approaches. In Study 2, the authors examined the effects of acquaintance on the conditions identified in Study 1. In Study 3, the authors showed that using rankings renders the self-insight approach equivalent to the component-based approach but also has limitations in assessing self-enhancement. In Study 4, the authors compared the social-comparison and the component-based approaches in terms of their psychological implications; the relation between self-enhancement and adjustment depended on the self-enhancement approach used, and the positive-adjustment correlates of the social-comparison approach disappeared when the confounding influence of the target effect was controlled.

Keywords

self-enhancement; self-esteem; self-perception; mental health; adjustment

A basic assumption about mental health is that psychological adjustment requires the ability to accurately discern reality, particularly in relation to oneself. This assumption dates back to the ancient Greeks and can be best summed up by the Socratic admonition to “know thyself.” In contrast to the longstanding view that self-insight is necessary to function effectively, Taylor and Brown (1988) argued that overly positive, self-enhancing illusions about the self are the hallmark of mental health. This new perspective has drawn

considerable attention and has led to a protracted debate between those who believe that psychologically healthy individuals perceive themselves accurately and those who believe that it is more adaptive to have positive illusions. Subsequent research has yielded divergent results, and it is unclear whether self-enhancement has a positive (e.g., Bonanno, Field, Kovacevic, & Kaltman, 2002; Sedikides, Rudich, Gregg, Kumashiro, & Rusbult, 2004; Taylor, Lerner, Sherman, Sage, & McDowell, 2003), negative (e.g., Block & Colvin, 1994; Colvin, Block, & Funder, 1995; John & Robins, 1994; Shedler, Mayman, & Manis, 1993), or mixed (e.g., Bonanno, Rennie, & Dekel, 2005; Paulhus, 1998; Robins & Beer, 2001) impact on mental health.

In an attempt to resolve this debate, Kwan, John, Kenny, Bond, and Robins (2004) proposed that a componential approach holds promise for understanding the divergent mental health correlates of self-enhancement. They developed a componential approach that extends Kenny's (1994) Social Relations Model (SRM) from its focus on interpersonal perception to self-perception. Their theoretical derivation and empirical study illustrated that the two traditional ways of operationalizing self-enhancement—comparing self-ratings to ratings of others or to ratings by others—have limited utility because they each confound self-enhancement with an unwanted component in interpersonal perception.

Building on Kwan et al.'s (2004) theoretical work, the present research explored the implications of the componential approach by documenting the conditions under which it converges and diverges with the two traditional approaches to assessing self-enhancement and the conditions under which the different approaches are confounded by unwanted components of interpersonal perception.

Specifically, the present research sought to extend our understanding of the componential approach to self-enhancement in four ways. First, we examined how the different conceptions of self-enhancement vary as a function of the trait domain being rated. Like most research on self-enhancement, Kwan et al. (2004) studied self-enhancement using socially desirable traits to form an overall measure of self-enhancement. They keyed all traits in the desirable direction, so that higher scores on the overall measure indicated more self-enhancement. However, previous research has suggested that trait domain has an important influence on self-other agreement (Funder & Dobroth, 1987; John & Robins, 1993), as well as on the basic components of the SRM model (Kenny, 1994).

Second, we examined how the different conceptions of self-enhancement vary across judges. A valid accuracy criterion is crucial in assessing self-enhancement bias. Previous research has used accuracy criteria based on judgments by friends, clinicians, and unacquainted observers. It is not clear whether the three conceptions of self-enhancement show the same pattern of similarities and divergences across different types of judges.

Third, we examined alternative methods that may render the two traditional conceptions of self-enhancement equivalent to the componential approach. Specifically, we evaluated the advantages and disadvantages of a ranking procedure that has been used in some previous studies of self-enhancement and two alternative ways of computing the discrepancy between self-ratings and ratings of others.

Finally, we explored the broader implications of the componential approach to self-enhancement by examining its relations with measures of mental health and psychological adjustment. If the componential approach has ecological validity, the measure of self-enhancement that is derived from the componential approach should predict important outcomes such as intrapsychic and interpersonal adjustment.

A Componential Approach to Self-Enhancement Bias

Kwan et al. (2004) found that two different conceptions of self-enhancement coexist in the literature. One conception originated from Festinger's (1954) social-comparison theory and compares perceptions of the self with perceptions of others: Self-enhancers are those individuals who perceive themselves more positively than they perceive others. The other conception originated from Allport's (1937) notion of self-insight and compares self-perception with perceptions by others: Self-enhancers are individuals who perceive themselves more positively than they are perceived by others.

Kwan et al. (2004) argued that each of these two conceptions compares self-perception with an important criterion (perceptions of others and perceptions by others); however, each conception is incomplete without the other. The two previous conceptions are different from each other, each confounding self-enhancement with an irrelevant component of interpersonal perception.

Kwan et al. (2004) proposed that the SRM (Kenny, 1994) can be extended to conceptualize self-perception as a form of interpersonal perception in which the same person, the self, is both the perceiver and the target. That is, self-perception can be decomposed into three components: perceiver effect (P_s), target effect (T_s), and relationship with the self (R_{ss}). In equation form, the self-perception on an attribute X is as follows: $X_{ss} = \text{Perceiver}_s + \text{Target}_s + \text{Relationship}_{ss} + \text{Constant}_s$. Subscript ss indicates that self is both perceiver and target.

In self-ratings, a high perceiver effect (P_s) implies a tendency to evaluate people positively or leniently, whereas a low perceiver effect implies a tendency to evaluate people negatively or harshly. A high target effect (T_s) implies that the individual is perceived positively by the consensus of others. A low target effect indicates that the individual is generally perceived negatively by others.

It follows from this model that individuals may perceive themselves positively because (a) they generally perceive people positively (high P_s), (b) they are perceived positively by others (high T_s), and/or (c) they have an overly positive view of themselves (high R_{ss}). Individuals can score high on the social-comparison index because they have an overly positive self-perception (R_{ss}) and/or because they are seen positively by others (i.e., a high target effect). Individuals can score high on the self-insight index because they have an overly positive self-perception (R_{ss}) and/or because they generally see others positively (a high perceiver effect). Thus, the social-comparison index confounds self-enhancement with the target effect, and the self-insight index confounds self-enhancement with the perceiver effect.

Only R_{ss} is specifically relevant to self-perception bias. R_{ss} is akin to the relationship effect in SRM and indicates the unique component of self-perception that cannot be explained by perceiver and target effects. R_{ss} is due to the unique relationship individuals have with themselves and captures their own idiosyncratic view of themselves. Thus, Kwan et al. (2004) proposed that R_{ss} should be considered an unconfounded measure of self-enhancement bias.

Degree of Confounding

The social-comparison and self-insight indices are likely to be confounded in most research contexts. The social-comparison index is the same as the SRM index (R_{ss}) only when T_s equals zero—that is, when individuals do not differ systematically on the attributes being rated. This can also happen when individuals do differ on an attribute but the perceivers fail to recognize these differences. Thus, researchers should be cautious when interpreting an absence of target variance.

Similarly, the self-insight index is the same as the SRM index only when P_s equals zero—that is, when individuals do not differ in their general perception of others. This seems unlikely, given that individual differences in the perceiver effect have been widely demonstrated in studies of interpersonal perception (Kenny, 1994).

However, we know little about the conditions that lead to more or less confounding. Therefore, the present research was designed to address this issue. The roles of the target effect and perceiver effect suggest that the confounding in the two previous indices might be a function of the properties of the traits that are associated with the perceiver and target variance. Previous research has shown that each of the Big Five traits elicits different amounts of target variance and perceiver variance (Kenny, 1994; Park & Judd, 1989). The amount of target variance reflects the degree to which judges agree in the relative ordering of target persons on a trait domain (i.e., interjudge agreement). The content domain of the trait judged is found to be an important determinant of interjudge agreement (John & Robins, 1993).

The mathematical derivations and the empirical illustration presented in Kwan et al. (2004) show clear conclusions about the confounding problems of the social-comparison and self-insight indices. The social-comparison index confounds self-enhancement with the target effect, whereas the self-insight index confounds self-enhancement with the perceiver effect. Thus, the degree of confounding of the social-comparison index should vary as the target variance varies. The degree of confounding of the self-insight index should vary as the perceiver variance varies. However, no empirical research has verified these conclusions. In order to address this issue, we conducted an empirical study to illustrate how the confounding of the two previous indices varies across traits.

We expected to replicate past findings that extraversion traits have more target variance than do agreeableness traits and that agreeableness traits have more perceiver variance than do extraversion traits. If so, then the social-comparison index would show little or no confounding for traits with low target variance and high perceiver variance (e.g., Agreeableness) but more confounding for traits with high target variance and low perceiver

variance (e.g., Extraversion). In contrast, the self-insight index confounds self-enhancement with the perceiver effect, not the target effect. Then, the self-insight index would show little confounding for traits with high target variance and low perceiver variance (e.g., Extraversion) but more confounding for traits with low target variance and high perceiver variance (e.g., Agreeableness).

Effect of Acquaintance

What effect does level of acquaintance have on the assessment of self-enhancement? A surprising finding in the literature is that the amount of consensus (target variance) in interpersonal judgments does not increase with greater acquaintance (Kenny, Albright, Malloy, & Kashy, 1994; Park, Kraus, & Ryan, 1997; Paulhus & Reynolds, 1995).

According to Kenny's (2004) PERSON model, as more behaviors are observed through increasing acquaintance, stereotypes or shared assumptions that perceivers have decline. The other element of social perception that declines is the unique meaning that perceivers give to a behavior. Once perceivers observe an individual's pattern of behaviors for a longer period of time, atypical behaviors have less weight in interpersonal perception. More opportunities to observe the personality of an individual are accompanied by a decrease in shared assumptions and unique meanings of atypical behaviors that perceivers have about the individual. Additionally, acquaintance does not improve consensual accuracy. Kenny (2004) concluded from his model that "advantages of acquaintance come very early in the acquaintance process ... accuracy requires relatively little acquaintance and extremely long-term acquaintance confers no special advantage" (p. 272).

If Kenny (2004) is right, then the degree of confounding for the social-comparison index with the target effect would remain at a similar level regardless of whether the self-enhancement measure is derived from judgments by long-term or short-term acquaintances. Consequently, the relation between the social-comparison index and the SRM index in long-term relationships would be conserved for short-term relationships.

How about the effects of acquaintance on the amount of perceiver variance? Previous research shows that perceiver variance declines as a function of acquaintance (Kenny, 1994). That is, people are less likely to rely on their general attributional style to judge others whom they know well. Therefore, we expected that there would be less confounding in the self-insight index, and the relation between the self-insight index and the SRM index would be stronger in long-term relationships than has been found in short-term relationships.

Alternative Methods to Eliminate Confounding

Most research on self-enhancement has used rating scales. Previous studies have demonstrated systematic individual differences in scale usage (e.g., Couch & Keniston, 1960; Jackson, 1979; Schuman & Presser, 1980; Soto, John, Gosling, & Potter, 2008). John and Robins (1994; Robins & John, 1997a) used a ranking response format to eliminate such potential differences in scale usage. Because they wanted to compare self-perceptions of performance in a group task with peer and expert observer ratings, it was necessary to address concerns about the phenomenon of observer harshness (see J. D. Campbell & Fehr, 1990; Coyne & Gotlib, 1983). That is, when self-ratings are more positive than ratings by

others, the discrepancy could reflect a self-enhancement tendency, but it could also reflect a tendency for judges to be overly harsh in their ratings of targets. Conceptually, rankings eliminate perceiver variance because they force all participants to have the same mean rating. In SRM terms, observers are perceivers, and observer harshness is captured by the perceiver effect. Consequently, a ranking procedure should eliminate the confounding of the self-insight index with the perceiver effect.

In the present research, we conducted an empirical study to illustrate the utility of using a ranking procedure in a specific research context. Specifically, we compared the three self-enhancement indices when they are based on rankings rather than ratings. We expected to demonstrate that the ranking procedure eliminates the confounding of the self-insight index with the perceiver effect, rendering the self-insight index equivalent to the SRM index.

Are there ways to operationalize the social-comparison index so that it is equivalent to the SRM index? The social-comparison index has been operationalized in two different ways in the literature: (a) the discrepancy between each participant's self-rating and the average of the individual ratings that the participant assigned to the other group members and (b) a direct comparative self-rating relative to a hypothetical average college student (e.g., Brown, 1986; Taylor & Gollwitzer, 1995; Taylor et al., 2003). The present research tested the convergence between these two conceptually similar but metrically different ways to operationalize self-enhancement bias and the similarity between the SRM index and the comparative self-rating.

Links Between Self-Enhancement and Adjustment

Finally, the present research explored a question of considerable debate: How does self-enhancement bias relate to adjustment? Kwan et al. (2004) found that the self-insight and social-comparison indices differed from the SRM index in their associations with measures of adjustment. However, their findings were based primarily on self-reported measures of adjustment. Self-reported measures of adjustment are problematic in this context because individuals who self-enhance are also likely to provide overly positive reports of their mental health (e.g., Colvin et al., 1995; Shedler et al., 1993). Note that Kwan et al. did include one nonself-report measure of adjustment—ratings of task performance by the same individuals whose ratings served as the basis for the self-enhancement indices. Despite this, the observed correlations may be due in part to shared method variance. To better understand the link between self-enhancement bias and adjustment, we must examine adjustment as assessed from multiple perspectives. Some objective and independent measures of adjustment are needed to understand the psychological implications of self-enhancement.

Overview of Studies

We report four studies using the componential approach to self-enhancement. In each study, we employed a round-robin design in which participants interacted with 4 to 6 people in a group and then rated their own behavior and the behavior of each group member on a number of personality traits.

In Study 1, we varied the traits being rated to identify conditions that lead to more or less confounding in the social-comparison and self-insight indices of self-enhancement in a group context. We expected that the patterns of the amount of target and perceiver variance is similar to previous studies and thus the degree of confounding in the social-comparison and self-insight indices would vary depending on the Big Five trait domain.

In Study 2, we examined whether the conditions that lead to confounding in previous measures of self-enhancement would change as a function of acquaintance. Similar to Study 1, we examined the extent to which previous self-enhancement indices are confounded with the target and perceiver effects and identified circumstances that lead to greater or lesser confoundings across a set of traits. To examine whether levels of acquaintance affect the conditions that lead to differences in confounding of the two previous indices, we compared differences in findings between Studies 1 and 2 (40-min vs. 3-month acquaintances, respectively).

In Study 3, we proposed an alternative way to control for the confounding problems of the self-insight index by using a ranking procedure. We aim to illustrate that the ranking procedure would control for the confounding of the self-insight index with the perceiver effect, making it equivalent to the SRM index of self-enhancement. Additionally, we examined the convergence between two conceptually similar but metrically different ways to operationalize self-enhancement bias using the social-comparison conception.

In Study 4, we differentiated the self-enhancement indices in terms of their ability to predict implications for psychological adjustment. Specifically, we examined multiple measures of adjustment as assessed by independent observers and objective indicators. We expected that a different pattern of adjustment correlates would emerge depending on which index of self-enhancement was used.

Study 1

To apply the componential approach to self-enhancement, we must ensure that the target effect captures real individual differences. Study 1 utilized observer ratings of behavior in a group interaction task. Although the observers (other group members) were previously unacquainted with the targets, they had all the relevant information needed to accurately judge their behavior in this context. That is, the observers were being used as a criterion for the target's actual behavior in a specific, time-limited situation, not as a measure of the truth about the target's general personality tendencies.

After engaging in the group task, participants rated their own behavior and the behavior of the other group members in a number of trait domains. Based on previous research, we expected to replicate the findings that traits related to Extraversion would elicit the highest target variance, whereas traits related to Agreeableness would elicit the lowest target variance, with traits related to the other Big Five domains falling in between. Conversely, Extraversion traits would elicit the lowest perceiver variance and Agreeableness traits the highest perceiver variance. If so, then the self-insight index would be more confounded for Agreeableness traits than for Extraversion traits. In contrast, the social-comparison index would be more confounded for Extraversion traits than for Agreeableness traits.

Method

Participants—Data from two samples were used. In Sample 1, 112 undergraduate students (58% women) were randomly assigned to 28 groups of 4. In Sample 2, 372 undergraduate students (55% women) were randomly assigned to 72 groups of 5 and 3 groups of 4. Participants were recruited so that individuals in the same group were not previously acquainted with each other.

Group Interaction Task—In Sample 1, participants took part in a simulation of a committee meeting in a large organization. Participants were told that the purpose of the meeting was to allocate amounts from a fixed bonus fund to four candidates nominated for a merit-based bonus. Each participant was assigned the role of supervisor of one of the candidates and was instructed to present a case for that candidate at the meeting. Participants received a realistic written summary of the employment backgrounds of all four candidates, including salary, biographical information, and appraisals of their job performance. At the beginning of the meeting, participants gave 3- to 5-min presentations on the relative merits of their candidates. The groups then had 30 min to reach a consensus on how to allocate the bonus money.

Participants in Sample 2 interacted in a decision-making task entitled *Lost on the Moon*. Participants were told that they were members of a space crew originally scheduled to rendezvous with a mother ship on the moon, but due to mechanical difficulties, the ship was forced to land 200 miles away. Because the ship and much of the equipment had been damaged, only 15 items were left undamaged. Each group was instructed to consensually rank the items in terms of their importance for the crew's survival.

Measures—In Sample 1, participants rated their own behavior and the behavior of the three other group members on three domains: talkative, warm, and effective. Note that participants were not asked to rate how talkative, warm, and effective the person was in general but how talkative, warm, and effective the person was during the interaction task. Being effective in this group discussion task required participants to articulate and advocate one's opinions to a group of strangers. Thus, both talkative and effective were included as markers of Extraversion. Similarly, “warm” was included as a marker of Agreeableness. Ratings were made on a 9-point scale ranging from 1 (*not at all*) to 9 (*extremely*).

In Sample 2, participants rated (a) one trait from the Extraversion domain (talkativeness), (b) two traits from the Agreeableness domain (friendliness and competitiveness), and (c) three traits from other Big Five domains (creativity, capacity for critical thinking, and effort). Ratings were made on a 10-point scale ranging from 1 (*not at all*) to 10 (*extremely*).

Results and Discussion

We report our findings from Sample 1 and Sample 2 together, facilitating our examination of the effects of trait domain.

Variance Partitioning—For the ease of comparison across traits, results are reported in terms of the relative variance; that is, any one variance component is divided by the sum of

the total variance, and thus the sum of relative perceiver variance, relative target variance, and relative relationship variance always equals 1. Additional evidence for the robustness of the findings was gathered by examining the absolute variance of the SRM components. We reran all of the analyses based on the absolute variance rather than relative variance. The pattern of significant findings was identical to those based on the relative variance.

Relative perceiver variance ranged from .04 for talkative (Extraversion domain) to .60 for competitiveness (Agreeableness domain; see Table 1). Consistent with previous studies, Agreeableness traits elicited the highest perceiver variance, whereas Extraversion traits elicited the lowest perceiver variance, with the other traits falling in between. These differences among the traits were significant, as shown by a one-way factorial ANOVA with trait domain as the factor (i.e., Agreeableness, Other, and Extraversion), $F(2, 8) = 13.77, p < .01$.

Relative target variance ranged from .05 for competitiveness (Agreeableness domain) to .60 for talkative (Extraversion domain). In contrast to the findings with perceiver variance, Extraversion traits elicited the highest target variance, whereas Agreeableness traits elicited the lowest target variance, with the other traits falling in between, $F(2, 8) = 28.31, p < .01$. These findings show that perceivers were more likely to agree in their ratings of traits related to Extraversion.

Across two samples, a consistent pattern emerged: Extraversion traits elicited the highest target variance and the lowest perceiver variance, whereas Agreeableness traits elicited the lowest target variance and the highest perceiver variance.

Self-Enhancement Indices—For each trait, we computed a social-comparison index, self-insight index, and SRM index. To compute the social-comparison index, we averaged the ratings each participant gave to the other group members and subtracted this averaged rating from the self-rating. To compute the self-insight index, we averaged the ratings each participant received from the other group members; we then subtracted this perception-by-others rating from the self-rating. To compute the SRM index, we subtracted the target effect and the perceiver effect from the self-rating.

Averaged across all nine traits, the social-comparison index and the self-insight index correlated .56, and the social-comparison index and the self-insight index correlated .47 and .57 with the SRM index. Given that all these indices share the same self-ratings, these correlations indicate only modest similarity. In other words, there were substantial differences among the three indices: A person may appear self-enhancing on one index but not on the others. What factors are responsible for these differences?

Effect of Trait Domain on Degree of Confounding—Table 1 shows that the social-comparison index was positively correlated with the target effect for all nine traits; the mean correlation was .44, ranging from .04 for warm (Agreeableness domain) to .67 for talkative (Extraversion domain). That is, individuals with a high target effect (i.e., those seen more positively by others) tended to score high on the social-comparison index, thus being classified erroneously as self-enhancers. Conversely, the self-insight index was positively

correlated with the perceiver effect for all nine traits; these correlations averaged .51, ranging from .09 for effective (Extraversion) to .71 for competitiveness (low Agreeableness). That is, individuals with a high perceiver effect (i.e., those who see others more positively) tended to score high on the self-insight index, thus being classified erroneously as self-enhancers.¹

Although the two indices showed some degree of confounding for all traits, the extent of confounding varied across traits. The confounding between the social-comparison index and the target effect was most pronounced for the Extraversion traits and least pronounced for the Agreeableness traits. Conversely, the confounding between the self-insight index and the perceiver effect was most pronounced for the Agreeableness traits and least pronounced for the Extraversion traits. These findings generalized to all traits in the two different samples.

To further explore the effects of trait domain, we computed correlations across the nine traits, relating the amount of perceiver and target variance for each trait to the confounding correlations. The results were very clear: (a) The degree to which the social-comparison index was confounded with the target effect was strongly related to the degree to which the trait had high target variance ($r = .90$); (b) The degree to which the self-insight index was confounded with the perceiver effect was strongly related to the degree to which the trait had high perceiver variance ($r = .90$); (c) The social-comparison index was less similar to the SRM index for traits that had high target variance ($r = -.88$); and (d) The self-insight index was less similar to the SRM index for traits that had high perceiver variance ($r = -.61$).

Summary of Findings—Study 1 showed that the social-comparison and self-insight indices are confounded with other components of social perception. The social-comparison index was confounded with the target effect, whereas the self-insight index was confounded with the perceiver effect. However, we also identified circumstances that lead to greater or lesser confounding. Specifically, the confounding was greater for the social-comparison index when the target variance was high and greater for the self-insight index when the

¹Note that for both conceptual and mathematical reasons, we expected to find a negative correlation between the social-comparison index and the perceiver effect and also find a negative correlation between the self-insight index and the target effect. According to the social-comparison approach, self-enhancement is the discrepancy between how I see myself and how I see others (i.e., the discrepancy between self-perceptions and the perceptions of others, similar to the perceiver effect in SRM terms). Thus, the more negatively I see others, the more likely I am to self-enhance. According to the self-insight approach, self-enhancement is the discrepancy between how I see myself and the social consensus about me (i.e., the discrepancy between self-perceptions and the perceptions by others, similar to the target effect in SRM terms). Thus, the more highly others see me, the less likely I am to self-enhance. Consistent with these conceptualizations, we found a negative correlation between the social-comparison index and the perceiver effect and between the self-insight index and the target effect. These negative correlations are expected because the social comparison and self-insight indices include one's actual standing and general positivity in person perception, respectively, as the criteria for assessing self-enhancement. The correlations for the SRM index should also be negative with the perceiver effect and with the target effects. The componential approach combines the virtues from the social-comparison and the self-insight approaches, taking into account both perceiver and target effects in measuring self-enhancement. Similar to these previous approaches, the SRM index of self-enhancement was defined as the discrepancy between self-perceptions and the sum of the perceptions of others (the perceiver effect) and the perceptions by others (the target effect). Therefore, the scores on the SRM index of self-enhancement would be negatively correlated with the perceiver effect as well as the target effect.

The correlations of the SRM index with both the perceiver and the target effects are similar to those of the two previous indices. As seen in Tables 1 and 2, the correlations for individual trait items are sometimes slightly higher for the two previous indices of self-enhancement and sometimes higher for the SRM index, but overall they are quite similar. The mean of the correlations between the social-comparison index and the perceiver effect was $-.30$ for Study 1 and $-.49$ for Study 2, which was similar to the correlation between SRM and perceiver effects ($-.31$ for Study 1 and $-.40$ for Study 2). The mean of the correlations between the self-insight index and the target effect was $-.36$ for Study 1 and $-.50$ for Study 2, which was similar to the correlation between the SRM index of self-enhancement and the target effect ($-.49$ for Study 1 and $-.43$ for Study 2).

perceiver variance was high. We also found effects for Big Five content domain. The social-comparison index showed little or no confounding for Agreeableness traits but more substantial confounding for Extraversion traits. Conversely, the self-insight index showed little confounding for Extraversion traits but more substantial confounding for Agreeableness traits.

Limitations—Study 1 shows the extent to which the self-enhancement indices are confounded by varying levels of perceiver and target variance across the Big Five traits. However, it is important to keep in mind that the participants did not make general trait ratings but rather rated targets on a set of dimensions that have a specific meaning in the particular interaction context. For example, in the bonus allocation task, being effective required participants to articulate and advocate their opinion to a group of strangers. Effectiveness in this context may be a good indicator of one's talkativeness, assertiveness, and social skills. Thus, we included effectiveness as a marker of extraversion. Further, in the Lost on the Moon task used in Sample 2, being competitive did not necessarily require hurting others in general (low agreeableness; see Hofstee, deRaad, & Goldberg, 1992), but the goal of the task for participants in Sample 2 was to reach a group consensus. Thus, in this context, being competitive may be the opposite of being cooperative. When people are competitive, their main goal is to further themselves. In contrast, a goal of being agreeable is to appease others. Competitiveness and agreeableness may thus stand in contrast to one another. Some evidence of this contrast is found in the NEO Personality Inventory (NEO-PI-R; Costa & McCrae, 1992), which includes items such as “I would rather cooperate with others than compete with them” as a marker of agreeableness. Nonetheless, because the dimensions rated in Study 1 were not selected to comprehensively assess Extraversion and Agreeableness, readers should be cautious when interpreting the results associated with our trait classification until further evidence is presented. We will present further evidence of the extent to which the confounding of different self indices varies across the Big Five traits in Study 2.

Study 2

Study 1 identified conditions that lead to more or less confounding in each of the two traditional indices of self-enhancement. These findings provide insight into when the use of each of the two traditional conceptions of self-enhancement is more or less problematic, thus guiding researchers in the design of their studies. However, Study 1 derived the indices of self-enhancement on the basis of judgments of brief-interaction partners. Would the conditions that lead to confounding in previous measures of self-enhancement change as the level of acquaintance goes up? Study 2 addresses this question by replicating the findings of Study 1 using personality ratings obtained from long-term acquaintances.

Following Study 1, we examined the extent to which various self-enhancement indices are confounded with the target and perceiver effects and the circumstances that lead to greater or lesser confounding across traits. In addition, by comparing the findings from Studies 1 and 2, we were able to examine the effects of acquaintance on the different measures of self-enhancement.

Method

Participants—We reanalyzed Kwan et al.'s (2004) data obtained from 128 undergraduate students (98 females and 30 males). Their ages ranged from 19 to 22 years, with a mean of 21. The responses of these participants also provided the basis for the article by Kwan et al. (2004). In their article, they focused on an overall index of self-enhancement but did not examine the issue with which we are concerned here: How the confounding of the two previous indices of self-enhancement varies across traits.

Experimental Design—We used a round-robin design. In all, there were 24 groups with 5 members and 2 groups with 4 members. To ensure that participants were sufficiently familiar with each other to make personality judgments, we required them to complete three group assignments with their group members over the course of the semester. That is, each group met for at least 1 hr per week outside the classroom. Personality ratings were obtained after the groups had worked together for 3 months. Each participant rated the personality of all other group members and provided a self-rating.

Kwan et al. (2004) included 32 desirable and undesirable traits. The present study aimed to examine whether the degree of confounding in the two previous indices would vary depending on the Big Five trait domains. For the purpose of this study, it was thus important that each of the traits represented only one of the Big Five traits. Most of the original 32 traits do not fall neatly into one of the Big Five dimensions. Therefore, following John's (1990) Big Five prototypes, two of the authors independently identified traits that each reflected only one of the Big Five personality dimensions, and 15 traits were consensually regarded to meet this criterion. Thus, to examine the effect of trait domain on the similarities between different conceptions, we examined three markers of each of the Big Five dimensions (see Table 2). Personality traits were presented in a randomized order, with half of the positive poles on the right side and the other half of the positive poles on the left side, with a 7-point rating scale in between.

Results and Discussion

We computed the three indices of self-enhancement described in Study 1 separately for each of the 15 traits (i.e., 15 social-comparison indices, 15 self-insight indices, and 15 SRM indices).

Variance Partitioning—Similar to Study 1, perceivers showed the highest consensus in judging Extraversion traits and the lowest consensus in judging Agreeableness traits. Specifically, the mean relative perceiver variance for the three trait categories ranged from .04 for Extraversion traits to .32 for Agreeableness traits, and the mean relative target variance ranged from .14 for Agreeableness traits to .50 for Extraversion traits (see Table 2). Overall, we found further support for our previous findings that Extraversion traits elicited the highest target variance but the lowest perceiver variance, whereas Agreeableness traits elicited the lowest target variance but the highest perceiver variance.

Effects of Acquaintance on Confounding—We examined how similar these three self-enhancement indices are to each other and also compared the present findings with

those found in Study 1. We correlated the three self-enhancement indices separately for each of the 15 traits. The mean correlations were computed using Fisher's r -to- z transformation. On average, the social-comparison index was positively correlated with the target effect as in Study 1 (.44 vs. .32), and the social-comparison index and the target effect were correlated to the same degree in both studies, $z = 1.07$, $p > .05$. The patterns in differences in these correlations between Studies 1 and 2 are also similar to the overall mean r , across trait domains. For Extraversion traits, the social-comparison index was positively correlated with the target effect, with mean $r = .63$ in Study 1 and .53 in Study 2. For Agreeableness, these correlations were .16 in Study 1 and .11 in Study 2.

Additionally, the correlations between the social-comparison index and the SRM index were similar in both studies (.47 vs. .64), $z = 1.89$, $p > .05$. Given that the extent of confounding of the social-comparison index with the target effect was similar in both studies, the correlations between the social-comparison index and the SRM index remained similar. These correlations between Studies 1 and 2 were also similar across trait domains: For Extraversion traits, the social-comparison index was positively correlated with the SRM, with mean $r = .32$ in Study 1 and .44 in Study 2. For Agreeableness, these correlations were .61 in Study 1 and .77 in Study 2.

Also as in Study 1, the self-insight index was positively and significantly correlated with the perceiver effect ($r = .18$, $p < .05$). However, this correlation between self-insight index and the perceiver effect was significantly lower in Study 2 than in Study 1 (.18 vs. .51), $z = 2.91$, $p < .01$. The difference in correlations between the self-insight index and perceiver effect was particularly pronounced for Agreeableness traits among these long-term acquaintances in Study 2. For Agreeableness traits, the mean correlations between the self-insight index and the perceiver effect were .63 in Study 1 and .25 in Study 2, whereas these correlations for Extraversion traits were .29 in Study 1 and .17 in Study 2.

The correlation between the self-insight index and the SRM index was .77 in Study 2, which was significantly greater than that found in Study 1 (.57), $z = 2.84$, $p < .01$. The patterns in differences in these correlations were also similar across trait domains. For Extraversion traits, the self-insight index was positively correlated with the SRM, with mean $r = .61$ in Study 1 and .81 in Study 2. For Agreeableness, these correlations were .51 in Study 1 and .66 in Study 2.

The participants in the present study knew each other much better than the participants in Study 1 (3 months vs. 40 min). The increase in the level of acquaintance might have led to less reliance on the perceiver's general view of people and thus resulted in less confounding between the self-insight index and the perceiver effect than was found in Study 1. The correlation between the social-comparison index and the self-insight index was .65, which was not significantly different from their correlations in Study 1 (.56), $z = 1.09$, $p > .05$. For Extraversion traits, the social-comparison index was positively correlated with the self-insight index, with mean $r = .65$ in Study 1 and .55 in Study 2. For Agreeableness, these correlations were .53 in Study 1 and .71 in Study 2. Given that the correlation between the social-comparison and the self-insight indices was due to sharing a common part of the self-

rating and did not relate to the degree of confounding with the target and perceiver effects, the correlation of these two indices remained similar as in Study 1.

Overall, Study 2 replicated the finding that the social-comparison index is confounded with the target effect and the self-insight index is confounded with the perceiver effect. Thus, regardless of whether the self-enhancement index is based on stranger ratings of situation-specific behavior or acquaintance ratings of general personality traits, the two traditional measures of self-enhancement show the same pattern of confounding. The major difference between acquainted and unacquainted perceivers is that the self-insight index is less confounded with the perceiver effect for acquainted perceivers. It should be noted that we did not experimentally manipulate levels of acquaintance. Thus, the observed difference may be caused by the difference in acquaintanceship across these two samples or other variables. Future studies could address this limitation by using a longitudinal design to examine the causal direction between acquaintanceship and the degree of confounding across measures of self-enhancement.

Study 3

The findings of Studies 1 and 2 attest to the confounding problems associated with the self-insight and social-comparison indices of self-enhancement. Nevertheless, some researchers may not be able to adopt the full SRM approach to measure self-enhancement and would like to explore briefer alternatives. How well do such approaches perform? Could they eliminate the confounding we have demonstrated in the traditional conceptions?

In Study 3, therefore, we used a ranking procedure to illustrate that it is possible to eliminate perceiver variance by forcing all participants to have the same mean rating in their social-perception ratings. Consequently, the ranking procedure should also eliminate the confounding of the self-insight index with the perceiver effect (which becomes a constant in this case). To illustrate the effectiveness of the ranking procedure, the first goal of Study 3 was to compare the three self-enhancement indices with each other when they are based on rankings rather than ratings.

The second goal of Study 3 was to examine the comparative self-rating approach, a newer and simplified version of the social comparison index (e.g., Klar & Giladi, 1997, 1999; Taylor & Gollwitzer, 1995; Taylor et al., 2003). This measure is appealing for its simplicity and brevity. Studies 1 and 2 operationalized the social-comparison index as the discrepancy between each participant's self-rating and the average of the individual ratings that the participant assigned to the other group members. In contrast, the comparative self-rating does not ask the participant to make separate ratings of self and others for social comparison (or an "average other"; cf. Brown, 1986). Instead, this index consists of a self-rating with the explicit instruction to compare oneself with a relevant average other (such as the average college student) and to rate oneself on a continuum ranging from *much lower* to *the same* to *much higher*.

Although this abbreviated comparative self-measure is conceptually similar to the explicit social-comparison index (because both entail comparing self-ratings with ratings of others), we know little about (a) whether the comparative-self index is equivalent to the earlier

measure, (b) whether it is less (or more) confounded with the target effect, and (c) how it is related to the SRM self-enhancement index. The answers to these three questions are important for the field because the comparative-self index has become a widely adopted measure of self-enhancement without much psychometric scrutiny.

Method

A new sample of 126 students (53% women) in a master of business administration (MBA) program took part in a group decision-making task similar to the one described for Sample 1 in Study 1, namely a simulation of a bonus committee meeting. Participants were randomly assigned to groups of 6. Following the group discussion, participants ranked the effectiveness of their own performance and the performance of each of the group members. In addition, participants were asked to complete a comparative self-rating of their performance in the group interaction task, specifically to compare their performance with that of an “average” MBA student using a 9-point scale ranging from 1 (*much worse*) to 4 (*about the same as average*) to 9 (*much better*).

Results and Discussion

Self-Enhancement Indices—As in Studies 1 and 2, we computed social-comparison, self-insight, and SRM-based self-enhancement indices. In addition to these three indices, we used the comparative-self index, which has been used as an abbreviated version of the social-comparison index of self-enhancement.

We intercorrelated these four self-enhancement indices to examine how similar they are to each other. First, reassuringly, the social-comparison index and the comparative-self measure were correlated substantially ($r = .71, p < .05$). Thus, asking participants to directly compare their performance with that of an average person was quite similar to the social-comparison index in which independent self-perceptions are compared with perceptions of several specific others. Although these two self-enhancement indices were operationalized in quite different ways, empirically they were quite similar.

Second, both the social-comparison index and the comparative-self measure were positively correlated with the target effect (r s = .44 and .39, respectively; $ps < .001$). Although the comparative-self measure was operationalized in different ways than the social-comparison index, they are confounded with the target effect to a very similar degree.

Third, the social-comparison index and the comparative-self measure were only moderately correlated with the SRM index ($r = .47$ and $r = .26$, respectively; both $ps < .05$). This suggests that SRM index was related to but distinct from the social-comparison index and comparative-self measure.

What about the ranking procedure? The self-insight index, when derived from ranking data, was perfectly correlated (except for rounding errors) with the SRM index ($r = .99, p < .01$). This finding shows that 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. Thus, in some contexts, researchers could use the ranking procedure to eliminate the confounding of the self-insight index with the perceiver effect.

Despite this, ranking procedures have limitations in the study of self-enhancement. The ranking procedure does not allow for ties; participants are forced to assign a different ranking to each target. Furthermore, the ranking procedure is not ideal for assessing self-enhancement among high performers and self-effacement among low performers. For example, people would rank self-enhancers with good performance in the group highly, and self-enhancers would also rank themselves highly. With little discrepancy between self-rankings by self-enhancers and other's rankings of them, self-enhancement would become difficult to detect empirically. An absence of discrepancy cannot, therefore, rule out the possibility that the self-enhancers see themselves overly positively.

In principle, both ranking and rating procedures are not perfect for capturing self-enhancement among high performers or self-effacement among low performers. However, this may be less of a problem for rating than for ranking procedures. Consider Alice and her group members as an example: Alice is the best performer in the group, but her performance is not perfect. When using a ranking procedure, Alice's group members would rank her "1" and Alice would also rank herself "1." There would be no discrepancy between Alice's self-ranking and others' ranking of Alice, suggesting that Alice shows no self-enhancement. In contrast, when using a rating procedure, Alice's group members would rate her "8" and Alice would rate herself "10." So, there would be a negative discrepancy between others' ratings of Alice and her self-rating, suggesting that Alice shows self-enhancement bias. Similar logic applies to self-effacers with poor performance. Future studies should empirically examine the advantages and disadvantages of rating or ranking procedures in research on self-enhancement.²

Study 4

What happens when you self-enhance in a group performance task, like those participants in Study 3? Further, what are the personality characteristics of those self-enhancers? Research on self-enhancement in the performance or ability domain has yielded divergent results, despite having received considerable attention in the literature. It is still unclear whether self-enhancement in the ability or performance domain has a positive, negative, or mixed impact on adjustment. For example, self-enhancement has been related to lower levels of career success (e.g., Bass & Yammarino, 1991) and lower skill levels (e.g., Kruger & Dunning, 1999) but has also been shown to be positively related to mental health and negatively related to mental distress (Taylor et al., 2003), as well as positively to interpersonal adaptiveness during initial encounters (Paulhus, 1998).

As in most research on self-enhancement, whether using the social-comparison approach, the self-insight approach, or the componential approach, self-enhancement is here defined in relative terms, namely as the difference between a self-evaluation and an accuracy criterion (or criteria). On the basis of this definition, in the case of performance evaluations, self-enhancement tends to be positively correlated with positive self-evaluations and negatively

²In the present research, we did not examine ratings versus rankings on the same attributes, so we are not able to empirically test whether the ranking procedure is more of a problem in distinguishing self-enhancement among high and low performers. The correlations between self-enhancement and target effect were slightly higher for rankings of performance (Studies 3 and 4; mean $r = -.51$) than for ratings of traits (Studies 1 and 2; mean $r = -.46$).

correlated with the accuracy criterion (e.g., performance). In other words, the more positively individuals see themselves, the more likely they are self-enhancing; the less merit they have, the more likely they are self-enhancing. This brings up the question of whether self-enhancers are not skillful or measures of self-enhancement are not independent of performance level.

It is important to note that the componential approach enables us to unconfound the unwanted components of interpersonal perceptions (e.g., individual differences in performance, aka the target effect in SRM terms); however, that does not necessarily mean that the SRM index of self-enhancement and the target effect are uncorrelated. Therefore, we aim to examine the unique effect of self-enhancement that is statistically independent of performance when examining its link with adjustment (i.e., when preexisting performance differences are equalized). The componential approach provides great flexibility to address such issues; specifically, one can statistically remove the negative correlation with performance from the SRM index of self-enhancement (i.e., equating the standing on the target effect) and then examine the external correlates with this residual.

Therefore, a major goal of Study 4 was to examine whether self-enhancement is positively or negatively related to adjustment. Specifically, we examined whether overly positive self-evaluations or poor performance predicts adjustment. Another major goal of Study 4 was to examine whether different self-enhancement indices have distinct relations with adjustment. Specifically, Study 4 compared two indices of self-enhancement: the social-comparison index and the SRM index. We excluded the self-insight index because Study 3 showed that the self-insight index is identical to the SRM index when rankings are used.

To achieve these goals, we conducted an extensive analysis of the data collected by the MBA Assessment Project at the Institute of Personality and Social Research. One strength of the MBA data set is that adjustment was assessed using multiple data sources. John and Robins (1994) examined the relation between self-enhancement bias and narcissism using a subset of the data from this MBA project. They did not, however, examine how self-enhancement relates to more direct measures of psychological adjustment, such as clinical-observer ratings of psychological health, staff ratings of group performance, and objective indicators of academic performance.

Another strength of the MBA Assessment Project that John and Robins (1994) did not take full advantage of is the round-robin design in examining self-enhancement. This design allows us to derive the target effect and different indices of self-enhancement. In this MBA project, measures of subsequent achievement and psychological adjustment were independent assessments that do not share any method variance with the SRM measures. This data set thus allowed us to differentiate the target effect and the two self-enhancement indices in terms of their implications for psychological health as defined by self-reports, independent observers, and objective performance criteria.

In addition to examining the relation between self-enhancement and psychological adjustment, we also examined the relation between the target effect and adjustment. It is important to include the target effect in our investigation because the social-comparison

index confounds self-enhancement with the target effect. Thus, a better understanding of the link between the target effect and adjustment would provide insight into the large body of research on the link between the social-comparison index and adjustment.

To recapitulate, Study 4 sought to address four questions. Our first question was: What characteristics are associated with individuals who performed well in group contexts? Within the componential approach, we operationalized levels of performance as the social consensus by the group members (i.e., the target effect in SRM terms). We expected that the target effect itself would have substantive psychological meaning and be linked to important aspects of adjustment. Specifically, individuals who perform well in a group-interaction task (high-target effect) are likely to (a) possess personality characteristics associated with being a “healthy socially confident extravert,” (b) be regarded by others as resilient and less defensive, and (c) receive higher grades in school.

However, we did not expect the target effect to be associated with narcissism. That is, narcissists do not necessarily perform better or worse in group interactions. In this group interaction, narcissistic personality traits are a mixed blessing—they facilitate assertive, task-oriented behaviors but without the interpersonal sensitivity and empathy toward other group members required for truly effective leadership (see Paulhus, 1998; W. K. Campbell, Bush, Brunell, & Shelton, 2005).

Our second question was: Do different self-enhancement indices show different relations with adjustment? We compared the patterns of adjustment correlates for two indices of self-enhancement: the social-comparison index and the SRM index of self-enhancement. Based on previous research using the social-comparison index, we expected that individuals with high scores on the social-comparison index would possess some desirable characteristics and little sign of maladjustment, replicating previous findings (Taylor & Brown, 1988; Taylor et al., 2003).

How about the SRM index of self-enhancement? Individuals who score high on the SRM index are not effective group members yet still see themselves overly positively in the group task—the same pattern one would expect for narcissistic individuals. Thus, we expected a positive association between the SRM index of self-enhancement and narcissism. Following the same reasoning, we predicted that individuals scoring high on the SRM index would be seen by clinical observers as defensive and less resilient, suggesting that self-enhancing individuals are not better adjusted than individuals with more realistic appraisals of their ability.

Our third question was: Is the social-comparison index associated with psychological adjustment merely because it is confounded by the target effect? If the positive correlates between the social-comparison index and adjustment disappear after controlling for confounding with the target effect, this pattern of findings would provide a counter claim about the adaptive benefits of self-enhancement based on the social-comparison index.

Our fourth question was: Do self-enhancers appear maladjusted because of their relatively poorer performance? To test this, we isolated the unique effect of self-enhancement from performance when examining its link with adjustment. The answers to these four questions

will provide a better understanding and give insight to the debate as to whether self-enhancement is good or bad for different aspects of adjustment.

Method

We analyzed data obtained from 102 MBA students (45% women) who participated in 17 groups of 6 members each. Participants took part in a group decision-making task similar to that in Study 3 and then ranked their own performance and the performance of the other group members.³

As in Studies 1 through 3, we computed two indices of self-enhancement: the social-comparison index and the SRM index (we excluded the self-insight index because Study 3 showed that it is identical to the SRM index when rankings are used).

There were, however, two differences from Study 3. First, to illustrate the confounding problem of the social-comparison index, we compared the adjustment correlations of the (original) social-comparison index with those for the unconfounded social-comparison index. To compute the unconfounded social-comparison index, we regressed the social-comparison index onto the target effect and used the standardized residuals as the unconfounded social-comparison index. Second, to test whether the adjustment effects are due solely to self-enhancement, performance deficits, or a combination of the two, we compared the adjustment correlations of the SRM index with a partial index of self-enhancement that did not include variance associated with the target effect. Specifically, we regressed the SRM index of self-enhancement onto the target effect and used the standardized residuals as a partial index of self-enhancement. This partial index and the target effect were independent of each other, allowing us to assess the external correlates of them separately.

Measures of Effective Performance—Each group interaction was observed by 11 staff assessors, each of whom independently ranked the participants on three dimensions: initiative, energy, and oral communication skills. The rankings by the 11 assessors were averaged to yield a composite measure of each dimension.

Measures of Adjustment

Ego-resiliency: The measure of ego-resiliency was obtained from the clinical observer ratings of the California Adult Q-Set (CAQ; Block, 1961, 1978). Participants interacted with a team of trained psychologists for 2.5 days. Their activities ranged from informal breakfasts and lunches with staff members to more structured tasks, such as managerial assessment exercises, interviews, and a game of charades. At the end of the assessment weekend, each

³Both ranking and rating procedures have limitations for capturing self-enhancement among high performers and self-effacement among low performers (ceiling and floor effects). Ideally, the measurement scale would cover all possible values at both ends in order to eliminate floor and ceiling effects. Practically, though, this may not be feasible. Researchers should be vigilant regarding the trade-off between the length of the scale and the potential for floor and ceiling effects. Like any existing method that is derived from a rating scale with limits, the componential approach is not immune to floor and ceiling effects. Nevertheless, the use of the componential approach may be reasonable when the levels of performance among individuals within the sample are similar. The current sample comprises MBA students from a highly selective business school, thus the levels of performance across students are likely to be less variegated. We caution researchers that use of a ranking procedure in combination with the componential approach may be a less effective control for groups with more variance between members.

participant was described using the 100-item CAQ by the five psychologists who had the most intensive contact with that participant during the weekend. These five Q-sorts were averaged to yield a composite personality description of each participant.

Using these composite Q-sorts, we scored a 26-item ego-resiliency index for each participant (see Klohnen, 1996), which included items such as “has warmth; has the capacity for close relationships; compassionate.” Ego-resiliency is related to productive and autonomous activity, interpersonal warmth and insight, and skilled expressiveness (Klohnen, 1996). In the present study, the alpha coefficient of the observer-based ego-resiliency index was .90.

Narcissism: Narcissism is a complex construct that has been difficult to conceptualize and measure; previous research has examined subtypes of narcissism, such as overt and covert narcissism. Thus, we employed two different measures of narcissism. To assess overt narcissism, we used the Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988). The NPI was designed for nonclinical populations and is the most widely used and thoroughly researched measure of narcissism (α reliability = .79 in this sample). To assess covert narcissism, we used Wink's (1991) hypersensitivity scale. The hypersensitivity scale included 12 CAQ items (α reliability = .92). A sample item was “is subtly negativistic, tends to undermine and obstruct or sabotage.” High scores on this scale were correlated with depression and hostility (Wink, 1992).

Defensiveness: To measure defensiveness, we scored a 10-item defensiveness index based on the observer Q-sorts for each participant. Sample items included “handles anxiety and conflicts by refusing to recognize their presence; repressive or dissociative tendencies” and “is emotionally bland; has flattened affect.” The alpha coefficient of the defensiveness index was .77.

Social skills: We also derived a 3-item social skills index from the observer Q-sorts for each participant. Sample items included “has social poise and presence; socially at ease.” In the present study, the alpha coefficient of the social skills index was .69.

Grade-point average: Subsequent academic performance was measured using the participants' overall grade-point average, which was obtained from university records in the Haas School of Business at Berkeley.

Results and Discussion

First, we examined the characteristics of the individuals who did well in the group interactions. As expected, the target effect captured the qualities of healthy and competent extraverts (Table 3). Individuals with high target effect were described by the staff assessors as having initiative, being energetic, and possessing effective oral communication skills. Although the clinical observers interacted with these individuals in different settings from the staff assessors, they also described these individuals as having good social skills. Not surprisingly, the target effect was correlated with higher resiliency and lower defensiveness as assessed by clinical observers, as well as with better academic performance.

Second, we examined the adjustment correlates for two self-enhancement indices. As expected, the social-comparison index did not capture the disagreeable and maladaptive qualities of narcissists because of its confounding with the target effect. The external correlates were consistent with those found in previous research using the social-comparison index. The social-comparison index portrayed self-enhancers as healthy extraverts. That is, it was correlated positively with qualities that can make good impressions in group contexts, similar to the external correlates of the target effect (e.g., initiative, energetic, and having oral communication and presentation skills).

The external correlates showed a mixed portrait for the self-enhancers as defined by the social-comparison conception because it is confounded with superior performance. This index did not correlate with either ego-resiliency or subsequent academic performance. Self-enhancers, as assessed by the social-comparison index, did not possess other important qualities that make them well-adjusted. The social-comparison index was not correlated significantly with either measure of narcissism, suggesting that this self-enhancement index did not measure overly positive self-evaluations.

A different pattern emerged for the SRM index of self-enhancement. The SRM index of self-enhancement was correlated positively with individual differences in both overt and covert narcissism, as judged by the clinical observers. In other words, the SRM index of self-enhancement captured the narcissistic personality of self-enhancers, but the social-comparison index failed to do so. Additionally, individuals who self-enhanced based on the SRM index were rated by clinical observers as less resilient and more defensive.

Third, we examined whether the social-comparison index is associated with psychological adjustment merely because it is confounded by the target effect. To address this, we examined the external correlates of the social-comparison index after controlling for its confounding with the target effect. As expected, the now unconfounded social-comparison index was correlated very highly with the SRM index, $r = .91, p < .01$. Exact equivalence is not possible because the SRM corrects perceiver and target effect estimates for missing-partner biases and controls for intergroup differences, whereas the social-comparison index does not.

Additionally, the unconfounded social-comparison index shows a very similar pattern of correlates as the SRM index. The pattern of significant correlates was identical for these two indices, and none of the correlates for the unconfounded social-comparison index were significantly different from those for the SRM index, $ps > .05$. After controlling for the target effect, all of the positive correlates for the social-comparison index with effective performance disappeared (initiative, energy, and oral communication skills) and significant correlations with narcissism, hypersensitivity, and defensiveness emerged.

Together these findings illustrate how the problematic confounding of the social-comparison index with the target effect produces a distorted picture of self-enhancers. It was not self-enhancement per se that correlated with the positive descriptions but rather the target effect. The confounding of the social-comparison index with the target effect obscures the link

between self-enhancement and maladjustment, which is apparent when the SRM index is used to assess self-enhancement.

Finally, did self-enhancers appear maladjusted only because of their relatively poorer performance? To test this, we statistically partialled out the target effect from the SRM index of self-enhancement and then re-examined its link with adjustment. As Table 3 shows, self-enhancers still scored high in both overt and covert narcissism. Additionally, self-enhancers were judged by the independent clinical observers as less resilient and more defensive. Furthermore, we found no evidence for a positive link between self-enhancement and any indicators of adjustment. In sum, self-enhancement alone did not relate to positive adjustment.

General Discussion

In four studies, we implemented a componential approach to examine self-enhancement. Studies 1 and 2 showed that the two traditional indices of self-enhancement—social-comparison and self-insight—are confounded and that the degree of confounding depends on the personality trait domain being studied and the amount of target and perceiver variance. Thus, the inconsistent findings observed in the self-enhancement literature may, in part, reflect differences across studies in the traits examined and the amount of target and perceiver variance. The present findings are informative for researchers to evaluate past studies of self-enhancement and to guide their future designs and their choices about which self-enhancement index to use.

The findings of Studies 1 and 2 together are striking in that measures of self-enhancement based on both strangers and wellacquainted individuals show the same confounds for the social-comparison and self-insight indices. The observed confounding of the self-insight index with the perceiver effect was lower when acquainted individuals were used to assess self-enhancement in Study 2 than when strangers were used in Study 1. These findings suggest that future research on social perception that utilizes strangers as a criterion for self-enhancement would be able to follow the method used in Study 1.

Study 3 showed that the ranking procedure controls for the confounding between the self-insight index and the perceiver effect and renders the self-insight index equivalent to the SRM-based index. Thus, the use of rankings can provide a “quick fix” for the confounding problem for the self-insight index. However, the use of rankings poses other problems for studies of self-enhancement. Specifically, they create floor and ceiling effects that constrain the measurement of individual differences in self-enhancement, particularly among high and low performers.

Study 4 demonstrated that the link between self-enhancement and adjustment depends on which self-enhancement index is used. For the self-enhancement index that we believe is the least confounded—the refined SRM index—self-enhancement was related to indicators of maladjustment, including low levels of resiliency and high levels of defensiveness and hypersensitivity. Moreover, we found a significant pattern of correlates between the refined index and measures of narcissism (convergence); thus, we can have considerably more confidence in the validity of the refined index using the SRM.

The social-comparison index, in contrast, showed a quite different pattern of correlates and provided a more mixed portrait of the self-enhancing individual. Moreover, once the target effect was partialled out of the social-comparison index, all of the positive correlates became nonsignificant. The present research demonstrates how the confounding of the social-comparison index can distort the link between self-enhancement and adjustment. When the refined SRM index of self-enhancement and the target effect are considered together and contrasted with the social-comparison index, it becomes clear that self-enhancing individuals are indeed maladjusted.

Limitations and Future Directions

Studies 1 and 2 examined the amount of perceiver and target variance across traits. We did our best to ensure that the observers had ample opportunities to observe the targets. However, it should be noted that there would be no target variance if individuals differ on the observed attributes but the observers are unable to recognize or report on these differences. In this case, the SRM index confounds the tendency to self-enhance with true trait variance. Nevertheless, this is not a problem specific to the SRM approach. This problem is of concern for all personality research relying on human judgments of personality. Like most research involving personality judgments, the present research defines individual differences in personality in terms of a social consensus (i.e., the target effect). Social consensus implies agreement among independent observers and is often considered a valid indicator of personality (e.g., Block, 1961; Funder, 1995; McCrae, 1982). However, there is certainly more to individual differences than what social consensus would indicate. If observers cannot pick up on this trait variance, then the social consensus will not be an accurate reflection of true individual differences.

In Studies 1 and 2, we focused on broad domains of traits (Extraversion, Agreeableness, and other traits). Other properties of traits, such as ambiguity, observability, and evaluativeness, may also influence the size of each variance component. Ambiguous traits refer to those traits that describe a wide variety of behaviors (Dunning, Meyerowitz, & Holzberg, 1989; Hampson, John, & Goldberg, 1986). Judgments of ambiguous traits may contain more perceiver variance and less target variance. Observable traits refer to those traits that are easy to recognize and do not require inferences (Gosling, John, Craik, & Robins, 1998). Judgments of observable traits may contain less perceiver variance and more target variance. Evaluative traits refer to how desirable or undesirable those traits would be for an individual to possess (John & Robins, 1993). Judgments of evaluative traits may contain more perceiver variance and less target variance. Future research should extend the componential model to examine whether the perceiver effect, the target effect, or the self-enhancement effect vary as a function of these trait properties.

The nature of the situation may play a pivotal role in determining whether self-enhancement bias is adaptive or maladaptive. Self-enhancers may be maladjusted as we found in Study 4 because success in business school depends heavily on the ability to work with others. The self-centered nature of self-enhancers may not help them to fare well in group contexts. However, self-enhancers may excel in environments where the key to success does not require close collaborations with others. Future research should examine whether the present

findings generalize across situational contexts and examine the effects of situation on the value of self-enhancement.

The link between self-enhancement and adjustment may also vary across relationships. Previous research has hinted that the level of acquaintance is an important factor in determining the effect of self-enhancement bias on adjustment (Colvin et al., 1995; Paulhus, 1998). However, it remains unknown whether the ratings obtained from short-term or long-term acquaintances are more or less predictive of adjustment outcome. Self-enhancers may do well as long as their close friends and family think highly of them, even when they have fewer acquaintances. Future research should examine ratings that are made by the participants' close friends and relatives (e.g., Bonanno et al., 2005; Taylor et al., 2003) and compare these ratings with ratings from short-term acquaintances and the differences in how each type is linked with adjustment.

Furthermore, self-enhancement in certain trait domains may be related to particular kinds of adjustment. To explore this possibility, we computed the trait-specific indices of self-enhancement for each of the Big Five and then examined their relations with each of the three adjustment outcomes in Study 2. These trait-specific indices of self-enhancement show a similar but weaker pattern of correlates to those of the overall index of self-enhancement. These weaker correlations may be an artifact of the lower reliability of the trait-specific measures because they comprise a smaller number of items than the overall index. Even if the different trait indices are predictive of different types of adjustment, the three measures of adjustment used in the original study may not allow us to capture the differential relationship. To verify whether the link between self-enhancement and adjustment depends on the particular domain in which individuals are enhancing themselves, future research should include a large number of traits and measures of adjustment representing a wide range of domains. Until then, we can develop an explicit theoretical account for the relations between different types of adjustment and self-enhancement across the Big Five traits.

It should also be noted that the present research focused on three indices of self-enhancement: social-comparison, self-insight, and SRM. Nevertheless, some existing measures of self-enhancement were developed on the basis of a different rationale than any of these three indices. For example, the Self-Deceptive Enhancement Scale (SDE; Paulhus, 1991) is based on the assumption that no person could realistically endorse items indicating extreme levels of rationality and appropriate behavior. Individuals who score high on the SDE provide extreme endorsements (e.g., 7 on a 7-point scale) to items such as "I don't care to know what other people really think of me," "I always know why I like things," and "I have sometimes doubted my ability as a lover" (R).

An open question is whether measures such as SDE suffer from the same confounding problem as the social-comparison and self-insight indices of self-enhancement. The SDE items do not directly tap into self-versus-other perceptions, nor do they reflect any objective criterion for the truth. Extremely high endorsement of the SDE items is assumed to reflect poor insight into one's true thoughts, feelings, and behaviors. Conceptually, the SDE may be similar to the self-insight conception of self-enhancement. In line with this reasoning, the SDE was found to be moderately correlated with the self-insight index (Paulhus, 1998). An

interesting direction for future research is to examine how measures such as the SDE relate to the social-comparison index of self-enhancement and the SRM measure within the same study.

Is the componential approach a pragmatic solution to research on self-enhancement bias? One difficulty in applying the componential approach is that it requires the use of a round-robin design in which each perceiver rates multiple targets and each target is rated by multiple perceivers. This design is time-consuming to carry out. In some contexts, more efficient alternatives to the round-robin design might be available. For example, when objective criteria exist for evaluating the accuracy of self-reports, researchers can compare self-judgments with the objective criteria, such as comparing self-perceived academic competence with actual grades (Farwell & Wohlwend-Lloyd, 1998; Gramzow, Elliot, Asher, & McGregor, 2003; Robins & Beer, 2001). The use of an objective criterion eliminates the confounding of self-enhancement with the target effect, but the confounding with the perceiver effect remains (i.e., individuals who believe they are more academically competent than their actual grades indicate may believe that individuals are generally more academically competent than their grades).

Nevertheless, most studies of self-enhancement have focused on personality attributes and other constructs that are socially defined and thus lack objective criteria (Robins & John, 1997b). In the absence of a gold standard for accuracy, the use of the human observer as an assessment tool is unavoidable. In these situations, a round-robin design along with a componential approach to analyzing the data remains the best choice for studying the unconfounded effects of self-enhancement.

Moreover, by examining the external correlates of the SRM components, we were able to better understand which aspects of self and other perception are linked to adjustment and which are not. Previous research has primarily used consensual ratings of individuals (conceptually similar to the target effect) as a criterion in evaluating the accuracy of self-perceptions. As demonstrated in Study 4, the target effect has substantive psychological meanings. The ratings that the SRM indices were derived from are subtle: those of observable behavior in a specific 40-min group interaction setting. It is striking that these indices yielded meaningful and impressive relations with independent observer ratings and subsequent academic performance. It would be an interesting direction for future research to develop a more explicit account of the nomological network of the different SRM components. Such research would improve our understanding of how different components of interpersonal perception contribute to adjustment.

It is notable that the requirement for the round-robin design does not pose as much difficulty to implement as some might believe. Numerous studies have effectively implemented the componential approach in a wide range of small group contexts, including organizational work groups, study groups, minimal groups, and so on (see Kenny, 1994 for a review). Moreover, a burgeoning body of SRM research focuses on family dynamics and adolescent problems (e.g., Branje, van Aken, van Lieshout, & Mathijssen, 2003; Cook, 2005; Hoyt, Fincham, McCullough, Maio, & Davila, 2005). All of these studies used a round-robin design, but their focus has been on interpersonal perception rather than self-perception,

which is less well integrated within the SRM framework. An interesting line of research that can emerge from the application of the componential approach to self-enhancement would be to determine whether delinquent adolescents are prone to self-enhancement biases.

Some studies have suggested that narcissistically high self-esteem (i.e., self-enhancement) is linked to aggression (Baumeister, Campbell, Krueger, & Vohs, 2003), whereas other studies have suggested that low, not high, self-esteem is linked to aggression, juvenile delinquency, and other forms of antisocial behaviors (Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005). This debate would benefit from a componential analysis, which could help disentangle high self-esteem (positive self-perception) from self-enhancement (overly positive self-perception controlling for perceiver and target effects). For example, whereas some juvenile delinquents may see themselves overly positively compared with how they see their family members, others may see themselves negatively. By simultaneously assessing self-perceptions and perceptions of and by others (e.g., family members), researchers can use the componential approach to break down self-esteem into its genuine and inflated components and thereby clarify the nature of the relation between self-esteem and aggression.

Conclusions

The findings of the present research, in conjunction with past research, highlight the utility of the componential approach to self-enhancement. Over 50 years ago, Cronbach (1950) advised researchers that the best way to truly understand social perception is to do a componential analysis to partition the ratings into their constituent parts. The findings here encourage greater exploration of the use of the componential approach in research on self-enhancement and self-perception. It is our hope that the use of the componential approach will expand the breadth and depth of research on self-perception and foster future research to explore the psychological correlates and consequences of self-enhancement bias.

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Table 1
Correlations Among Self-Enhancement Indices and Social Relations Model (SRM) Components for Each of the Nine Traits (Study 1)

Trait	Variance components		Correlations with the social-comparison index			Correlations with the self-insight index			Correlations with the SRM index	
	Perceiver variance	Target variance	Target effect	Perceiver effect	SRM SE	Target effect	Perceiver effect	SRM SE	Target effect	Perceiver effect
Extraversion traits										
Talkative*	.04 (0.18)	.60 (2.54)	.67	-.36	.33	-.39	.17	.67	-.38	-.49
Talkativeness	.20 (1.34)	.43 (2.82)	.61	-.22	.28	-.17	.56	.57	-.46	-.16
Effective*	.02 (0.10)	.50 (2.43)	.60	-.37	.34	-.37	.09	.59	-.42	-.61
<i>M</i>	.09 (0.54)	.51 (2.60)	.63	-.32	.32	-.31	.29	.61	-.42	-.44
Other traits										
Creativity	.22 (1.21)	.28 (1.51)	.46	-.36	.53	-.38	.43	.60	-.38	-.33
Critical thinking	.33 (1.92)	.25 (1.45)	.45	-.28	.50	-.41	.60	.64	-.40	-.10
Effort	.41 (2.35)	.23 (1.31)	.52	-.19	.36	-.30	.68	.48	-.50	-.21
<i>M</i>	.32 (1.83)	.25 (1.42)	.48	-.28	.47	-.36	.58	.58	-.43	-.22
Agreeableness traits										
Friendliness	.46 (2.66)	.17 (0.96)	.34	-.30	.53	-.38	.65	.49	-.52	-.25
Competitiveness	.60 (3.77)	.05 (0.34)	.08	-.26	.67	-.31	.71	.42	-.60	-.24
Warm*	.42 (1.60)	.16 (0.59)	.04	-.35	.61	-.47	.51	.60	-.67	-.30
<i>M</i>	.49 (2.68)	.13 (0.63)	.16	-.30	.61	-.39	.63	.51	-.60	-.26

Note. $N = 112$ for Sample 1, $N = 372$ for Sample 2. The asterisk indicates that the trait is from Sample 1; otherwise, it is from Sample 2. SRM SE denotes the SRM index of self-enhancement. The correlations are Pearson correlation coefficients. Means were computed using Fisher's r -to- z transformation. All computations involved the SRM estimates controlled for group differences. Under variance components, relative variances are indicated outside the parentheses and absolute variances are located within parentheses.

Table 2
Correlations Among Self-Enhancement Indices and Social Relations Model (SRM) Components for Each of the 15 Big Five Traits (Study 2)

Variance components			Correlations with the social- comparison index			Correlations with the self- insight index			Correlations with the SRM index				
Bipolar trait	Perceiver variance	Target variance	Target effect	Perceiver effect	SRM SE	Target effect	Perceiver effect	SRM SE	Target effect	Perceiver effect	SRM SE	Target effect	Perceiver effect
Extraversion													
3. Extraverted	.05 (0.11)	.50 (1.16)	.54	-.37	.45	.38	.09	.79	.39	.45			
11. Talkative	.06 (0.13)	.60 (1.36)	.53	-.36	.36	.45	.16	.83	.50	.34			
13. Sociable	.02 (0.05)	.41 (0.77)	.52	-.46	.51	.46	.26	.80	.35	.26			
M	.04 (0.10)	.50 (1.10)	.53	-.40	.44	.43	.17	.81	.42	.35			
Conscientiousness													
4. Diligent	.14 (0.23)	.31 (0.51)	.26	-.45	.65	.48	.13	.76	.44	.41			
21. Careful	.12 (0.20)	.26 (0.43)	.19	-.58	.72	.57	.03	.79	.43	.48			
30. Cautious	.19 (0.26)	.28 (0.37)	.16	-.52	.68	.57	.14	.77	.52	.44			
M	.15 (0.23)	.28 (0.44)	.20	-.52	.68	.54	.10	.77	.46	.44			
Emotional stability													
2. Unworried	.02 (0.04)	.26 (0.55)	.44	-.54	.61	.55	.25	.80	.35	.29			
5. Relaxed	.09 (0.17)	.29 (0.57)	.45	-.54	.60	.53	.29	.77	.37	.34			
9. Carefree	.10 (0.16)	.30 (0.46)	.34	-.53	.65	.53	.17	.78	.40	.40			
M	.07 (0.12)	.28 (0.53)	.41	-.54	.62	.54	.23	.78	.37	.34			
Openness													
1. Eager to change the status quo	.09 (1.90)	.33 (0.71)	.25	-.52	.59	.61	.19	.82	.56	.36			
14. Prefer novel ways	.07 (0.13)	.30 (0.51)	.36	-.50	.63	.49	.13	.78	.40	.44			
19. Prefer variety	.08 (0.11)	.33 (0.47)	.26	-.52	.68	.54	.04	.83	.40	.41			
M	.08 (0.71)	.32 (0.56)	.29	-.51	.63	.55	.12	.81	.46	.40			
Agreeableness													
20. Unselfish	.37 (0.61)	.15 (0.25)	.00	-.52	.79	.48	.16	.65	.51	.54			
25. Kind	.23 (0.25)	.20 (0.21)	.19	-.38	.66	.47	.33	.69	.47	.30			
28. Generous	.37 (0.34)	.08 (0.07)	.15	-.55	.83	.43	.25	.63	.26	.43			
M	.32 (0.40)	.14 (0.18)	.11	-.49	.77	.46	.25	.66	.42	.43			

Note. $N = 128$. *SRM SE* denotes the SRM index of self-enhancement. The correlations are Pearson correlation coefficients. Means were computed using Fisher's r -to- z transformation. All computations involved the SRM estimates controlled for group differences. Under variance components, relative variances are indicated outside the parentheses and absolute variances are located within parentheses.

Table 3
Personality and Adjustment Correlates for the Target Effect and Self-Enhancement Indices (Study 4)

Personality and adjustment measures	Target effect	Self-enhancement indices	
		Social comparison	SRM <i>SE</i>
Self report			
Narcissistic Personality Inventory (overt narcissism)	– .14	.10	.23* (.21*)
Assessment staff report			
Initiative	.57*	.30*	– .27* (.09)
Energy	.45*	.28*	– .17* (.09)
Oral communication skills	.63*	.33*	– .32* (.00)
Clinical observer report			
Hypersensitivity (covert narcissism)	– .12	.10	.21* (.19*)
Ego-resilience	.31*	.08	– .26* (–.19*)
Defensiveness	– .30*	.01	.32* (.24*)
Social skills	.30*	.06	– .25* (–.15)
Objective indicators			
Subsequent academic performance (GPA)	.23*	.02	– .22* (–.10)

Note. $N = 102$. Numbers inside of the parentheses are correlation coefficients after partialling out the target effect. SRM = social relations model; GPA = grade-point average. SRM *SE* denotes the SRM index of self-enhancement.

* $p < .05$.