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Enhancement and Denial in Socially Desirable Responding

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One research tradition has distinguished *self-deception*, the tendency to give favorably biased but honestly held self-descriptions from *impression management*, the tendency to give favorable self-descriptions to others. A 2nd tradition has distinguished *enhancement*, the claiming of positive attributes, from denial, the repudiation of negative attributes. The 2 distinctions were evaluated jointly in 3 studies. Factor analyses showed that impression management items (both enhancement and denial) loaded together. Self-deception items split up: Enhancement items formed a 2nd factor, whereas denial items fell closer to the impression management factor. Of the 4 types, self-deceptive enhancement best predicted adjustment. These results clarify the constructs of enhancement and denial: The critical distinction is not simply one of keying direction but whether the item content refers to a positive or negative attribute.

A potential source of inaccuracy in self-reports of personality, attitudes, and behavior is the tendency of (at least) some subjects to engage in socially desirable responding (SDR). Respondents who consistently engage in SDR across time and assessment instruments are said to have a response style (Jackson & Messick, 1962). To assess SDR response style, a wide variety of scale construction strategies have been applied. Despite having similar labels, the resulting measures have been shown to tap a variety of different constructs (for a review see Paulhus, 1990).

Structural Models

Factor analytic studies over the last 25 years have supported the structural partitioning of SDR response styles into two clusters associated with the substantive factors labeled *Alpha* (Block, 1965) and *Gamma* (Wiggins, 1964). Alpha is the general adjustment factor of the Minnesota Multiphasic Personality Inventory (MMPI; Block, 1965). Associated SDR measures include the Social Desirability (SD) scale (Edwards, 1957), the MMPI (*K*) scale (McKinley, Hathaway, & Meehl, 1948; Meehl & Hathaway, 1946), and the Self-Deception Questionnaire (Sackeim & Gur, 1978). Edwards (1957) uncommittedly labeled such measures as indexes of the tendency to give desirable self-reports in questionnaires. Damarin and Messick (1965) applied the term "autistic bias," the tendency to distort self-perception to be consistent with self-attitudes. Paulhus (1984) preferred the term "self-deceptive positivity." Our position is that such SDR measures are associated with Alpha because the healthy person is prone to self-deceptive positivity (Paulhus, 1986).

SDR measures associated with the Gamma factor include the Positive Malingering scale (Cofer, Chance, & Judson, 1949) and the Wiggins Social Desirability (*Sd*) scale (Wiggins, 1959). Damarin and Messick (1965) labeled the factor "propagandistic bias," an instrumental distortion aimed at a specific audience. Edwards (1970) and Paulhus (1984, 1986) used the term "impression management."

The most recent evidence for these two SDR factors was provided by Paulhus's (1984, 1986) factor analyses of traditional SDR measures, along with the Self-Deception Questionnaire (SDQ) and Other-Deception Questionnaire (ODQ; Sackeim & Gur, 1978). As in earlier studies, *SD*, MMPI *K*, and Byrne's (1964) Repression–Sensitization (R–S) scales loaded on one factor, whereas Wiggins's (1959) *Sd* scale and the Eysenck Personality Inventory (EPI) Lie scale (Eysenck & Eysenck, 1964) loaded on a second factor. The Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1964) loaded highly on both factors. Paulhus (1984) found that the SDQ and ODQ were the best single markers of the two SDR factors, leading him to interpret those factors as self-deception and impression management, respectively.

Paulhus (1984) also provided experimental support for this distinction by contrasting scores obtained in an anonymous testing situation with those from a public disclosure condition. Under threat of public disclosure, desirable responding increased significantly more on scales representing the second factor than on those marking the first factor. Thus the style of positive bias measured by second factor scales appeared to be more strategic or, at least, more sensitive to situational demands.

Measuring Self-Deception and Impression Management

Exactly why different SDR clusters are associated with the content dimensions, Alpha and Gamma, is not clear (Paulhus, 1990). An examination of the SDQ and ODQ, which mark the

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two major SDR factors, may help clarify the link between content and style.

Originally, Sackeim and Gur (1978) developed the two scales on a rational basis. The SDQ contained 20 psychoanalytically oriented questions about threatening thoughts and feelings that everyone is assumed to experience but that some people repudiate (e.g., Do you enjoy your bowel movements?). One common feature of the SDQ items was that only the respondent could know the truth value of the responses. Therefore, any bias evident under anonymous testing conditions would reflect the respondent's honestly held beliefs (Sackeim & Gur, 1978).

In contrast, the ODQ contained items concerning overt behaviors for which a person would have accurate memory (e.g., I always declare everything at customs). Hence, exaggerated claims are likely to be audience-directed impression management (Sackeim & Gur, 1978).

The construct validity of the SDQ and ODQ have been supported in a number of experimental and correlational studies (Gur & Sackeim, 1979; Paulhus, 1982; Sackeim, 1983; Sackeim & Gur, 1978, 1979; Winters & Neale, 1985). Paulhus (1984) addressed a number of psychometric deficiencies while developing his new instrument, the Balanced Inventory of Desirable Responding (BIDR).[1] The new subscales, termed the Self-Deception scale (SDS) and the Impression Management scale (IMS), were improvements in several respects: (a) The keying direction was balanced, (b) items referring to adjustment were deleted, (c) items with low part–whole correlations were replaced, and (d) nonpsychoanalytic items were added (e.g., "I could easily quit any of my bad habits if I wanted to"). The BIDR has been used successfully in a number of studies (e.g., Flett, Blankstein, Pliner, & Bator, 1988; Lautenshlager & Flaherty, 1990; Linden, Paulhus, & Dobson, 1986; Mellor, Conroy, & Masteller, 1986; Paulhus & Levitt, 1987).

Enhancement and Denial

Another distinction advanced in the SDR literature is that between the attribution of positive attributes and the denial of negative attributes. The modest correlation between these two components of desirability scales has not gone unnoticed in the past (e.g., Gough & Heilbrun, 1965; Jackson & Messick, 1962). Recently, however, specific scales have been developed to measure these constructs (Campbell, Converse, & Rodgers, 1976; Jacobson, Kellogg, Cauce, & Slavin, 1977; Millham, 1974; Roth, Snyder, & Pace, 1986). Although the labels vary across writers, we will use the terms *enhancement* and *denial* to refer to these two modes of socially desirable responding.

Millham (1974) formed enhancement and denial measures simply by partitioning the Marlowe-Crowne Social Desirability Scale into true- and false-keyed subscales. He found some evidence that the two components had different behavioral correlates. However, when Ramanaiah and Martin (1980) wrote reversals to balance the keys for each subscale, differences in external correlates disappeared. Jacobson et al. (1977) assembled a carefully balanced set of enhancement and denial scales but did not examine external correlates.

Most recently, Roth et al. (1986) rationally assembled a set of 30 enhancement and 30 denial statements. They used only affirmations (e.g., I am a saint, I am a sinner). Thus the desirable response was true to an enhancement statement or false to a denial statement. A confirmatory factor analysis showed that the enhancement and denial items formed distinct factors with an intercorrelation of only .19.[2] Moreover, the enhancement factor showed higher correlations than did the denial factor with several measures of adjustment.

In a follow-up study, Roth, Harris, and Snyder (1988) performed a confirmatory factor analysis to demonstrate that a two-factor tactics model was superior to a one-factor model. However, they were not able to replicate the Roth et al. (1986) finding that enhancement scores predicted adjustment better than did denial scores.[3]

Paulhus (1984) directly compared the two structural models using confirmatory factor analysis. He found that the self-deception/impression management distinction accounted for more variance than the enhancement/denial model. The results of the Roth et al. (1986) study, however, indicate that enhancement and denial components do play a significant role in socially desirable responding. Moreover, Paulhus (1984) found some evidence for an interaction between the two models (p. 607).

To clarify the issue, we designed three studies to examine the two structural models simultaneously. We partitioned the SDS and IMS into separate measures of enhancement and denial. This design permits an assessment of the joint contributions of the four types of socially desirable responding.

Following Sackeim and Gur (1979) and Roth et al. (1986, 1988), we also examined the link between these different forms of SDR and adjustment. The critical question is whether the observed associations of enhancement and self-deception with adjustment are independent. The answer is important in understanding why different SDR measures are associated with content dimensions Alpha and Gamma.

Study 1

To examine the importance of keying direction, we asked subjects to complete the SDS and IMS from the BIDR. To explore links with adjustment, we also included Rosenberg's (1965) Self-Esteem (SE) Scale. The Rosenberg scale was chosen because (a) it is the most commonly used measure of the construct that is, arguably, the most global form of adjustment

[1] After the appearance of the Balanced Inventory of Desirable Responding, Sackeim (personal communication, March 1, 1984) recommended its use instead of the original Self-Deception Questionnaire and Other-Deception Questionnaire.

[2] Note that these two scales confound content and keying direction. When both scales are keyed in the desirable direction, the effect of this confounding is to yield observed correlations that underestimate the true correlation between the constructs.

[3] A possible explanation is that the second study induced more demand for impression management than the first. (The first study was conducted on a large class, whereas the second was conducted on small groups.) An impression management demand usually induces a higher correlation between various measures of socially desirable responding (Wiggins, 1959). Indeed, the correlation between the enhancement and denial subscales increased from .19 in the first study to .49 in the second study. As the two subscales become correlated, it naturally becomes more difficult to show differential correlations with adjustment.

(Fleming & Courtney, 1984) and (b) it was differentially associated with denial and enhancement in Roth et al. (1986).

Each measure was separated into subscales containing true- and false-keyed items.[4] Following previous literature and for easy reference, we tentatively use the term *enhancement* for the true-keyed items and the term *denial* for the false-keyed items.

Method

Subjects and procedure. Subjects were 130 introductory psychology students (49 men, 81 women) at a large Canadian university. They participated for extra credit. The package of instruments was administered in several large group settings. The package contained the 10-item Rosenberg SE Scale (Rosenberg, 1965) and the BIDR, Version 3 (BIDR-3; Paulhus, 1984), comprising 20-item subscales to measure self-deceptive positivity and impression management. All items were answered on a 7-point Likert scale ranging from *not true* to *very true*.

Results

The intercorrelations of the six subscales are presented in Table 1.[5] Alpha reliabilities appear in the diagonal; means and standard deviations are presented to the left. All subscales have been keyed in the socially desirable direction. Note first that the intercorrelation of the two SDS subscales (.19) is significantly lower than the corresponding intercorrelations for the SE Scale (.74), $Z = 6.02$, $p < .001$, and for the IMS (.47), $Z = 2.63$, $p < .01$ (Steiger, 1980).

We factored the correlations by principal-components extraction followed by varimax rotation. The first two factors explained 65% of the total variance. A plot of the rotated factor loadings is presented in Figure 1.

The SE subscales load primarily on one factor whereas the IMS subscales fall on a second factor. The enhancement items of the SDS fall closer to Factor 1 whereas the SDS denial items fall closer to Factor 2.

Discussion

This study clarifies the relation between the two methods of partitioning social desirability items. The two structural models are interactive in the sense that both are required to explain the observed pattern of relations among the subscales. For the SDS, scores on the true-keyed (enhancement) items were relatively independent of scores on the false-keyed (denial) items; on the IMS, the two sets of items were more highly correlated. The enhancement and denial items for the SE Scale were also highly correlated, replicating previous studies (e.g., Carmines & Zeller, 1979). In short, the enhancement/denial partitioning appears to be important, but only for self-deception items.

Of the four subscales formed from the BIDR, only the self-deception enhancement items appear to be linked to self-esteem. This finding is consistent with the results of Roth et al. (1986) in showing a closer association of adjustment with enhancement than with denial. At the same time, our findings qualify the Roth et al. (1986) results in narrowing the enhancement–adjustment link to only one form of desirable responding.

Table 1
Means and Intercorrelations of Self-Report Measures: Study 1

Measure	*M*	*SD*	Intercorrelation 1	2	3	4	5	6
1. SE-E	5.52	0.91	.84					
2. SE-D	5.29	1.16	.74	.80				
3. SDS-E	4.40	0.75	.45	.38	.59			
4. SDS-D	4.49	0.85	.06	.14	.19	.64		
5. IMS-E	4.22	0.91	.09	.01	.25	.38	.72	
6. IMS-D	3.35	0.76	.05	.18	.17	.39	.47	.65

Note. $N = 130$. Alpha reliabilities appear in the diagonal. SE = Rosenberg Self-Esteem Scale (Rosenberg, 1965); E = enhancement items; D = denial items; SDS = Self-Deception scale; IMS = Impression Management scale. Correlations above .23 are significant ($p < .01$, two-tailed).

Study 2

Given the provocative pattern of results in Study 1, it would be reassuring to see a replication. Hence, one purpose for Study 2 was to replicate the results of Study 1 on a larger sample. The second purpose was to clarify the meaning of the enhancement and denial components of self-deception.

One way to clarify the significance of the distinction between enhancement and denial measures would be to look for differential relations with established personality measures. Accordingly, a set of personality measures related to desirable responding was administered along with the BIDR. The Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1964) was included because it is the most widely used measure of desirable responding. The Self-Monitoring Scale (Snyder, 1974) and the Self-Consciousness Scale (Fenigstein, Scheier, & Buss, 1975) both measure constructs related to the relative amount of attention paid to one's internal and external environments. Davis's (1980; see also Davis, 1983) empathy scale contains subscales measuring fantasy, perspective taking, empathic concern for others, and personal distress. All of these concepts may bear some relation to a person's tendency to self-deceive. Two of the above subscales, Social Anxiety and Personal Distress, also provide further opportunity to examine differential linkage with adjustment.

To explore further the conceptual distinction between enhancement and denial, we also administered a set of 65 exploratory items aimed at tapping a wide range of defenses and biases—titled, for easy reference, Miscellaneous Indexes of Bias (MIB). Each set of items in the MIB was written to tap a well-known concept with self- or other-deceptive implications. Among these were several constructs from the social psychol-

[4] The response format used in the BIDR is a 7-point Likert scale. However, we use the terms *true keyed* and *false keyed* (rather than positively and negatively keyed) to refer to the keying direction. The terms *positive* and *negative* are already used to denote the type of characteristic referred to in the items. Although true/false terminology usually refers to dichotomous items, it does not seem unreasonable here given that the Likert scale anchors were *very true* to *not true*.

[5] Preliminary LISREL analyses revealed no sex difference in the covariance matrixes.

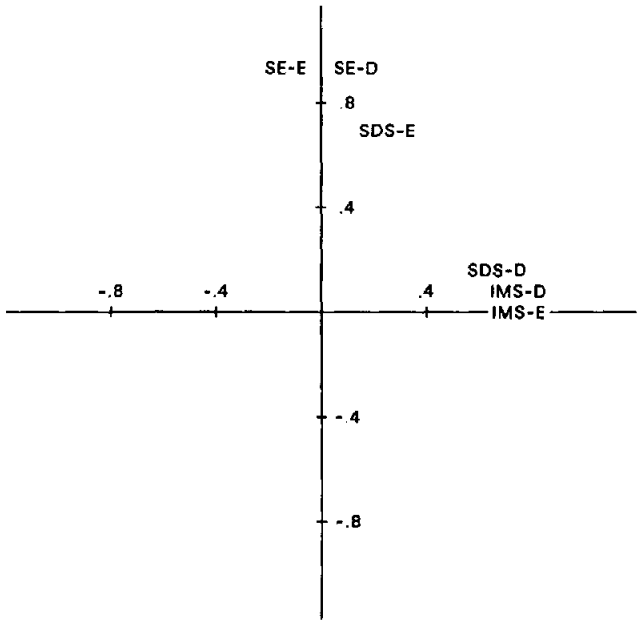

Figure 1. Factor loadings from Study 1. (SE = Rosenberg Self-Esteem Scale; E = enhancement items; D = denial items; SDS = Self-Deception Scale; IMS = Impression Management Scale.)

ogy literature that are not usually measured with direct self-reports. For example, hindsight bias is the general tendency for people to report that they knew it all along after they hear the answer to a question. Individual differences in such a tendency have been linked to measures of socially desirable responding (J. D. Campbell & Tesser, 1983). We wrote several items to directly tap this tendency (e.g., "After hearing the answer to an exam or trivia question, it always seems like I knew it all along"). Other indexes developed from the social psychology literature include the illusion of control, belief in a just world,[6] and self-fulfilling prophecy. Also included were indexes derived from the psychoanalytic literature (e.g., suppression, denial of sexuality). Finally, we wrote a miscellaneous set of items tapping other topics that have self-deceptive implications (e.g., love proneness, religiosity, dogmatism).

Method

Subjects. Subjects were 670 introductory psychology students (279 men, 349 women, and 42 gender undisclosed) at a large Canadian university. They participated for course credit.

Materials. There were two versions (A and B) of the questionnaire battery. The BIDR and Rosenberg SE Scale were included in both batteries. Battery A also included the MIB, described earlier,[7] whereas Battery B included a set of personality measures: the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1964), the Interpersonal Reactivity Index, designed to measure empathy (Davis, 1980, 1983), the Self-Monitoring Scale (Snyder, 1974), and the Self-Consciousness Scale (Fenigstein et al., 1975). All items were answered on a 7-point Likert scale ranging from *not true* to *very true.*

Procedure. Most subjects received Battery A ($n = 513$), but a sizable number received Battery B ($n = 157$). The inventories were randomly disbursed in unmarked envelopes that included a cover letter stressing confidentiality and the necessity of honest responding. Subjects were instructed to complete the questionnaire at home and return it at the next class meeting.

Results

The intercorrelations among the six subscales are presented in Table 2.[8] Also included are the standard deviations for each variable. Visual inspection suggests that these statistics closely resemble those in Study 1. A statistical comparison of the two data sets was rendered by comparing the two covariance matrixes by means of the LISREL VI program (Jöreskog & Sörbom, 1984, p. V9). All three fit indices suggested a high degree of similarity: The chi-square ($df = 21$) of 25.7 was nonsignificant; the goodness-of-fit index (GFI) was high (.99), and the root-mean-square (RMS) residual was low (.02).

The correlations were subjected to principal-components extraction followed by varimax rotation. Loadings on the first two factors are plotted in Figure 2. Possible differences in the factor patterns between Study 1 and Study 2 were tested by means of LISREL (Jöreskog & Sörbom, 1984, p. VI1). The two models were set to have identical two-factor orthogonal structures. Although the chi-square (71.8) was significant ($df = 16$, $p < .001$), the RMS residual was acceptably low (.03) and the GFI was high (.98). Given that the high chi-square is largely a result of the large sample size (pooled $N = 800$), we conclude that the factor patterns were highly similar in Studies 1 and 2.

As in Study 1, the intercorrelation of the SDS subscales (.22) is significantly smaller than that for the SE (.70), $Z = 12.4$, $p < .001$ or for the IMS (.49), $Z = 6.18$, $p < .001$ (Steiger, 1980). Because their subscales are so highly correlated, SE and IMS are no longer separated into subscales.

The correlations of the BIDR scales with the standard personality instruments are presented in Table 3. The two measures of psychological distress, the Social Anxiety scale and the Personal Distress scale, show significantly stronger correlations with the enhancement items than with the denial items or with the IMS. In contrast, Empathic Concern, Other-Directedness, and the Marlowe-Crowne scale show weaker correlations with the enhancement items than with the denial items and with the IMS.

Note also that SDS enhancement and denial do not differentially correlate with corresponding Marlowe-Crowne enhancement and denial. This lack of correspondence requires an explanation that goes beyond the partitioning of true- and false-keyed items. The Marlowe-Crowne scale is more of an amalgam: It includes many impression management items, which as we have shown, do not separate into denial and enhancement. Moreover, the Marlowe-Crowne, unlike the SDS, contains some negations.

The correlations between the BIDR measures and the

[6] After conducting the study, we were apprised of an extant measure of just-world beliefs (Rubin & Peplau, 1973).

[7] The complete set of Miscellaneous Index Bias items is available from the authors.

[8] Preliminary LISREL analyses revealed no sex or battery difference in the covariance matrixes: Hence the data were collapsed across all 670 subjects.

Table 2
Means and Intercorrelations of Self-Report Measures: Study 2

Measure	*M*	*SD*	Intercorrelation 1	2	3	4	5	6
1. SE-E	5.55	0.97	.86					
2. SE-D	5.19	1.23	.70	.82				
3. SDS-E	4.59	0.72	.41	.30	.57			
4. SDS-D	4.70	0.96	.15	.23	.22	.73		
5. IMS-E	4.32	0.76	.16	.08	.33	.39	.64	
6. IMS-D	3.69	0.90	.06	.19	.22	.52	.49	.66

Note. $N = 670$. Alpha reliabilities appear in the diagonal. SE = Rosenberg Self-Esteem Scale; E = enhancement items; D = denial items; SDS = Self-Deception scale; IMS = Impression Management scale. Correlations above .10 are significant ($p < .01$, two-tailed).

Table 3
Personality Correlates From Study 2

Measure	SDS-E	SDS-D	IMS
Empathy			
Fantasy	.00	−.01	.01
Perspective Taking	.19	.26	.23
Empathic Concern	−.03	$.35_a$	.11
Personal Distress	$-.31_a$	−.13	−.18
Total	−.07	.17	.07
Self-Monitoring Scale			
Acting	.12	−.17	−.16
Extraversion	.20	.16	.10
Other-Directedness	−.27	$-.43_a$	−.40
Total	.13	.05	.02
Self-Consciousness Scale			
Private	−.02	−.10	.02
Public	−.11	−.18	−.21
Social Anxiety	$-.28_a$	−.10	−.22
Marlowe-Crowne scale			
True-keyed	.30	$.51_a$	.53
False-keyed	.18	.22	.17
Total	.32	$.50_a$	.48

Note. $n = 157$. SDS-E = enhancement items from the Self-Deception Scale; SDS-D = denial items from the Self-Deception Scale; IMS = Impression Management Scale; Empathy subscales are from the Interpersonal Reactivity Index; Marlowe-Crowne Scale = Marlowe-Crowne Social Desirability Scale. Correlations above .21 are significant ($p < .01$, two-tailed). A subscript beside a correlation in the SDS-E column signifies that the value is significantly greater ($p < .01$, two-tailed) than the SDS-D value. The reverse is true for a subscript in the SDS-D column.

various bias indexes in the MIB are presented in Table 4. Note that several indexes correlate more positively with the enhancement subscale than with the denial subscale: dogmatic thinking, lack of procrastination, lack of parental conflict, illusion of control, and self-fulfilling prophecy. In contrast, the denial subscale correlates higher than the enhancement scale with the following indexes: denial of hostility, denial of sexuality, rejection of criticism, undesirable acts, use of suppression, hindsight bias, just-world belief, and belief in prayer. In general, the indexes that correlate with denial also correlate with impression management.

We could have used a more conservative cutoff for significant correlations. Because of the small number of items in some indexes, however, the alpha reliabilities are low and the correlations with the SDR measures are underestimates. Disattenuating these values would not alter the order within rows, but it would magnify all the values and all the differences.

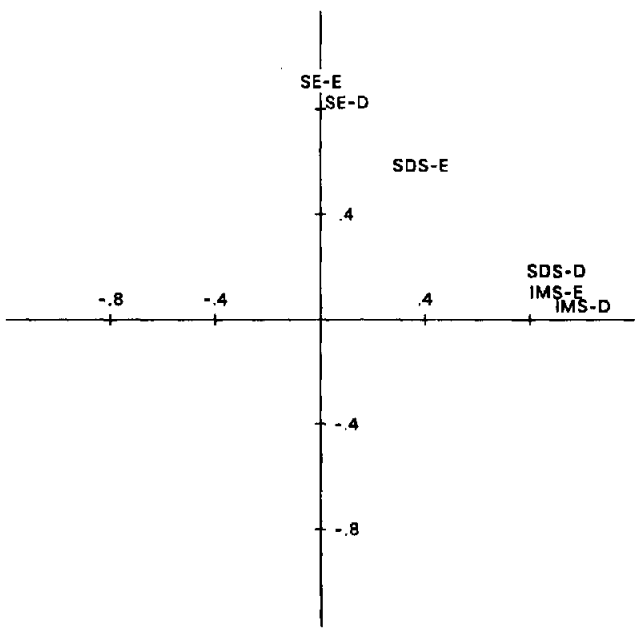

Figure 2. Factor loadings from Study 2. (SE = Rosenberg Self-Esteem Scale; E = enhancement items; D = denial items; SDS = Self-Deception Scale; IMS = Impression Management Scale.)

Discussion

The replication of the factor pattern from Study 1 on such a large sample is reassuring. Enhancement and denial tendencies on the SDS are apparently independent. The observed relations with several adjustment measures replicated and extended the differential linkage of enhancement and denial components with psychological health. Attribution of positive qualities to the self is associated not only with higher self-esteem but also with lower social anxiety and empathic distress.

The differential associations of enhancement and denial with the various indexes of defense and cognitive bias were also informative. In general, the enhancement items predicted biases associated with dogmatic confidence in one's own judgments. In contrast, the denial items were associated with rejection of psychological threats—for example, denial of one's hostility and sexuality. The exception to this pattern was a higher correlation of enhancement with denying parental conflict. Rather than being true denial, the latter may be a true developmental antecedent of the optimistic thinking typified by the enhancement factor.

Of course, we cannot make strong claims about correlations with these MIB indexes: They were an exploratory attempt to assess with direct self-reports various defenses and biases that

Table 4
Correlations of Miscellaneous Indexes of Bias (MIB) With BIDR Scales

MIB			BIDR		
Index	No. items	Alpha	SDS-E	SDS-D	IMS
1. Illusion of control	4	.34	$.28_a$	.01	.09
2. Dogmatic thinking	3	.46	$.23_a$	−.05	.08
3. Self-fulfilling prophecy	1	NA	$.16_a$	−.01	.13
4. Lack of parental conflict	4	.32	$.14_a$	−.01	.03
5. Lack of procrastination	3	.52	$.20_a$	.06	.32
6. Hindsight bias	2	.26	$.10_a$	−.17	−.03
7. Rejection of criticism	4	.62	.22	$.37_a$	.42
8. Denial of hostility	5	.59	.09	$.42_a$	.35
9. Denial of sexuality	4	.32	.05	$.22_a$	.16
10. Denial of undesirable acts	10	.57	.03	$.54_a$	.45
11. Use of suppression	3	.11	.20	$.33_a$	.27
12. Just world belief	3	.63	.01	$-.21_a$	−.11
13. Belief in prayer	1	NA	.14	$.27_a$	.29
14. Perceived safe-driving	3	.50	.18	.09	.16
15. Love proneness	5	.18	.11	.03	.21
16. Reported need for approval	3	.26	−.14	−.10	−.12

Note. $n = 513$. BIDR = Balanced Inventory of Desirable Responding; SDS-E = enhancement items from the Self-Deception Scale; SDS-D = denial items from the Self-Deception Scale; IMS = Impression Management Scale. Correlations above .12 are significant ($p < .01$, two-tailed). A subscript beside a correlation in the SDS-E column signifies that the value is significantly greater ($p < .01$, two-tailed) than the SDS-D value. The reverse is true for a subscript in the SDS-D column.

are normally tapped with more complex methodologies. Several of these attempts were clearly naive. Reported need for approval and procrastination, for example, show negative correlations with all three styles in Table 4. Actual need for approval and procrastination might truly be linked to these styles, but self-reports of these behaviors are clearly undesirable.

One clear lesson from these findings is that the true- and false-keyed items of balanced scales may actually be assessing different constructs. Any assumption about the homogeneity of the two subscales should be empirically substantiated. This substantiation should include an examination of the external correlates of the two subscales.

Study 3

When the domain is narrowed to self-deception items, the tendency to attribute positive characteristics to the self is relatively independent of the tendency to deny negative characteristics. Nonetheless, because all BIDR items are written as affirmations ("I am a saint"; "I am a sinner"), there remains a critical ambiguity in the distinction between enhancement and denial items.

The distinction may be simply one of keying direction: The tendency to agree with desirable statements may be independent of the tendency to disagree with undesirable statements. If so, the enhancement-prone person would agree with "I am a saint" and also agree with "I am not a sinner." Similarly, the denial-prone person would disagree with "I am a sinner" and also disagree with "I am not a saint."

On the other hand, the distinction between enhancement and denial factors may depend on whether the item refers to a positive or negative attribute. That is, the enhancement-prone person would agree with "I am a saint" and disagree with "I am not a saint." In both cases, the respondent is claiming a positive characteristic (sainthood). The denial-prone person would agree with "I am not a sinner" and disagree with "I am a sinner." In both cases, the respondent is disclaiming a negative characteristic (sinning).

These two competing models of enhancement versus denial are illustrated by Table 5: The critical issue is whether the items within rows or within columns are associated. If, after all items are keyed in the desirable direction, items within rows are highly correlated, then keying direction underlies the enhancement/denial distinction. If, however, items within columns are highly correlated, then the positivity of the characteristic underlies the enhancement/denial distinction.

A statistical comparison of these alternative structural models requires data on how subjects respond to the negations of the original 10 enhancement and 10 denial items on the SDS. Therefore, we wrote negations for each item. For example, the negation for "My parents always loved me" was "My parents didn't always love me."

Table 5
Four Types of Social Desirability Items

	Valence of characteristic	
Keying direction	Positive	Negative
True	I am a saint	I am not a sinner
False	I am not a saint	I am a sinner

Method

Subjects and procedure. One hundred thirty-seven introductory psychology students (63 men, 74 women) participated for course credit. They were instructed to complete the questionnaire packet at home and to return it at the beginning of the next class. One week later, the questionnaire containing the negations was administered. The purpose of the delay was to minimize memory effects: It was unlikely that respondents would remember exactly how they responded to the original item.

Materials. As in Studies 1 and 2, the questionnaire battery included the SE (Rosenberg, 1965) and the BIDR (Paulhus, 1984). Also included were the trait form of the State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970) and the short versions of the Interpersonal Adjective Scale (IAS) measures of the Big Five personality dimensions: surgency, neuroticism, conscientiousness, openness to experience, and agreeableness (Trapnell & Wiggins, 1990).

Finally, we administered the 20 new items consisting of the self-deception items written as negations. Items in all instruments were answered on a 7-point Likert scale ranging from *not true* to *very true.*

Results

The correlations among the various subscales of the BIDR and the SE Scale are presented in Table 6. (Again, no sex differences were found in the covariance matrixes.) Note that the highest correlations were between each affirmation scale and its corresponding negation scale. For example, the negations of the enhancement items (e.g., "I am not a saint") correlated highly (r = .63) with the original affirmations ("I am a saint"). Similarly, the negations of the denial items ("I am not a sinner") correlated highly (r = .86) with the original affirmations ("I am a sinner"). These correlations were rather strong given the 1-week interval between completing the originals and the negations.

Compare these values to the relatively low correlation (r = .31) between original enhancements ("I am a saint") and the original denials ("I am a sinner"). Similarly low (r = .29) was the correlation between negated enhancements ("I am not a saint") and negated denials ("I am not a sinner").

Table 6
Intercorrelations of Socially Desirable Responding Measures From Study 3

	Intercorrelation						
Measure	1	2	3	4	5	6	7
1. SE	.89						
2. SDS–E	.34	.56					
3. SDS–D	.21	.31	.68				
4. IMS–E	.03	.28	.23	.54			
5. IMS–D	−.11	.16	.36	.29	.63		
6. SDS–E–N	.25	.63	.37	.09	.33	.69	
7. SDS–D–N	.23	.30	.86	.26	.31	.29	.53

Note. N = 137. Alpha reliabilities appear in the diagonal. SE = Rosenberg Self-Esteem Scale (Rosenberg, 1965); SDS = Self-Deception Scale; E = enhancement items; D = denial items; IMS = Impression Management Scale; N = Negations. Correlations above .23 are significant ($p < .01$, two-tailed). All scales are scored in the desirable direction.

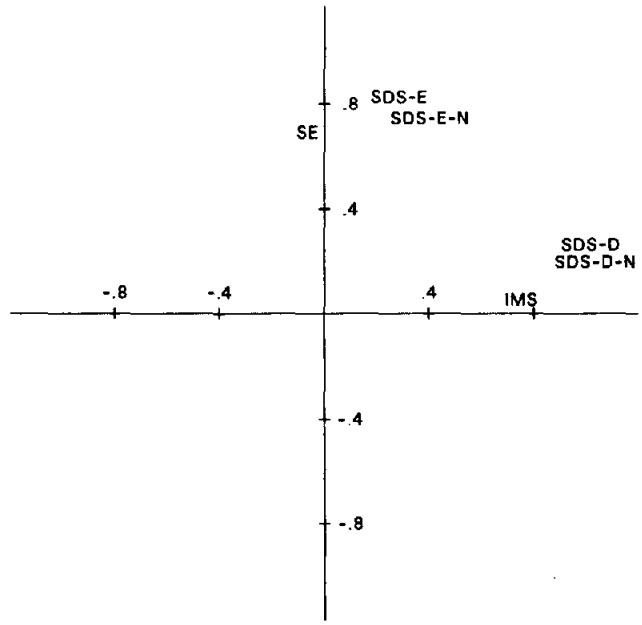

Figure 3. Factor loadings from Study 3. (SDS = Self-Deception Scale; E = enhancement items; N = negations; D = denial items.)

To represent these relations in graphical format, we factored the correlation matrix with a principal-components extraction followed by varimax rotation and then plotted the loadings. The first two factors, which explained 66 percent of the total variance, are depicted in Figure 3. It is clear that the original items and their respective negations fell together on the same factors as in Studies 1 and 2.

Personality Correlates

The personality correlates of the BIDR subscales are presented in Table 7. The internal consistencies appear to be acceptable even for the Big Five traits, which were measured with only six items each. The one exception is the low alpha for openness: Hence its correlates may be underestimated.

The pattern of correlations with the SDS subscales is similar to those in Studies 1 and 2: Correlations with adjustment (self-esteem, trait anxiety, and neuroticism) were consistently higher for the enhancement items than for the denial items. The composite variable, balanced enhancement, is the sum of the original enhancement items and their reversals: This summing seemed reasonable given their high intercorrelation (r = .63); the resulting alpha was .76. Similarly, balanced denial, the sum of the original denial items and their negations, yielded an alpha of .84.

This aggregation increased the advantage held by the enhancement items over the denial items from a mean of .10 to .15. The differences between pairs of correlations were tested using the dependent samples t test for a difference between correlations (Glass & Hopkins, 1984). This difference was significant for the Trait Anxiety, Surgency, and Neuroticism measures ($p < .01$, two-tailed) but only marginal for the SE Scale

Table 7
Personality Correlates of Socially Desirable Responding Measures From Study 3

Measure	Alpha	SDS-E	SDS-D	Balanced enhancement	Balanced denial	IMS
Self-Esteem	.82	.34	.21	.33	.23	−.06
STAI Trait Anxiety	.77	−.46	−.37	$-.53_a$	−.34	−.16
Surgency	.83	.29	.13	$.38_a$	.13	.04
Agreeableness	.86	.11	.13	.06	$.20_a$	.18
Conscientiousness	.81	.05	.01	.01	.03	.08
Neuroticism	.87	−.30	−.22	$-.36_a$	−.20	−.07
Openness/Culture	.60	.09	.02	.13	−.01	.01

Note. SDS–E = enhancement items from the Self-Deception Scale; SDS–D = denial items from the Self-Deception Scale; IMS = Impression Management Scale; Balanced enhancement = total of positive content of SDS items; Balanced denial = total of negative content of SDS items; Self-Esteem = Rosenberg Self-Esteem Scale (Rosenberg, 1965); STAI = State–Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970); Surgency, Neuroticism, Conscientiousness, Agreeableness, and Openness to Experience are six-item scales from the Interpersonal Adjective Scale-B5 Revised (Short Form; Trapnell & Wiggins, 1990). Correlations above .23 are significant ($p < .01$, two-tailed). A subscript a beside a correlation in the enhancement column signifies that the value is significantly greater ($p < .01$, two-tailed) than the denial value. The reverse is true for a subscript in the denial column.

($p < .10$). In contrast, Agreeableness (which is a Gamma-type content measure) correlated more highly with denial than enhancement ($p < .01$).

We also calculated the Table 7 correlates of enhancement and denial using the dichotomous scoring of BIDR items (Paulhus, 1990). In general, the same pattern was observed even when we varied the cutoff point for dichotomizing items from 2 to 7. Interestingly, correlations peaked at cutoffs of 4 but were still sizable at cutoffs of 6 and 7.

Discussion

The relative independence of SDS enhancement and denial items was not simply due to the difference in keying direction. The enhancement-prone subjects agreed with some items ("I am a saint") and disagreed with others ("I am not a saint"). Both kinds of items allow the respondent to assign a positive characteristic to the self. Similarly, the denial-prone subjects agreed with some items ("I am not a sinner") and disagreed with others ("I am a sinner"). Both kinds of items allow the respondent to disclaim a negative characteristic.

Consistent with Rorer (1965), these analyses suggested that affirmations and their corresponding negations could be combined to form homogeneous scales. The resulting enhancement and denial scales were therefore balanced with respect to keying direction, thus highlighting the fact that keying direction per se is not a distinguishing criterion for measuring the two constructs.[9] When these balanced scales were used to predict adjustment, in every case the balanced enhancement scale was more predictive than the balanced denial scale. To summarize, self-reported adjustment is more closely associated with the tendency to attribute positive characteristics than with the tendency to deny negative characteristics.

General Discussion

The present research evaluated the relation between two structural models of SDR. One model derives from a tradition of distinguishing between self-deception and impression management processes (e.g., Damarin & Messick, 1965; Paulhus, 1984; Sackeim & Gur, 1978). The second model emphasizes the distinction between claiming positive attributes and denying negative attributes (e.g., Millham, 1974; Roth et al., 1986).

Starting with items from the BIDR, we conducted three studies to determine the importance of these two models. Study 1 demonstrated that both content (self-deception vs. impression management) and tactic (enhancement vs. denial) were important in determining responses to the BIDR. The enhancement and denial IMS items formed one factor. The SDS items, however, split apart: The denial SDS items fell close to the IMS factor, and the enhancement items formed a second factor. Our measure of adjustment, Rosenberg's SE Scale, was best predicted by the SDS enhancement items.

Study 2 involved a similar factor analysis of data from a much larger data set. The factor pattern was identical to that in Study 1. Moreover, the enhancement items were again associated with adjustment, including high self-esteem and low social anxiety and empathic distress.

Study 3 was designed to determine if the critical difference between enhancement and denial items is (a) whether the item alludes to positive or negative attributes or (b) whether the statement as a whole is keyed positive or negative. To test these competing hypotheses, 20 negations were written, 1 for each of the 20 original assertions on the SDS. Results showed that items referring to positive content ("I am a saint; I am not a saint") formed a distinct factor from items referring to negative content ("I am a sinner; I am not a sinner"). Simple negations ("I am not a sinner") fell on the same factor as their corresponding assertions ("I am a sinner") because they were highly negatively

[9] There is some evidence that negations are not as valid as conceptual reversals (e.g., Holden, Fekken, & Jackson, 1985). This may not hold for self-deception-type items, given the difficulty of coining conceptual reversals. In any case, using correlations with self-esteem as a criterion in Table 6, our negations seem to be as valid as our affirmations.

correlated. Finally, the correlations with adjustment measures were consistent with Studies 1 and 2.

These results support and extend the arguments for distinguishing between enhancement and denial tendencies (Jacobson et al., 1977; Millham, 1974; Roth et al., 1986, 1988). Rather than keying direction, the critical factor in triggering these two processes appears to be whether the item content refers to a positive or negative characteristic. Our findings also support Roth et al. (1986) in showing a closer association of adjustment with enhancement than with denial.

At the same time, this study demonstrates that the findings of Roth and his colleagues do not apply to all forms of desirable responding, for example, blatant impression management. Moreover, the results of Study 3 suggest a further clarification of the type of item representing the enhancement factor. The highest correlating items from the large MIB inventory were items such as "I am always honest with myself," "my first impressions are usually right," "I could easily quit any of my bad habits," and "when I criticize someone, it's only for their own good." These items have in common an exaggerated sense of control and confidence in one's thinking powers—almost a cognitive narcissism. We suspect that this form of bias, rather than the indiscriminate claiming of positive attributes, is central to the enhancement construct (Paulhus, 1989).

Offense Versus Defense

The empirical distinction between two forms of self-deception is consistent with the arguments developed by Sackeim (1983). In that article, Sackeim argued that self-deception could be used for purposes of gaining pleasure as well as avoiding pain. A parallel distinction has been made in the literature on impression management. Arkin (1981) and Lennox and Wolfe (1984), for example, distinguished acquisitive and defensive forms of impression management.

None of these treatments, however, addresses the provocative finding that the link with adjustment is stronger for ego enhancement than for ego defense. One interesting speculation is that ego enhancement is superior to ego defense in promoting adjustment.[10] Note that the traditional view holds that maladjustment and psychopathology involve threats to a normally functioning organism, hence the need for defense mechanisms. The present findings suggest, by contrast, that defensiveness operates independently of adjustment: Apparently, some people reject negative information about the self and some don't. This tendency neither promotes nor impairs adjustment.

To advance such speculations, we need to explain how ego enhancement could be effective against negative affect (e.g., anxiety). Taylor (1989) suggested a number of possibilities in explaining how positive illusions aid in coping with negative events. Ego enhancement may provide an alternative tactic to dealing directly with threatening information: Attempts to defend may be futile in some situations. Instead the ego enhancer turns to his or her assets and emphasizes them to neutralize the threat. This very strategy is said to typify the response to failure of high-self-esteem people (Baumeister & Tice, 1985). Moreover, if one's self-beliefs are compartmentalized, then one always has some positive qualities to focus on (Linville, 1985).

Another possibility is that the ego enhancer continually distorts daily events to build up positive esteem. When sufficiently strong, this esteem may act as a buffer to soften the impact of negative information. A sophisticated version of this approach has been detailed by Greenberg, Pyszczynski, and Solomon (1986): They argue that high self-esteem is an effective buffer against anxiety because of people's fundamental belief that good people are safe from danger.

Impression Management

The enhancement/denial distinction does not appear to be relevant in measuring impression management. The two subscales are highly correlated and show similar external correlates. This consistency may result from the instrumental nature of impression management: People who have decided to present themselves favorably will calculate what response will most impress the audience and select it. Adjusting for the keying direction would be elementary under strategic, conscious processing. Note that such consistency would result whether the motive for the impression management were a need for approval (Crowne & Marlowe, 1964), an overcontrol of needs and impulses (Gough, 1987), or status seeking (Hogan, 1983).

It is intriguing that the SDS denial items fall close to the impression management factor. This phenomenon was presumably masked in previous research because the enhancement and denial items were not scored separately. This location of the denial items suggests the provocative possibility that our subjects are faking good on the denial items rather than self-deceiving.

Such impression management behavior on the SDS denial items may result from their reference to sensitive issues (e.g., enjoying one's bowel movements, fearing one's homosexuality) that would be embarrassing to admit. In contrast, the enhancement items refer to positive qualities (e.g., quitting bad habits, accepting criticism)—ones that the person can claim or disclaim without public embarrassment.

A sequential process model. These arguments suggest the following sequential model of self-presentation in responding to personality items. If the impression management mode is in effect, it assumes priority. The response would be tailored to maximally impress the particular audience—say, an experimenter. The blunt antisocial statements from the IMS (e.g., "I tell lies when necessary") would be disclaimed here. In addition, denial statements such as "I enjoy my bowel movements" would be engaged here because of their public embarrassment value.

If no impression management strategy is in effect, the person would evaluate the items as possible self-descriptions. Either the enhancement or defense process would be invoked, depending on whether the item was a potential reward or punishment. Note that the independence of reward and punishment processes is supported by an extensive literature (e.g., Arkin, 1981; Gray, 1975). Some stimulus statements may survive these

[10] The reverse causal direction is also possible: Good adjustment may promote ego enhancement. Feeling good about oneself may facilitate the claiming of other positive attributes. Finally, some third factor might cause both.

filtering processes (perhaps because of neutral social desirability) and remain to be examined for self-accuracy by a memory search. This sequence is consistent with a new information-processing model of self-presentation that is based on the distinction between automatic and controlled processes (Paulhus, Graf, & Van Selst, 1989).

Future Research

The findings of these studies have been applied in the construction of new scales to measure the two components of self-deceptive positivity (Paulhus, 1989). The balanced enhancement and denial scales assembled in Study 3 were used as the basis for constructing reliable, balanced, and valid measures of the two response styles. Many of the MIB items from Study 2 have been added because they turned out to load higher on the SDR factors than do the original SDS and IMS items.

As noted earlier, strong correlations with certain bias indexes in Study 2 provoked some speculation about the meaning of the enhancement and denial factors. On this basis, the separate subscales have been labeled Self-Deceptive Enhancement and Denial (Paulhus, 1989).

The link with adjustment must be established more fully, particularly with expert- and peer-rated criteria. Although we used a range of adjustment measures, the strongest effects were clearly with self-esteem. In future studies, we need to include a wider range of measures of psychological health. In particular, we must attend to its multidimensionality (e.g., Bradburn, 1969). For example, the enhancement–adjustment link may be stronger with positive indicators of mental health.

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