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Self-Deception and Its Relationship to Success in Competition

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We investigated the relationship between self-deception and success in competition. Self-deception has been associated with stress reduction, a positive self-bias, and increased pain tolerance, all of which could enhance motivation and performance during competitive tasks. We selected athletic competition as a model and predicted that swimmers who successfully qualified for a national championship would engage in more self-deception than swimmers who did not qualify. Self-deception was measured by the Self-Deception Questionnaire (SDQ) and by subjects' performance on a binocular-rivalry task. For the latter measure, subjects' tendency to perceive words with neutral rather than negative associations was construed as self-deception. As predicted, successful swimmers scored higher on the SDQ and reported fewer negative words on the binocular-rivalry task than did unsuccessful swimmers. The tendency to perceive words with positive rather than neutral associations was not clearly related to competitive success, to SDQ scores, or to performance on the negative binocular-rivalry trials. Overall, the results were consistent with the proposition that self-deception enhances motivation and performance during competition.

Our motivation to negotiate daily life depends on some degree of misplaced optimism about what we are capable of accomplishing (Taylor & Brown, 1988). Such information-processing biases may be particularly advantageous when competition is involved. During athletic competition, for example, individuals may become anxious about their relative performance and distracted by the pain and fatigue that accompanies strenuous physical exertion. Thus, athletes "psyche themselves up" prior to competition. They actively avoid forming mental barriers or predetermining their probable

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level of performance. Coaches and athletes call this processing bias "championship thinking" (Bell, 1980) but it may qualify as a case of self-deception. Is self-deception a cognitive strategy that enhances motivation and performance during competition?

Current theorists have described self-deception as a motivated unawareness of conflicting knowledge (Sackeim & Gur, 1978) in which threatening knowledge is selectively filtered from consciousness as a psychological defense, thereby reducing anxiety and inducing a positive self-bias (Paulhus, 1986; Paulhus & Suedfeld, 1988). Recent formulations of self-deception overlap with Freud's notions of repression (Freud, 1893–1895/1955) and with philosophical treatments of similar phenomena (e.g., Fingarette, 1969; Sartre, 1943/1958), although the degree of overlap has been debated (e.g., Eagle, 1988; Goleman, 1985; Greenwald, 1988; Sackeim, 1988). Gur and Sackeim (1979, p. 149) conceptualized four criteria necessary for ascribing self-deception (cf. Greenwald, 1988; Sackeim, 1988):

1. The individual holds two contradictory beliefs . . .
2. The two contradictory beliefs are held simultaneously.
3. The individual is not aware of holding one of the beliefs.
4. The act that determines which belief is and . . . is not subject to awareness is a motivated act.

To test these ideas, Gur and Sackeim (1979) provided subjects with the motivation to self-deceive by having them fail or succeed on a cognitive test. Afterwards, subjects were asked to discriminate tape recordings of their own and others' voices. Subjects who experienced failure were not only slowest to identify voices as their own but they denied hearing their own voices more than subjects who experienced success. Earlier recordings of psychophysiological responses to the audio tapes suggested that recognition did occur. Thus Gur and Sackeim (1979) argued that the experience of failure made self-recognition aversive and motivated self-deception.

Self-deception may improve motivation and performance in competitive contexts by deflecting attention away from anxiety-provoking stimuli (Goleman, 1985). For example, during athletic competition, if an individual's attention is focused on threatening information, anxiety increases to levels where it interferes with performance instead of enhancing it (Durtschi & Weiss, 1984; Nideffer, 1976). Thus, one way in which self-deception may improve motivation and performance in a competitive environment is by reducing stress. Self-deception also has implications for increasing pain tolerance (Goleman, 1985; Jamner & Schwartz, 1985; Linden, Paulhus, & Dobson, 1986), which could be beneficial in situations where physical discomfort accompanies competitive responses.

We tapped self-deception in members of a collegiate varsity swim team and related it to their success in athletic competition. Swimmers were chosen as a model for the self-deception–success link for several reasons. First, there are clear-cut criteria for success in swim competitions that are based on individual rather than team performance. Secondly, the demands of a swimming competition would appear to favor the chronic self-deceiver. Successful swimmers must have confidence in their ability to defeat competitors and must be able to disassociate themselves from pain and physical exhaustion (Bell, 1980; Nideffer, 1976). Thus, we hypothesized that swimmers who successfully qualified for a national championship would score higher on measures of self-deception than swimmers who did not qualify.

We employed two measures of self-deception. The first was the Self Deception Questionnaire (SDQ) developed by Gur and Sackeim (1979). The second involved a binocular-rivalry task and represented a novel approach to the measurement of self-deception.

Aspects of the binocular-rivalry task fit the criteria for self-deception specified by Gur and Sackeim (1979). In a binocular-rivalry procedure, subjects are presented simultaneously with different stimuli (contradictory "beliefs") to each eye and asked to report what they see. Typically, a dominant stimulus emerges from the verbal reports. Walker (1978) presented evidence that subjects' reports of what they see are a function of centrally selective processes, which go beyond the peripheral analysis of sensory stimuli.[1] Central nervous system intervention influences what the subject is and is not aware of seeing (thus, the subject is not aware of holding one of the beliefs). When presented with conflicting social stimuli, subjects' reports reflect their feelings, biases, and personal experiences (Bagby, 1957; Beloff & Beloff, 1959; Gilson, Brown, & Daves, 1982; Iverson & Schwab, 1967). In other words, the selection of which stimulus or belief is brought to awareness is a motivated act. The level of central nervous system involvement in this type of self-deception would be considered relatively high (Lockard & Mateer, 1988).

The binocular-rivalry task we designed was comprised of structurally similar word pairs consisting of a negative (e.g., last) and a neutral (e.g., cast) word simultaneously presented to different eyes. Subjects were asked to report what they saw. Avoidance of the negative words was construed as self-deception. Subjects who characteristically engaged in self-deception as a strategy to enhance their motivation and performance (i.e., the better swimmers) were expected to reveal this cognitive distortion by reporting fewer negative words than subjects who typically engaged in less self-deception (the poorer swimmers).

[1]Thus, in the case of fusion, a suppressed stimulus in rivalry is analyzed rigorously enough to allow the perception of depth to occur (Walker, 1978).

To summarize, we predicted that swimmers who competed successfully and qualified for a national swimming championship would score higher on the SDQ and report fewer negative words in the binocular-rivalry task than nonqualifiers. Responses to positive versus neutral words on binocular rivalry outcomes were also explored. Several reports have suggested that successful athletes focus on positive information in order to improve their performance (Burton, 1988; Nideffer, 1976). Therefore, swimmers who qualified for the championships were expected to select positive (e.g., fast) over neutral (e.g., mast) words more often than swimmers who did not qualify.

METHOD

Subjects

Subjects were 40 members of a Division I collegiate swim team from a small, undergraduate, liberal arts college in upstate New York. Twenty men and 20 women volunteered to participate in the study. All subjects were White.

Materials

The SDQ was administered as an index of the subject's tendency to self-deceive (Gur & Sackheim, 1979). The questionnaire consisted of 20 psychologically threatening questions requiring Likert scale responses. For example, questions like, "It is important to you that other people think highly of you?" and "Have you ever doubted your sexual adequacy?" were presented with 7-point response scales ranging from *not at all* (1) to *very much so* (7). Ratings of 1 or 2 scored as instances of self-deception (Sackheim & Gur, 1978). The SDQ produced a test–retest reliability of .86 within 4 to 10 weeks of administration (Sackheim & Gur, 1978). Several studies have attested to SDQ's construct validity (e.g., Gur & Sackeim, 1979; Paulhus, 1982; Winters & Neale, 1985) and have distinguished the measurement of self-deception from that of social desirability (Paulhus, 1986; Paulhus & Levitt, 1987).

The stimuli designed for the binocular-rivalry task measuring self-deception consisted of word pairs presented through a stereoscope. Each word was printed on a plain, white, 3 in. × 7 in. index card in solid, black letters equal in size (Rommetveit, Toch, & Svendsen, 1968). A series of 20 word pairs were created: 6 pairs included one word with a negative association for swimmers, 6 included one word with a positive association, and 8 other pairs were constructed from two neutral words. Words were

judged to have negative, positive, or neutral associations by a varsity swimmer from another university who did not serve as a subject. Negative and positive words were paired with neutral words. Within stimulus pairs, one letter varied between words; otherwise, the letters and word length were the same. Negative, positive, and neutral word pairs were interspersed in a fixed presentation sequence. To control for eye dominance, the number of positive and negative words in left and right eye positions was balanced. Thus, three negative and three positive words appeared in the right and in the left eye positions. Examples of the negative–neutral word pairs we used included *fear–hear* and *lose–nose*. Positive-neutral pairs included *medal–pedal* and *fast–mast*. Neutral word pairs included *sand–land* and *log–dog*.[2]

Procedure

Members of the swim team were invited to participate in a study we described as investigating the personalities of athletes. Team members were told that they would be asked to complete a personality inventory and that aspects of their swimming performances were be examined. Two days before the second swim meet of the fall season, the team gathered in a meeting room adjacent to the pool and each member completed the SDQ. Individual scores were calculated only after data from the binocular-rivalry trial and from the coach's records were gathered so that the experimenter was blind to SDQ scores at the time of these later data collections.

The administration of the binocular-rivalry task occurred midway through the fall season. Subjects were tested individually before practice in an office adjacent to the pool. The initial presentation of stimuli consisted of a neutral stereoscope card. Subjects were asked to focus on the neutral figure. Once all minor focal adjustments were made, the actual experimental trials began.

Subjects were told that they would see a series of words. They were instructed to close their eyes between each stimulus presentation. When the experimenter said "go," subjects opened both eyes and reported what they saw. The experimenter recorded the first word each subject reported. Subjects then closed their eyes and the next trial began. Subjects typically reported seeing only one word. However, in cases where both words were

[2]In the original binocular-rivalry stimulus list, an unbalanced number of negative and positive words was inadvertently presented to each eye. Subsequently, it was necessary to drop, at random, two negative and two positive word pairs to correct for this error and maintain control over the possible effects of eye dominance. Thus six negative and six positive trials were included in the analysis. The complete list of word pairs is available from the authors.

reported, the response was scored as a failure to repress the negative (or positive) word of the critical pairs.

After all of the binocular-rivalry data were collected, the coach of the swim team revealed which team members had qualified in their particular event for the Eastern Seaboard Swimming and Diving Championships. The cutoff times for the Eastern Championships represented the best way to provide a valid measure of swimming success across events and gender. Cutoff times are based on the best performances obtained during the championship meet of the previous year. Separate times are provided for different events and for men's and women's competitions. About 45 swimmers from the best teams in the Northeast typically qualify and compete in each event.

Following all procedures, the experimenter met with the team for a debriefing session and discussion of the study.

RESULTS

A 2 (Qualification Status) × 2 (Sex) multivariate analysis of variance (MANOVA) was conducted to examine the differences between the Eastern Seaboard Swimming Championship qualifiers and nonqualifiers on the two dependent measures of self-deception: (a) the scores on the SDQ, and (b) the percentage of negative words reported on binocular-rivalry trials for neutral versus negative word pairs. Because subjects who qualified were also expected to selectively attend to positive over neutral stimulus words, the percentage of positive words reported was included as a third dependent variable.

Significant multivariate differences were obtained between qualifiers and nonqualifiers, $F(3, 32) = 4.52$, $p < .009$. As predicted, subjects who qualified for the championships scored higher on the SDQ, reported fewer negative words, and reported more positive words in the binocular-rivalry tasks than did subjects who did not qualify for the championship competition. Means for these analyses appear in Table 1. There was no significant multivariate effect for sex and no multivariate interaction, Fs$(3, 32) < 1.0$, $p > 3.2$.[3]

Univariate F tests generally supported the multivariate results. Subjects who were qualifiers scored significantly higher on the SDQ than those who

[3]The determination of chance performance on each word pair was problematic because eye dominance and word usage frequency may have affected responses. For example, across all word pairs there was a bias to report those on the right and a nonsignificant tendency to report words with relatively low usage frequency. It was unlikely that either trend confounded our results because target words were balanced across left-right positions and word usage frequencies were presumed to be similar for all swimmers.

TABLE 1
Mean Scores on the SDQ and Binocular-Rivalry Task by Subjects' Qualification Status

	Qualifiers		*Nonqualifiers*	
	Male[a]	*Female*[b]	*Male*[c]	*Female*[d]
SDQ	8.88	10.60	6.36	6.93
	(3.87)	(3.65)	(2.73)	(2.53)
Proportion of neutral words reported over negative words	.75	.80	.63	.67
	(.09)	(.14)	(.19)	(.11)
Proportion of positive words reported over neutral words	.67	.77	.58	.67
	(.15)	(.09)	(.22)	(.18)

Note. Standard deviations appear inside parentheses.
[a]$n = 8$. [b]$n = 5$. [c]$n = 11$. [d]$n = 14$.

did not qualify, $F(1, 34) = 8.45, p < .006$. There was no effect for sex, $F(1, 34) = 1.16, p > .30$, and no interaction involving sex, $F(1, 34) < 1.0, p > .59$, for this dependent measure. Univariate tests on the binocular rivalry responses for negative word pairs showed that championship qualifiers reported fewer negative words than nonqualifiers did, $F(1, 34) = 6.27, p < .02$. No effects involving subject sex emerged from the univariate analysis of negative binocular-rivalry trials, $Fs(1, 34) < 1.0, p > .42$. According to the univariate test, the difference between qualifiers and nonqualifiers in the reporting of positive over neutral words on binocular-rivalry trials was not statistically reliable, $F(1, 34) = 2.29, p > .14$, nor was the trend for women to report more positive words than men, $F(1, 34) = 2.3, p > .14$, or any interaction, $F(1, 34) < 1.0, p > .60$.[4]

A principal components factor analysis was performed to provide evidence as to whether or not the SDQ and the negative and positive binocular-rivalry trials were measuring the same phenomenon. The SDQ scores plus scores from the negative and positive binocular-rivalry trials loaded on one factor, accounting for 47.5% of the variance. Factor loadings for the SDQ, negative and positive binocular-rivalry trials were .84, .77, and .36, respectively. These loadings suggested a closer alliance

[4]Note that negative and positive words differed from their neutral pairmates not only in affective valence but also in their association with competitive swimming. Had subjects merely chosen words with close associations to the sport, results for the positive and negative binocular rivalry trials would have been similar.

between the SDQ and negative binocular-rivalry trials than between the SDQ and positive binocular-rivalry trials.

Zero-order correlations between the SDQ and scores for the negative and positive binocular-rivalry trials, respectively, were, $r(37) = .38$, $p < .01$, and $r(37) = .17$, $p > .14$, one-tailed tests. The zero-order correlation between negative and positive binocular-rivalry scores was not significant, $r(37) = .04$, $p > .40$.

Responses to the negative and positive binocular-rivalry trials also related differently to the coach's confidential ratings of each subject's swimming ability. These ratings provided a subjective impression of overall swimming ability for each team member on a 10-point scale devised by the coach. Despite a considerable restriction of range in the coach's ratings, negative binocular-rivalry scores obtained earlier in the season were modestly predictive of the coach's subjective ratings made at the close of the season, $r(31) = .30$, $p < .05$, whereas positive binocular rivalry scores were not, $r(31) = .06$, $p > .37$, one-tailed tests. Coach's ratings made at about the time that the binocular-rivalry task was administered revealed weak, positive correlations with both negative, $r(37) = .26$, $p < .06$, and positive, $r(37) = .22$, $p < .09$, rivalry scores. Though the data are equivocal, they suggest that the power of positive thinking (the tendency to perceive positive over neutral words) failed to sustain swimming performance the way a bias against negative thoughts (the tendency to perceive neutral over negative words) may have.

DISCUSSION

We found that self-deception was associated with success in competition. Swimmers who qualified for a national championship engaged in more self-deception than swimmers who did not qualify. These results were obtained for two different measures of self-deception; for a paper-and-pencil inventory of self-deceptive responding (i.e., the SDQ) and for a binocular-rivalry task in which words with negative connotations were apparently cognitively screened from awareness. Although the correlational nature of our data precludes causal analysis, these findings are consistent with our hypothesis that self-deception operates as a cognitive strategy that enhances motivation and performance in competitive contexts.

Future studies may be able to uncover how self-deception and performance relate. Physiological measures could help to determine whether self-deception reduces stress (Goleman, 1985) or increases pain tolerance (Goleman, 1985; Jamner & Schwartz, 1985; Linden et al., 1986), thereby inducing a positive self-bias (Paulhus, 1986; Sackeim, 1988) and improving

motivation and performance (Burton, 1988; Nideffer, 1976). A time-series analysis could detect whether trends in the measurement of self-deception correspond with changes in self-esteem and self-rated performance.

Our results correspond with those of Vallerand, Colvecchio, and Pelletier (1988) who proposed that perceptions compatible with psychological momentum in athletes are not entirely objective. Subjective perceptions may bolster the illusion of control that appears to be integral (a) to athletic success (Vallerand et al., 1988) and (b) for maintaining mental health in general (Taylor & Brown, 1988). Perhaps self-deceptive processes in which negative information is filtered from consciousness contribute to an illusion of control.

Unexpectedly, the tendency to report positive over neutral words in binocular-rivalry tasks did not distinguish competitors of varying success. In fact, what little evidence emerged for any cognitive bias akin to the power of positive thinking made it appear largely unrelated to the bias against negative information as indexed by both the negative binocular-rivalry trials and the SDQ. Results of the factor analysis suggested that only the responses to the SDQ and negative binocular-rivalry trials tapped similar thought processes.

The use of binocular rivalry as an index of self-deception requires further scrutiny. Superficially, the rivalry task we designed seemed to capture the essential elements of self-deception (Gur & Sackeim, 1979). We assumed that higher cortical systems and not just peripheral systems operated selectively to determine which stimuli were brought to awareness. There is evidence that when different information is forced on each eye, regions in the visual cortex are responsible for sorting out what the subject perceives (Bishop & Pettigrew, 1986; Walker, 1978), but the level of cognitive involvement in this process and how it may feed back to earlier perceptual processes is unknown.

Although we imply that self-deception is a successful strategy for enhancing motivation and performance in competitive contexts, correlational studies such as this one are open to many interpretations. We can only speculate about potential mechanisms underlying the association between competitive success and self-deception. Even assumptions about the causal sequence require clarification: Does success in competition "drive" self-deception or vice versa? Experimental studies are required to expose the nature of the relationship between self-deception and success. Our study makes two contributions: For theorists, we identify a fruitful arena for the study of self-deception (athletic competition) and offer a novel approach (binocular rivalry) for measuring it. On the applied front, we suggest that successful athletes are especially likely to engage in the kind of biased information processing that psychologists call self-deception and coaches call championship thinking (Bell, 1980).

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