

# Effects of Desire for Control on Attributions and Task Performance

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The relationships among individual differences in desire for control, attributions for success and failure, and performance on an achievement task were examined. In Experiment 1, undergraduates' desire for control levels, attributions for a midterm exam, and performance on a subsequent exam were assessed. In Experiment 2, attributions for and performance on a laboratory task were examined. In both experiments, desire-for-control level and perceived performance on the first task predicted attributions for that task and performance on the second task. However, analyses of covariance suggest that the relationship between desire for control and performance may not be mediated by the attributions. Instead, a reactance interpretation, based on high-desire-for-control individuals' high motivation to overcome the challenge of failure, seems best able to account for the findings.

Several theorists and researchers have discussed the importance of a general motivation to control one's environment and thereby to satisfy a need to feel masterful and competent. White (1959), for example, introduced the concept of effectance or competence motivation, the innate motive to demonstrate one's mastery over the environment. DeCharms (1968) described the need to control one's environment as "man's primary motivational propensity." One logical elaboration of this line of thinking is the identification of relatively stable individual differences in the motivation to control the events in one's life. Recent research has found this trait, termed *desire for control*, to be related to a wide variety of relevant behaviors. For example, individual differences in desire for control have been tied to gambling behavior (Burger, 1986; Burger & Smith, 1985), depression (Burger, 1984; Burger & Arkin, 1980), speech patterns (Dembroski,

MacDougall, & Musante, 1984), health-related behaviors (Smith, B. S. Wallston, K. A. Wallston, Forsberg, & King, 1984), the perception of crowding (Burger, Oakman, & Bullard, 1983), and achievement behavior (Burger, 1985).

Recently, Burger (1985) proposed a four-step model outlining the relationship between desire for control and achievement behavior. People with high desire for control were found to have a higher aspiration level, to respond to challenges with increased effort, to persist longer at difficult tasks, and to make attributions for task outcomes that facilitate future striving for achievement. In this latter step, the focus of the present investigation, Burger proposed that individuals with high desire for control will make attributions for success and failure in a manner that has been found to produce higher levels of achievement motivation in future achievement settings. Specifically, as described by Weiner et al. (1971), when people make internal attributions for their successes (e.g., "I am good at this" and "I tried hard") or external and unstable attributions for failures (e.g., "Unexpected distractions kept me from studying" and "I was unlucky"), they should maintain high levels of motivation to succeed at similar tasks in the future. The opposite pattern of attributions (e.g., attributing one's successes to luck or one's failures to poor ability) will not facilitate achievement motivation on future tasks. Due to their strong need to see themselves as in control, people with high desire for control are more likely than people with low desire for control to attribute their successes to themselves and their failures to external and/or unstable causes. These attributions thus help to maintain higher levels of motivation and, subsequently, higher levels of achievement.

In an experimental demonstration of this, Burger (1985, Experiment 5) administered a guessing-game task in which some of the subjects performed well by chance and some performed poorly by chance. However, subjects were led to believe that their scores could be a reflection of both skill and luck. When asked to explain the reasons for their performance, subjects with high desire for control were more likely than subjects with low desire to attribute successful performances to skill. The two studies reported here were designed to examine further the relationship among desire for control, attributions for success and failure, and achievement behavior.

## EXPERIMENT 1

The first investigation improved on past research on this question in three important ways. First, the present investigation examined attributions for success and failure in a "real-world" setting—as contrasted with the earlier laboratory study—thereby increasing the external validity of the findings.

Specifically, the attributions that college students made for their performances on a classroom examination were investigated. Second, a classroom examination provided many more potential attributions than the skill-or-luck choice given to subjects in the laboratory study. Third, due to criticism about the use of questionnaire scales that may provide subjects with attributions they might otherwise not use (cf. Elig & Frieze, 1979), open-ended questionnaire items were used along with the more traditional Likert-scale items. Greater confidence can be placed in the conclusion that subjects generate these attributions themselves when they are allowed to explain their performances with minimal experimental prodding. The classroom examination was selected as the achievement task for this study because it is commonly observed that college students typically search for explanations for their performances on tests rather spontaneously, which again gives greater confidence that the attributions are not generated by the experimenter.

It was predicted that subjects with high desire for control would attribute the causes for their successes and failures on the examination in a manner consistent with the Burger (1985) model. That is, successful outcomes should be attributed to internal sources, and failures should be attributed to external or unstable causes. On the other hand, subjects with low desire for control should be less likely to attribute causes for their exam outcomes according to this pattern. In addition, it was expected that subjects with high desire would perform better than subjects with low desire on the next classroom exam and that this performance would be mediated by the attributions.

## Method

*Subjects.* Forty-seven undergraduates enrolled in a social psychology course served as subjects. One subject had to be dropped from the study because he declined to complete the questionnaire, and 3 had to be dropped because they did not attend the class meeting in which the desire-for-control measure was administered. Thus, the final sample was composed of 43 subjects. The attribution data were collected before the course covered attribution processes.

*Procedure.* Early in the quarter, all students attending a regularly scheduled class meeting completed the Desirability of Control (DC) Scale as part of a seemingly unrelated collection of data. The DC scale (Burger & Cooper, 1979) asks subjects to indicate on 7-point scales the extent to which they believe each of 20 statements describes them (e.g., "I prefer a job where I have a lot of control over what I do and when I do it" and "I enjoy making my own decisions"). The scale has been found to have reasonable psycho-

metric properties and is relatively independent of locus-of-control measures, that assess perceived rather than desired control and of social desirability measures (Burger & Cooper, 1979).

During the class meeting at which they were to receive their tests back for the second of three examinations (worth one third of their grade), subjects were asked to complete two questionnaires. The first questionnaire, administered just prior to receiving the test, asked the subjects to indicate the grade they would be satisfied with and the grade they would be disappointed with on the test. These data were collected so that subjects'—rather than the experimenters'—subjective impressions of their success or failure could be assessed.

Subjects then had their tests returned to them. After a few minutes during which they were allowed to examine the tests, subjects were asked to complete the second questionnaire. The first part of this questionnaire asked subjects to indicate why they believed they had done “as well or as poorly on the test as you did.” Spaces were provided for listing six reasons for their performance. Subjects then were asked to indicate on a space provided next to each line the extent to which each of these reasons affected their performance. Subjects were asked to divide up 100 points among the various reasons listed according to the appropriate weight of each reason. The second part of this questionnaire consisted of four Likert-scale items that asked subjects to indicate on 9-point scales the extent to which ability, effort, task difficulty, and luck had been responsible for their performance on the test. Subjects were encouraged to be honest on the questionnaire and were assured that their instructor would see code numbers and not names associated with their responses. Finally, 3 weeks later, subjects took a third exam for the course. This exam was worth one third of the course grade and covered material not covered on the previous exam.

## Results and Discussion

The open-ended attributions were coded by two independent judges along two dimensions. The trained judges indicated whether each attribution was internal or external to the subject and whether it was a stable or unstable cause. Cohen's Kappa coefficients for this interrater reliability were .88 for the internality dimension and .79 for the stability dimension. In cases in which disagreements were found, the author judged the classification of the attribution.

Subjects were divided via a median split of their DC scores into high- and low-DC halves. Subjects also were divided into success and failure categories, depending on how well their grade matched the satisfaction grade they indicated on the questionnaire. That is, subjects who received a grade equal to or better than what they deemed satisfactory were placed in the success

condition; the others were placed in the failure condition. High-DC subjects performed slightly better ( $M = 2.91$ ) than low-DC subjects ( $M = 2.60$ ) when a 4.0 scale was used to assess grades ( $t = 1.11$ , ns). However, because high-DC subjects also tended to have higher criteria for success ( $M_s = 3.09$  vs.  $2.72$ ;  $t = 1.68$ ,  $p < .10$ ), subject classification into success and failure categories was relatively independent of DC scores. This independence can be seen in the equivalent cell sizes derived from this procedure: 10 subjects each in the two high-DC cells and 12 and 11 subjects in the two low-DC cells.

*Attributions.* Two scores were obtained from subjects' open-ended attributions for their performance on the test. First, the points (of 100) that subjects assigned to reasons that were coded as internal were totaled. Because all responses were classified as either internal or external attributions, redundant information would be found for the total of the external attribution points. This internality score then was examined within a 2 (High vs. Low DC)  $\times$  2 (Success vs. Failure) analysis of variance (ANOVA). A significant main effect for task outcome emerged in this analysis,  $F(1, 39) = 5.41$ ,  $p < .02$ , with subjects providing more internal attributions for success than failure. In addition, a very nearly significant interaction was found,  $F(1, 39) = 3.89$ ,  $p < .056$ . As shown in Table 1, high-DC subjects tended to give slightly more internal attributions for success than low-DC subjects but gave considerably fewer internal attributions for failure. Further comparisons found that only the high-DC success and high-DC failure means were significantly different (Newman-Keuls

TABLE 1  
Mean Attribution Scores and Grade on Next Test

	<i>High-DC Subjects</i>		<i>Low-DC Subjects</i>	
	<i>Success Condition</i>	<i>Failure Condition</i>	<i>Success Condition</i>	<i>Failure Condition</i>
Open-ended attributions				
Internal percentage	84.80	54.00	77.80	75.00
Stable percentage	38.80	13.80	20.93	23.75
Likert-scale attributions				
Ability	7.20	3.00	6.40	4.88
Effort	6.70	5.50	6.67	6.50
Task difficulty	5.70	4.90	5.47	4.75
Luck	3.20	2.20	3.80	1.50
Grade on next test	49.40	53.30	50.10	48.92

*Notes.* The higher the scale score, the more that subjects attributed causality to the source.  $N = 10$  for the high-DC success group;  $N = 10$  for the high-DC failure group;  $N = 12$  for the low-DC success group;  $N = 11$  for the low-DC failure group.

test,  $p < .05$ ). Thus, as seen in the table, the low-DC subjects did not alter their attributions significantly for success and failure experiences, whereas the high-DC subjects did provide significantly different attributions for the different outcomes in a manner consistent with the predictions.

A stability score also was calculated from the open-ended attributions. The points assigned to each of the attributions that were coded as stable were totaled for the stability measure. Once again, because all attributions were coded as either stable or unstable, totaling the unstable attribution points would provide redundant information. When these scores were analyzed within a  $2 \times 2$  ANOVA, only a significant DC  $\times$  Outcome interaction was found,  $F(1, 39) = 4.06$ ,  $p < .05$ . As shown in Table 1, high-DC subjects gave more stable attributions for their successes but more unstable attributions for their failures than did the low-DC subjects. A Newman-Keuls test found that only the differences between the high-DC success and high-DC failure means approached significance ( $p < .08$ ).

Subjects were asked to indicate on 9-point scales the extent to which they believed their test performance had been the result of ability, effort, task difficulty, and luck. Each of these measures was examined within 2 (High vs. Low DC)  $\times$  2 (Success vs. Failure) ANOVAs. Significant effects were uncovered only for the ability measure. A significant main effect for outcome was found,  $F(1, 39) = 30.75$ ,  $p < .001$ , with subjects attributing their successes, more than their failures, to ability. A significant DC  $\times$  Outcome interaction also was found for this measure,  $F(1, 39) = 6.85$ ,  $p < .01$ . As shown in Table 1, high-DC subjects were more likely than low-DC subjects to attribute their success to ability and less likely than low-DC subjects to attribute their failures to ability. Newman-Keuls comparisons revealed that each of the four means differed significantly from every other mean ( $p < .05$ ), with the exception of the comparison between the high-DC success and low-DC success means.

**Performance.** Subjects' scores on the next exam in the class were examined within a 2 (High vs. Low DC)  $\times$  2 (Success vs. Failure) ANOVA. Only a significant interaction emerged from this analysis,  $F(1, 39) = 4.44$ ,  $p < .04$ . As shown in Table 1, low-DC subjects showed a slight tendency to perform better on the test following a perceived success, whereas high-DC subjects tended to perform better following a perceived failure. Only the comparison between the two failure condition means approached significance in subsequent Newman-Keuls comparisons.

It was hypothesized that the relationship between desire for control and performance on the subsequent test was mediated by the attributions subjects gave for their performance on the initial test. To examine this, the scores for the last test were examined within two analyses of covariance (ANCOVAs). The DC  $\times$  Outcome interaction was examined first, with the

internality score serving as the covariate. Next, this interaction was examined with the stability score as the covariate. If the performance on the last exam is a function of the attributions for the previous performance, then the significant interaction described previously should disappear when the effects of the attributions are eliminated. However, this did not seem to be the case. The interaction effect was nearly unchanged when the internality score was used as the covariate,  $F(1, 38) = 4.46, p < .04$ , and when the stability score was used as the covariate,  $F(1, 38) = 3.91, p < .055$ .

The overall findings from Experiment 1, therefore, provide partial support for the predictions. As expected, subjects' attributions for their performance on the initial test were related to their desire-for-control level and their perceived level of success or failure on the test. However, their performance on the subsequent test was not predicted solely by desire for control. Instead, high desire for control led to an increase in performance on the last exam only when subjects perceived their performance on the initial exam as a failure. Moreover, contrary to the Burger (1985) model, the relationship between desire for control and performance does not appear to be mediated by the attributions given for the successful or unsuccessful performance.

## EXPERIMENT 2

A second experiment was conducted to aid in the explanation of the results of the first experiment. One difficulty in comparing the findings from Experiment 1 to earlier research is that the outcome variable was not manipulated by the experimenter. That is, subjects assigned themselves to success and failure conditions based on how well their performance matched their expectancies. As such, it is not possible to know, for example, if the two groups also differed in terms of their general level of interest in academics or their typical performance on final exams. Therefore, Experiment 2 was a laboratory investigation that replicated the design of Experiment 1 but that allowed for manipulation of the outcome variable.

### Method

*Subjects.* Eighty-two male and female undergraduates served as subjects in exchange for class credit. All had completed the DC scale a few weeks earlier as part of a larger test package.

*Procedure.* Subjects participated in the experiment one at a time. Except for subjects randomly assigned to the control condition, the experimenter explained that the research was concerned with the assessment

of some cognitive abilities. Subjects were then presented with a short digit-symbol test similar to the one used in the Wechsler Adult Intelligence Scale (Wechsler, 1955). The test presents subjects with nine symbols paired with the digits 1 through 9. The object of the test is to draw the symbol that goes with each of 100 randomly ordered numbers. Subjects were told that the test was timed and that the experimenter would stop them when their time had expired.

In actuality, all subjects were stopped after they had completed the 55th symbol. The experimenter then quickly “tabulated” the score and announced that the subject had scored 55. The experimenter then asked if the subject wanted to see some norm data available for the test. All subjects said they would. At this point the experimenter quickly glanced at a sheet that had randomly preassigned subjects into either the success or failure condition. In the success condition, subjects were shown a table of norms that indicated that a person his or her age and sex with a score of 55 scored in the 85th percentile among college students taking the test. Subjects in the failure condition saw a table that indicated a score of 55 placed them in the 15th percentile. The experimenter explained to the subject what a score in the 85th or 15th percentile meant.

Subjects then were asked to fill out a questionnaire concerning their reactions to the test. The questionnaire contained a manipulation-check item asking subjects to indicate on an 11-point scale the extent to which they believed they had done well on the test relative to people their age. Next, as in Experiment 1, subjects were asked to provide a list of the reasons for their performance. Finally, they were asked to return to the list and to assign relative weights to each of the reasons by dividing 100 points among them.

When subjects completed the questionnaire, the experimenter announced that they would be taking another digit-symbol test. A new code for the nine digits was used, and again subjects were told they would be given a certain amount of time to complete as many of the 100 items on the test as possible. This time, all subjects were given 90 sec to work on the test. Subjects in the control condition did not take the first test or complete the questionnaire. Instead, these subjects were administered the second test only. This was done to obtain an appropriate comparison group for evaluating subjects' performances in the other conditions.

## Results and Discussion

Subjects were divided into high- and low-DC groups based on a median split of their DC scale scores. The extent to which subjects indicated that they believed they had done well on the first test was examined within a 2 (High vs. Low DC)  $\times$  2 (Success vs. Failure) ANOVA. Only a main effect for

outcome emerged,  $F(1, 51) = 122.61, p < .001$ , indicating that success subjects believed they had performed better than failure subjects. Thus, the manipulation appears to have been successful.

*Attributions.* As in Experiment 1, each of the attributions was coded as either internal or external and as either stable or unstable by two trained judges unaware of the hypotheses. Cohen's Kappas of .76 for the internality codings and .71 for the stability codings were obtained. When disagreements occurred, the author assigned the category. An internality score and a stability score were then obtained by summing the values assigned by the subjects to the attributions with internal and stable codings.

The internality score was then analyzed within a  $2 \times 2$  ANOVA. Only a significant interaction emerged in this analysis,  $F(1, 51) = 4.80, p < .04$ . As shown in Table 2, this effect was caused primarily by the high-DC subjects, who gave significantly more internal attributions for their performances when successful than when unsuccessful (Newman-Keuls test,  $p < .05$ ). In contrast, the low-DC subjects' attributions did not vary much as a function of success and failure.

When the stability score was analyzed within a  $2 \times 2$  ANOVA, only a significant main effect for outcome was found,  $F(1, 51) = 6.13, p < .02$ . As shown in Table 2, successful subjects gave more stable attributions than unsuccessful subjects, regardless of DC level.

*Performance.* Next, the number of correct items completed on the second test was examined within a 2 (High vs. Low DC)  $\times$  3 (Success, Failure, or Control) ANOVA. Only a significant interaction emerged in this analysis,  $F(2, 76) = 4.28, p < .02$ . As shown in Table 2, high-DC and low-DC subjects showed different reactions to their perceived success and failure. High-DC subjects showed an increase in performance over the control condition only in the failure situation; low-DC subjects tended to show an increase in performance relative to the control condition only in the success condition. Specific comparisons found that high-DC subjects in the

TABLE 2  
Attributions and Performance Scores—Experiment 2

	<i>Success Condition</i>		<i>Failure Condition</i>		<i>Control Condition</i>	
	<i>High-DC Subjects</i>	<i>Low-DC Subjects</i>	<i>High-DC Subjects</i>	<i>Low-DC Subjects</i>	<i>High-DC Subjects</i>	<i>Low-DC Subjects</i>
Internal percentage	95.07	80.00	67.50	88.92	—	—
Stable percentage	66.33	58.85	38.57	33.08	—	—
Test 2 items answered	62.69	70.23	69.64	64.79	60.57	64.36

failure condition performed better than high-DC subjects in the success or control conditions and that low-DC subjects in the success condition scored better than low-DC subjects in the control or failure conditions, (Newman-Keuls test,  $p < .05$ ).

As in Experiment 1, ANCOVAs were conducted to examine the role of the attributions in the link between desire for control and performance. First, a 2 (High vs. Low DC)  $\times$  2 (Outcome) ANOVA was performed on the score from the second test (without the control conditions). A significant interaction emerged in this analysis,  $F(1, 51) = 5.80, p < .02$ . Next, this analysis was conducted with the internality attribution score employed as the covariate. As in Experiment 1, the findings from this ANCOVA were similar to the ANOVA findings,  $F(1, 50) = 6.32, p < .02$ . Similarly, when the stability attribution score was employed as the covariate in this analysis, the findings did not change appreciably,  $F(1, 50) = 5.75, p < .02$ . Thus, as in Experiment 2, evidence for an attributional mediation of the effects of desire for control on performance was not found.

## GENERAL DISCUSSION

The results of the two experiments provide only partial support for Burger's (1985) model of the relationship between individual differences in desire for control and achievement behavior. In that model, desire for control is said to affect, among other things, one's attributions for successful and unsuccessful performances. These attributions then lead to changes in motivation and effort on subsequent tasks, which lead to differences in performance on that task. Specifically, people with high desire for control should attribute successful outcomes to themselves and unsuccessful outcomes to external or unstable causes, whereas people with low desire for control should be less likely to do this. These attributions are then supposed to lead to the increased effort and performance of high-DC people on achievement tasks.

Consistent with the model, high-DC subjects in both studies gave success attributions that were more internal and failure attributions that were more external than those of low-DC subjects. These high-DC subjects also gave more stable success attributions in both studies, but the tendency to give less stable failure attributions was found only in the first study. Desire for control also was found to be related to performance but only as it interacted with perceived success or failure. High-DC subjects who believed they had failed performed better on the second task than those who thought they had succeeded.

The Burger (1985) model, however, was not supported by the ANCOVAs. These analyses suggest that the relationship between desire for control and performance is not mediated by the pattern of attributions

found in this and previous research. How, then, can this pattern be explained? One starting point is the high-DC person's reaction to perceived failure on the initial task. As described by Burger (1985), high-DC people may interpret task failure as a challenge to their perception of control and mastery. The high-DC subjects in the two present studies may have experienced a type of reactance effect to the perceived threat to their feelings of control. As described by J. W. Brehm (J. W. Brehm, 1966; S. S. Brehm & J. W. Brehm, 1981), a threat to one's perception of freedom and control often is met with an increased motivation to reestablish one's sense of control. The high-DC subjects, for whom the need to feel in control is strong, thus seemed to have had a strong reaction to the challenge to their control posed by the failure and therefore worked harder and performed better on the second test. When they succeeded on the initial task, the reactance effect was not present and the increase in performance was not found. Naturally, this reactance interpretation, although consistent with earlier descriptions of the high-DC individual (Burger, 1985), is speculative and requires further empirical examination.

It is interesting to note that in both studies the low-DC subjects did not appear to alter their attributions as a result of their success or failure. Rather, the high-DC subjects appeared to be the ones who change their attributions as a function of task outcome. One explanation for this finding is that, as suggested by Burger (1985), high-DC individuals, more than low-DC individuals, are motivated to see themselves in control and therefore distort their perceptions of causality to satisfy this need. Because the veridicality of the attributions collected in these investigations cannot be assessed, data relevant to this interpretation are not available. Another possibility is that high-DC people are more sensitive to attributional information. Because they are more likely than low-DC people to attend to facilitating and inhibiting causes, they may be more likely to alter their attributions for success and failure in a somewhat accurate manner. This interpretation is consistent with some recent findings by Burger and Hemans (in press) in which high-DC subjects were found to engage in more active attributional searches following their performances than did low-DC subjects.

Finally, two unpredicted findings need to be addressed. First, in the second experiment, low-DC subjects showed an increase in performance following feedback indicating they had been successful. One speculation for this effect is that, because low-DC people tend to have lower expectations for themselves on achievement tasks than high-DC people (Burger, 1985), they may have found the positive feedback more reinforcing and thus perhaps more motivating. Second, although stability attributions were in the predicted pattern in the first study, DC level did not appear to affect stability attributions in the second experiment. This may have had some-

thing to do with the type of task used in the second study. The task was selected because subjects had little previous information about it, thus making the bogus feedback credible. However, it is possible that, in the absence of such information, attributions about stability hold little meaning for the subjects. As always, these post hoc analyses must be acknowledged as speculative at this point.

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