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Motivational and Performance Deficits in Interpersonal Settings: The Effect of Attributional Style

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An attributional model of motivation and performance following failure was tested. College students were preselected on the basis of their attributional styles for interpersonal failures, as measured by the Attributional Style Assessment Test (Anderson, Horowitz, & French, 1983). Subjects in the two preselected groups (character-style versus behavioral-style attributors) were randomly assigned to one of three experimental manipulations of attributions for failure at an interpersonal persuasion task: (a) no manipulation, (b) ability/trait manipulation (which parallels the character style), or (c) strategy/effort manipulation (which parallels the behavior style). Subsequently, subjects engaged in a blood drive task over the telephone, trying to persuade other students to donate blood. Success expectancies, motivation, and actual performance were assessed. As predicted, subjects who made strategy-/effort-type attributions, whether by experimental manipulation or by preselection, expected more success, expected more improvement with practice, displayed higher levels of motivation, and performed better at the task than did subjects who made ability-/trait-type attributions. Implications for the treatment of clinical symptoms such as loneliness and depression are discussed.

The gregariousness of the human species is a characteristic emphasized by observers of human behavior throughout recorded history, from Aristotle (in *Politics,* c. 328 B.C.) to Aronson (in *The Social Animal,* 1980). The extreme vulnerability of human infants and the individual human adult makes such gregariousness necessary both to individual and to species survival. But just as it is inevitable for us to engage in interpersonal interactions, it is also inevitable that we will occasionally fail in these interactions. Reactions to such failures (giving up versus trying again) vary widely from person to person; similarly, the same person's reaction to failure varies from occasion to occasion.

In addressing these differential reactions, the most prominent theories of motivation point to the importance of success expectancies (cf. Abramson, Seligman, & Teasdale, 1978; Atkinson, 1964; Bandura, 1977; Mischel, 1973; Weiner, 1979). All else being equal, one who expects to succeed will be more motivated than one who does not. Furthermore, how a person interprets a given failure determines the impact of the failure on success expectancies (e.g., Anderson & Jennings, 1980; McMahan, 1973; Valle & Frieze, 1976).

In the achievement motivation domain, much progress has been made in specifying the role of attributional processes in determining reactions to failure. For example, research in this area has shown that attributing failure to lack of ability leads to lower success expectancies and motivation than does attributing the failure to lack of effort (see Weiner, 1972, 1974, 1979, for reviews of much of this literature). Most attributional analyses of motivation, though, have focused exclusively on noninterpersonal tasks such as solving anagrams and arithmetic problems. Despite this shortcoming, a number of theorists have noted the similarity between motivational deficits in these noninterpersonal achievement contexts and motivational deficits in lonely and depressed populations and have suggested that the same attributional model might apply to

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both situations (Abramson et al., 1978; Peplau, Russell, & Heim, 1979; Weiner, 1979; Weiner & Litman-Adizes, 1980).

Recent research has shown, however, that the symptoms of loneliness and depression are, to a large extent, reducible to problems (failures) in interpersonal contexts (Horowitz & French, 1979; Horowitz, French, & Anderson, 1982; Horowitz, French, Lapid, & Weckler, 1981). Therefore, an attributional model of loneliness and depression predicts that one's reaction to an *interpersonal* failure is determined by the attributions one makes for the failure. It is also hypothesized that groups of people showing consistent differences in motivational reactions to interpersonal failure will also show consistent differences in attributional style. More specifically, this model specifies that interpersonally debilitated people (such as lonely people and depressed people) have motivational and performance deficits, in part because they tend to attribute their interpersonal failures more to stable and unchangeable factors (like ability deficits) and less to unstable and changeable factors (like effort) than do their nondebilitated counterparts.

This theory, in which attributional style is seen as a maintaining cause, requires two different types of supporting evidence. First, appropriate attributional style differences must be found between debilitated and nondebilitated people in interpersonal failure situations. Early research on this point was somewhat weak and inconsistent (see Anderson, Horowitz, & French, 1983, for a brief review). But recent studies (Anderson et al., 1983; Peterson, Schwartz, & Seligman, 1981; Seligman, Abramson, Semmel, & von Baeyer, 1979) have consistently demonstrated that motivationally debilitated people (such as the lonely and the depressed) do have an attributional style that differs from that of their nondebilitated counterparts.

Of particular interest here are the findings from the Anderson et al. studies. Loneliness and depression were both found to correlate with measures of attributional style, especially when attributional style was assessed for interpersonal failure situations. That is, on a "changeability" index of attributional style, lonely people and depressed people tended to attribute their interpersonal failures more to *unchangeable* aspects of their characterological make-up (lack of ability, poor personality traits) and less to *changeable* aspects of their behavioral attempts (lack of effort, inappropriate strategy) than did nonlonely and nondepressed people.[1] (See Janoff-Bulman, 1979, for a similar distinction between characterological and behavioral self-blame.)

By itself, such correlational evidence would not be sufficient to allow a *causal* statement to be made, for a third variable, such as real ability differences between the groups, may be producing the observed correlation. The second piece of required evidence is thus experimental. It must be shown that experimentally changing the attributions of preselected groups of subjects leads to corresponding changes in motivation and performance. This question is the focus of the present study.[2]

A reading of the empirical literature reveals that there is no research that combines all the required features. There are a number of studies in which experimental manipulations successfully influenced motivation and performance outcomes on a variety of noninterpersonal tasks (see Weiner, 1979, for a review of much of this literature). In addition, Klein, Fencil-Morse, and Seligman (1976) have shown that an attribution manipulation may reduce performance deficits of depressed subjects on a noninterpersonal anagram task. But these studies tell us little about attributional effects on interpersonal tasks.

Two studies using highly interpersonal tasks have been reported, though, in which the at-

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[1] Subjects in a recent study (Anderson, 1983) interpreted changeability and controllability almost identically. Even though controllability is the more commonly used label in attribution research, changeability will be used throughout this article, because the attribution manipulations and preselection procedures were based on Anderson et al.'s (1983) changeability index.

[2] A question arises concerning whether subjects should be preselected on the basis of having either high or low levels of the clinical symptom (i.e., loneliness or depression) or on the basis of having either high or low levels of the proposed mediating variable (i.e., the "changeability" of their attributional style for interpersonal behavior; Anderson et al., 1983). Because the point of this research is to examine the effects of attributions and attributional style, it was decided that preselection should be based on attributional style. Note that because attributional style correlates with loneliness and depression, we should expect the preselected groups to differ on these variables as well.

tributions of *normal* populations were experimentally varied. Anderson and Jennings (1980) had subjects perform a "blood drive recruitment" task, which consisted of persuading college students (via the telephone) to donate blood to a local blood bank. Results indicated that subjects who were led to attribute initial failure to ineffective strategies had significantly higher success expectancies and expected significantly more improvement with practice than did subjects who were led to attribute initial failure to low ability.

In a related study, Jennings (1979) also manipulated "strategy" and "ability" attributions of subjects engaging in an interpersonal persuasion task. In addition to expectancy measures, several measures of actual performance (observer ratings) were also obtained. On these measures, Jennings found that subjects led to make strategy attributions for initial failures changed their strategies more often and improved the quality of their persuasive appeals significantly more than did subjects led to attribute initial failures to lack of ability.

Together, these two studies demonstrate the importance of attributions in determining success expectations, approach to the problem, and quality of performance in interpersonal situations. But they do not demonstrate that changing the attributions of people preselected on the basis of attributional styles can produce corresponding changes in motivation and performance on an interpersonal task. The main goal of the present research was to test the prediction that modifying the attributions of subjects preselected on attributional style would yield corresponding changes in success expectancies, motivation, and performance on an interpersonal task.

Method

Overview

To further test this attributional model, a study was conducted in which people with different attributional styles engaged in an interpersonal persuasion task. The task, persuading people to donate blood to a local blood bank, guaranteed that each subject would fail occasionally. This situation also was sampled by the Attributional Style Assessment Test (ASAT) used by Anderson et al. (1983). One preselected group consisted of people who tended to attribute their interpersonal failures to unchangeable *character* defects (lack of ability or interfering personality traits), a style more frequently used by lonely and depressed populations. The second preselected group consisted of people who tended to attribute their interpersonal failures to changeable *behavioral* mistakes (lack of effort or use of the wrong strategy), a style used by nonlonely and nondepressed populations.

Within each of these two preselected groups, subjects were randomly assigned to one of three attribution-manipulation conditions; (a) one-third of the subjects received no attribution manipulation, (b) one-third of the subjects received an ability/trait-attribution manipulation, and (c) the remaining one-third of the subjects received a strategy/effort-attribution manipulation. Note that these latter two conditions are conceptual parallels to the character- and the behavior-attributional styles.

Subjects then participated in the "blood drive" task, from which three types of dependent variable measures were obtained; (a) success expectancies (assessed at two different times), (b) motivation (task persistence and commitment), (c) and performance quality (success rate).

Design and Predictions

The overall design included six conditions, with two attributional styles for interpersonal failure (character versus behavior) crossed with three attribution manipulations (ability/trait versus strategy/effort versus no manipulation). The attribution model of interpersonal debilities predicts that attributing one's failure to unchangeable character deficits should lead to lowered expectancies, lowered motivation, and perhaps lowered quality of performance relative to attributing such failures to changeable behavioral factors.

The main hypothesis of this study can best be summarized by the contrast weights shown in the first row of Table 1. Specifically, it is predicted that (a) other things being equal, people who attribute failure at a task to either strategy or effort will have higher expectancies, higher motivation, and better performance than will people who attribute the failure to either ability or trait factors; (b) it does not matter whether these attributions are produced by the subject's own attributional style or by the experimental manipulation; (c) when the experimental manipulation differs from the subject's attributional style, it is assumed that the experimentally induced attribution will override the subject's attributional style, because the task is a novel one for most subjects.

Preselection of Subjects

Potential subjects completed a questionnaire packet, including the ASAT (Anderson et al., 1983), at the beginning of an introductory psychology course at Stanford University. The ASAT consists of 20 hypothetical situations divided equally among four situation types: interpersonal failure, noninterpersonal failure, interpersonal success, and noninterpersonal success. To complete the scale, subjects imagine themselves in each situation and choose from a list of six possible causes the one that best explains why or how that outcome might occur to them. The six possible causes reflect the following attributions: strategy, ability, effort, personality trait, mood, and external circumstances. The following is an example of an interpersonal failure item with the possible causes:

Table 1
Session 1 Dependent Variables: Expectancy Measures

	Attributional style						
	Character			Behavior			
Attributional manipulation	NO	AT	SE	NO	AT	SE	Predicted contrast *F*
Predicted pattern of means–contrast weights	−1	−1	+1	+1	−1	+1	
Success expectancies	9.84	9.38	11.93	9.93	9.85	10.16	4.00*
Slope–expected change in performance over time	.118	.232	.327	.372	.300	.436	8.64**
Overall index	−.465	−.336	.494	.101	−.073	.294	13.08**

Note. NO = no-manipulation, AT = ability/trait manipulation, SE = strategy/effort manipulation.
* $p < .05$. ** $p < .005$.

You were recently unsuccessful at trying to cheer up your roommate, who was having a personal problem.

a. I did not use the right strategy to cheer him/her up.
b. I am not good at cheering other people up.
c. I did not try very hard to cheer him/her up.
d. I do not have the personality traits necessary for cheering people up.
e. I was not in the right mood to cheer him/her up.
f. Other circumstances (people, situations, etc.) produced this outcome.

Several indexes of attributional style can be calculated from subjects' choices of causes for each of the four situation types. Of particular interest here is the changeability index, which is obtained by summing the number of strategy and effort attributions and subtracting from this sum the number of ability- and personality-trait attributions for each type of situation. Previous research on the ASAT (Anderson et al., 1983) demonstrates that the changeability index is sufficiently reliable for use as a preselection tool (K–R20 = .57). Furthermore, the changeability index for interpersonal failure correlates strongly with standard measures of loneliness, $r(296) = -.44$, $p < .001$, and depression, $r(302) = -.35$, $p < .001$ (Anderson et al., 1983). Low-score people tend to be more lonely and depressed than are high-score people.

People who scored in the top third or bottom third of the changeability index for interpersonal failure were contacted by telephone and asked to participate in the study for pay or for credit toward the introductory psychology research requirement. A total of 63 people completed the study. Five other subjects failed to complete the experiment: three failed to show up for their second session, one had participated in a similar study, and one dropped out because he did not like to make telephone calls.

Procedure

Session 1. Upon arrival at the experimental lab, the subject was seated at a table that held a telephone and a tape recorder. The experiment was described as part of a line of research being conducted by the Stanford Altruism Society, a group of researchers whose goal was to study ways to increase altruistic behavior in society. It was further explained that the current project was being conducted to identify the factors that led some volunteer telephone callers for blood banks to be quite successful and other callers to be unsuccessful. The subject's task was to play the role of a blood bank volunteer caller. Subjects were assured that not only would the researchers benefit by learning more about effectiveness at this interpersonal persuasion task but that the Stanford Blood Bank also would benefit by getting the new blood donors that the subjects successfully persuaded.

Following this introduction to the study, the subject was given a summary of its three main stages. Stage 1, to be completed during the first session, was described as consisting of completing a couple of questionnaires, going over information about blood donation procedures and calling lists, and making one practice call that was to be taped for later analysis. Stage 2, described as the heart of the study, was to take place in the week between the two scheduled sessions. The subject was to call a number of Stanford University students during that week to try to persuade them to donate blood. The purpose was to get an estimate of each subject's success rate, supposedly as a criterion for analysis of the taped calls and the questionnaire information. Stage 3, to take place in the second lab session, was to consist of making another persuasive pitch, which was to be taped, and of filling out a final questionnaire.

When subjects' questions had been answered, a questionnaire assessing background information and preliminary success estimates was administered.[3] Included were questions on age, experience in donating blood, past volunteer work for the Red Cross and related organizations, and experience at telephone solicitation. Subjects also estimated the success rate of Red Cross volunteer callers at telephone solicitation. This estimate was later used in calculating each subject's personal success expectancy relative to his or her expectations for Red Cross volunteers.

[3] To reduce evaluation concerns, on all questionnaires, tapes, and calling lists subjects were identified by a subject number, not by name.

Upon completion of this questionnaire, the experimental manipulation of attributions for the task took place. For the ability/trait manipulation, the experimenter said,

> In trying to discover why some people do well and others do not at persuading people to donate blood, we will be examining one factor very closely. This factor that seems like it might be particularly important is the basic persuasiveness of the caller. That is, some people may just have the necessary persuasive abilities and personal styles or traits to make such persuasion tasks fairly simple. People who fail may simply lack these necessary persuasive characteristics and thus do quite poorly. In short, it may be that some people are just better than others at persuasion. This is one factor we will be examining in the study.

For the strategy/effort manipulation the experimenter said,

> In trying to discover why some people do well and others do not at persuading people to donate blood, we will be examining one factor very closely. This factor that seems like it might be particularly important concerns the particular strategies or tactics that are used. That is, some people may do well because they try very hard to come up with the right tactic or approach to persuading the people they are calling. People who fail may do so mainly because they do not try hard and do not try to come up with effective strategies. In short, it may be that people who think of the task in terms of strategies do better than those who do not. This is one factor we will be examining in this study.

For subjects in the no-manipulation conditions, the experimenter did not talk at all about any particular factors under examination.

At this point, the subject was given a two-page summary of information needed to be a blood bank volunteer caller. This summary contained information on the need for blood donations, the blood donation procedure, and common excuses given for refusing to donate blood with appropriate responses to them. The subject was given several minutes to examine this information and to prepare for the practice call. The experimenter then gave the subject the "calling list" form to be used when making calls and explained how to fill it out. Briefly, for every call made the subject was to write down the name and telephone number of the person called and the date and the time of the call. If the person was contacted, the subject was also to record whether the person had ever donated blood before and the outcome of the persuasion attempt. The subject was further instructed to try to persuade only those people who indicated they had never donated blood before and to record any extenuating circumstances for failed attempts—for if the person was a hemophiliac or had hepatitis, for instance, the failure would not be counted when calculating a success rate. The importance of keeping these calling lists accurately was emphasized. When the experimenter was satisfied that the subject understood all these procedural details, the subject was told to take several minutes to prepare to make the practice call.

The first two names on each subject's list were added by the experimenter, supposedly from a list of people "left over from prior lists." In actuality, both people were confederates of the experimenter. When a subject was ready to make the practice call, these two confederates would be the first called. On the first call, there was no answer. That person, from the subject's point of view, was probably in a class. The second confederate was then called. This person was "at home," and provided the subject with the experience of failing to persuade an initially interested person. This practice call was tape recorded, as "a major part of our data, to see what types of calls are associated with different success rates." Actually, this whole elaborate procedure was carried out for four reasons. First, the call was taped primarily to support the cover story of looking for factors leading to success or failure in persuasion. Second, the practice call to a confederate was designed to guarantee reaching someone within the time constraints of the lab session. Third, the confederate refused to donate blood because the study primarily concerned motivational and performance effects of attributions for failure. Fourth, the first confederate's name was inserted to provide a later check on the accuracy of subjects' calling lists. That is, because this person was initially "in a class," her name was still on top of each subject's list of people to be called. During the following week, then, the subject would try to contact the confederate again. The confederate normally did answer her phone and was thus contacted by 13 of the 63 subjects (and always refused to donate blood). Comparisons of dates and times of calls recorded by this confederate and by the subjects established that these 13 subjects, at least, did not misrepresent their calls or the outcome of their persuasion attempts.

After completing the practice call, the subjects were asked to predict their level of success at the task in the next week. The first item asked each subject, "Of all the people you contact, what percentage will you successfully persuade to donate blood?" A second item was designed to assess how much the subject expected personal performance to change over time. This item asked the subject to assume that they were able to contact 40 people. The task, then, was to predict the number of successes in their first 10 contacts, their second 10 contacts, their third 10 contacts, and their fourth 10 contacts.

When the items were completed, each subject was given a photocopied list of names and telephone numbers from the *Stanford Student Directory* and four calling list forms on which to record their calls. Subjects were asked to try to make at least 10 actual contacts before their next session (approximately 1 week later). It was pointed out, however, that they did not have to make 10 contacts in order to complete the experiment. They were also allowed to make more calls if they so desired. Subjects were asked to not call friends if their names happened to appear on the particular list given to the subjects. Finally, the importance of keeping accurate records of the calls was again stressed.

Session 2. Approximately 1 week after Session 1, the subject returned to the lab to complete the study. The calling lists, student directory list, and the blood drive information summary sheets were turned in at the beginning of this session. In keeping with the cover story, the subject was then asked to role play a typical call, that is, to give the typical persuasive pitch to the experimenter as if actually trying to persuade the experimenter, via telephone, to donate blood. The subject's persuasive attempt was tape recorded, supposedly "to give us a better sample of your (the subject's) type of call."

A final questionnaire was then administered. The first

item asked the subject to indicate how likely he or she would be to help out in a future blood drive by working as an unpaid volunteer caller. This willingness scale was a 5-point scale ranging from "unwilling to participate; please do not contact me" (1) to "very likely willing to participate; please contact me and provide more details" (5). The second item had the subject estimate future success by answering this question: "Assuming that you participate in a future blood drive as a caller, what percentage of your contacts would you expect to persuade to donate blood?"

After completing these items, the subject was thoroughly debriefed concerning the experimental manipulations and possible effects of different types of attributions for failure. In the initial stages of the debriefing, care was taken to probe for any suspicions the subject might have had about any aspect of the study (Carlsmith, Ellsworth, & Aronson, 1976). Three subjects indicated they were suspicious about the "practice" call in the first session. Because excluding their data did not alter the results or conclusions of this study, their data were kept.

Because several subjects failed to appear for their Session 2 appointment, and several others incorrectly completed one or more of the dependent measures, unequal cell sizes resulted (the smallest on any measure was 8, the largest was 11). The results to be reported below are thus based on unweighted means analyses of variance (Winer, 1971).

Results

Session 1: Expectancy Measures

In Session 1, subjects received their general instructions and the experimental manipulation, completed one practice call (a failure), and answered a pair of items assessing their % success expectancies ("What percentage will you successfully persuade?") and their expectancies concerning change in performance over time.

Subjects' % success expectancies were highly correlated with their estimates of Red Cross volunteers' (RCVOL) % success, $r(61) = .69$, $p < .001$. To control for differences in use of the % scale, subjects' personal success estimates were divided by their success estimates for RCVOL, yielding a proportional expectancy for each subject. On this proportional-expectancy measure, group means and variances were systematically related, necessitating a square root transformation (Winer, 1971). The Session 1 corrected expectancy, as presented in Table 1, is

$$\sqrt{\frac{\text{Self \% Success}}{\text{RCVOL}}} \times 100.$$

As can be seen in Table 1, after only the one failure experience in the session, the predicted pattern of expectancies began to emerge; those groups making strategy-/effort-type attributions expected more success than did those groups making ability-/trait-type attributions, $F(1, 57) = 4.00$, $p < .05$.[4] This predicted contrast accounted for most of the systematic variance, as indicated by the nonsignificant residual, $F(4, 57) = 1.76$, $p > .10$. Note that although the overall pattern of means was as predicted, several of the group means were somewhat discrepant with the predictions. For example, behavioral-style attributors showed little effect of the ability/trait manipulation. However, we should be cautious in interpreting such slight departures from the prediction, because they may reflect random fluctuations about a weak overall effect.

To get an indication of how subjects expected their performance to change over time, they were asked to predict their number of successes in each of four consecutive blocks of 10 telephone contacts. Treating blocks as the x variate and predicted success as the y variate, we can calculate a slope for each subject, which reflects the degree to which that subject expects change. A positive slope thus indicates an expected improvement, a zero slope indicates no change, and a negative slope indicates an expected decrease in performance over time. Of the major attributional factors, only strategy attributions for failure should lead one to expect much improvement with practice (Anderson & Jennings, 1980). That is, one's strategies can be modified as one learns which ones work and which ones do not work. This leads to the same predicted contrast pattern spelled out earlier. The results from this slope measure, presented in Table 1, strongly confirm this prediction, $F(1, 57) = 8.64$, $p < .005$. The residual variance was again nonsignificant, $F(4, 57) = 1.26$, $p > .25$, which indicates that the predicted model satisfactorily accounted for the between group variance.[5] (Note again, however, that the behavioral-style subjects showed less of an effect

[4] All reported significance levels are based on two-tailed tests.

[5] Slope was significantly correlated with RCVOL, $r(61) = .364$, $p < .005$, suggesting the use of an analysis of covariance. Because this covariance analysis did not change the pattern of means and only slightly increased the reliability of the contrast test, the more straightforward analysis of variance is reported.

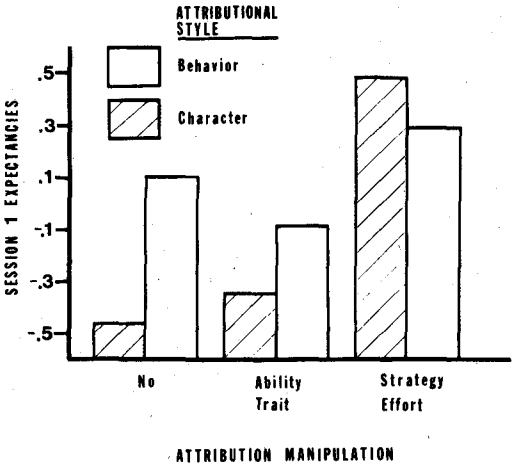

Figure 1. Composite index of success expectancies, measured at the end of Session 1, as a function of attributional style and attribution manipulation.

of the ability/trait manipulation than might be expected.)

To more clearly illustrate these effects, the two expectancy measures were combined into an overall expectancy index, via *z* score transformations.[6] The means, presented in Table 1 and Figure 1, fell into the predicted pattern, as shown by the highly significant contrast, $F(1, 57) = 13.08$, $p < .001$, and the nonsignificant residual, $F(4, 57) < 1$. It is also interesting to note in Figure 1 that although the strategy/effort manipulation had a large impact on character-style attributors, the ability/trait manipulation had a relatively small impact on behavior-style attributors. Nonetheless, a closer examination of the results presented in Figure 1 revealed that, as predicted, character- and behavior-style subjects did not differ in their overall expectancies when provided with the same attributions; for both the strategy/effort manipulation and the ability/trait manipulation comparisons, $ts(57) < 1$. When attributions were not manipulated, however, behavior-style subjects had higher expectancies than did character-style subjects, $t(57) = 2.03$, $p < .05$. In addition, subjects in the strategy/effort manipulation conditions had higher expectancies than did subjects in the ability/trait manipulation conditions, $t(57) = 3.01$, $p < .001$.

We thus see that people with a strategy/effort view of the task, whether by predispositional selection (behavior style, no manipulation), experimental manipulation (character style, strategy/effort manipulation), or both (behavior style, strategy/effort manipulation), expect relatively more success and more improvement with practice. This expectancy should have two major effects on their behavior. It should lead to higher motivation levels by keeping them from becoming discouraged after a few failures. It should also lead to better performance at the task, because the strategy orientation focuses their attention on the changeable features of the task.

Session 2

In Session 2, subjects turned in their calling lists, role played a typical persuasive attempt, and completed a final questionnaire assessing their success expectancies and their willingness to participate in a future blood drive. From the calling lists it was also possible to obtain a persistence measure (number of calls made) and a performance measure (success rate).

Success expectancies. Subjects estimated their success rate for a future blood drive. These estimates again correlated significantly with their RCVOL, $r(61) = .368$, $p < .005$. As in Session 1, each subject's personal success estimate was divided by that subject's estimate for Red Cross volunteers (RCVOL). Unlike Session 1, no further transformation was necessary to equalize variances. Thus the Session 2 success expectancy, as presented in Table 2, is

$$\frac{\text{Self \% Success}}{\text{RCVOL}} \times 100.$$

From Table 2 we can see that the prediction for expectancies was strongly supported. After a 1-week calling period, those groups making strategy-/effort-type attributions expected more future success than did those groups making ability-/trait-type attributions, as indicated by the significant contrast, $F(1, 57) = 6.15$, $p < .02$. The residual variance was again nonsignificant, $F(4, 57) < 1$.

Motivation. To assess each subject's mo-

[6] This procedure is the same as a multivariate analysis of variance in which the linear combination is made on a priori grounds; specifically, the dependent variables were given equal weight. As Harris (1975) has shown, the appropriate *F* test for this type of analysis is the same as for any a priori contrast analysis.

Table 2
Session 2 Dependent Variables: Expectancies, Motivation, and Success Rates

	Attributional style						
	Character			Behavior			
Attribution manipulation	NO	AT	SE	NO	AT	SE	Predicted contrast F
Predicted pattern of means—contrast weights	−1	−1	+1	+1	−1	+1	
Success expectancies	79.8	104.0	161.9	110.1	88.1	139.3	6.15*
Motivation	−.347	−.411	.074	.662	−.406	.684	5.24*
Success rate	.273	.299	.491	.526	.437	.552	6.50**
Overall index	−.370	−.266	.298	.243	−.239	.368	12.51**

Note. NO = no manipulation, AT = ability/trait manipulation, SE = strategy/effort manipulation.
* $p < .05$. ** $p < .005$.

tivation level, two different aspects of motivation were measured and combined into an overall index. One measure was based on the number of calls the subject made between Session 1 and Session 2—a task persistence measure. The second measure was the willingness of a subject to participate in a future blood drive—a commitment measure. The overall index of motivation, presented in Table 2, is the sum of the z scores on the two individual measures.

As can be seen from Table 2, the predicted pattern of means emerged for motivation. Those groups making strategy-/effort-type attributions displayed significantly higher motivation than did those groups making ability-/trait-type attributions, as indicated by the significant contrast, $F(1, 38) = 5.24$, $p < .04$, and the nonsignificant residual variance, $F(4, 38) < 1$.[7]

Success rate. From the calling lists, on which subjects recorded each call and its outcome, a success rate was calculated for each subject as follows:

no. of successes ÷ (no. of successes

+ no. of failures − no. of excusable failures).

Excusable failures were those in which the persuasion target gave a good medical reason for refusing to donate blood, such as hepatitis, hemophilia, and body weight below blood bank requirements.

Subjects' mean success rates, presented in Table 2, were significantly influenced by the attributions they made. As expected, the overall contrast showed that people making strategy-/effort-type attributions had significantly higher success rates than did those making ability-/trait-type attributions, $F(1, 40) = 6.50$, $p < .005$. The residual was nonsignificant, $F(4, 40) < 1$.

On all three of these dependent variables, then, the results conformed closely to the pattern predicted by the attribution model, although there were some relatively small deviations that might best be viewed as random fluctuations or as measurement error. To illustrate the overall effects more clearly, these measures (success expectancy, motivation, success rate) were combined, via z score transformations, into an overall index.[8] The means

[7] The smaller degrees of freedom for this and the following success rate measure is due to two factors. First, there were several missing data points because of subject failure to properly complete the various materials. More important, a blocking variable—time of academic quarter—was included in all preliminary analyses. This blocking variable had an appreciable main effect ($p < .20$) only on motivation and success rate measures, presumably as a function of varying difficulties in trying to persuade people to donate blood at different times of the quarter. In particular, subjects who were calling during midterms had a more difficult task. On the measures where block did have some effect, the variance estimate used in the unweighted means analyses of variance was based on this expanded analysis of variance, with a corresponding decrease of 12 degrees of freedom in the error term. Where block had little effect, data were collapsed across the blocking variable.

[8] For each subject, z scores on the three measures were averaged. For subjects who failed to correctly complete all three measures, the average z score was based on the available measures. Note that excluding subjects with incomplete data does not appreciably alter the results or the conclusions. Also note that the blocking variable had no appreciable effect on this composite and was thus removed from the analysis. See also Footnote 6.

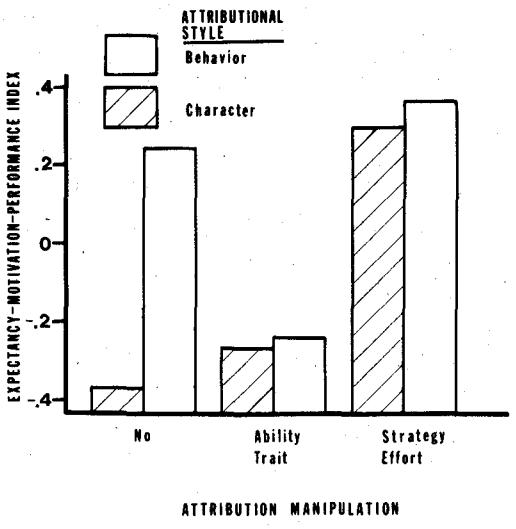

Figure 2. Composite index of final success expectancies, motivation, and performance as a function of attributional style and attribution manipulation.

on this index are presented in Table 2 and Figure 2. The predicted contrast was highly significant, $F(1, 57) = 12.51$, $p < .001$, and the residual was clearly nonsignificant, $F(4, 57) < 1$. Figure 2 dramatically displays these effects. Behavior-style attributors scored quite highly on the expectancy-motivation-performance index except when induced to make ability-trait (character-style) attributions. Conversely, character-style attributors scored low on this index except when induced to make strategy/effort (behavior-style) attributions. When behavior-style and character-style attributors were provided with the same attributions, they did not differ in their responses to the task; for both the strategy/effort manipulation and the ability/trait manipulation comparisons, $ts(57) < 1$. When attributions were not manipulated, behavior-style attributors reacted more positively to the task and its inherent failures than did character-style attributors, $t(57) = 2.11$, $p < .05$. Finally, subjects given the strategy/effort manipulation scored significantly higher on the index than did subjects given the ability/trait manipulation, $t(57) = 2.84$, $p < .01$.

General Discussion

Overall, the results of this experiment lead to two major conclusions. First, people with character-style attributions for interpersonal failure will often respond less adaptively to such failures than those with behavior-style attributions, as shown by the differential performances in the no-attribution manipulation conditions. Second, we can conclude that such predispositional differences are due mainly to the attributional differences and not to ability differences, because the attributional manipulations were largely successful in overriding the predispositional influence.

Of particular importance in the present results is the finding of attributional effects, both predispositional and experimental, on motivation and performance measures in a highly complex, interpersonal setting. This finding supports recent theoretical statements about general attributional models of motivation (Abramson et al., 1978; Peplau et al., 1979; Weiner, 1979; Weiner & Litman-Adizes, 1980). It is also interesting to note that the best predictor of both a person's motivation level and success rate was not either of the pure expectancy measures, but was slope, the measure of how much a person expected to improve with practice (for success rate, $r[56] = .326$, $p < .02$; for motivation, $r[54] = .296$, $p < .03$). Viewing one's failures as the result of a poor strategy should lead one to attend to strategic features of the task, to expect improvement as one learns effective strategies, and to actually perform better. This analysis may not apply, though, to many of the simple, algorithmic tasks more commonly seen in the psychological literature. In tasks such as digit-symbol substitution, anagram solving, and solving simple math problems, strategy plays a considerably weakened role due to the more limited range of possible strategies (cf. Anderson & Jennings, 1980; Jennings, 1979). But in most everyday situations of importance, particularly in complex interpersonal situations, strategy plays a major role in determining one's performance.

Attributional Style as Effect, Not Cause: An Alternative View

Given only that there is a relationship between attributional style and interpersonal debilities, at least two possible explanations for the relationship exist. One is that proposed by the present article: Attributional style con-

tributes to the motivational and performance deficits, thus serving to maintain the overall debility. The alternative explanation is that the attributional style is a result of real ability deficits. The results of the present experiment, particularly the success rate data, rule out this alternative explanation. Character-style subjects who were led to attribute initial failures to strategy and effort factors had considerably higher success rates than did their nonstrategy/effort counterparts, whereas behavior-style subjects who were led to attribute initial failures to ability and trait factors had lower success rates than did their nonability/trait counterparts. The point is not that there are no general skill or ability differences between interpersonally debilitated and nondebilitated groups, but that the characterological attributional style of interpersonally debilitated people helps to maintain both the motivational and performance deficits that in turn maintain the interpersonal debility.

Representativeness of the Telephone Persuasion Task

A major strength of the present experiment was the use of a very involving, naturalistic task—subjects participated as blood bank volunteer telephone callers. One might question the representativeness of this task for the study of interpersonal debilities. Data reported by Horowitz and French (1979) suggest that this task captures many of the features of interpersonal problems most frequently reported by lonely people. These researchers noted that lonely people primarily report problems of inhibited sociability, including such self-ascribed problem items as (a) introducing myself to others, (b) making phone calls to others, and (c) being friendly and sociable with others. The telephone persuasion task taps important features of all three of these problems.

Also, in pretesting situation items for use in the ASAT, Anderson et al. (1983) obtained ratings on an interpersonal/noninterpersonal scale for each of 22 situations. One of the situations was "working as a volunteer caller for the Red Cross, trying to persuade other people to donate blood." This item, the experimental task in the present study, was rated as the third most interpersonal one, behind items dealing with getting along with a roommate and trying to cheer up a depressed roommate. Finally, previous research using this task has shown that the confederate's refusal to donate blood is perceived as a failure experience (Anderson & Jennings, 1980). The telephone persuasion task is thus representative of problems reported by people who are having interpersonal difficulties.

Implications for Therapy

These findings may be relevant to a number of clinical problems such as loneliness, depression, and shyness. Obviously, to the extent that attributional style is related to these problems, the conclusions from the present study apply. Anderson et al. (1983) demonstrated that attributional style for interpersonal problems does correlate with loneliness and depression. Furthermore, prior to participating in the present experiment, each subject completed the UCLA Loneliness Scale and the Beck Depression Inventory. As expected, behavior-style subjects were both less lonely and less depressed than were character-style subjects, though the difference was significant only on the loneliness measure, $F(1, 57) = 10.41$, $p < .005$.

Any therapeutic intervention designed for people suffering from these or similar interpersonal debilities must take several factors into account. First, real skills deficits must be corrected (e.g., Jones, Hobbs, & Hockenbury, 1982). The present data suggest that observed motivational and performance deficiencies may often result, to a large extent, from self-defeating attributions. Therefore, the therapist must carefully assess the client's attributional style for the type of situations that appear to be causing the most problems. If necessary, the client can then be taught to reinterpret failures in strategy and effort terms rather than in ability and trait terms. Many current therapies, such as Beck's cognitive therapy (Beck, 1967), already incorporate similar notions although for different theoretical reasons. In short, it is important to focus attention on the aspects of the problem situations that the person can change and control. Research on how such reattribution training is best accomplished is currently lacking (but see Andrews & Debus, 1978; Chapin & Dyck, 1976; Diener & Dweck, 1978; Dweck, 1975; and Dweck &

Goetz, 1978, for examples of reattribution training with children in the achievement domain).

The success of the present study should not be taken as evidence that reattribution training may be accomplished easily. There were at least two factors in the present study that may explain the relative ease with which attributional styles were overridden by attribution manipulations. First, a credible authority suggested that a particular type of cause (ability/trait or strategy/effort) might be most appropriate for that situation (cf. Ickes & Layden, 1978). Second, the task of soliciting blood donations was a novel one to the subjects. Even though the task contained features of problems commonly associated with interpersonal debilities, subjects had not previously faced an interpersonal failure in exactly this situation. Thus their attributions in this situation may have been more flexible, relative to frequently encountered interpersonal failures. For these reasons, the present study most likely underestimates the difficulty of changing more entrenched attributional styles.

Any attempt to modify a person's attributions assumes that the problem situations *can* be controlled, and the person can learn from failures, can improve with practice, and can reach an acceptable level of success. But in many cases failure is guaranteed, either by particular ability deficits or by the setting of unrealistic goals. In such cases, maintaining high-motivation levels may be more maladaptive than is recognizing the hopelessness of the situation and giving up that particular goal. For many of the problems presented in therapy, though, attending to the strategic features and to the effort requirements should help to break the failure–hopelessness–low-motivation–failure cycle.

Although a discussion of how attributional styles may develop is beyond the scope of this article, one might ask about the consequences of having such a style. Certainly, not all people who tend to make character-style attributions are lonely or depressed. The attributional style is seen primarily as a contributor to loneliness, depression, and other similar symptoms. However, this analysis leads to the interesting prediction that people who do acquire a characterological attributional style for interpersonal failures will be more likely to suffer a severe bout of depression or loneliness at some time in their lives, because the style describes how they will interpret particular kinds of data from everyday life. Because we all experience traumatic losses and failures in the interpersonal domain at least occasionally, teaching people to make more behavioral attributions might be useful as an "inoculation" against severe depression and loneliness, as well as a part of therapy to be used after such interpersonal debilities have occurred.

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