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Temporal Effects on Attributions for One's Own Behavior: The Role of Task Outcome

JERRY M. BURGER

University of Santa Clara

AND

ROSE M. HUNTZINGER

Virginia Polytechnic Institute and State University

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Previous investigations into how attributions for one's own behavior change over time have resulted in surprisingly inconsistent results. Two experiments were conducted to account for these discrepant findings. In Experiment 1 male undergraduates were given feedback indicating that they had done either well or poorly on a skill-assessment test. Half of the subjects believed they were being videotaped when performing the test, half did not. In addition, half of the subjects completed attribution questionnaires immediately after the feedback, whereas half completed the questionnaires 2 or 3 days later. It was found that subjects who felt they had succeeded on the task made attributions that were more dispositional over time and subjects who felt they had failed made attributions that were more situational over time. No effect for the videotape manipulation was found. Experiment 2 replicated the task outcome effect and provided evidence suggesting that the effect was caused by a selective forgetting of unflattering attributions. © 1985 Academic Press, Inc.

How individuals attribute causes for their own and others' behaviors has been a topic of great concern to social psychologists for at least two decades now. Although there now exists an extensive amount of research examining how certain variables influence causal explanations, there remain variables for which there is a great deal of uncertainty concerning their effects upon attribution processes. One of these variables, the effect that

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time has upon attributions for one's own behavior, is the focus of the present investigation.

Although there have been several investigations conducted to determine how attributions for one's own behavior change over time, the data collected thus far have been surprisingly inconsistent. Moore, Sherrod, Liu, and Underwood (1979), for example, conducted two experiments in which subjects described themselves, once to a tape recorder and once to a stranger. In both cases it was found that subjects attributed their behavior more to dispositional causes and less to situational causes when asked about their behavior 3 weeks later than when asked immediately after the event. However, Miller and Porter (1980) report four experiments in which the opposite pattern was found. Subjects in these experiments described their own behavior as more situationally caused then dispositionally caused over time when asked about a variety of different events. In addition, Funder and Van Ness (1983), replicating large parts of the Moore et al. experiment, found that subjects described their behavior as more situational and less dispositional 3 weeks after an interaction with some strangers than when asked about their behavior immediately after the encounter. However, Burger and Rodman (1983; Experiment 2) found that subjects working within a dyad gave themselves more credit for the dyad's performance (i.e., made more dispositional attributions) 3 days later than they did when attributions were measured immediately after the task.

What is clear from this research is that time does not affect attributions for one's own behavior in a simple manner. Sometimes people will attribute their behavior more to the situation over time, and other times they will give themselves more credit for the behavior over time. The present investigation was designed to make some sense out of this effect. Specifically, two potential interacting variables were examined which have been found to have important effects upon attributional processes in other settings. These two variables are the task outcome (success or failure) and the individual's focus of attention during the task.

First, numerous investigations have found that whether the subject perceives the situation as a success or a failure can have an impact upon the attribution he or she makes (cf. Bradley, 1978; Zuckerman, 1979). This "self-serving bias" generally takes the form of crediting oneself for successful outcomes and attributing unsuccessful outcomes to something in the situation.

An examination of the various experimental procedures used in previous research on attributions over time finds that the subject's perception of task outcome has not been manipulated. Moore et al. (1979) and Funder and Van Ness (1983) utilized interpersonal interactions as the event to be described. However, whether the subjects generally felt that things had gone well (success) or had not gone well (failure) during the encounter

was left uncontrolled. In three of Miller and Porter's (1980) experiments subjects were placed in a situation that would seem to have clear success or failure implications (an anagram task, the prisoner's dilemma game, and a debate). Yet the subject's perception of the outcome was not manipulated in any of these studies.[1] Finally, Burger and Rodman (1983; Experiment 2) gave subjects working on a crossword puzzle bogus feedback indicating that they had done well. Because all of the subjects in this study were led to believe that they had performed well, the effect of outcome can not be determined.

How might task outcome affect attributions for one's own behavior? At least two explanations can be proposed. One is a motivational explanation and is concerned with selective decay in memory. Research indicates that we do not lose details from memory in a random fashion. Rather, we tend to recall best those pieces of information that are, among other things, flattering to us (cf. Cannell & Kahn, 1968). In a situation in which there has been a clear success or failure outcome, individuals may be motivated to see themselves as causing the success and situational variables as being responsible for the failure. Although at the time of the success the person also is aware of situational factors that may have influenced the outcome, and the individual who failed is aware of his or her own actions, over time these unflattering explanations may fade from memory rather quickly while the more flattering information (dispositional for the successful person and situational for the unsuccessful person) remains relatively strong. Hence, when asked some time later about the event, people who succeeded are more likely to say the cause of the behavior was dispositional and persons who failed are more likely to make situational attributions than if asked immediately after the task. The only experiment for which perceived outcome was controlled for provides some supportive data for this explanation. Burger and Rodman's (1983; Experiment 2) subjects all believed they had succeeded at the task, and these subjects made more dispositional attributions over time.

A second explanation for the effect of time on attributions for one's own behavior was suggested by Miller and Porter (1980). They proposed that it may be comforting to have a simple explanation for one's behavior over time. Although immediately after the task people probably can generate many explanations for their performance, over time there may be a tendency to prefer a less complex account of the event. If one of the effects of time is that memories become simplified, then it is reasonable to suggest that the "background" explanations will be the ones that will be forgotten the earliest, leaving the primary explanation at the time of

[1] Miller and Porter (1980) did examine correlations between attributions and performance in one study (Experiment 2, anagrams), but did not provide data about changes in attributions between immediate and delayed conditions as a function of task performance.

the event as the one that remains as the simplified explanation. Research indicates that people tend to credit themselves for successes and make situational attributions for failures when attributions are measured immediately after the task. Therefore, when recall of the event is simplified over time, it would be expected that the less important situational reasons for success and dispositional reasons for failure will be forgotten first. Because the simplified account consists almost exclusively of the remaining dispositional (success) or situational (failure) reasons, this explanation also predicts that individuals make attributions that become more dispositional for successes and more situational for failures over time.

In addition to task outcome, there is reason to suspect that the individual's focus of attention during the event may be helpful in explaining the discrepant findings in the literature. It has been found that people are more likely to attribute causality to that which they are focusing their attention upon rather than to those aspects of the environment which are not attended to (cf. Taylor & Fiske, 1978). One aspect of an experimental situation that can affect this attention focus, and therefore the attributions made, is the extent to which the individual feels self-aware or concerned about his or her actions. Arkin and Duval (1975), for example, increased the level of self-awareness in some of their subjects by pointing a videotape camera at them and telling the subjects that their actions were being taped. Actors in this situation were found to be more likely to attribute causality to themselves than to the situation, presumably because their attention had been focused upon themselves during the task.

When the previous research on attributions over time is examined, once again it is found that the extent to which subjects felt evaluated and self-aware during the event has not been controlled for. It is important to note, however, that some of these investigations did employ experimental procedures that conceivably could have created a high level of self-awareness and thereby could have affected the direction of the attributions. In one of the Moore et al. (1979) experiments, for example, subjects were told they were being videotaped, while in the other experiment they were told their self-descriptions would be listened to by other students who would be making judgments about them. Funder and Van Ness (1983) also told subjects in one of their studies that their performance was being audio-taped. Although no clear patterns for the discrepant results can be found when comparing what may have been high- and low-evaluation situations, what is clear is that the subjects' focus of attention may have been accidently manipulated in some of these experiments and that this might help to account for some of the inconsistent findings.

How might the subject's focus of attention affect attributions over time? The hypotheses here seem less clear than with the outcome variable. One possibility is that the subject's own actions will be given too much

weight in the attributional analysis made immediately after an event for which the individual has been made self-aware. Perhaps as time passes the salience of the individual's own behavior, which was exaggerated during the event, will fade and a more situational explanation for the event will be given. On the other hand, if the focus of attention was on oneself, it is possible that the images associated with one's own actions will decay less rapidly from memory than will other features. If that were the case, we might predict that increasing self-awareness would bring about more dispositional attributions over time. At any rate, the subject's focus of attention appears to be a variable in need of experimental control and examination in this type of experiment.

EXPERIMENT 1

Experiment 1 was designed to examine the effects of task outcome and focus of attention on changes in attributions for one's behavior over time. Because people selectively forget about causes of their behavior in a self-flattering way and/or because of a memory simplification process, it was predicted that attributions for a successful outcome would become more dispositional over time but that attributions for an unsuccessful outcome would be more situational over time. Further, subjects' focus of attention during the task was manipulated, with some subjects made increasingly self-aware and others not. No predictions were made for this variable.

Method

Subjects. Eighty male undergraduates served as subjects in exchange for class credit. One subject expressed a high level of suspicion about the deception involved in the procedure, and his data were dropped from the experiment, leaving 79 subjects in the final sample.

Procedure. Subjects participated in the experiment individually. Upon arrival at the experimental room, subjects were greeted by a female experimenter, who served as experimenter for all sessions. Subjects were read instructions which explained that the experiment was concerned with the measurement of a skill called "manual dexterity and cognitive perception coordination" that, research indicated, might be important in certain types of occupations. It was explained that the subjects were to be tested on this ability with a standardized assessment instrument.

At this point the experimenter drew the subjects' attention to the videotape equipment that was stationed across the room from the subject, approximately 10 m away. Subjects had been randomly assigned to either the videotape or no-videotape condition. In the *videotape* condition subjects were told that their performance was to be videotaped, to be examined by several psychologists who are interested in understanding how the subject went about working on the test. The experimenter then turned on the videotape equipment, allowed the subject to see himself on the television monitor for a few seconds, then turned the screen away from the subject. This procedure was similar to that used by Arkin and Duval (1975). In the *no-videotape* condition the wires for the television camera and monitor were left dangling over the equipment, and thus were obviously not being used. In addition, the lens cap covered the camera lens. The experimenter explained that the

equipment belonged to someone else and that they were supposed to leave it alone when using the room.

At this point the experimenter administered the test. The test consisted of a series of drawings which the subject was supposed to replicate in shape and color on the table top using some wooden sticks of different colors, each approximately 23 cm long. The experimenter explained that she would be timing the subject and would inform him when to start and stop. The experimenter then presented the subject with the first design and told him to begin. When the subject reached a point during the fourth design (after approximately 5 min) the experimenter told the subject that he was out of time. She quickly counted the total number of sticks the subject had placed in the designs, which always came to 45.

The experimenter then informed the subject that this test had been given to over 200 students at the campus during the past few years and norm charts were available. Subjects were asked if they would like to see how their scores compared with others, and all said they did. At this point the experimenter quickly glanced at the sheet which randomly assigned subjects to one of the two outcome conditions. The experimenter had been kept blind about the outcome manipulation until this point. If the subject was assigned to the *success* condition, he was presented a chart in which a score of 45 for a college-age male was shown to fall in the 85th percentile. The experimenter helped the subject find his score on the chart and explained that he had performed better than 85% of the subjects who had taken the test previously. In the *failure* condition the experimenter presented subjects with a chart which depicted a score of 45 as falling in the 15th percentile. As in the success condition, the experimenter helped the subject locate the score on the chart and explained what it meant.

Subjects who had signed up for the experiment did so either with the understanding that they would be returning to a second session 2 or 3 days later to complete the second half of the experiment or that the experiment would be conducted in one session. Subjects in the latter condition, the *immediate* condition, were given a questionnaire to complete immediately after receiving their feedback about the test. Subjects in the *delayed* condition were reminded of the second session and were given the questionnaire to complete when they returned 2 or 3 days later.

The questionnaire began with a few filler items, asking the subject about how much he had enjoyed the task, about any problems he had encountered, and so forth. The subject then was presented with two items designed to assess his attributions for his performance. The first item asked the subject to indicate on a 9-point scale the extent to which he believed that his performance on the test reflected or was the result of "personal factors, such as your level of ability on such tests or your level of effort." The other item asked the subject to indicate on a 9-point scale the extent to which he believed that his performance reflected or was the result of "situational factors, such as the environment you took the test in, the directions, or the materials."

Because the limited Likert-type formate raises the question of putting words into the subject's mouth, the next item on the questionnaire assessed the subject's attributions for his performance in an open-ended format. The subject was asked to "list your own reasons for your performance (your test score). That is, why did you score as high or as low as you did?" Spaces were provided to list five reasons, but the subject was instructed to list as many reasons as he felt applied. The subject then was directed to go back over his list and provide percentage values to indicate the relative importance of each of the reasons listed. That is, if a reason explained 60% of the performance, a value of 60 was assigned. The subject was reminded that his values should add up to 100.

Finally, the subject was presented with two manipulation check items. He was asked to indicate on 9-point scales how well he believed he had done on the test relative to most college students and the extent to which he felt his performance was being evaluated during the test. Following the completion of the questionnaire all subjects were thoroughly debriefed about the procedures and the deception used in the experiment.

Results

Manipulation checks. Subjects assigned to the success condition reported that they believed their performance was a good one relative to other college students more than did subjects in the failure condition, $F(1, 71) = 229.04$, $p < .001$; $M = 6.97$ for success and 2.85 for failure subjects. Subjects in the videotape condition indicated a greater perception that they were being evaluated during the test ($M = 6.38$) than did subjects in the no-videotape condition ($M = 4.90$), $F(1, 71) = 8.43$, $p < .005$. No other significant effects for any of the independent variables were found on these two items. Thus, the two manipulations appear to have been successful.

Attributions. Subjects indicated on 9-point scales the extent to which they attributed their performance to personal and situational causes. A composite attribution score was created by subtracting the situational item value from the personal item value. This score then was subjected to a 2 (Immediate–Delayed) × 2 (Success–Failure) × 2 (Videotape–No-Videotape ANOVA. Two significant effects emerged in this analysis. First, a main effect for outcome was found, $F(1, 71) = 15.06$, $p < .0002$, with successful subjects giving higher scores (indicating more dispositional attributions) than unsuccessful subjects. There also was a significant Outcome × Time interaction, $F(1, 71) = 4.25$, $p < .04$.[2] This interaction is illustrated in Fig. 1. As shown in the figure, as predicted, subjects who were led to believe they had performed well on the task tended to make more dispositional attributions over time, whereas subjects who believed they had done poorly tended to make more situational attributions over time. A Newman–Keuls test revealed that only the two delayed conditions in the figure differed significantly, $p < .05$.

The open-ended attribution items were coded by two independent judges who were familiar with basic attribution processes but were not

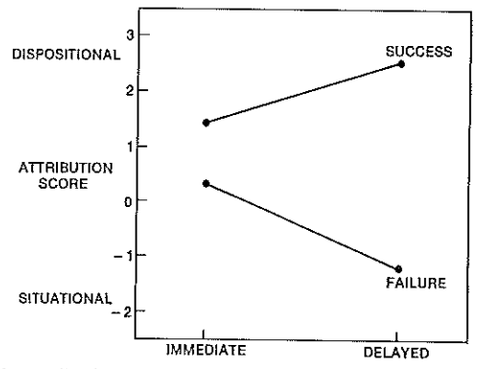

FIG. 1. Composite attribution score as a function of task outcome and time of assessment: Experiment 1.

aware of the condition of the subject. The judges indicated whether each of the reasons given by the subject was a dispositional or situational attribution. These judges agreed on 200 of the 214 reasons listed by the subjects (93%). In those cases where there was some disagreement, the first author was used to classify the response. By summing the percentage values subjects had assigned to each of the open-ended responses, a total percentage of dispositional and situational attributions was obtained for each subject.

Because all responses were classified into one of these two categories, thus causing both the dispositional total and the situational total to provide indentical information, it was necessary to perform the analysis on only one of the scores. An ANOVA was performed on the dispositional percentage score. Consistent with the earlier analysis, two significant effects emerged in this analysis. First, a significant outcome effect was found, $F(1, 71) = 5.21, p < .03$, with successful subjects making more dispositional attributions that failing subjects. In addition, there was significant Time $\times$ Outcome interaction, $F(1, 71) = 4.38, p < .04$. This interaction is shown in Fig. 2. As can be seen in the figure, consistent with the earlier analysis, successful subjects made more dispositional attributions over time whereas unsuccessful subjects made more situational attributions over time. Once again, a Newman–Keuls test found that only the two delayed conditions differed significantly on this measure, $p < .05$.

Discussion

The results provide some insight into the question of how attributions for one's own behaviors change over time. Consistent with previous research, it was found that attributions can become either more situational or more dispositional as time passes. The important variable determining the direction of the attributional shift, which was not manipulated in the

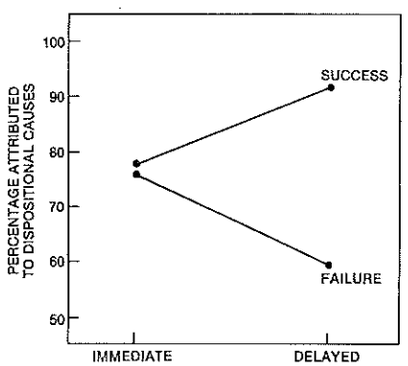

FIG. 2. Percentage of open-ended dispositional attribution as a function of task outcome and time of assessment: Experiment 1.

earlier research, is the subject's perception of success or failure for the task. The tendency for subjects to credit themselves for successes and to attribute failure to the situation was found to be exaggerated in both directions over time. Thus, a type of polarization of the self-serving bias tends to occur as time passes.

There are at least two explanations for this effect. First, people may be motivated to remember flattering and forget unflattering information. Therefore, over time the situational explanations for one's successes and the dispositional explanations for one's failures may decay more rapidly than the more flattering explanations. Second, it may be that people have a tendency to simplify their explanations of events over time. As such, the primary attribution at the time of the event may be retained while the "background" explanations are forgotten, thus exaggerating the self-serving bias effect over time.

The pattern obtained for subjects' attributions in Experiment 1, however, is not consistent with the latter explanation. As shown in the figures, there is virtually no self-serving pattern in the attributions taken immediately after the task feedback. There therefore is no primary attribution to emerge from the simplification process. Thus, the simplification explanation cannot easily account for these specific data.

The focus of attention variable did not appear to affect attributions over time in the present investigation. One possibility is that the manipulation, although found to be significant on the manipulation check item, was not strong enough to produce an effect. The mean responses on the 9-point manipulation check item concerned with subjects' feelings that they were being evaluated were less than 1½ points apart. This may have been in part because subjects in the no-videotape condition still were led to believe that their performance was to be evaluated to some extent (why else would they be given the test?) and because the experimenter sat next to the subject and observed his performance throughout the testing. Therefore, it is possible that another experiment which exaggerated the level of evaluation, and thus the level of self-awareness, might be able to uncover significant effects for this variable. At this point, however, there is no evidence to suggest that focus of attention affects attributions for one's own actions over time or, therefore, that the inconsistent results obtained in earlier research on attributions over time can be explained by differences in subjects' focus of attention during the task.

EXPERIMENT 2

The results of Experiment 1 indicate that individuals tend to make more dispositional attributions for success and more situational attributions for failure over time. One of the explanations that can be advanced for this finding is that a selective decay in memory is taking place. Subjects

may have been motivated to recall the flattering attributions and forget the unflattering attributions over the course of the 2 or 3 days between test sessions in this experiment. As such, this phenomenon may represent another example of a motivational distortion of cognitive elements which allows the individual to maintain a sense of self-esteem or well being (cf. Bradley, 1978; Burger, 1981; Zuckerman, 1979). Experiment 2 was designed to test this explanation further.

If subjects forget unflattering attributions more rapidly, then it could be expected that differences would be found in the type of attributions recalled over time. More specfically, we would expect relatively little decay in subjects' ability to recall flattering attributions (dispositional for success, situational for failure), but a significant decline in recall for unflattering attributions (situational for success, dispositional for failure) over the course of a few days. Therefore, these measures were taken in Experiment 2. In addition, attributions similar to the ones measured in the first experiment were examined, thus allowing for a replication of the Experiment 1 findings.

Method

Subjects. Forty-five male undergraduates served as subjects in exchange for class credit.

Procedure. The procedures were identical to those in Experiment 1 with two exceptions. First, there was no videotape equipment present nor any mention of videotape equipment. Second, a slightly different questionnaire was used. Subjects were asked on the new questionnaire to list explanations for their performance and to give the corresponding percentages, as in Experiment 1. Then subjects were asked to list specifically the "personal reasons why you may have done as well or as poorly as you did on the test. That is, what is it about you that might have affected your performance?" Subjects were told they were to include in their answers those personal reasons listed in the previous question. Space was provided for six answers. Next, subjects were asked to list specifically the "situational reasons why you may have done as well or as poorly as you did on the test. That is, what is it about the situation you were in that might have affected your performance?" Again, subjects were told to include situational reasons listed in the earlier item and space for six reasons was provided. Finally, subjects were asked, as in Experiment 1, to indicate on 9-point scales the extent to which they believed their performance was caused by personal factors, the extent to which they believed their performance was caused by situational factors, and how well they felt they had done on the test relative to most college students.

Results

Manipulation check. Subjects in the success condition indicated that they had performed better on the test than did subjects in the failure condition, $F(1, 41) = 61.32$, $p < .0001$. No other significant effects emerged on this measure. Thus, the manipulation appears to have been successful.

Attributions for performance. Subjects' attributions for their performance were measured in two ways. First, subjects indicated the extent to which they attributed their performance to personal and situational sources on

two 9-point scales. As in Experiment 1, an overall attribution score was obtained by subtracting each subject's score on the situational item from the personal item score. The composite score then was subjected to a 2 (Immediate–Delayed attribution) × 2 (Success–Failure) ANOVA.[2] A significant main effect for outcome was uncovered, $F(1, 41) = 6.15$, $p < .01$. As can be seen in Fig. 3, a significant interation also was found, $F(1, 41) = 4.21$, $p < .04$, with subjects giving more dispositional attributions for success and more situational attributions for failure as time passed. A Newman–Keuls test revealed a significant difference ($p < .05$) between the two delayed conditions only. Thus, the effect uncovered in Experiment 1 was replicated.

The second measure of subjects' attributions was taken from the open-ended item in which subjects were asked to list the reasons for their performance. As in Experiment 1, two judges coded the responses as either dispositional or situational. Judges agreed on 97 of the 108 reasons listed by the subjects (90%) and the first author classified responses where disagreements occurred. As in Experiment 1, percentage values subjects assigned to each response were summed to obtain overall dispositional and situational scores.

Once again, because all attributions were coded, analysis was conducted on the dispositional percentage score only. When this score was subjected to a 2 × 2 ANOVA, a main effect for outcome was found, $F(1, 41) = 4.56$ $p < .03$. As can be seen in Fig. 4, the same pattern found on the earlier measures in both this experiment and Experiment 1 was uncovered. However, the interaction fell short of significance, $p < .14$. As seen in the figure, this may have been caused by a ceiling effect in the success conditions, with little room for increased dispositional attributions in the success–delayed condition.

Attribution recall. Subjects were asked to list as many personal and situational reasons as they wished for their performance. The total number of reasons listed for each of these items served as the dependent variable. Two main effects emerged on the number of personal attributions listed; time main effect, $F(1, 41) = 4.28$, $p < .04$; outcome main effect, $F(1, 41) = 14.07$, $p < .001$. As can be seen in Table 1, a significant interaction also was found, $F(1, 41) = 4.46$, $p < .04$. Subjects in the success conditions recalled virtually identical numbers of personal reasons for their performance in both the immediate and delayed conditions. However, subjects tended to forget these attributions over time in the failure condition. A Newman–Keuls test found that subjects in the delayed–failure condition differed significantly ($p < .01$) from subjects in the other three conditions, which did not differ from each other.

[2] Examination of the personal and situational items separately yielded similar patterns, but statistically weaker results, as compared to the composite score.

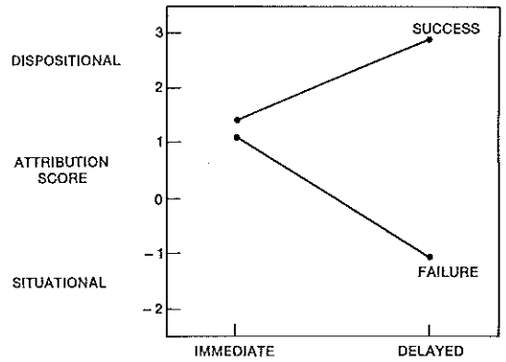

FIG. 3. Composite attribution score as a function of task outcome and time of assessment: Experiment 2.

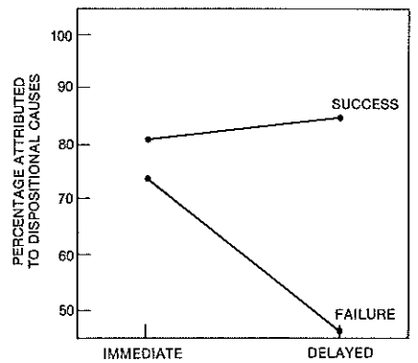

FIG. 4. Percentage of open-ended dispositional attribution as a function of task outcome and time of assessment: Experiment 2.

TABLE 1
MEAN NUMBER OF ATTRIBUTIONS LISTED BY SUBJECTS: EXPERIMENT 2

	Success		Failure	
	Immediate	Delayed	Immediate	Delayed
Personal attributions	2.82	2.83	2.25	0.80
Situational attributions	2.36	1.17	2.17	2.30

A similar pattern was found for the number of situational attributions listed by subjects. The interaction for this effect, however, fell short of statistical significance, $F(1, 41) = 3.17$, $p < .08$. Nonetheless, as seen in Table 1, failure subjects did not change noticeably in the number of situational attributions they gave for their performance over time, whereas success subjects tended to forget the situational attributions over the course of 2 or 3 days.

Discussion

The results from Experiment 2 provide a replication of the effect uncovered in the first experiment and also provide some insight into the reasons for this effect. As in Experiment 1, subjects who believed they had performed well on the task tended to make attributions for the performance more dispositional over time, whereas those subjects who were led to believe they had failed tended to make attributions that became more situational over time. The results from the recall data indicate that this effect may be caused in part by a selective decay in memory over the course of the 2 or 3 days separating experimental sessions. When asked to list personal and situational reasons for the performance, subjects were found to forget more readily those reasons that were least flattering. That is, for subjects performing well on the task dispositional attributions are flattering, but situational attributions are not; whereas for failing subjects situational attributions are the most flattering, but dispositional attributions are not. Hence, the tendency for the successful subjects to forget situational explanations for their good performance and for failing subjects to forget dispositional reasons for their poor performance is consistent with this explanation.

Once again, as shown in the figures, there is little evidence of a self-serving attributional bias for the attributions taken immediately after the task. Thus, combined with the similar findings in Experiment 1, it appears that the simplification interpretation for the time effect uncovered here is insufficient to explain these data.

GENERAL DISCUSSION

The two experiments presented here help to explain the discrepant findings in earlier research on the effects of time on attributions. It sometimes was found in those earlier investigations that people made attributions that became more situational as time passed, yet other studies found attributions became more dispositional over time. A key variable left unmanipulated in these earlier studies was the subject's perception of success or failure on the particular task performed. In both Experiments 1 and 2, it was found that subjects who believed they had performed well on the task became more dispositional in their attributions over time, whereas subjects who believed they had failed became more sit-

uational in their attributions. One explanation for this effect, that people selectively forget unflattering attributions more readily than flattering ones, was supported by the recall data collected in Experiment 2.

One interesting feature of the data uncovered in the two experiments can be seen in Fig. 1–4. The figures show that the traditional self-serving bias, giving oneself credit for success and blaming the situation for failure, shows up only very weakly or not at all at the time of the initial attribution. A significant self-serving bias does not emerge in these experiments until the subjects return 2 or 3 days later. Thus, something of a "sleeper effect" seems to be operating in these investigations. The motivational and/or perceptual sources of distortion which are responsible for the self-serving bias appear to be fairly weak in this situation, although there are no obvious differences between the procedures used here and those used in other studies that have found the effect immediately after the task. Because of this, whether the temporal effects uncovered here also would be found when an immediate bias is present remains a question for future investigation.

However, this delayed bias phenomenon may have implications for attribution research which appears to fail to find a significant self-serving bias when attributions are taken immediately after the task. It is possible that the effect is there, but it is waiting to appear after some time has passed. If the procedures used in the two studies reported here had been employed for research on the self-serving bias without concern for time effects, the results would have been dismissed as a failure to replicate this well-known phenomenon.

Although the research presented here goes a long way in explaining how attributions change over time, there are other relevant variables which await further investigation. One is the difference between actors and observers. The conclusions reached here are limited to the attributions made by actors. Because actor–observer differences in attributions have been demonstrated consistently in previous research (cf. Watson, 1982), it is highly probable that the patterns of attributions uncovered here would not have been found with observers. Indeed, the motivated forgetfulness on the part of the actor proposed to account for this effect probably would not apply to most observer attributions. A second variable of interest is the use of a repeated-measures design as compared to the between-subjects design employed here. Funder and Van Ness (1983) have argued that the act of generating attributions after a task may alter the perception of and recall of the event at a later time. Again, only further research can answer these questions.

On the practical side, attributions for success and failure have been found to be related to a large number of problem behaviors, including depression (Abramson, Seligman, & Teasdale, 1978), educational difficulties (Dweck & Licht, 1980), and coping with undesirable life events (Silver

& Wortman, 1980). Because all of these involve problems that are experienced over a long period of time, it is important to understand how attributions change over time as well as how they are generated at the time of the particular event. For example, if dispositional attributions for aversive events are responsible for the level of depression, as Abramson et al. propose, then understanding the mechanisms that cause these attributions to increase or decrease in strength over time can be important in designing intervention strategies for those suffering from depression. As the present investigations' findings and those of earlier studies suggest, how we explain what happens to us today may be quite different from the way we account for those actions tomorrow.

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