

Attributions of Responsibility for Group Tasks: The Egocentric Bias and the Actor-Observer Difference

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In each of three experiments it was demonstrated that under certain conditions individuals who work on a task in a dyad will tend to attribute greater responsibility for a positive outcome to their partners than to themselves. In Experiment 1 college students working in dyads on a crossword puzzle attributed more responsibility to their partners than to themselves for an outcome they were led to believe was quite good, thus contradicting the expected "egocentric bias" effect. In Experiment 2 college students working in dyads on the puzzle attributed more responsibility to their partners than to themselves for a positive outcome when asked immediately after the task to make the attribution. However, subjects attributed greater responsibility to themselves than to their partners when asked to make the attribution 3 days later, thus replicating the egocentric bias effect. Half of the college-student dyads in Experiment 3 believed they were being videotaped while working on the puzzle, whereas the other half did not. "Videotaped" subjects were found to attribute more responsibility for the positive outcome to themselves than to their partners, whereas the nonvideotaped subjects attributed more responsibility to their partners than to themselves when both groups were asked to give their attributions immediately after the task. The relationship between the egocentric bias effect and the actor-observer difference phenomenon is discussed.

Individuals who participate in a group project tend to give themselves more credit for a positive outcome and recall more of their input into the project than do their co-workers. Ross and Sicoly (1979) identified this phenomenon as the "egocentric bias" and provide a series of experiments with a variety of subject populations and situations to demonstrate its pervasiveness. More recently, Thompson and Kelly (1981) provided a series of studies that demonstrate this phenomenon among romantically involved heterosexual couples.

Ross and Sicoly provide several explanations for the egocentric bias effect. They argue that people may recall more of their contributions to a project than their partner's and hence attribute more responsibility to themselves because of differential encoding and storage

of these personal responses, because of more accessible retrieval from memory, because of greater access to personal knowledge and strategies, and because of a motivation to see themselves as the primary causal agent relative to their partners.

The latter explanation, that the egocentric bias results in part for reasons of enhancing one's self-esteem or seeing oneself as a causative force, was the original concern of the present series of investigations. The original hypotheses were concerned with differences in the use of the egocentric bias by persons of different depression levels. Several recent investigations have suggested that depressed and nondepressed persons may not use attributional distortions in a similar manner (e.g., Alloy & Abramson, 1979, 1982; Golin, Terrell, & Johnson, 1977; Golin, Terrell, Weitz, & Drost, 1979; Lewinsohn, Mischel, Chaplain, & Barton, 1980; Rozensky, Rehm, Pry, & Roth, 1977). These investigations generally have found that nondepressed persons tend to bias their attributions to put themselves in a more favorable light, whereas depressed individuals fail to make these attributional distortions.

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It was anticipated that depressed college students working on a two-person project would be less likely to demonstrate the egocentric bias than would nondepressed students. If, as Ross and Sicoloy (1979) suggest, one reason for the egocentric bias is a motivation to enhance one's self-esteem and to see oneself as an important causative agent, then depressed persons, who often possess low self-esteem and a lack of motivation to control events (Beck, 1972) should be less likely to employ the egocentric bias. The original direction of this research, therefore, was to examine the influence of depression on the use of the egocentric bias. It should be noted, however, that the intriguing findings in Experiment 1 caused the investigators to look more closely at the egocentric bias effect itself and to abandon the questions concerning depression in the subsequent experiments.

Experiment 1

Method

Subjects. One hundred twenty men and women undergraduate psychology students participated in the experiment in exchange for class credit. Fifty-six of these subjects had scores on a depression inventory that allowed their selection into the final sample.

Procedure. Subjects participated in the experiment in groups of 20. At the beginning of the session a female experimenter announced that data were being collected for experiments being run by two different faculty members. It was announced that the first part of the experimental session would consist of filling out some personality questionnaires. The female experimenter distributed and collected the Beck Depression Inventory (BDI; Beck, 1972). The experimenter then left the room as a second experimenter, a male, distributed a second questionnaire, the Adjective Check List (ACL; Gough & Heilbrun, 1980).

The ACL was administered to allow the first experimenter enough time to score the BDIs and to assign subjects to partners based on these scores. That is, the subjects with the two highest scores in the session were paired for the experimental task, then the next two highest scores were paired, and so forth. This procedure was employed to ensure that each member of the dyad worked with a partner of a similar depression level. A few minutes after subjects began work on the ACL the second experimenter stepped out of the room to receive the pairing list. He then collected the ACLs and introduced the experimental task.

It was explained to the subjects that they were to be "randomly" assigned to partners via a random numbers table. The experimenter then had subjects sit together in pairs as he read their names from the list he had concealed in a folder. After subjects were paired the task was introduced. Each dyad was given a crossword puzzle and 10 minutes to work on the puzzle as a team. After the time

elapsed, subjects were told to total the number of squares completed, regardless of how confident they were of the correctness of the answer, and to record this amount in the space provided.

Subjects then were informed that the experimenter had used this task with many other subjects and that he could provide them with some feedback on their performances. Subjects were told that the mean number of squares filled in, correctly or incorrectly, was 21.62 and that any dyad that had completed more than 30 squares had done well. These feedback figures were selected to give all subjects the impression that they had performed well on the task. All dyads were able to complete more than 30 squares. This feedback was given because of Ross and Sicoloy's (1979, Experiment 2) finding that the egocentric bias effect is attenuated when the dyad's performance is poor.

At this point subjects were separated and given a final questionnaire. Subjects were assured that their partner would not see their questionnaire responses. The questionnaire contained several filler items asking about the task. Included was a manipulation check item that asked subjects how well they believed they and their partner performed on the task relative to most college students. The main dependent measure item asked subjects to estimate the percentage they and their partner had contributed to the dyad's overall performance on the puzzle.

Results

Before examining responses, 56 subjects were selected from the group of 120, which composed the final sample. Dyads with mean BDI scores falling into the upper and lower sixths of the distribution were selected, which composed the depressed and the nondepressed groups. Subjects also were selected for a slightly depressed group in a manner that would maximize the difference in depression level for the three groups. The mean BDI scores for subjects in the three groups were as follows: nondepressed = 0, slightly depressed = 3.6, and depressed = 12.7. It was necessary to include 120 subjects in the original sample in order to identify enough subjects with high depression scores. Only 16 subjects (eight dyads) met the pre-set criterion ($BDI \geq 10$ for each subject) for inclusion in the depressed-subject category.

Subjects indicated that they believed they had performed well on the puzzle relative to most college students ($M = 6.73$, with 1 = "very poorly" and 9 = "very well"). Because subjects participated in dyads, subject responses on the attribution measure could not be considered independent. Therefore, the dyad was employed as the unit of analysis. If subjects accurately perceived the relative contribution of the two dyad members, it would

be expected that their totaled percentages of "self" contributions would equal 100%. When the two self-percentages totaled more than 100%, the egocentric bias was evidenced in the dyad. The number of dyads with more than, less than, and exactly 100% self-percentage totals within each of the three depression-level groups is presented in Table 1.

As can be seen in the table, the same pattern emerges in all three depression categories. That is, there is a tendency for subjects to give themselves less credit than they deserve, a pattern exactly opposite of that predicted from the earlier egocentric bias literature. To examine this effect statistically, it would be expected that if variations of dyad scores above and below the 100% level were caused solely by chance, then an equal number of dyads would have self-percentage totals above the 100% level as below this level. However, when collapsed across depression level, we find the occurrence of dyads with below-100% scores significantly more often than dyads with above-100% scores, $p < .02$, using a binomial test (Siegel, 1956).

Discussion

The results of Experiment 1 clearly were unexpected. Not only was the anticipated egocentric bias effect not replicated, but a significant tendency for subjects to give themselves less credit than they give their partners was uncovered. Because of this surprising finding, and because depression level did not appear to affect the attributions, the direction of the research project was changed. The new concern was with understanding why the subjects in Experiment 1 tended to give themselves less credit than they gave their partners, whereas the results of the other egocentric bias studies reported in the literature reveal the opposite pattern.

Experiment 2

The first step in understanding the different outcomes of the experiments was to compare the procedures employed in Experiment 1 with those of other egocentric bias studies. When comparing Experiment 1 with the five studies reported by Ross and Sicoly (1979) and with the three studies reported by Thompson and Kelley (1981), one important procedural difference emerges. In all eight of these studies that had uncovered the egocentric bias effect, subjects were asked about events that either had occurred over a long period of time or had occurred a minimum of one or 2 days earlier. In contrast, Experiment 1 asked subjects to give attributions immediately after their performance.

Therefore, Experiment 2 was designed to examine the effect of a time lag between performance on the dyad task and presentation of the attribution question. It was predicted that subjects asked about the task immediately after its completion would tend to credit their partners with more of a contribution than they would credit themselves, but that subjects asked about the task 3 days after their performance would tend to give themselves more credit than they would give their partners.

Method

Subjects. One hundred and ten undergraduate students served as subjects in exchange for class credit. Ten subjects had to be dropped from the final sample because either they or their partner failed to attend the second half of the experiment. There were 54 men and 46 women in the final sample.

Procedure. The experiment was conducted in groups of 26 to 30 persons. The experimenter explained that the researchers were concerned with how people worked on group tasks. The experimenter then read aloud dyad pairings as each subject was randomly paired with another individual from the sign-up sheet. The experimenter verified at the time that the subjects did not know each other. In the few instances in which subjects said they were acquainted with one another, another partner was randomly

Table 1
Number of Dyad Self-Percentage Totals by Depression Level

Self-percentage totals	Nondepressed	Slightly depressed	Depressed	Totals
More than 100%	2	1	2	5
100%	3	3	2	8
Less than 100%	5	6	4	15

selected from the list. Because subjects were directed to sign up for the experiment at a time restricted to either all-men or all-women subjects, only same-sex dyads were created. Each dyad then was given the same crossword puzzle used in Experiment 1 and given 15 minutes to work on the task.

Half of the male and the female experimental sessions had been preselected for the *immediate*-attribution condition and half for the *delayed*-attribution condition. After the 15 minutes elapsed, subjects in the *immediate*-attribution condition were given a "feedback" sheet containing some norms for the number of puzzle squares completed, supposedly taken from earlier participants in the experiment. Subjects were instructed to count their completed squares and to indicate the percentile group their performance was equivalent to. As in Experiment 1, the bogus norm table had been created to give subjects the impression they had done quite well on the task. All subjects had scores that led them to believe they were among at least the highest 8% of those who had participated in the experiment. Subjects were then separated and given a questionnaire to complete. Once again, subjects were assured that their partner would not see their responses. The questionnaire was identical to the one used in Experiment 1 with one addition. Subjects were asked to list as many words as they could recall that they had contributed to solving the puzzle and as many as they recalled that their partners had contributed. These items were added to examine the role of memory retrieval in the egocentric bias, as hypothesized by Ross and Sicoly (1979).

Subjects in the *delayed*-attribution condition signed up for the experiment with the understanding that it consisted of two sessions. At the end of the 15-minute puzzle time, subjects were informed that the experiment would be continued at the next session. The second session was scheduled for 3 days after the first session. On arrival at the second session, subjects were instructed to separate from their partners. All subjects then were given the same bogus feedback sheet used for the *immediate*-attribution subjects, with their score and percentile indicated. Again, all subjects were told they and their partner had performed as well as at least the top 8% of the participants. Subjects then were administered the questionnaire after being assured their partner would not see their responses.

Results

Once again, all subjects believed they had performed well on the crossword puzzle ($M = 7.00$, with 1 = "very poorly" and 9 = "very well"). As in Experiment 1, to ensure the independence of data points, the dyad was employed as the unit of analysis. The percentages of contribution each member of the dyad attributed to himself or herself were added together. The number of dyads with self-percentage totals above, below, and equal to 100% were compared within each of the two experimental conditions. These results are presented in Table 2. As can be seen from the table, similar patterns were found for male and fe-

male dyads; thus the sex variable was collapsed for the data analyses.

The number of dyads with self-percentage totals above and below 100% were compared for each of the experimental conditions. There was a tendency to replicate the results of Experiment 1 in the *immediate*-attribution condition. Dyad members tended to give collectively more credit to their partners than to themselves more often than they gave more credit to themselves than their partners, $p < .07$, using a binomial test. However, dyads in the *delayed*-attribution condition demonstrated the egocentric bias effect. These dyad members gave collectively more credit to themselves than to their partners more often than they gave more credit to their partners than to themselves, $p < .05$, using a binomial test.

The number of words subjects could recall that they and their partner had contributed also was assessed. Because subjects worked in dyads, each subject's responses could not be assumed to be independent from other subjects' responses. To resolve this problem, the difference between self- and partner-words recalled within each dyad was employed as the unit of analysis. Within each dyad the number of words each subject recalled he or she had contributed was compared with the number of words the partner recalled the subject had contributed. The number of words the partner recalled the subject contributing was subtracted from the number of words the subject recalled himself or herself contributing. The two difference scores were then totaled to create a self-to-partner difference score for each dyad.

The self-to-partner difference score was then compared across the two experimental conditions. It was found that subjects in both the *immediate*- and the *delayed*-attribution groups tended to recall more words they had contributed than words that had been contributed by their partner (self-to-partner difference score $M = 1.96$ for the *immediate* condition and $.88$ for the *delayed* condition). The *immediate*-condition dyads produced significantly larger self-to-partner difference scores than did subjects in the *delayed* condition, $t(48) = 2.46$, $p < .02$. This difference, however, simply may reflect the larger number of total items recalled by subjects in the *immediate*-

Table 2
Number of Dyad Self-Percentage Totals for Immediate and Delayed Conditions

Self-percentage totals	Immediate			Delayed		
	Men	Women	Total	Men	Women	Total
More than 100%	3	2	5	8	6	14
100%	3	4	7	2	5	7
Less than 100%	8	4	12	4	2	6

condition dyads. For example, a subject in the immediate condition typically may have recalled four of his or her own contributions and only two of the partner's words, whereas a subject in the delayed condition typically may have recalled two of the words he or she contributed and only one of the partner's words. However, because of the larger number of total words recalled, it would be difficult to say that the tendency to recall one's own contributions more often than those of the partner was necessarily stronger in the immediate condition in this example despite the larger difference between self- and partner-words recalled.

To overcome this difficulty, the total number of words both members of each dyad recalled for themselves was compared with the total number of words both members recalled for their partner. The number of dyads in which the self-recall total was greater than the partner-recall total was compared with the number of dyads in which the partner-recall total was larger than the self-recall total. Thus because this comparison examines the number of dyads within each condition exhibiting this effect rather than makes a comparison of the number of recalled items between the two conditions, differences in the total amount of items recalled by immediate- and delayed-condition subjects should not influence this statistic. The results of this computation are presented in Table 3. A tendency for members of a dyad to recall words each had contributed more often than words their partner had contributed was found significantly more often than was the tendency to recall more partner-contributed words in both the immediate ($p < .05$) and the delayed ($p < .001$) conditions, (using a binomial test). It can be seen in the table that this effect was strong in both conditions, which suggests that the difference uncovered with the self-to-partner difference

score may reflect the difference in total words recalled and therefore may be somewhat misleading.

Some further analyses were conducted to better understand the relationship between the word-recall measure and the attribution measure. First, the self-to-partner difference score was correlated with the total self-percentages for each dyad. Positive but modest correlations were found in both the immediate ($r = .21$) and the delayed ($r = .24$) conditions. This suggests that in both conditions subjects' recall of specific events may have partially determined the attributions for the performance but that this relationship may not be a strong one. Looking at this same relationship in a different manner, subjects who recalled more words they had contributed than words contributed by their partners gave themselves more credit for the dyad's performance than did subjects who recalled more partner words than self words in both the immediate ($M_s = 52.8$, and 45.0 , respectively) and the delayed ($M_s = 56.5$ and 47.9 , respectively) conditions, although both of these comparisons fall short of statistical significance.

Discussion

The results of the attribution measure fit nicely with the predictions. When subjects

Table 3
Comparison of Dyad Total Words Recalled Contributed by Self Versus Total Words Recalled Contributed by Partner in Immediate and Delayed Conditions

Dyad totals of recalled words	Immediate	Delayed
Self-totals > partner totals	18	17
Self-totals = partner totals	3	5
Self-totals < partner totals	5	2

were asked immediately after the dyad task to assess the relative contribution of their partners and themselves, subjects tended to give more credit to their partners than to themselves. This finding is consistent with the results of Experiment 1. However, when subjects' attributions were assessed 3 days after the task, subjects were more likely to credit themselves than their partners. This finding is consistent with earlier research demonstrating the egocentric bias effect.

The results from the word-recall data, however, present another aspect to this phenomenon. Subjects in both the immediate and the delayed conditions tended to recall more words they had contributed to the solving of the puzzle than they could recall their partner contributing. This suggests that the reversal of the egocentric bias found in the immediate condition may not be completely accounted for through the memory storage and retrieval mechanisms that Ross and Sicoly (1979) use to explain the egocentric bias effect. That is, if the perceived contributions were mere reflections of specific instances (i.e., words) recalled, it would be expected that the attributions would covary strongly with the proportions of self-to-partner words recalled. The failure to find such a relationship suggests there may be a difference between one's general impression of who contributed how much and the specific events recalled.

Experiment 3

Experiments 1 and 2 demonstrated the tendency for individuals to give their partners more credit than they give themselves for a group project when asked about their relative contribution immediately after the task but to give themselves more credit than they give their partners when asked about the task some time later. Why might this procedural difference affect subjects' attributions? One explanation can be found in the large body of literature examining the differences between actors' and observers' attributions of causality (cf. Jones & Nisbett, 1971; Watson, 1982). It typically has been observed that actors tend to attribute causality for their behavior to situational causes, whereas persons observing the actor's performance (observers) tend to attribute causality for that same behavior to personal qualities of the actor. This effect is explained in

part by the differences in perceptual fields of the two individuals (Jones & Nisbett, 1971). That is, the observer focuses his or her attention on the actor, whereas the actor focuses his or her attention on the environment. Both actor and observer therefore simply may be assigning causality to that which is most salient for each. Several investigations (Arkin & Duval, 1975; Storms, 1973; Taylor & Fiske, 1975) provide support for the perceptual field interpretation of the actor-observer effect.

When applied to the experiments reported here, it appears that the failure to replicate the egocentric bias effect in Experiment 1 and in the immediate condition in Experiment 2 not only makes sense, but perhaps should have been predicted from the actor-observer literature. That is, for each of the participants in the dyad the partner is a more salient feature in the individual's perceptual field than are the individual's own actions. Thus, when asked to evaluate the relative contribution of their partners and themselves, we might expect that individuals would attribute more responsibility for the dyad's performance to the partner than to themselves.

Still, the difference between the immediate and the delayed-attribution conditions remains. It is possible that the actor-observer perceptual field effect operates for only a short period of time and that the salience of the environmental variable (in this case, the partner) dissipates over time. When subjects are asked immediately after a group task to assess their and their partners' contributions to the task, the partner's performance still may be highly salient. Thus, it would be expected that these individuals are more likely to attribute causality for the group's performance to the partner than to their own actions, which at that point probably are less-salient features. However, over time salience of the partner in one's recalled perception of the event may dissipate more rapidly than the recall of one's own contributions. At some later time, perhaps as short as a few hours for a fairly uneventful experience such as working on a crossword puzzle, the salience of the partner's behavior may be reduced enough to allow the mechanisms responsible for the egocentric bias to operate.

This tendency for recall of one's own performance to not fade as rapidly as recall of

the partner's performance may be caused by the differences in the coding and the retrieval of memory, knowledge of personal strategies, and self-enhancing motivations that Ross and Sicol (1979) outlined as causes for the ego-centric bias. For example, it is likely that because we store information about our own behavior in a more accessible manner than we do information about others, when we are asked about a group task days later, our own contributions are more readily recalled than are the contributions of our partners.

However, one aspect of the data from Experiment 2 does not fit cleanly into this interpretation. Subjects in the immediate-attribution condition recalled more of their own contributions than their partner's despite attributing more of the performance to the partner. This finding suggests that a general perception of relative contribution, rather than the recall of specific events, may be responsible for the attribution. That is, subjects may have had the impression that their partners contributed most of the words but could not recall precisely what those words were. By the time of the delayed attribution, the salience of the general impression may have faded considerably, but some recall of the subjects' own specific actions, and not those of the partner, remained.

A pair of studies by Moore, Sherrod, Liu, and Underwood (1979) provides some support for this interpretation. These researchers found that actors shifted attributions for their behaviors from situational to dispositional causes over a 3-week period. Moore et al. provide evidence for two processes underlying this shift: (a) a change in focus of attention from the situation to the self and (b) a difficulty in recalling situational information because of less efficient processing than used for dispositional information. Similarly, in Experiment 2 presented here, subjects in the delayed conditions may have found the salience of the situation (i.e., the partner) reduced 3 days after the task, thus resulting in the reduced credit to the partner. However, these subjects may have been able to recall their own behavior well enough to give themselves credit for the dyad's performance.¹

If the above interpretation is correct, then it would be expected that manipulating the salience of an actor and his or her partner in

the perceptual field for someone involved in a group task would result in changes in the actor's perceived contributions to the task for himself or herself and the partner. Experiment 3 was designed to test this hypothesis.

The methodology for the experiment is taken largely from a study by Arkin and Duval (1975). These researchers were interested in the effects of altering the participants' focus of attention on the actor-observer attribution phenomenon. The actor's focus of attention was altered from the environment to himself or herself by aiming a videotape camera at the subject and informing him or her that the session was to be videotaped. The procedure was designed to increase feelings of objective self-awareness (Duval & Wicklund, 1972). That is, because the subjects believed they were being videotaped, their focus of attention presumably was changed from the environment to themselves. Consequently, Arkin and Duval found that under certain conditions videotaped actors, who were focusing on themselves, were less likely to attribute the cause of their performance to the situation than were actors who were not told they were being videotaped.

In a similar manner, half of the dyads working on a group project in Experiment 3 were told they were being videotaped as they performed the task. The other half was not told this. It was expected that the videotaped subjects would change their focus of attention from their environments (i.e., their partners) to themselves and subsequently would be more likely to assess their own contributions to the task as being larger than those of their partners when asked to make this attribution immediately after the task.

Method

Subjects. Thirty men and 30 women undergraduates served in the experiment for class credit.

Procedure. Subjects signed up for the experiment in same-sexed pairs. Subjects were instructed to not sign up to participate at the same time as someone they were

¹ Note that temporal effects on the actor-observer difference probably are more complex than a simple shift toward dispositional attributions by actors over time. Miller and Porter (1980), for example, report several studies uncovering the opposite pattern—that actors increased their situational attributions for their behaviors over time.

acquainted with. The experimenter verified that the subjects did not know each other before beginning the experiment.

Both subjects were seated together at a large table in the experimental room. A television monitor, videotape equipment, and a television camera were located approximately 5 feet (4.57 m) in front of the subjects. The monitor faced the subjects and the camera was pointed directly at them.

The experimenter explained that she was interested in how people worked on group tasks. Subjects were told they would have 15 minutes to work together on the same crossword puzzle used in the previous experiments. In the film condition, subjects were told they would be videotaped while they performed the task so that their behaviors could be analyzed in detail later. The experimenter then removed the lens cap, turned on the equipment, and allowed the subjects to see themselves on the television monitor before turning the monitor away from the subjects. In the no-film condition, subjects were informed that they were to have been videotaped, but that the equipment was not working today. The experimenter left the lens cap on the television camera in this condition. Thus, as in the Arkin and Duval (1975) experiment, whatever distracting effects the mere presence of the camera and equipment may have had was kept identical in both conditions.

Subjects then were given 15 minutes to work on the puzzle. At the end of this time subjects were given the same feedback sheet used in Experiment 2, which supposedly informed them that they had performed as well as at least the top 8% of those who had participated in the experiment earlier. At this point subjects were separated and asked to complete the same questionnaire used in Experiment 2. As in that experiment, the major dependent variable was found in an item asking subjects to estimate the relative percentage of the task performance contributed by themselves and by their partners. The questionnaire also contained the items asking subjects to list as many words as they could remember that they and their partners had contributed. Following this, subjects were fully debriefed and dismissed.

Results

As in the other two experiments, subjects believed they had performed very well on the puzzle, ($M = 7.10$, with 1 = "very poorly" and 9 = "very well"). Once again the dyad was employed as the unit of analysis. The percentages of contribution each member of the dyad attributed to himself or herself were added together to form the major dependent variable. The number of dyads with self-totals greater than, equal to, and less than 100% are presented in Table 4. As can be seen in the table, a similar pattern was obtained for both male and female subjects, and thus the sex variable was collapsed for the data analysis.

A statistical procedure similar to that used in the previous two experiments was employed. The number of dyads with self-percentage to-

als above and below 100% were compared within each of the two experimental conditions. As predicted, dyads in the film condition were significantly more likely collectively to give themselves more responsibility for the task performance more often than they gave their partners more credit, $p < .03$, using a binomial test. In contrast, dyads in the no-film condition tended collectively to give their partners more responsibility more often than they gave themselves more credit, $p < .07$, using a binomial test.

The self-to-partner difference score for the number of words recalled contributed by oneself and one's partner again was computed for each dyad. As in Experiment 2, the number of words each subject recalled the partner contributing was subtracted from the number subjects remembered themselves contributing. The total of the two self-minus-partner scores for each dyad served as the dependent variable. It was found that dyads in the film condition had significantly larger self-to-partner difference scores than did subjects in the no-film condition, $M_s = 1.15$ versus $.41$, respectively; $t(28) = 2.17$, $p < .05$. Thus subjects in the film condition tended to recall more words they had contributed relative to their partners significantly more than did subjects in the no-film condition.

As in Experiment 2, the self-to-partner difference score was correlated with the self-percentage total within each condition ($r = .30$ for film, $r = .20$ for no-film). The mean self-percentage values for subjects recalling more self-generated than partner-generated words versus those with the opposite word-recall pattern could not be compared in the film condition, because no subject in this condition recalled more words contributed by his or her partner than contributed by himself or herself. In the no-film condition, the subjects recalling more words that they had contributed did give themselves more credit for the dyad's performance ($M = 53.6$) than did subjects recalling more words contributed by their partner ($M = 44.0$).

Discussion

The results of Experiment 3 provide additional insight into the causes of the egocentric bias phenomenon and the conditions under

which it can and cannot be expected to occur. The findings also help to define the relationship between the egocentric bias and the actor-observer difference. Although these two phenomena initially appear to be in contradiction of each other, the results of Experiment 3 help to define the differences in mechanisms underlying the two attributional biases and the conditions under which each may be found.

Consistent with past research on the actor-observer difference, when subjects performed in front of a "live" television camera they were more likely to attribute greater responsibility for the group performance to themselves than to their partners. This finding follows from objective self-awareness theory and research that suggests these subjects became self-conscious in this situation. Because their attention was focused on themselves instead of the situation, these subjects were more likely to recall their own performance and were more likely to credit themselves for the group's successful outcome than to give their partner's credit. However, when there was no operating television camera pointed at the subjects, thus not increasing the subjects' awareness of themselves, the focus of attention and subsequent attribution of responsibility was given to the partner. These findings are consistent with a large number of investigations (cf. Taylor & Fiske, 1978) that find a tendency for individuals to attribute causality to that which is salient in their perceptual fields.

The findings, however, are not necessarily inconsistent with the explanation of the egocentric bias provided by Ross and Sicoly (1979). These researchers suggested that when asked about relative contribution to the task, dyad members will attempt to recall the situation and base their responses on these recollections. Differences in the storage and retrieval of the material, perhaps influenced by

various motivational sources, affect the recall. One additional variable that seems to influence this recall is the extent to which individuals focus attention on themselves or their partners during the task performance. Consistent with the above explanation, subjects in the film (self-aware) condition were significantly more likely to recall words they had contributed relative to their partner's contribution than were subjects in the no-film condition.

The use of the videotape camera to produce the subjects' self-awareness, however, allows for the possibility that other subject responses were created in the film condition. Most notably, the subjects' belief that their behavior was to be taped, presumably to be evaluated by others later, may have aroused impression-management concerns (cf. Baumeister, 1982). These subjects may have been more concerned about how others would evaluate them than were subjects in the no-film condition. Although such concerns may have caused subjects to give themselves more credit than they gave their partners, perhaps causing them to abandon false modesty, this seems unlikely. Subjects desiring to present themselves in a favorable light more likely would want to appear modest and show a nonegotistical evaluation of the dyad's performance. In a relevant investigation, Wells, Petty, Harkins, Kagehiro, and Harvey (1977) found that actors indeed tended to attribute less causality to themselves for a successful outcome when they anticipated discussing their performance with a research trainee who supposedly had watched them through a one-way window than when no discussion was anticipated. This suggests that impression-management concerns should have decreased rather than increased attributions to oneself in the film condition, and thus impression management probably cannot account for the findings.

Table 4
Number of Dyad Self-Percentage Totals for Film and No-Film Conditions

Self-percentage totals	Film			No film		
	Men	Women	Total	Men	Women	Total
More than 100%	4	5	9	1	2	3
100%	1	3	4	3	0	3
Less than 100%	2	0	2	4	5	9

General Discussion

The three experiments presented here demonstrate an important qualification to the egocentric bias phenomenon first described by Ross and Sicoly (1979). In each study subjects who participated in a group task without a self-awareness manipulation (i.e., a television camera) and who were asked immediately afterward about their and their partner's relative contribution to the task tended to give their partners more credit for the dyad's performance than they gave themselves. This effect disappeared, and in fact reversed, when subjects were asked about the dyad's performance 3 days later or when subjects were made self-aware during their performance by telling subjects they were being videotaped.

The three experiments bring into focus the question of how the egocentric bias phenomenon and the actor-observer attribution effect differ. Although further research is needed to clarify the entire process, the available data suggest that under normal circumstances individuals working within a dyad focus their attention on their partners. If asked about their impressions of the relative contribution by themselves and their partner immediately after the task, the salience of the partner's performance will cause individuals to assign more responsibility to the partners than to themselves. This is consistent with much research on the actor-observer difference, which also finds this effect for attributions of causality about the actor's performance. However, over a period of time the salience of the partner's performance appears to fade from memory and the actor recalls his or her own contributions more readily than the contributions of the partner. This may be because the individual's own actions are coded in memory in such a manner as to make them less susceptible to memory decay. At some point, perhaps a matter of days or even hours for relatively noneventful tasks such as the crossword puzzle employed here, the salience of the partner's performance may have dissipated to the extent that it no longer causes the individual to assign much responsibility for the performance to the partner. However, perhaps because the individual's own contributions still are easily recalled from memory, he or she is likely to attribute more responsibility for the

dyad's performance to himself or herself than to the partner.

Further investigation is needed, however, at several points in this description. First, the difference between the general impression of the partner's performance and the actual recall of that performance needs to be clarified. As suggested in Experiment 2, individuals may have a general sense that their partner or others in a group have done most of the work, but may not be able to recall specifically what these other people have done. A related issue involves obtaining a better understanding of the differences in the storage and retrieval of one's own actions versus the actions of others and identifying the variables affecting the proposed difference in rates of memory decay for the two types of information. Finally, because they appear to result in contradicting effects, the conditions under which the egocentric bias and the actor-observer effect are likely to be found need to be outlined more fully.

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