

Group members' estimations of their contributions to a collective endeavor were investigated by assessing perceptions of responsibility following completion of an additive group task. As an information-processing approach to attributions in groups suggests, only those who performed well at the individual level internalized success and externalized failure. Those who failed tended to take more responsibility for their group's failure rather than success. Group members also displayed a group-serving tendency; they gave more responsibility to others after success rather than failure. The results suggest that attributional asymmetries following group performance may result from group members' exaggeratedly positive appraisals of their personal competencies.

ATTRIBUTION IN GROUPS

Estimations of Personal Contributions to Collective Endeavors

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Group members devote considerable cognitive resources to the analysis and comprehension of collective endeavors. People in groups often identify the cause of the group's actions and outcomes and discuss their conclusions with others. They may review the group's reasons for choosing one course of action over another. They may ruminate over their part in the group's overall performance. Or they may ponder the factors that contributed to group success or failure and consider the relative inputs of various mem-

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bers to the group outcome. Much group behavior is built on a bedrock of cognitive processing (Wegner, 1987; Zander, 1985).

The current research examines one aspect of this cognitive substrate: estimations of personal contributions to group endeavors. Past research suggests that individuals, when they apportion responsibility for the group's performance or identify factors that caused the group to succeed or fail, often claim personal responsibility for group success but avoid responsibility for group failure. In the typical experimental paradigm, subjects perform an additive or compensatory group task and are subsequently given feedback that indicates their group succeeded or failed. They then make attributions about each member's responsibility for the groups' outcome or they rate various factors that may have played a causal role in producing their outcomes (e.g., ability, luck, etc.). Virtually without exception, these studies show that the members of successful groups take more personal responsibility for the group's performance than do members of failure groups. They also tend to attribute their performance to internal factors (e.g., ability) following a group success and external factors (e.g., task difficulty) following group failure (e.g., Forsyth & Schlenker, 1977; Medow & Zander, 1965; Miller & Schlenker, 1985; Mullen & Riordan, 1988; Mynatt & Sherman, 1975; Norvell & Forsyth, 1984; Schlenker, 1975; Schlenker & Miller, 1977a, 1977b; Schlenker, Soraci, & McCarthy, 1976; Wolosin, Sherman, & Till, 1973; Wortman, Costanzo, & Witt, 1973; Zaccaro, Peterson, & Walker, 1987).

A motivational explanation of this tendency assumes that individuals selectively emphasize and de-emphasize their responsibility for a group's outcome to bolster their self-esteem (Leary & Forsyth, 1987; Schlenker & Miller, 1977a, 1977b). Hence the tendency is generally referred to as the *self-serving bias*. The current research, however, tests an alternative explanation that draws on Miller and Ross's (1975) information-processing analysis of attributions in performance settings. They argue that the self-serving bias label is a misnomer because individuals internalize their successes but externalize their failures only because they generally expect to succeed rather than fail. If individuals' performances match their expectations, they argue, then they attribute

their outcome to stable, personal causes. Because success is usually the expected outcome, group members attribute their positive outcomes to personal causes. Failures are usually unexpected, so individuals tend to attribute them to external, situation factors rather than to themselves. Researchers have confirmed that individuals do indeed have unrealistically positive expectations about their future outcomes (Weinstein, 1982). Moreover, when researchers have directly manipulated expectations in individual performance setting they find that individuals make internal attributions only when they expect success (Feather, 1969; Taylor & Riess, 1989).

This cognitive model can be extended to group performance settings. If people assume that their personal performance when working as part of a group is adequate, how will they react when the group fails? If the tackle on the football team knows that he played well, if the leader assumes that she organized the group adequately, and the assembly line workers know they did their part, then how can a failure by the group be explained? By attributing that outcome to factors other than oneself. Conversely, if the group fails, these individuals should not feel responsible, because their group's outcome is inconsistent with their own personal performance. Individuals who know that their personal performance was inadequate, however, should take more responsibility for the group's failure than for its success.

We tested this interpretation by manipulating not only group performance on a task but also each individual member's performance as well. Members of groups worked on a task that paralleled the structure of the tasks many naturally occurring groups face. Subjects were assigned to one of two groups. After completing a preliminary group discussion task, the groups were seated facing one another. Then, in round-robin order, each member was given a problem to solve. Each time a subject answered he or she was given feedback. Some subjects were led to believe that they incorrectly answered many problems, others were told they answered most correctly, and others received a mixture of success and failure feedback. The subjects did not receive any feedback about their overall performance, but they were informed about their group's performance at the end of the session. Moreover, all rewards in the

situation were based on the group's performance rather than individual performance.

After the groups received their feedback the subjects were moved to separate tables where they completed two types of measures of responsibility. One type of item was drawn from procedures developed by Schlenker (Schlenker, 1975; Schlenker & Miller, 1977a; Schlenker et al., 1979; Schlenker et al., 1976): subjects rated their responsibility and other group members' responsibility on independent rating scales. The second type of responsibility measure was based on one used by Wolosin et al. (1973). Subjects were asked to divide 100 "responsibility points" up among the three group members. These two types of items allowed us to differentiate more clearly between responsibility allocated to the self and responsibility allocated to the other group members. When individuals are asked to allocate responsibility points, they must give some people less responsibility if they give others more responsibility. Separate items that ask subjects to rate each group member's responsibility, in contrast, do not force subjects to allocate responsibility in a compensatory fashion.

A self-esteem maintenance approach argues that the group members should avoid the blame for the group's failure and seek out credit for the group's success. Indeed, their need to bolster their self-esteem should be greatest when their personal performance was of poor quality, so those who personally failed should be particularly biased. An information-processing approach, however, argues that only individuals who performed well will display the typical attributional asymmetry: They will internalize success and externalize failure. Individuals who perform poorly, in contrast, will take the blame for failure and externalize success.

METHOD

SUBJECTS

A total of 96 women and 54 men participated in hour-long sessions. Each session involved 6 same-sex subjects, who were

randomly split into two groups of 3 members each. Any subjects who knew each other were dismissed and replaced with additional subjects. The sessions were conducted by two experimenters, one man and one woman. Nine men and 16 women served in each cell of the balanced factorial design.

PROCEDURE

The groups were told the study was an investigation of their ability to work together to solve problems that required creativity, communication, and raw intellect. They were encouraged to work as efficiently as possible and told that, as a reward, the group with the better score would be entered in a raffle with a prize of \$50. The losing team would not be able to enter the raffle.

The two groups then worked separately on a group consensus task. Subjects, in face-to-face discussion, decided on the ranking of 15 objects in terms of their usefulness when surviving in the wilderness. When this task was completed (15 minutes) the two groups moved to two separate rectangular tables. They then were told that they would be shown a series of slides containing multiple choice and fill-in-the-blank questions drawn from an intelligence test. Each member of the group would be asked a question and only that individual could answer. They were told that only correct answers would earn the group points, and that some questions were worth more than others.

One of the experimenters then guided the two groups as members answered the 48 questions. These questions were designed so that subjects could not identify the correct answer without assistance from the experimenters. For example, a fill-in question asked, "The overabundance caused a ____" and options included "surfeit," "satiety," and "glut." Similarly, one of the analogy questions asked, "Elbow is to fulcrum as biceps is to: weight, balance, or force." These questions were sufficiently difficult or ambiguous that subjects could be given arbitrary feedback about their performance. During the performance phase the subject stated his answer aloud and then the second experimenter announced if the answer was correct, partially correct, or incorrect. This *individual perfor-*

mance (IP) information was contrived so that within each three-person group, one individual was given a random sequence of primarily positive feedback (5 correct, 2 partially correct, 1 incorrect), one received a randomized sequence of mixed feedback (3 correct, 3 partially correct, 2 incorrect), and one was given negative feedback (1 correct, 2 partially correct, 5 incorrect).

Group performance (GP) was manipulated immediately after the completion of the group test. The second experimenter stated, "I know you would like to find out if you qualified for the raffle, so if you give us a few minutes we can tell you." After a delay, the groups were told, "I've got good news for Group 1 [2] and bad news for Group 2 [1]. Both groups did fairly well, but Group 1 [2] wins. Their Group Ability Quotient was 112, while Group 2's [1's] score was 88." The members of the successful group completed raffle ticket forms.

MEASUREMENT AND DEBRIEFING

Subjects, after being told if their group succeeded or failed, were moved to individual tables and given a questionnaire that measured the effectiveness of the manipulations, feelings of satisfaction with and responsibility for personal and group performance, and emotional reactions to the experience. Written instructions stated that their answers were confidential, and they were told to seal their form in an envelope when they were finished. A group debriefing session was held immediately after the questionnaires were completed.

RESULTS

Subjects' responses were examined in a series of 3 (Individual Performance: success, failure, and mixed) \times 2 (Group Performance: success and failure) \times 2 (Sex) analyses of variance. When appropriate, post hoc tests were conducted using Tukey HSD at the $p < .05$ level.

REACTIONS TO THE FEEDBACK

Subjects rated both their personal and group performance on 9-point scales with the end points marked *very well* (9) and *very poorly* (1). The IP main effect was significant on the item "How well did you personally do on the test?" $F(1, 138) = 48.71, p < .0001$. Successful subjects rated their scores more positively than failure subjects, and the mixed performance group fell intermediate, but significantly different from the others; the means were 6.6, 6.1, and 4.2. Moreover, even though this question focused on personal performance, the GP main effect was also significant. As shown in Table 1, people who were members of successful groups felt their personal performance was better than did members of failure groups.

The manipulation of group performance was also successful, as the significant GP main effect on the item "How well did your group do on the test?" shown in Table 1 indicates. People in failure groups rated their group's efforts more negatively than those in the successful groups. No other effect was significant for this item.

Subjects' ratings of their satisfaction also confirm the effectiveness of the manipulations. The GP main effect was significant on items that asked subjects to rate their satisfaction with their personal performance and their group performance on 9-point scales with end points marked *very satisfied* and *very dissatisfied*. As Table 1 indicates, people in successful groups were more satisfied with their personal performance and their group's performance relative to individuals in failing groups.

The main effect of IP was also significant, $F(2, 138) = 51.83$ and 27.81 , respectively, $ps < .0001$. People who failed felt less satisfied with their personal performance than those who received mixed feedback, and they in turn were less satisfied with their performance than those who received positive feedback; the means were 4.1, 5.9, and 6.6, respectively. Similarly, those who failed, relative to those who succeeded or received mixed performance feedback, reported less satisfaction with their group's performance; the means were 6.2, 6.7, and 6.8, respectively.

Table 1: The Effect of Group Performance Feedback on Ratings of Performance, Satisfaction, Responsibility, and Affect

	Group Performance			p value
	Success	Failure	F ratio	
Personal performance	6.0	5.2	10.63	<.01
Group performance	7.2	5.3	63.80	<.001
Satisfaction (Own)	5.9	5.2	7.86	<.01
Satisfaction (Group)	7.6	5.2	58.43	<.001
Responsibility (Own)	5.8	5.5	1.20	n.s.
Responsibility (Grp)	6.6	5.6	18.36	<.001
% personal responsibility	36.5	32.6	3.34	<.07
% others' responsibility	72.4	70.9	0.16	n.s.
Negative affectivity	1.6	2.0	9.04	<.001
Positive affectivity	3.6	2.8	20.98	<.001
Arousal	2.6	2.5	0.32	n.s.
Calm	3.2	3.1	0.78	n.s.

NOTE: $df = 1, 138$; n.s. = not significant.

RESPONSIBILITY ALLOCATIONS

Three items asked individuals to allocate responsibility to themselves and to the other group members. Two 9-point questions asked, "How responsible are you personally for your group's performance?" and "How responsible are the other group members [excluding yourself] for the group's performance?" The end points on the accompanying rating scales were labeled *very responsible* (9) and *not very responsible* (1). A third question asked subjects to divide 100 points among the three members of their group, "giving more points to the more responsible member." Although this item explicitly stated that the total should equal 100, some subjects allocated more than 100 points.

Personal responsibility. Analysis of responses to the item "How responsible are you personally for your group's performance?" revealed an IP main effect qualifying interaction of IP and GP, $F(2, 138) = 5.35$, $p < .01$. The means shown in Figure 1 reveal a self-serving pattern of attributions, but only among individuals who succeeded on their portion of the group's task. Individuals whose personal performance was mixed or failing showed no attributional bias. In fact, individuals who failed on the task were more likely to

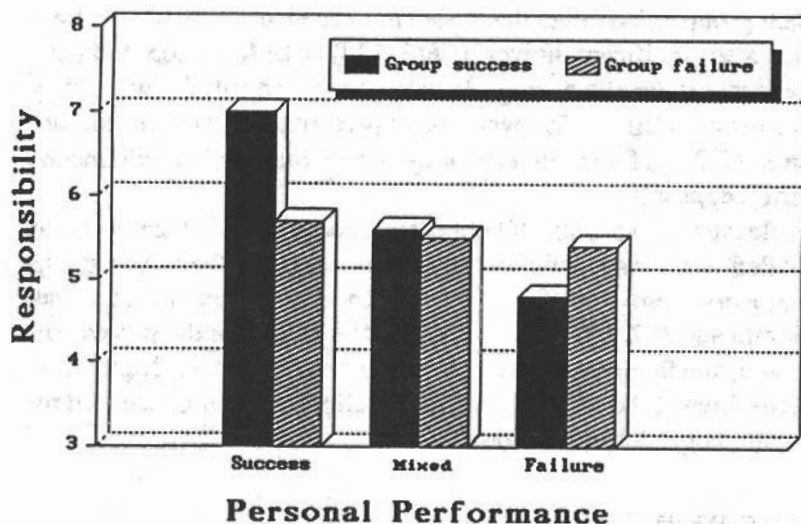


Figure 1: The Impact of Individual Performance Feedback and Group Performance Feedback on Attribution of Personal Responsibility

deny themselves responsibility for a group success. However, people who performed poorly in a losing effort took no more responsibility for the failure than did people who performed very well; they evidenced no self-blame. People who performed well in failing groups, in contrast, took less responsibility for their group's outcome than did people who performed well in successful groups.

Other responsibility. As Table 1 indicates, the main effect of GP was significant for allocations of responsibility to the other group members. Instead of denying the other group members' responsibility for success and blaming them for failure, subjects displayed the opposite tendency: They gave more responsibility to their group members when the group succeeded rather than failed.

Responsibility allocation. Subjects divided 100 "responsibility" points among the three members of the group, including themselves. For self-allocations, the GP main effect approached significance (see Table 1); subjects tended to take less responsibility when

their group failed rather than when it succeeded. The IP main effect was also significant, however; $F(2, 138) = 4.31, p < .05$. Subjects gave themselves an average 38.5% of the responsibility when they performed well, 34.3% when their performance was mixed, and only 30.7% of the responsibility when they failed (all means differed, $ps < .05$).

Because all subjects did not enter responsibility allocations that totaled 100, responsibility points allocated to the other group members were summed and analyzed. The IP main effect was significant; $F(2, 138) = 3.22, p < .05$. The means for the successful, mixed, and failure subjects were, respectively, 66.2, 71.2, and 77.7; all differed at the $p < .05$ level. These effects were not qualified by any higher order interactions.

AFFECTIVE REACTIONS

Subjects completed a feelings checklist that asked them to indicate the degree to which they experienced 32 affective reactions using a 7-point scale ranging from *not at all* (1) to *extremely* (9). Following Redstrom, Kelley, Forsyth, and Noel (1986), these 32 items were then averaged to yield four general affective scales: negative affectivity (e.g., distressed, sad); positive affectivity (satisfied, happy); arousal (tense, excited); and calm (calm, tranquil). All scales had high internal consistencies (Cronbach's alpha greater than .82).

The main effect of GP was significant for negative affectivity and positive affectivity. As Table 1 indicates, individuals in successful groups felt more positive and less negative than did members of failure groups. The only other effects that reached significance on these affective items involved sex as a variable, as noted below.

SEX DIFFERENCES

We did not anticipate robust sex effects, yet a consistent interaction of sex and individual performance emerged across many of the dependent measures.

Satisfaction. The two-way interaction of IP and sex was significant on both satisfaction with one's personal performance and satisfaction with the group's performance items, $F_s(2, 138) = 6.39$, and 4.00, respectively, $p_s < .05$. As Table 2 indicates, women who failed reported feeling significantly less satisfied with their own performance and their group's performance. Whereas men who failed were less satisfied than men who succeeded, women who failed were less satisfied than all other women and men. When rating their satisfaction with their group's score, women who failed were less satisfied than women whose performance was mixed.

Personal responsibility. The two-way interaction of IP and sex was significant for ratings of personal responsibility, $F(2, 138) = 3.67$, $p < .05$. The means, shown in Table 2, suggest again that the interaction was produced by the extreme reaction of women who personally failed. They took less responsibility than women who succeeded and less responsibility than men who succeeded or men who received mixed scores. Men's responses were not significantly influenced by their personal performance.

Other responsibility. The interaction of IP and sex emerged on ratings of others' responsibility, $F(2, 138) = 5.87$, $p < .01$. Women who succeeded gave more responsibility to others relative to women who failed (see Table 2). Men displayed the opposite response; successful men gave less responsibility to others relative to men who failed.

Affect. The two-way interaction of IP and sex emerged in subjects' ratings of their positive affectivity, $F(2, 138) = 4.97$, $p < .01$. Women who failed had lower positive affect when compared to all other subjects (see Table 2). This same effect emerged in subjects' ratings of their arousal, $F(2, 138) = 3.59$, $p < .05$. Women who failed reported the lowest level of arousal when they failed, whereas men reported the lowest level of arousal when they succeeded. Last, only the main effect of sex emerged as significant in ratings of degree of calm, $F(1, 137) = 7.78$, $p < .01$. The mean was 3.6 for men, 2.9 for women.

Table 2: The Impact of Personal Performance on Reactions of Men and Women

Measure	Sex	Personal Performance		
		Success	Neutral	Failure
Satisfaction (own)	Males	6.3 _{ab}	5.6 _{bc}	4.9 _c
	Females	6.9 _a	6.2 _{ab}	3.4 _d
Satisfaction (group)	Males	6.6 _{ab}	6.2 _{ab}	6.8 _{ab}
	Females	6.8 _{ab}	7.2 _a	5.9 _b
Responsibility (own)	Males	5.9 _{ab}	6.1 _{ab}	5.6 _{bc}
	Females	6.6 _a	5.3 _{bc}	4.8 _c
Responsibility (group)	Males	5.5 _c	6.2 _{abc}	6.5 _{ab}
	Females	6.7 _a	6.1 _{abc}	5.7 _{bc}
Positive affect	Males	3.4 _a	3.2 _a	3.5 _a
	Females	3.5 _a	3.4 _a	2.5 _b
Aroused affect	Males	2.4 _{ab}	2.6 _{ab}	2.8 _a
	Females	2.9 _a	2.7 _a	2.0 _b

NOTE: Means without a single letter subscript in common differ at the $p < .05$ level by Tukey's HSD test.

DISCUSSION

Self-serving patterns of attributions in groups can take at least three forms: (a) members of successful groups take more responsibility for the group's performance in comparison to members of failure groups, (b) members of successful groups take more responsibility than they give other group members, and (c) members of failure groups can take less responsibility than they give to other members (Leary & Forsyth, 1987). In the current study, only the first type emerged, and even then only when group members had succeeded on their individual portion of the task.

These findings are more consistent with a cognitive rather than a motivational interpretation of attributions after success and failure (Tetlock & Levi, 1982; Tetlock & Manstead, 1985). A motivated-bias approach argues that if group members blamed themselves for their groups' failures, then their sense of self-confidence

and self-worth would be undermined. Therefore, individuals externalize failure by blaming external factors or other group members, while internalizing success by crediting their personal abilities and efforts (Schlenker & Miller, 1977a). A cognitive, information-processing approach offers a contrasting view. It suggests that people are more likely to attribute expected than unexpected outcomes to themselves. To the extent that most people assume things generally go well, they accept more responsibility for group success than group failure. Because the typically observed attributional asymmetry emerged only when group members had performed successfully on their individual portion of the task, these findings support a cognitive interpretation. Individuals who did not do well on their portion of the task showed, if anything, a tendency to take more responsibility for failure than success. Moreover, irrespective of their own personal performance, when subjects estimated the other members' responsibility on a separate measure that was dissociated from estimates of their personal responsibility, people gave more responsibility to their group members when the group succeeded rather than failed. This willingness to credit the group more after success than failure suggests that attributions are as much group-serving as they are self-serving (Forsyth, Berger, & Mitchell, 1981).

Group members were not, however, altogether accurate in their perceptions of the performance and responsibility. The group's performance influenced people's ratings of their own individual performance, even though they were given explicit, individualized feedback after each response. People who performed very poorly nonetheless felt better about their personal performance when their group succeeded rather than failed. They also felt more satisfied with their personal efforts when their group succeeded, irrespective of their own contribution to that collective enterprise. Also, individuals who were members of failure groups avoided responsibility for that failure. The individual who performed very poorly on the task took no more of the blame for the group's failure than the individual who performed very well. People in failing groups also gave slightly more responsibility to other group members than they gave themselves.

These findings suggest that self-serving and group-serving attributions are not necessarily mutually exclusive processes. Members of a failing group can maintain that they had little to do with the group's actions, but at the same time point out that the group, as a whole, is blameless as well. When their group prospers, in contrast, they can credit the entire team, but also highlight their own personal contributions to the team effort. Thus, performing tasks in groups offers clear advantages to the individual. When the group does well the mediocre performer can take pride in his or her group's work and share in the group's success. Moreover, the top performer in the group can magnanimously share the credit with others, but also claim the lion's share for himself or herself. When the group fails, however, responsibility can be diffused throughout the entire group, and no one individual need bear the brunt of the blame. In this research, at least, little scapegoating was noted: even individuals who were very successful did not blame their incompetent co-workers for the group's failure.

Additional research is required to explore two significant questions unanswered in the current effort. First, additional work is needed to explore the interpersonal implications of responsibility allocations in collective endeavors. In the current work, individual's claims of responsibility were kept private. In many settings, however, one claims responsibility or avoids blame publicly. Whereas members may be publicly gracious after group performance, privately they may formulate self-serving attributions to protect their personal sense of self-worth (Miller & Schlenker, 1985; Norvell & Forsyth, 1984; Schlenker, Weigold, & Hallam, 1990).

Second, the unexpected reaction of women who failed requires further study. None of the subjects responded positively to personal failure, but women's reactions were particularly negative. Women who received negative feedback were less satisfied with their own score and their group's score. They took less personal responsibility than women who succeeded, but they also allocated less responsibility to the other members of their groups. They also had lower positive affect and were less aroused in comparison to others. These responses suggest that, in general, women who failed felt less

involved in the group experience than women who received positive personal performance scores and men in general.

This sex difference may be due to differences in women's attributional tendencies. Women, in some cases, take less responsibility for their performance outcomes. Significantly, however, in most cases this effect occurs following success rather than failure (Frieze, Whitley, Hanusa, & McHugh, 1982). Alternatively, the effect may be due to women's greater involvement in their groups. If they were more involved, then failure of the groups may have been personally threatening. They therefore responded more negatively to the failure experience. Also, whereas men who failed in the group were able to use the group as an attributional shield to protect them from the esteem-damaging implications of their poor performance, women did not seem so facile in their use of the group for egocentric purposes. This possibility, however, is admittedly speculative, and requires further study.

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