Attributions After a Group Failure: Do They Matter? Effects of Attributions on Group Communication and Performance

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Abstract

Attributions have been studied extensively in groups, yet little is known about the effects attributions have on group communication and performance. This study examines how attributions for a group failure affect socioemotional communication, procedural changes, effort, and performance on the next task. Three-member computer-mediated groups worked on two decision-making tasks. All groups received bogus failure feedback for the first task and, dependent on the attributional condition, members were led to attribute the failure either to self, other members, the group as a whole, or situational constraints. The results demonstrate that the way group members explain previous performance influences subsequent group processes and performance. Specifically, attribution to situational constraints prompted groups to discuss and change communication procedures. Attributing failure to the self or group yielded the highest effort. Attributions to others increased the ratio of negative to positive socioemotional communication and decreased performance quality.

Keywords

attribution, group failure, group performance

Causal attributions reflect how people explain social behaviors by interpreting their causes. While there is abundant evidence for the effects of attributions on people's cognitions, emotions, and behaviors, most of this evidence has to do with attributions for

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individual behaviors (see for review, Martinko, 2004; Weiner, 2001, 2004). We know surprisingly little about the role of attributions in groups, that is, how members' attributions for the group's operation can shape subsequent group processes and performance. Following recent models of group performance, which emphasize individual-level cognitions that emerge as a product of group performance and become an input into subsequent functioning (e.g., Ilgen, Hollenbeck, Johnson, & Jundt, 2005; Marks, Mathieu, & Zaccaro, 2001), the goal of this research is to examine the role of attributions for past performance in shaping future group communication and performance.

Specifically, we focus on attributions for group failures. While a group failure does not automatically result in changes of group procedures and improved performance (Avery, 1996; McClelland, 1984), group theorists have urged the identification of conditions under which a group failure might prompt members to reconsider and change group procedures (e.g., Gersick & Hackman, 1990). By providing a bogus failure feedback to all groups, we examine the role of attributions in affecting communication procedure changes, as well as socioemotional communication, effort, and performance.

Although there are several dimensions by which attributions can be classified, the most prominent classification is based on an internal/external distinction. This distinction refers to the origin of a cause, with internal causes residing within an individual (e.g., personality, effort, motivation, mood) and external causes residing outside of an individual (e.g., time pressure, task difficulty, social partners). The group level adds an additional layer to internal/external attributions by setting the boundary on either the individual member or the group as a whole so that attributions can be internal to self only or internal to the whole group, and, vice versa, external to self only (other members excluding self) or external to the whole group (e.g., time pressure, difficulty task, or problems with communication technology) (Schlenker & Miller, 1977; Zaccaro, Peterson, & Walker, 1987). According to Zaccaro, Peterson, & Walker (1987), considering all four types of attributions provides a more in-depth and fine-grained analysis of attributional effects on group dynamics, while "the delineation of attributions into just two categories, internal and external, precludes our understanding of . . . reactions to group outcomes" (p. 262). Therefore, we consider the differential effects of attributions to (1) self, (2) other members excluding self, (3) the group as a whole, and (4) an external situation on subsequent group processes and performance.

Effects of Attribution: The Individual-Level Perspective

The effects of attributions for a personal failure have been extensively studied within Weiner's (1985) influential theory of achievement motivation and emotion. According to this theory, attributions are key to predicting personal behaviors, such as whether a person will fail again or be successful in future endeavors. People make attributions for past events not only in an attempt to understand what happened but also to gain more effective control of future events via understanding their underlying causes. According to Weiner (1985),

If the prior outcome or event was undesired—such as an exam failure, social rejection, political loss, or economic decline—then there is a strong possibility that there will be an attempt to alter the causes to produce a different (more positive) effect. (p. 549)

Not all causes are malleable, however. Within this framework only internal causes that are controllable by the attributor and are subject to change are regarded as facilitating performance because they increase achievement motivation and encourage behavior changes that should, in turn, improve performance. For instance, by attributing a test failure to poor effort, the individual can anticipate future success by working harder in the future. In contrast, attributing a negative outcome to external causes (e.g., task difficulty or distracting roommates) is considered performance-detrimental because such causes lie outside the attributor's volitional control and capacity to change (Weiner, 1985). Therefore, as long as external factors are expected to remain in the future, the individual failure is to be repeated over and over again.

Attributional research has taken up this idea that it is the attributions for a failure, rather than the failure itself, that can undermine future success. Supporting this perspective, internal attributions have produced effort increase and performance improvements for failing performers (e.g., Noel, Forsyth, & Kelley, 1987; Wilson & Linville, 1985). Generalizing this perspective to group situations, if members internalize their problems by making attributions either to self or the group as a whole (including the self), and the causes are potentially controllable, such attributions should encourage positive behavior changes, particularly effort increase. Therefore, the following hypothesis is presented:

Hypothesis 1 (H1): Attributing a group failure to self or the group as a whole increases task effort more than attributions to other causes.

In contrast to internal attributions, external causes are as largely irrelevant to personal failures and mostly as excuses for protecting one's self-esteem (e.g., Noel et al., 1987). Individuals who externalize their problems presumably deprive themselves of an opportunity to learn and adjust behaviors accordingly because they blame uncontrollable and external causes. Indeed, attributing personal failures to external causes has been linked to reduced task satisfaction, motivation losses, and inferior task performance in individual achievement-related contexts (e.g., Forsyth & McMillan, 1981; Hall, Hladkyj, Perry, & Ruthig, 2004).

Although attribution research usually associates external attributions with all aspects of the external environment, in interpersonal settings, such as groups, it is important to consider the effect of social partner(s) separately from the general situational environment (Robins, Mendlsohn, & Spranca, 1996). While attributions to other members point to external causes that occur within the group, a general situational environment lies outside the group, which is likely to result in different types of

consequences for group processes. Therefore, we consider the effects of attributions to other members separately from the effects of attributions to the environment.

External Attributions to Other Members

Blaming others is associated with negative emotions and maladaptive communication strategies, creating relationship dissatisfaction, mistrust, and conflict escalation. According to Weiner's (1995) extension of attributional theory of achievement motivation and emotion, other-blame hurts social relations by eliciting negative emotions in the attributor, such as anger, frustration, or even aggression, causing destructive behaviors and relationship deterioration. Extending these perspectives to a group situation, blaming other members is expected to lead to relational problems in a group.

Because relational dynamics in groups is shaped through members' communication behaviors, which creates a "social fabric of a group" (Keyton, 1999, p. 192), attributional dynamics should be evident in the group's interaction. Specifically, attributions are expected to influence socioemotional aspects of communication, which refer to messages communicating members' attitudes towards one another, the group as a whole, and their work (Pavitt & Curtis, 1990). Socioemotional communication reflects an "affective tone" of communication, which is distinct from content message function (Burgoon et al., 1987). Jarboe (1996) illustrated the socioemotional aspect of communication this way:

> One can imagine two groups arriving at exactly the same set of consequences, yet one discussion might be marked by sarcastic tones and rigidity whereas another group presents its ideas supportively and tentatively . . . And one group may disband with relief while the other looks forward to the next meeting. The sheer presence of an idea is one thing; the way is presented is another; and its impact on group process is also another. (p. 374)

Therefore, we expect that blaming other members for a group failure should negatively affect socioemotional communication in groups:

Hypothesis 2 (H2): Attributing a group failure to other members leads to more negative and less positive socioemotional communication than attributing a group failure to other causes.

In addition to the negative impact on socioemotional communication, blaming other members may hurt group performance. Members' attitudes towards each other and their interactions create a climate within which members complete a task, which, in turn, affects members' task motivation (Hirokawa & Gouran, 1989). Negative relational attitudes increase group stress, lead to dissatisfaction (Gouran, 1994; Meyers & Brashers, 1994), and can undermine group cohesiveness, cooperation, and development of shared meaning (Keyton, 1999). In contrast, members' positive attitudes

expressed through positive statements build up a group's morale and enthusiasm about the task, which increase task motivation and a group's self-efficacy (Weingart & Weldon, 1991). As Keyton (2000) stated, "The attitudes we hold about our relationships with others in a group have a strong effect on our task motivation. Group tasks are not accomplished by task knowledge or skill alone" (2000, p. 388). Similarly, Poole and Holmes (1995) argued that relational factors account for a large share of variance in group decision making.

> *Hypothesis 3 (H3):* Attributing a group failure to other group members leads to lower quality performance than attributing a group failure to other causes.

External Attributions to the General Situational Environment

In considering the effects of attributions to the general situational environment, we depart from the traditional negative view of external attributions as merely excuses deflecting the fault from the attributor to uncontrollable causes. Instead, we argue that in groups members' awareness of situational constraints via making attributions to aspects of the environment can promote communication procedural changes.

According to several theories of group performance, properties of the external environment, such as general physical conditions, communication channel, and task instructions, can impose situational constraints and afford options for group behavior (Goodman, 1986; Hackman, 1978; Roby, 1968). For instance, Goodman referred to the external environment as technology, which creates "the constraints by which other systems (for example, the human or team component) could function" (1986, p. 143). Similarly, Hackman (1978) argued that the group's external context creates contingencies that mediate between group processes and performance and that it is critical for group members to identify relevant situational constraints in order to improve group performance. Although the relative importance of the external environment may vary for different groups and situations (Goodman, 1986), Hackman (1999) persisted that "the context is part of the phenomenon of group dynamics" (p. 234).

A salient example for the role of the environment on group performance is groups working with technology. For instance, Tesluck and Mathieu (1999) found that situational constraints—"factors in the immediate work environment that can potentially interfere with effective performance" (p. 201)—negatively affected performance of maintenance-road crews. Similarly, groups collaborating through communication technology experience constraints created by the communication medium, such as difficulties coordinating resources, temporal delays, or maintaining a shared context, which, in turn, can impair group performance and relationships (see review, Gibson & Gibbs, 2006). Thus situational constraints may be potent and relevant factors that affect work processes and relationships in groups.

If situational constraints affect group processes and performance, it is essential for members to realize their influences. As Hackman and Morris (1975) argue, in order to

improve group performance "members should achieve the fullest possible awareness and understanding of the factors that affect their own performance activities and their effectiveness as a group" (p. 94). In relation to computer-mediated groups, the awareness of situational constraints via making external attributions has been argued to be essential for improving members' adaptation to the computer-mediated environment (e.g., Walther & Bazarova, 2007), but the mechanism by which attributions to situational factors could improve group adaptation has not been specified.

What can be done once members realize the effects of situational constraints? Although group research has traditionally viewed the group external context as a determined system that cannot be influenced by the group (see for review, Argote & McGrath, 1993), some theorists have argued that groups could gain at least limited control over the work environment by using strategies that either minimize the presence or the negative impact of situational constraints on group performance (Cummings, 1981; Goodman, 1986). According to this view, "Groups not only are influenced by their environment but also are active agents that over time learn to shape their own contexts" (Tesluk & Mathieu, 1999, p. 203). For instance, going back to the example of computer-mediated groups, if members realize that at least some of their difficulties are caused by the limitations of the electronic channel, they can minimize its negative impact by restructuring the group's communication procedures.

Most groups adopt, either explicitly or implicitly, a particular practice that structures group communication (Sunwolf & Frey, 2005), such as procedures for conducting a meeting, agendas that identify relevant issues, a discussion format, and a communication medium. Unfortunately, groups rarely spontaneously focus on their communication procedures as a possible failure cause. According to Hackman (1978), although "norms about strategy should be relatively amenable to change, . . . such norms are rarely examined or tested by the group," and that group members need some kind of "impetus from outside of the group" that would redirect their attention to group strategies and procedures (p. 76). We suggest that realizing situational constraints as a contributing factor to the group failure could serve as the impetus for making procedural changes. As Tesluck and Mathieu (1999) argue, groups can only change their practices after they "develop an understanding of the types of constraints that affect group performance . . . by observing the relationship between contextual factors and performance outcomes" (p. 204). Once members realize that they are in a challenging work environment that interferes with group performance, this awareness should trigger attention to and reconsideration of their communication structures and practices. Therefore, departing from the traditional attributional perspective on negative effects of external attributions for failure, we propose that attributions to external constraints may be constructive and prompt changes in the group's communication procedures more so than do the other attribution types.

Based on the preceding rationale, we present the following hypotheses:

> *Hypothesis 4 (H4):* Attributing a group failure to situational constraints leads to more procedural discussion than attributing a group failure to other causes.

Hypothesis 5 (H5): Attributing a group failure to situational constraints leads to more procedural changes than attributing a group failure to other causes.

Method

Research Overview

These hypotheses were tested in an experiment that employed three-member groups working on a two-step task consisting of a practice and a performance trial while communicating in CMC. All groups received a noncontingent negative feedback about the group performance on the practice trial. The failure feedback involved an attributional manipulation that directed responsibility for the group failure to one of four attributional causes: (1) self, (2) the group as a whole, (3) other group members, or (4) situational constraints of the environment. After this feedback and the attributional manipulation, each group was given an opportunity to discuss their strategies for the performance trial. Following the strategy discussion, the group completed the performance trial, and the group performance on the second task was objectively scored.

Participants

One hundred ninety-two participants were recruited from various classes in communication and psychology in exchange for partial course credit. Six groups were removed due to problems with the manipulation or technical difficulties, so the final sample included 58 groups ($N = 174$). Sixty-seven percent of the participants were female. The majority of the students in the sample were from sophomore (36%) and junior (31%) classes; 12% were freshmen and 21% were senior students. Sixty three percent of participants were White; 14% were Asian, 7% were African, 7% were Hispanic, 3% were European, and the remaining 6% identified themselves as other.

Task and Communication Medium

Members of each group were seated in individual rooms equipped with a computer and the Internet connection. The group discussion took place entirely online in the group discussion chat. The task was adapted from a case study "the merit bonus activity" (Hai, 1986), with modifications based on previous group studies with this task (e.g., Saavedra, Earley, & Van Dyne, 1993). The task required groups to recommend merit-based bonuses for fictitious employees based on four characteristics—effort, ability, performance, and friendliness—which were weighted equally in merit bonus assessments. The groups did two trials of this task assessing different employees for each trial. The ranking solution on the second trial had a correct answer against which the group performance was evaluated. The correctness of the group decision on the second trial was assessed based on the number of correct rank orders in the group ranking. A correct ordering of all 5 employees was assigned a value of 5; an incorrect

ordering of one employee resulted in 3 correct and 2 incorrect rank orders and was assigned a value of 4, followed by a value of 3 (2 correct and 3 incorrect), followed by a value of 2 (1 correct and 4 incorrect), and, finally, a value of 1 for all 5 rank orders being incorrect.

Procedure

Each group started with the practice trial in which group members did rankings individually prior to the group discussion of these rankings. After the group finished the discussion and submitted its ranking for the practice trial, each member individually received *noncontingent* negative feedback about the group performance on the practice trial. They were told that the group identified correct ranking to only 2 out of 5 people.

The negative feedback involved the attributional manipulation to direct responsibility for the group failure to one of the four attributional causes: self, group as a whole, other group members, and external constraints related to mediated communication. The attributional manipulation capitalized on both objective and subjective cues, consistent with successful manipulations of attributions in the past (e.g., Goncalo, 2004; Samuelson, 1991). After giving participants the feedback, the experimenter reinforced the attributional cause by asking group members to reflect on how their own performance/the other participants' performance/working in instant messaging/group's teamwork affected the group outcome on the first trial. Everyone in the group received the same attributional manipulation. For instance, in the attribution to other members condition, the experimenter said,

> This is your group score. As you can see, your group did not do well on this trial. We have also analyzed the initial personal rankings, and the other participants made mistakes in their rankings. Now, in order for the experimenter to understand your group better, please consider how their performance has influenced your group outcome on the practice trial. Write down your answer here.

After the attributional manipulation but before they received the task materials for the performance trial, groups had time for "free discussion" online, which they could use for discussing procedures for the next trial or talking about social events. The "free discussion" procedure was adapted from previous studies of group performance (e.g., Hackman, Brousseau, & Weiss, 1976; Saavedra et al., 1993). This discussion was coded for socioemotional and procedural communication. After the "free discussion" the group proceeded to the second task trial, which was used to assess the group performance quality. After the task was completed, participants answered questions from a web-administered questionnaire.

Measures

Changes in communication procedures. Following Weingart and Weldon (1991), participants were asked if the group had used the same strategy on the performance trial

as they did on the practice trial, and to describe the change. Prior to coding, two raters independently unitized all the open-ended responses following the idea unit principle (e.g., Walther & Bazarova, 2007). Unlike identifying units from a stream of speech, the responses written into the web form lent themselves to a straightforward identification of a single idea. Most responses offered only one explanation; multiple explanations were identified in 13 cases. A composite judgment reliability using Guetzkow's (1950) composite reliability measure yielded a good reliability of .02. The same two coders then independently coded for whether the response suggested a change in communication procedure, which was defined as "related to the order and manner in which communication occurred during the group discussion," including changes in discussion format, communication norms, or practices. Intercoder reliability was good (kappa =.84), and the disagreements were reconciled through discussion where needed. An example of the change in communication procedures is "We kept our strategy for the performance trial more organized. We spoke in order of group member number and if there was an issue, we discussed one at a time."

Task effort. The task effort measure was the time spent on personal ranking before group members engaged in a group discussion on the second trial. Unlike on the practice trial, which required group members to produce individual rankings before they began a group discussion, instructions for the second trial did not include an individual ranking as part of the procedure for the second trial. It was up to group members to decide how much time they wanted to allocate on the individual rankings or even skip it completely. The measure was taken at the group level as a time interval between when group members received their ranking profiles and when they actually started a group discussion on the second trial.

The second measure of task effort was a count of task-related contributions from each group member during the group discussion following Goncalo and Duguid's (2008) procedure. To account for individual differences across group members, this measure was operationalized as a difference between the number of task-related contributions on the second and first trial for each group member. First, two coders independently coded all the contributions on the first and second trials as either task related or not (kappa = .96). For instance, statements related to the weather, or to an upcoming test, were counted as being unrelated to the task. Then the number of task-related contributions on each trial was counted for each group member, and the difference in the number of task-related contributions between the trials yielded a measure of task effort on the second trial relative to the first one.

Coding of the free discussion between trials. The free discussion between trials was coded for socioemotional communication and a discussion of communication procedures for the next trial. First, two coders separated any strategy change discussion from the rest of the group conversation for each group. Next, each transcript was independently unitized by two coders using the thought unit as the unit of analysis (Holsti, 1969). The unitization procedure yielded 1,891 units overall. A composite judgment reliability using Guetzkow's (1950) method yielded a unitization reliability of .045.

The coding scheme for analyzing the group discussion was adapted from Pavitt, Zingerman, Towey, and McFeeters's (2006), which included socioemotional

(positive and negative) and procedural categories. Two judges independently separated all the coding units into these categories (kappa = .86), and the differences were reconciled by the author where necessary. Positive units were assigned to statements that showed pleasure, joking, positive responses to episodes of tension and antagonism, praise for group, or showing social support for other group members, such as "Go team" or "Let's do better this time". Negative units, in contrast, showed disapproval or criticism for the group or other group members. Negative statements could also show displeasure, frustration, disinterest, and acknowledgments of incompetence, such as "I'm indifferent", "DON'T GET HASTY, NUMBER 2". The coding reliability for positive/negative codes was high, kappa = .88.

The procedural code for a discussion unit was concerned with communication procedures, including attempts to "guide" the discussion for the next trial. Some of the procedural discussion that occurred during the free discussion stage referred to the free discussion stage itself (e.g., "are we supposed to discuss our methods now") and some referred to the future performance trial (e.g., "I think this time we should answer in order of group name 1 2 3 . . . group member 1 says who and why, then group member 2, then group member 3"). Therefore, the future procedural statements were separated from the current procedural units (kappa = .99), and all the subsequent analyses on procedural units reported in the paper were concerned only with the future procedural units. The future procedural codes reflected the group's discussion of communication strategies for the performance trial. For example, "Maybe we will need a little more debate because we all kind of just accepted it last time" or "We should do it like over the radio, when you've finished saying what you want to say, add a—"

Results

The choice of a statistical model for each response variable was governed by two considerations: (1) potential nonindependence of observations coming from members of the same group that required multilevel modeling (Kenny, 1995) and (2) the distribution of a response variable, which deviated from normality for nominally coded and count data (Allison, 1999). A binary response (e.g., whether groups made changes in their communication procedures or not) was fitted with a binary logit model; a multinomial response with ordered categories (e.g., quality of the group decision with 5 ordered categories) was fitted with a cumulative logit model, and count data (e.g., a count of discussion units) was modeled with a negative binomial distribution (Allison, 1999; Stokes, Davis, & Koch, 2000). The focused comparisons were carried out using contrast analyses on the appropriate data scale, that is, the logit scale for binomial and multinomial models, and the log scale for the negative binomial model in SAS GENMOD and SAS GLIMMIX procedures.

Manipulation Check

Following the procedure in Goncalo (2004), the effectiveness of the attribution manipulation was tested by coding attributional responses. Two coders rated participants'

Table 1. Examples of the Four Types of Attributions

Type of attribution	Examples
Self	My personal performance may have affected the group outcome because I was not assertive enough. I kind of went with the group and our final result was poor
Other members	I think group Member 3 was driving a significant part of the discussion. However, he or she was not interested in discussing our choices, she only wanted to get a quick consensus rather than an accurate one. I think I was the only one to actively contest group Member 3's decisions. Group Member 2 didn't add that much or challenge any decisions
Group	On this trial, we did not challenge each other enough. We were too agreeable, and thus our responses were more arbitrary than accurate/scientific. We would perhaps have been more successful if we had ranked each person with a score based on the four criteria and then discussed how we came to that score. Instead, we seemed to just quickly agree on the choices of the other members. We had to be more objective and more willing to challenge each other
External constraints	Online it is hard to keep track of what people are saying when there are more than 2 people involved in a chat. In person, only one person can talk at a time. Online everyone can talk at once as people type at the same time and then send in their comments. Also, difficult to stress your points over the Internet which makes it hard for others to see or understand how strongly you feel about something

attributional reflections for the failure on the practice trial: self, external factors, the group, or other group members. The responses were presented in a random order, so that the coding would be done independently for members of the same group. The coders were instructed to choose only one factor for each statement that reflected the main focus of the explanation. The intercoder reliability was good (kappa = .83), and disagreements were reconciled through a discussion. The examples of different types of attributions are listed in Table 1.

According to the results of the manipulation check, 3 groups were removed from the analyses because two or more members of those groups failed the manipulation check. Three other groups were removed from the analyses because they exchanged information relevant to the manipulation and/or questioned the validity of a negative feedback. The final number of groups was 58, with the following breakdown of number of groups by condition: to self = 14, to other members = 13, to group as a whole = 13, and to external constraints = 18.

Task Effort

The first set of analyses looked at effort to test the prediction that attributing the group failure to self or the group (including the self) prompts an increase in task effort (H1).

Table 2. Individual Ranking Time on the Performance Trial by Attributional Condition

Attribution type	LS-Mean (in minutes)	SE	Lower Mean	Upper Mean
Group	3.31	.52	2.26	4.35
Other members	1.83	.54	0.74	2.92
Self	4.00	.50	2.99	5.01
External constraints	2.13	.47	1.18	3.07

As predicted, groups whose members made attributions to the self or the group spent more time on the individual rankings than groups who blamed other group members or external constraints, $t(51) = 3.29$, $p = .002$ (see Table 2). These behavioral data suggest an increase in effort by groups whose members attributed the group failure to internal causes. However, there was no difference in the number of task-related contributions based on the difference score between the two trials across the conditions, $F(3, 54) = .82$, $p = .49$.

Positive/Negative Socioemotional Communication

The next set of analyses addressed predictions about the effects of attributions on socioemotional communication. Recall that socioemotional communication refers to the affective tone of communication, with positive statements increasing group morale (e.g., "Go team") and negative statements damaging it (e.g., "I'm indifferent"). Groups who attribute the group failure to other members were expected to have a larger ratio of negative to positive maintenance communication than groups who attribute the failure to other causes (H2).

As predicted, groups whose members blamed other group members had a larger ratio of negative to positive maintenance communication, compared to groups in the other attributional conditions, $\chi^2(1) = 3.02$, $p = .04$ (one-tailed p value for a contrast analysis comparing the logs of expected counts). The ratio of negative to positive maintenance communication was about 7 times higher in groups whose members blamed each other than in the other attributional conditions (see Table 3).

Decision-Making Quality

The analysis of the group decision quality used an ordinal logit regression model estimating the probability of higher quality to lower quality decisions by attributional condition. As predicted by H3, groups whose members blamed each other produced lower quality decisions than did groups in the other attributional conditions, $\chi^2(1) = 4.57$, $p = .02$ (a one-tailed p value for a contrast analysis comparing the logit estimates). The predicted odds of groups that blamed each other producing higher quality decisions are approximately 25% the odds of groups in the other attributional conditions.

Table 3. Negative/Positive Maintenance Communication Ratio by Attributional Condition

Attribution type	LS-Mean	SE	Lower Mean	Upper Mean	Estimated negative/ positive ratio
Group	−1.10	1.41	−3.86	1.67	0.33
Other members	1.01	0.91	−0.78	2.80	2.75
Self	−0.20	0.77	−1.71	1.32	0.82
External constraints	−1.50	1.12	−3.69	0.68	0.22

Note. Lower negative/positive ratios represent a more positive maintenance ratio.

Table 4. Group Decision Quality by Attributional Condition

Condition	Mean (on the logit scale)	SE	Lower Mean	Upper Mean	Odds
Group	0.47	.57	−0.65	1.59	1.6
Other members	−1.20	.66	−2.49	0.09	0.30
Self	0.29	.54	−0.77	1.35	1.33
Situation	−0.22	.47	−1.15	0.71	0.80

Because there were few groups with *absolutely correct* (correctness level = 5) and *absolutely incorrect* (correctness level = 1) rank orders, the above result was replicated with a logistic regression analysis that had a binary outcome (high vs. low quality decisions) created by a median-level split (Median = 2) of the group decision quality. The contrast analysis based on the binary logit model was consistent with the result obtained from the cumulative logit model analysis. Groups whose members attributed the failure to other group members reached a lower quality decision than groups whose members attributed the failure to other causes, $\chi^2(1) = 3.63$, $p = .028$ (one-tailed p value comparing the estimates on the logit scale). As before, the predicted odds of making a high quality decision for groups in the blame others condition was about 25% the predicted odds for groups in the other attributional conditions (see Table 4).

Discussion of Communication Procedures

The next analysis was concerned with how attributions for a previous group failure affect the group's reviews of its future communication procedures, based on the analysis of the group's interaction during the strategy discussion session. We predicted that a heightened awareness of situational constraints and their influence on the failure should prompt the group to attend to its communication procedures (H4). The procedural discussion code was assigned to discussion units concerned with communication procedures by which the decision should be made on the performance trial, including attempts to "guide" the discussion for the next trial.

Table 5. Discussion of Communication Procedures for the Performance Trial by Attributional Condition

Attribution type	LS-Mean (expressed in log estimates)	SE	Lower Mean	Upper Mean	Exponentiated Mean
Group	−2.31	.54	−3.39	−1.24	.10
Other members	−2.59	.51	−3.60	−1.57	.08
Self	−2.72	.51	−3.75	−1.70	.07
External constraints	−1.79	.43	−2.64	−0.94	.17

The effect of attribution type was marginally significant, $\chi^2(1) = 2.10$, $p = .07$ (one-tailed p value for a focused contrast comparing the estimates on the log scale), suggesting that attributions to the external constraints of mediated communication prompted more discussion of communication strategies than all the other attributions combined. Compared to group members who made external attributions to constraints of computer-mediated communication, the expected count of discussion units for communication strategies on the performance trial is 41% lower for attributions to the whole group, 55% lower for attributions to other group members, and 61% lower for self-attributions (see Table 5).

Changes in Communication Procedure

This analysis tested Hypothesis 5 about the effect of attributions to situational constraints on restructuring the group's communication procedures. Attributions to situational constraints were expected to prompt the group to attend to its communication procedures and the need to revise them in order to improve the group's adaptation to the environment. The measure was based on the group members' open-ended reports, which were coded for changes in the group's communication practices and procedures.

The results were consistent with the prediction. Groups with attributions to situational constraints were more likely to report changes in their communication procedures compared to groups with any other type of attribution (self, other members, group as a whole), $t(49) = 1.83$, $p = .04$ (one-tailed p for a t test comparing the estimates on the logit scale; see Table 6). Specifically, the odds of making structural changes in communication procedures for group members who made attributions to situational constraints are 2.80 times the odds for group members who made internal attributions (to the self or group as a whole). These patterns suggest that attributing the previous group failure to external constraints prompted groups to restructure their communication procedures more than blaming other causes.

Discussion

The purpose of this research was to explore the role of attributions in shaping group communication and performance following an initial group failure. The attributional

Table 6. Changes in Communication Procedures by Attributional Condition

Attribution type	LS-Mean (mapped onto the probability scale)	SE	Lower Mean	Upper Mean	Odds
Group	.22	.08	.10	.43	.29
Other members	.17	.07	.07	.36	.20
Self	.08	.05	.03	.23	.09
External constraints	.31	.09	.16	.51	.45

manipulations have directed members' attributions to different causes, including self, a group as whole, situational factors, and other members. This is one of the first studies to examine the effects of attributions on group processes, and the first one to show the effects of attributions for a failure on group communication and performance.

The findings provide evidence for causal ties between attributions and group behaviors by demonstrating the effects of attributions on task effort, discussion of and changes in communication procedures, socioemotional communication, and performance. Specifically, attributions to internal causes—self or the group as a whole—led to effort increases. Blaming other members increased the ratio of negative to positive communication and reduced performance quality compared to the other attribution types. Attributions to situational constraints prompted more discussion and changes in communication procedures than attributions to other factors.

Theoretical Contributions

Communication scholars have long recognized the importance of attributions for communication. Berger and Bradac (1982), for instance, maintained that attributions were important for choosing communication strategies: "In everyday life, we generally base our communication behavior on what we *believe* to be the case rather than upon what the case may actually be" (p.28). However, a recent review of attribution research in communication suggests that "the causal ties between attributions and many communication behaviors are still relatively unknown" (Manusov, 2007, p. 29). The present results find support in a group context for Berger and Bradac's (1982) insight about attributions influencing communication strategies and behaviors.

As the results demonstrate, attributing the group's failure to the constraints imposed by an electronic medium prompted a greater revision of communication procedures than attributing the failure to other causes. While traditional attribution research tends to treat external attributions for personal failures as self-serving biases that deflect blame from self to uncontrollable situational causes (e.g., Noel et al., 1987), with negative consequences both for individuals and groups (e.g., Johns, 1999), the present study demonstrates that this may not always be the case. Situational constraints may create real impediments for a group's performance, and realizing their negative impact can impel groups to make procedural adjustments in an effort to adapt to those constraints. The present perspective, thus, advocates a dynamic and reciprocal

relationship between a group and its external environment, in which group members are not only affected by the environment but can also take actions to minimize the presence or the impact of situational constraints. For instance, a group can try to change or remove some external obstacle. If that is not possible, the group can decide to change their procedures for dealing with the constraint. A prerequisite to managing these situational contingencies, however, is awareness of them and their influences on group behaviors, as reflected in situational attributions.

While this view differs from the traditional interpretation of situational attributions as being largely detrimental to behaviors and performance, it is consistent with attribution research in other contexts. For instance, attributing communication difficulties to aspects of the situation rather than other participants is acknowledged as an effective way of dealing with family communication failures (Blakar, 1985). Similarly, in a resource dilemma situation, attributions to the situation rather than group members increased preference for group structural changes (Samuelson, 1991). Future research on effects of situational attributions would need to differentiate further between stable and unstable situational causes, and their effects on group processes and performance.

In addition to shaping communication procedures, attributions for the previous group failure affected communication behaviors directly in the present study. Consistent with the predictions, groups whose members blamed each other had more negative and less positive socioemotional communication than groups whose members attributed the failure to other causes. Blaming others also led to suboptimal performance. While attributional research on individual failures has linked partner blame with negative emotional and communicative outcomes, such as conflict escalation (e.g., Sillars, 1980), communication avoidance (e.g., Bradbury & Fincham, 1990), and relationship deterioration (e.g., Fletcher, Fincham, Cramer, & Heron, 1987), to the best of our knowledge this is the first study to demonstrate the effects of blaming others in a group context. Attributions matter for how group members communicate with one another and perform on the task, with partner blame creating a negative communication climate and performance losses.

While the findings about the effects of attributions extend to different types of groups, they have a special significance for groups working with technology, such as computer-mediated groups. Attributions in computer-mediated interactions have received increasing attention in recent years (e.g., Bazarova & Walther, 2009a; Cramton, 2002; Vignovic & Thompson, 2010; Walther & Bazarova, 2007), but they have not been linked empirically to group relational processes and performance. At the same time, numerous studies have pointed out situational challenges of computer-mediated environment, such as reliance on the electronic medium and members' distributed locations, which negatively affect relational climate and performance in computer-mediated groups (see for review, Gibson & Gibbs, 2006). In order to succeed, group members have to realize these challenges and make necessary communication adjustments, but rarely do so in short-term computer-mediated groups (Walther & Bunz, 2005). Instead, they tend to approach their work in ways that they are accustomed to in face-to-face groups leading to relational and performance losses

(see for review, Bazarova & Walther, 2009b). The present study shows that attributions underlie some of the problems experienced by computer-mediated groups, and the way to procedural changes and better medium adaptation lies through members' reflective attributions on situational constraints of computer-mediated work.

These findings also strengthen the connections between members' cognitive interpretations of group behaviors, on one hand, and group's relational communication and performance, on the other hand. As such, they are consistent with the recent conceptions of group performance as interrelated between different tasks, rather than a "single-cycle linear path from inputs through outputs" (Ilgen et al., 2005, p. 520). Although the new group perspectives do not specifically mention attributions, they emphasize emergent cognitive and affective states that are "products of team experiences and become new inputs to subsequent processes and outcomes" (Marks et al., 2001, p. 358). As attributions emerge in response to a previous group performance (Forsyth & Schlenker, 1977; Zaccaro et al., 1987) and, as the present study shows, influence subsequent processes, they play an important part in group adaptation and development. Therefore, models of group relational communication and performance (e.g., Keyton, 1999; Kozlowski, Gully, Nason, & Smith, 1999) need to consider the role of attributions in the interactive chain of members' cognitions, socioemotional communication, and performance.

Future Directions

Future research needs to consider effects of attributions in long-term groups, both computer-mediated and face-to-face. Developing effective procedures takes time. According to Tesluk and Mathieu (1999), groups learn to take control of their external environment by improving their strategies over time. Similarly, Weldon, Jehn, and Pradhan's (1991) findings show that groups need time to develop adequate procedures that would improve performance: Whereas changes in group procedures did not affect group performance on the second trial, they improved it on the third trial in their study. As the present research demonstrates, the type of attributions group members make as they build on previous failures is critical to the types of improvements they attempt to make on the group's next trial.

Another direction that needs to be explored is how blaming a single group member, deservingly or not, affects group-level processes. Although there has been a lot of attention to blaming a team's "weakest link"—a difficult or low performing group member, research has primarily focused on how attributions for this member's behavior affect other members' individual responses toward him or her (e.g., Jackson & LePine, 2003; LePine & Van Dyne, 2001). For instance, group members' attributions toward a low-performing member were shown to affect whether they decide to compensate, train, motivate, or reject that individual (Jackson & LePine, 2003). What has not been examined is how blaming a single member within a group affects group-level processes, such as group communication and performance. Whereas our research focuses partner blame on all group members other than the self, without discriminating

among them, a role of a scapegoat can be assigned to a single individual within a group (see for review, Gemmill, 1989). Blaming a scapegoat within a group is expected to negatively affect group performance, according to Gemmill (1989), because "as long as the scapegoat can be blamed, the social system goes unexamined and unchanged" (p. 410). Future research needs to examine how blaming a single member may have different effects on group communication and performance than blaming several members.

Whereas previous group research has focused mainly on how different group processes affect attributions, the present study focused on the effects of attributions on subsequent processes and performance, which required isolating attributional perceptions from the actual causes in order to establish causal links between attributions and group processes/performance. Future research effort should be directed at integrating attributions as both a cause and an effect that would provide a dynamic and interactive view on attributions in groups. Factors, such as team duration (short term vs. long term), a shared social identity, cultural heterogeneity, members' dispersion, may all affect attributional patterns. Therefore, the consummate model of attribution in a group requires understanding the conditions that account for attributions in a group in conjunction with how attributions change group processes and performance.

Furthermore, the recent developments in attribution theory, such as Malle's (1999) folk-conceptual theory of behavior explanations, draw attention to people's explanations of motives that go beyond distinctions captured by situational-dispositional attributions. Whereas failures are usually unintentional events, explanations of motives are important for group behaviors and outcomes that are perceived as intentional (see for review, Bazarova and Hancock, 2010). Future research needs to examine how various motive explanations affect future group behaviors and outcomes.

Research Limitations

There are several limitations to this study. The present study used ad hoc student groups with a limited history of working together, which raises a potential generalizability issue for extending these results to other types of groups. Although computer-mediated groups may operate on ad hoc basis for solving short-range tasks in the real world (Hinds & Kiesler, 2002), it is important to examine how the effects of attributions found in the present study extend to groups that develop a longer history of working together in different computer-mediated and face-to-face contexts.

The second obvious limitation is that the present study instilled attributions in a controlled fashion, which may not have necessarily reflected the actual causes of the group performance on the practice trial. That is, the operationalization of these controlled attributions may have differed from motivated attributions arising from the actual context. Similarly, although the manipulation check suggests that group members internalized the attributional manipulations, there is always a possibility that participants followed the experimenter's leads without fully internalizing them. However, there are two arguments against this criticism. First, the attributional manipulation in

the present study was modeled after attributional theory and research suggesting that attributional patterns are malleable. According to Kelley (1971), "inferences can be externally manipulated by cues and reminders as to the possible relation to the effect of certain plausible causes . . . they lead the attributor to consider as he interprets the observed cause-effect evidence" (p. 170). Second, the findings in the present study demonstrate that attributions affected their behaviors and group performance as predicted, which presents further evidence of the internalization of attributional cues. Future research should also consider other types of attributional interventions, such as using external prompts via inferential goals (Krull, 1993), instilling shared attributions through a group discussion (Goncalo & Duguid, 2008), raising participants' anticipated accountability (Webster, 1993), or creating certain future expectations that draw attention to either situational or dispositional causes of behavior (Lee & Hallahan, 2001).

Conclusion

Although the role of attributions has been clearly acknowledged for communication and group processes, attributions are often treated as purely cognitive processes, with limited attention to their sociocommunicative functions. The purpose of the present study was to take attributions, as Valerie Manusov (2007) so aptly expressed it, "out of our heads and into behavior" by examining the link between attributions and group behaviors. The results demonstrate that attributions matter for behavior. The type of explanations assigned for a previous group outcome affects the way the group continues to communicate and work together, including task effort, socioemotional communication, changes in communication procedures, and ultimately group performance.

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