

# The Role of Causal Attribution in Determining Group Members' Emotional Responses to Failure

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**Abstract-** Weiner's <sup>[1, 2]</sup> attribution theory of motivation and emotion was used as a framework for explaining reactions of group members to their failure in a cooperative task when the group caused this failure. The results of two studies utilizing a new paradigm in which dyads perform a cooperative task requiring the assembly of a structure using Lego blocks are reported. All dyads who failed the task received feedback about the cause of their failure, which varied along the causal dimensions of controllability and stability. Overall, results indicate that the emotional reactions and behavioral intentions following the failure, including ones related to the group's future, can be explained by the principles of attribution theory. This was true both for dyads comprising participants with minimal relationships between them (Study 1) and friends (Study 2). On the whole, the research extends the scope of attribution theory to causes that are construed at the group rather than the individual level and also provides an effective paradigm for the study of group failure and its consequences.

**Keywords-** Causal Attribution; Group Failure; Group Emotion

## I. INTRODUCTION

Research in the context of causal attribution has shown that when people fail they often search for the reasons why they failed <sup>[3]</sup> and they do so especially when the failure is unexpected <sup>[4, 5]</sup>. Often the search not only provides insight into what caused the failure, but also determines how the individual feels and behaves as a consequence of this failure <sup>[1, 2, 6]</sup>. For example, it has been suggested that the attribution of failure to insufficient effort elicits guilt in the individual, whereas an ascription of lack of aptitude evokes feelings of shame <sup>[7, 8]</sup>.

Research on reactions to failure conducted in the framework of attribution theory has focused mainly on individual failures. That is, on situations in which the unit of analysis was the failing individual and the perceived causes that led to this failure were related either to the failing person or to certain circumstances surrounding her. Yet, often people group together and cooperate in an attempt to bring about a certain end, which may or may not be attained. For example, many work settings use work teams believing that teams are able to achieve organizational goals better than individuals. However, teams also may often fail. Like any other failure, team failure may provoke emotional and behavioral responses on the part of the cooperating parties. Such reactions can have significant implications for the team, its members and the organization <sup>[9]</sup>. In such cases, part of these reactions are expected to be determined by the perceived causes of the failure. We suggest that some of the

causes that group <sup>1</sup> members may perceive as the reasons for their failure are related to the group as a whole rather than to its individual members <sup>[10]</sup>. For example, group members perhaps cannot work effectively together; the members may not invest the effort necessary for success; or the atmosphere in the group may not be conducive to achieving the group's goals. The idea that group members may think about their failure as stemming from the group is in line with the idea that people often view their self as part of a collective or an entity to which they belong rather than as an individual or personal selves <sup>[11-13]</sup>.

By suggesting that a group member perceives the group as responsible for the failure, we do not imply that group members share knowledge about this failure, as proposed in certain discussions of team mental models <sup>[14]</sup>. Rather, we claim that individuals—be they the group's members themselves or external observers—may view the behavior of the group as a whole or its characteristics as the reason for the group's failure. Indeed, evidence shows that people may understand a group's failure to be the result of the group despite a bias toward blaming individual group members for a group's failure <sup>[15]</sup>.

In this paper we attempt to use Weiner's <sup>[1, 2]</sup> theory of motivation and emotion to explore how a group's failure, when attributed to the group as a unit, affects its members' emotions and behavioral intentions. Research has rarely focused on the effect that a group's failure has on its members when the perceived cause of the failure is the group itself, despite the prevalence of such perceptions <sup>[15]</sup>. An understanding of what determines a failing group's members' emotions can help to better handle the consequences that such emotions have.

We first describe Weiner's <sup>[1, 2]</sup> theory of motivation and emotion and then suggest how this theory may explain a group member's reactions to failures perceived to be caused by the group. We then report the results of two studies that tested group (dyad) members' reactions to an actual failure in executing a cooperative task as a function of the perceived causes of the failure. These studies utilized a new experimental paradigm designed to fit the goals of this research as described below.

## A. Attribution Theory of Motivation and Emotion

Weiner's <sup>[1, 2]</sup> attribution theory of motivation and emotion explains the link between the perceived cause of a given outcome or event and the emotional and behavioral

<sup>1</sup> In the present paper we use the terms group and team interchangeably.

reactions resulting from it. According to Weiner <sup>[1, 2]</sup>, all causes can be characterized according to three basic dimensions: locus, controllability, and stability. Locus refers to the location of a cause (internal or external to the actor); controllability refers to the degree to which the cause is subject to volitional change (controllable vs. uncontrollable); and stability pertains to the relative endurance of a cause over time (stable vs. unstable). Thus, for example, lack of aptitude as a cause of failure would be considered internal to the actor, uncontrollable, and stable, whereas bad luck as a cause of failure would be construed as external to the actor, uncontrollable, and unstable. Although the dimensional placement of a cause is a subjective reality so that individuals may disagree with respect to a causal interpretation, there is a great deal of consistency among researchers concerning the characteristics of particular attributions.

According to this theory, part of the emotions that a person feels and the behaviors he adopts in response to a given event or situation are determined by the causal properties underlying this individual's perception of the reason for this outcome. Specifically, locus determines whether and to what extent the outcome has implications for the person's self-esteem. When the cause of an outcome is perceived to be internal to the actor, this outcome is likely to have an effect on the actor's self-esteem as well as on related emotions such as pride and shame <sup>[16, 17]</sup>. Controllability determines judgments of responsibility and hence is associated with emotions such as anger, gratitude, pride, guilt, pity and shame <sup>[18, 19]</sup>. Finally, stability determines expectations for the future and emotions related to these such as hope, helplessness and hopelessness <sup>[1, 2]</sup>. Accordingly, for example, when a person fails because of an internal cause such as lack of ability, his self-esteem is likely to decrease. Because lack of ability is also uncontrollable and stable, the failing person is also more likely to feel ashamed and helpless. In contrast, while failure attributed to lack of effort is also likely to decrease self-esteem since it is an internal cause, it is also more likely to lead to guilt because it is controllable. Lastly, the failing person may feel also hopeful as the cause is unstable and hence the performance in question is not seen as necessarily predictive of the future <sup>[1, 8]</sup>.

As suggested above, groups, not only individuals, often work to achieve certain ends. If they fail in the endeavor, one determinant of the members' reactions is expected to be their understanding of the reasons for the failure. The focus in this paper is on emotions and behaviors that may result from realizing that the reasons for the failure are associated with the group or team of cooperators as such. Consequently, the focus will be on causes that are internal to the cooperating unit (henceforth we will use the term 'team' for the sake of brevity).

In line with predictions stemming from attribution theory <sup>[1, 2]</sup>, we expect that variations in the perceived causes of the team's failure will determine team members' emotions and behavioral intentions. In the following we delineate our predictions in this context while we refer to both reactions previously tested under the framework of

attribution theory (e.g., shame and guilt) and reactions that were not tested (e.g., fear of the consequences of failing and motivation to continue cooperating with the same partner). We thus extend attribution theory both by applying it to groups and by attempting to predict reactions previously not examined by it.

### *B. Team Members' Reactions to Failure Associated with the Team — Predictions*

Considering causes that are internal to the team, team members who fail and view the causes of this failure as controllable by the team are likely to experience more intense guilt feelings than team members who attribute their failure to causes that are uncontrollable by the team. This prediction is consistent with the idea that guilt feelings arise in response to undesirable outcomes controlled by the self <sup>[2, 20]</sup>. Similarly, higher levels of self-anger are also expected under such circumstances, as often when people criticize themselves for undesirable actions, they experience self-anger <sup>[21, 22]</sup>. Although, at first sight, it may seem akin to guilt or shame, self-anger has some unique characteristics that are not shared by these related emotions. Among other things, self-anger, more than guilt or shame, is associated with a feeling of inward seething, an inclination to wait before taking action, and a greater desire to escape from the situation. Yet, it is also the case that attempts to apologize, help someone, and make amends be less characteristic of self-anger than of guilt or shame <sup>[23]</sup>.

When the team fails, there is also another team member who is in control of the failure. Hence, we predict that a higher level of anger will be directed toward this team member when the team is in control of the failure than when it is not. This is in line with the idea that anger is provoked when another person is seen as responsible for an undesirable situation <sup>[1, 24, 25]</sup>. Further, in such a situation, anger toward the partner is expected to be higher than toward the self. This prediction is in line with research in the context of self-serving biases that indicates that people tend to blame others for failures more than they blame themselves <sup>[26]</sup>.

Team members may also experience fear if they perceive the situation as involving a threat to the self <sup>[27, 28]</sup>, e.g., the fear of being fired. Participants were asked to imagine that the team's failure occurred in the context of their work in an organization. Firing as a result of the failure then becomes a possible option. In this context, reasons for the team's failure that are controlled by the team are expected to lead to higher levels of fear of being fired than uncontrollable reasons.

Additionally, in the case of fear of being fired we also expected an interaction involving controllability and stability. Specifically, we assumed that controlled and stable causes will intensify this fear because they imply that the cause for the failure, which is in the team's hands, is relatively enduring and has a high likelihood of reoccurring, and therefore, the chances of being fired increase.

Stability affects reactions that are associated with expectations for the future <sup>[2]</sup>. Accordingly, we predicted that stable causes are more likely to lead members to

assume that the team will also fail in similar tasks in the future and that, consequently, their motivation to cooperate with each other in the future would drop. This would also result in members' higher expectations that with a new team member, the team is less likely to fail. Finally, stable causes were expected to lead to higher levels of shame for the failure because shame is a reaction to an awareness of an undesirable characteristic of the self<sup>[20, 29]</sup>. Higher levels of helplessness were also expected when the cause of the failure was stable and controlled<sup>[2]</sup>.

These predictions were tested using a dyadic cooperation task developed for this research. The task was designed so that participants' likelihood of failing was high and the cause of failure was ambiguous so that external feedback about the cause of the failure would be perceived as valid. To reach this goal, the task was described as a test that predicts employees' functioning in a real work setting. We now describe the task.

### C. Cooperation Task

#### 1) Task Description:

In accordance with the general specifications outlined above, we aimed to create a cooperation paradigm meeting the following requirements:

1. Success in the task must be important for participants so that should they fail, they will likely react emotionally.
2. Completion of the task must require both members of the dyad to cooperate, while each one has his own defined part in the task such that failure cannot be easily attributed to one or the other partner.
3. Participants must believe that the task can be accomplished.
4. The likelihood of failure is high.
5. The cause of failure must be ambiguous so that feedback about the failure's cause will seem valid in the eyes of the participants.

Accordingly, the task was designed so that it did not appear too easy, thus preventing the failure being interpreted as deceptive or attributable to bad luck, given that this is the way most people who fail in such tasks tend to explain their failure<sup>[30]</sup>.

The cooperative task involved assembling an object using Lego blocks. Assembly was to be done according to photos showing the part assigned to each dyad member as well as the complete structure. Each participant was given a set of Lego blocks required to assemble his part, a photo of it and a photo of the whole object. The distribution was random. The two parts, once completed, were to be connected.

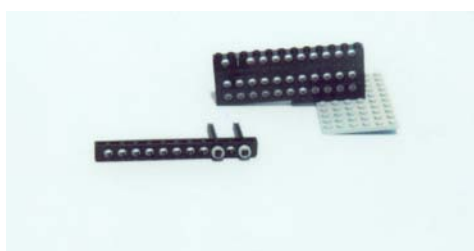


Fig. 1 The single wall and fork part

Both partners receive the same number of blocks (17) to ensure equal task complexity. In the first stage, one participant is required to build a part named "the single wall" and a part named "the fork" (see Fig. 1).



Fig. 2 The parallel walls part

The other participant has to build a part named "the parallel walls" (see Fig. 2).

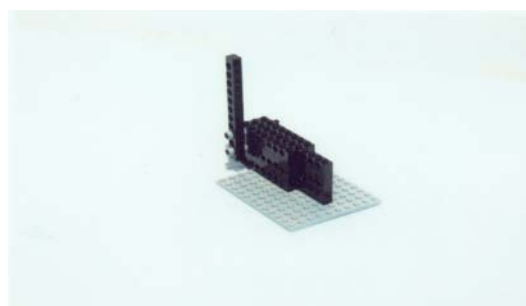


Fig. 3 The fully assembled object

The completed parts have to be connected. Specifically, the "single wall" has to be fully inserted between "the parallel walls" and both parts have to be secured with the "fork" so that the pins of the "fork" go all the way through holes in all the walls (see Fig. 3). Details about the Lego blocks included in each kit are shown in the Appendix. The 10 cm x15 cm photos used for the task are the same as the ones shown in Figs. 1-3 and were printed in high resolution (1200 Dpi) on high quality paper. Both participants could see their partner's photos, as well as the complete object and thus were assured that the task was doable and there was no need to suspect that the parts could not be connected. Participants also received an explanation that assembling the parts as shown in the photos is crucial so that the two sections could be connected later. This was also done in order to make it clear – later – that failure was not due to the experimenter misleading the participants.

The rationale for using this task is that it is expected to seem simple yet in actuality is not quite so easy. Given the unique features of the Lego blocks we used, the different types of blocks had to be positioned exactly as shown in the photo, in order for the fork to go through the walls and connect them. Theoretically, however, each part could be constructed in several different ways using the same blocks. Consequently, there is a high likelihood that the parts will be built such that they appear the same as in the photos but that in fact, their holes will not be parallel so that the fork cannot go all the way through the walls and connect them. This can typically be discovered only after the parts are constructed and an attempt to connect them is made. A pilot

study provided evidence that the task fits well all the requirements described above.

## II. STUDY 1

In Study 1 dyads had to cooperate in order to complete the described task above. Dyads who failed received feedback about the cause for their failure. The causal feedback varied along the dimensions of controllability and stability but all causes were internal to the dyad. The emotions and behavioral intentions of the participants as a function of the cause for their failure as a dyad were measured.

### A. Method

#### 1) Participants:

A total of 80 (50 men; 28 women and 2 gender unknown, mean age of 33.94 years,  $SD=7.27$ ) graduate students were recruited at the University of Haifa. They participated voluntarily during a lecture that included different group exercises.

#### 2) Materials and procedure:

The class lecturer explained to students that they were going to execute a few group tasks, which would then be discussed in class. He explained that in one task their ability to work under stress was to be examined by a company hired for this purpose. Dyads were randomly assigned to one of four different conditions that varied in the causes for the failure. Specifically, causes varied along the dimensions of controllability and stability, forming a (2) controllability (controllable vs. uncontrollable) X (2) stability (stable vs. unstable) between-subjects factorial design. As mentioned above, we focused only on internal causes since external ones may lead to disbelief and anger expressed toward the experimenter, and therefore, reduce participants' cooperation with the experiment. The full description of the causes and their underlying causal dimensions appear in Table I.

TABLE I CAUSAL DIMENSIONS OF CAUSES FOR FAILURE USED IN STUDY 1 AND STUDY 2

Causal Dimensions		Cause
Controllability	Stability	
Uncontrollable	Unstable	The mood in the group was not conducive to the work on the task.
Uncontrollable	Stable	The group does not have the skills required for successful completion of the task.
Controllable	Unstable	The group has not invested the effort required for successful completion of the task.
Controllable	Stable	According to the test results, the group's members are unable to cooperate with one another unless they invest special effort to overcome this tendency.

An experimenter, who introduced himself as an employee of a psychological testing company, then randomly picked two students who were not engaged in

another task. Dyads included both same sex and mixed sex partners. The dyad members sat at a table facing each other. The experimenter had a tag on his shirt that included a logo of a fictional company named "PSYCHOCOgni". All questionnaires and feedback pages also included this logo as well as a fictional company address, phone and fax numbers.

The experimenter explained again that the goal of the task was to test their ability to work under stress. He further explained that they will first have to fill in two questionnaires and then engage in a cooperation task to be explained later. The questionnaires were used in order to provide grounds for the feedback that was provided to them later. The first questionnaire was a Hebrew translation of the Positive and Negative Affect Schedule (PANAS) scale<sup>[31]</sup>. This scale was described as a mood scale that will assess their mood during the work on the task. It was further explained that being in the right mood is important for being able to perform the task successfully. An additional scale was created for this study and was presented as a scale measuring participant's personal approach to problem solving. Specifically, this scale was presented as an assessment of their problem solving skills, which are also important for task success. Participants had to rate, on a seven-point scale ranging from (0) "not at all" to (6) "to a large extent", their agreement with statements such as "solving complex problems requires creativity". These scales together with a bogus report filled in by the experimenter during the performance of the task made it appear as if the feedback given later to participants about their performance was based on different types of assessments. Participants were then requested to sign a consent form.

Upon completion of the scales, the first experimenter called to a second experimenter to take the questionnaires in order to examine the dyad's responses while they worked on the task. The second experimenter then left the room with the questionnaires. This interaction took place in front of the dyad.

The first experimenter then read the instructions that described the task and showed the participants photos of the parts that they had to construct and connect (Photos 1 to 3). First, they received an explanation that they were going to construct a structure made of Lego blocks according to a photo to be given to them. Participants were also told that the task they are engaged with tests their ability to function effectively in the workplace. Then they were instructed to assemble the part shown in the photo in front of them using all the blocks in the tray in front of them. Finally, they were told that they had to connect the parts that each of them assembled. At this stage, they were presented with a fully assembled and connected object.

Participants were told that they had to complete the task in 7 minutes (about 45% more time than the average estimated time to complete the task as determined in the Pilot Study). The experimenter explained that the results of the task were binary so that they can either fail or succeed. Before telling them to start the task, the experimenter mentioned he would be evaluating their functioning and that he would be writing a special report while they were

working. Participants also received a page that included the same instructions. If participants had no questions, the task started. Time was measured with a stopwatch. While participants worked on the task, the experimenter filled in a bogus form. One minute before the end of the time allotted for the task, the experimenter announced that there was one minute left to complete the task. If the dyad failed, the experimenter showed them a constructed object. This was done in order to avoid suspicion that it was impossible to complete the task.

The report completed by the first experimenter, while the dyad was working on the task, was then given to the other experimenter, supposedly for analysis. Participants were then instructed to wait for the analysis of their performance and while doing so they were asked to disassemble the object and put the blocks back in the trays. After five minutes, the second experimenter entered the room and gave the experimenter two copies of a feedback report that supposedly included the results of the analysis of the questionnaires and the report. Each participant received a copy and was told that the copies were identical, and that after they read it, they had to return it to the experimenter to maintain anonymity. The report included the dyad's grades on four scales corresponding to the four causes of failure manipulated in the study. On each report, three scales were marked such that the dyad supposedly did well on it and one scale in which they were significantly below the norm and was marked as the cause for the failure. The scales were: (1) team skills, (2) team effort, (3) correspondence in mood between team members, and (4) correspondence in the team members' problem solving approach. An additional sentence summarized explicitly the cause of the failure. These sentences were the same as the ones in Table 1 and corresponded to the factor on the scale that was marked as below the norm. Each dyad randomly received one of the four causes for failure.

When the participants finished reading the reports, they were separated and each participant was asked to fill in a questionnaire that tested feelings and intentions in relation to the task. Participants were separated to enable them to freely answer the questionnaires that also included questions about their task partner. On a seven-point scale ranging from (0) "not at all" to (6) "to a large extent", participants were asked to rate the extent to which they felt, as a result of the failure, anger toward the self, anger toward the partner, guilt, shame, and helplessness. Participants were also asked to imagine that this failure happened at work and how fearful of being fired because of the failure would they be.

An additional question examined their behavioral intentions. Participants were asked to rate the extent to which they would have wanted to continue cooperating with the same partner in the future. Two additional questions assessed the likelihood of the same team failing a similar task in the future and the likelihood of the team failing, if the participant worked with a new partner. These two questions were assessed on a scale ranging from (0) "very low likelihood" to (6) "very high likelihood". Finally, two additional questions assessed the perceived dimensions of the causes of failure and thus served as manipulation checks.

Stability of the cause for failure in the team was measured on a scale ranging from (1) "relatively stable" to (7) "relatively temporary". Controllability of the cause by the team was measured on a scale ranging from (1) "controlled" to (7) "uncontrolled".

Upon completion of the questionnaires, the participants were debriefed about the goals of the study. Also, the experimenter reassured the participants that failure in this task was highly probable since the task was designed with this goal in mind. Participants were thanked for their cooperation and asked to abstain from talking about the task with their peers.

## B. Results

All dyads failed the task. A series of two-way between-subjects ANOVAs involving 2 (controllability) x 2 (stability) was conducted on all the dependent variables.

### 1) Manipulation Checks:

An expected main effect for both controllability and stability emerged ( $F(1,76)=42.37$ ,  $p<.001$ ,  $\eta_p^2=.36$ ; and,  $F(1,76)=28.05$ ,  $p<.001$ ,  $\eta_p^2=.27$ , for controllability and stability, respectively). For controllability, the uncontrollable cause was perceived as less controllable by the team ( $M=4.85$ ,  $SD=2.05$ ) than the controllable cause ( $M=2.32$ ,  $SD=1.46$ ). For stability, the stable cause was seen as more stable in the team ( $M=3.05$ ,  $SD=1.71$ ) than the unstable cause ( $M=5.1$ ,  $SD=1.75$ ). Overall, this indicates that participants perceived the causes as planned.

### 2) Hypotheses Testing:

In line with our predictions, controllability had a main effect on guilt ( $F(1,76)=5.17$ ,  $p<.05$ ,  $\eta_p^2=.06$ ) and on fear of being fired ( $F(1,76)=4.29$ ,  $p<.05$ ,  $\eta_p^2=.05$ ). For both, the emotion was more intense when the team had control over the cause of the failure ( $M=3.45$ ,  $SD=1.38$ ;  $M=3.6$ ,  $SD=1.61$ , for guilt and fear of being fired, respectively) than when it had no control over it ( $M=2.63$ ,  $SD=1.81$ ;  $M=2.87$ ,  $SD=1.52$ , for guilt and fear of being fired, respectively).

Also in line with expectations, stability had a main effect on shame ( $F(1,76)=14.86$ ,  $p<.001$ ,  $\eta_p^2=.16$ ), helplessness ( $F(1,76)=13.64$ ,  $p<.001$ ,  $\eta_p^2=.15$ ), the likelihood that the same team will fail again in the future ( $F(1,76)=22.35$ ,  $p<.001$ ,  $\eta_p^2=.23$ ), and the willingness of the participants to cooperate again with the same partner on a similar task ( $F(1,76)=13.37$ ,  $p<.001$ ,  $\eta_p^2=.15$ ). For shame, helplessness, and the likelihood that the same team will fail again in the future, there were higher ratings for stable causes than for unstable ones (for shame,  $M=2.40$ ,  $SD=1.24$ , vs.  $M=1.27$ ,  $SD=1.41$ , for stable and unstable causes, respectively; for helplessness,  $M=2.05$ ,  $SD=0.93$ , vs.  $M=1.10$ ,  $SD=1.36$ , for stable and unstable causes, respectively, and for the likelihood that the same team will fail again in the future;  $M=3.25$ ,  $SD=1.41$ , vs.  $M=1.78$ ,  $SD=1.37$ , for stable and unstable causes, respectively). In contrast, willingness of the participants to cooperate again with the same partner on a similar task was higher for unstable causes ( $M=3.85$ ,  $SD=1.96$ ) than for stable ones ( $M=2.35$ ,  $SD=1.75$ ). Unexpectedly, stability also had a main effect on self-anger

( $F(1,76)=11.47$ ,  $p<.01$ ,  $\eta_p^2=.13$ ) such that stable causes led to higher levels of self-anger ( $M=2.88$ ,  $SD=1.32$ ) than did unstable causes ( $M=1.65$ ,  $SD=1.85$ ).

Finally, an interaction between controllability and stability emerged in the context of the assessed probability that the participant will fail in a similar task in the future if she cooperates with a different partner ( $F(1,76)=5.19$ ,  $p<.05$ ,  $\eta_p^2=.06$ ). Post-hoc tests revealed that participants who failed because of an unstable and uncontrollable cause ( $M=2.80$ ;  $SD=1.94$ ) thought the probability of failure in the future with a new partner was higher than those who failed because of an unstable but controllable cause ( $M=1.55$ ;  $SD=1.32$ ). There were no other differences between causes for this rating ( $M=2.20$ ;  $SD=.77$ ;  $M=2.30$ ;  $SD=.98$ , for stable and uncontrollable and stable and controllable causes, respectively).

To assess the assumption that participants will show a self-serving bias by expressing higher levels of anger toward the partner than toward the self, a mixed factors ANOVA was conducted. In this analysis the causal dimensions served as between-subjects factors and the object of anger (i.e., self vs. other) as a within-subject factor, forming a design combining 2 (controllability) x 2 (stability) x 2 (the object of anger). A main effect for the object of anger emerged; Wilks'  $\Lambda=.48$ ,  $F(1,76)=83.58$ ,  $p<.0001$ ,  $\eta_p^2=.52$ ) such that contrary to expectations, participants expressed more anger toward the self ( $M=2.26$ ;  $SD=1.71$ ) than toward their partners ( $M=.58$ ;  $SD=.84$ ). In addition, an interaction emerged between the object of the anger and stability; Wilks'  $\Lambda=.88$ ,  $F(1,76)=10.13$ ,  $p<.0001$ ,  $\eta_p^2=.12$ ). Post-hoc analyses revealed that while anger toward the self was higher for a stable cause ( $M=2.88$ ;  $SD=1.32$ ) than for an unstable one ( $M=1.65$ ;  $SD=1.85$ ), anger toward the partner did not differ between stable ( $M=.60$ ;  $SD=.84$ ) and unstable ( $M=.55$ ;  $SD=.85$ ) causes. A full discussion of our results in Study 1 is presented below in the context of integrating them into the results of Study 2. Below we discuss the general conclusions of Study 1 and the rationale for Study 2.

### C. Discussion

Overall, Study 1 showed that Weiner's <sup>[1, 2]</sup> attribution theory of emotion and motivation can explain not only participants' reactions to a failure in an individual task but also in a group task when the cause of the failure is related to the group. Yet, these reactions occurred in groups comprising members whose relations with one another are not strong. Study 1's participants were first-year graduate students randomly matched with classmates they may not have known very well. Frequently, group members know one another quite well and may even be friends. This may change a group member's reaction to the group's failure. For example, the failure of the group may be more painful when the members are friends. This claim is in line with research that shows that the emotions that group members experience in relation with their group is affected by the degree to which they identify themselves with the group <sup>[32]</sup>. Under such circumstances the mere fact that the group failed may overshadow the importance of the cause of failure in determining members' emotions. That is, group members may feel bad about the failure regardless of what caused it.

On the other hand, the perception of the group as a cause for the failure depends on the construal of the self as part of the group. It is more likely that people will construe their self as part of the group when they identify more with it <sup>[33]</sup>, and hence this is more likely when the group is formed of friends. In such a case, group members may be more sensitive to the causal information that is associated with a group with which they identify. Additionally, group members may be more reluctant to leave the group and assume less that a new group may be a better option because friends are strongly motivated to maintain their relationships <sup>[34]</sup>. Accordingly, in Study 2 we attempted to replicate our findings from Study 1 by using groups composed of friends.

## III. STUDY 2

### A. Method

#### 1) Participants:

A total of 80 (48 men; 29 women and 3 gender unknown, mean age of 35.13 years,  $SD=6.63$ ) undergraduate and graduate students were recruited at the University of Haifa. They participated voluntarily during a lecture that included different group exercises.

#### 2) Materials and Procedure:

The same task, procedure and experimental design as in Study 1 were employed except that here the participants chose their partners on their own. Specifically, participants were instructed to choose a partner from the class who is a friend with whom they maintain relationships also after classes and with whom they collaborate on university assignments. Students often have to work in teams so it is natural to assume that the students would already have had some experience working together with peers. Friends paired up and were randomly assigned to one of Study 2's four conditions.

### B. Results and Discussion

All dyads failed the task. A series of two-way between-subjects ANOVAs involving 2 (controllability) x 2 (stability) were conducted on all the dependent variables.

#### 1) Manipulation Checks:

An expected a main effect for both controllability and stability emerged ( $F(1,76)=67.35$ ,  $p<.001$ ,  $\eta_p^2=.47$ ; and,  $F(1,76)=32.31$ ,  $p<.001$ ,  $\eta_p^2=.30$ , for controllability and stability, respectively). For controllability, the uncontrollable cause was perceived as less controllable by the team ( $M=4.97$ ,  $SD=1.78$ ) than the controllable cause ( $M=2.10$ ,  $SD=1.34$ ). For stability, the stable cause was seen as more stable in the team ( $M=3.05$ ,  $SD=1.65$ ) than the unstable cause ( $M=5.18$ ,  $SD=1.74$ ). Overall, this indicates that the causes were perceived by participants as planned.

#### 2) Hypotheses Testing:

In line with our predictions and the results of Study 1, controllability had a main effect on guilt ( $F(1,76)=5.79$ ,  $p<.05$ ,  $\eta_p^2=.07$ ) such that guilt was more intense when the

team had control over the cause of the failure ( $M=3.80$ ,  $SD=1.28$ ) than when it had no control over it ( $M=2.70$ ,  $SD=1.38$ ). Unlike in Study 1, controllability had no effect on participants' fear of being fired. There was also a main effect of controllability on the assessed probability that the participant will fail in a similar task in the future if she cooperates with a different partner ( $F(1,76)=8.99$ ,  $p < .01$ ,  $\eta_p^2=.11$ ). However, this effect was qualified by an interaction between controllability and stability ( $F(1,76)=13.57$ ,  $p < .05$ ,  $\eta_p^2=.15$ ). Post-hoc tests revealed that participants thought the probability of failure with a new partner was higher if the cause for the present failure was unstable and uncontrollable ( $M=3.25$ ;  $SD=1.86$ ) than if it was any of the other causes that did not differ ( $M=1.30$ ;  $SD=1.30$ ;  $M=1.95$ ;  $SD=.76$ ; and,  $M=2.15$ ;  $SD=1.04$ , for unstable, uncontrollable, stable uncontrollable and stable controllable, respectively). Unlike in Study 1, controllability had also a main effect on shame ( $F(1,76)=4.77$ ,  $p<.05$ ,  $\eta_p^2=.06$ ), and anger toward the partner ( $F(1,76)=6.14$ ,  $p<.05$ ,  $\eta_p^2=.08$ ). For both, the intensity of the emotion was higher for the controllable causes ( $M=2.30$ ,  $SD=1.64$ ; and,  $M=.80$ ,  $SD=.91$ , for shame and anger toward the partner, respectively) than for the uncontrollable ones ( $M=1.58$ ,  $SD=1.58$ ; and,  $M=.38$ ,  $SD=.59$ , for shame and anger toward the partner, respectively).

As in Study 1, and as expected, stability had a main effect on shame ( $F(1,76)=14.75$ ,  $p<.001$ ,  $\eta_p^2=.16$ ), helplessness ( $F(1,76)=14.69$ ,  $p<.001$ ,  $\eta_p^2=.16$ ), the likelihood that the same team will fail again in the future ( $F(1,76)=37.03$ ,  $p<.001$ ,  $\eta_p^2=.33$ ), and the willingness of the participants to cooperate again with the same partner on a similar task ( $F(1,76)=17.03$ ,  $p<.001$ ,  $\eta_p^2=.18$ ). Also, in line with expectations, stability had a main effect on fear of being fired ( $F(1,76)=17.03$ ,  $p<.001$ ,  $\eta_p^2=.18$ ), and as in Study 1, it also had an effect on self-anger ( $F(1,76)=17.03$ ,  $p<.001$ ,  $\eta_p^2=.18$ ). For shame, helplessness, fear of being fired, the likelihood that the same team will fail again in the future, and self-anger, there were higher ratings for stable causes than for unstable ones (for shame,  $M=2.58$ ,  $SD=1.43$ , vs.  $M=1.30$ ,  $SD=1.60$ , helplessness,  $M=2.13$ ,  $SD=1.02$ , vs.  $M=1.08$ ,  $SD=1.42$ , fear of being fired;  $M=3.43$ ,  $SD=1.39$ , vs.  $M=2.58$ ,  $SD=1.96$ , the likelihood that the same group will fail again in the future;  $M=3.45$ ,  $SD=1.60$ , vs.  $M=1.60$ ,  $SD=1.39$ , and self-anger,  $M=2.92$ ,  $SD=1.42$ , vs.  $M=1.68$ ,  $SD=1.62$ , for stable and unstable causes, respectively). In contrast, willingness of the participants to cooperate again with the same partner on a similar task was higher for unstable causes ( $M=4.27$ ,  $SD=1.65$ ) than for stable ones ( $M=2.70$ ,  $SD=1.74$ ).

An interaction between controllability and stability emerged in the context of the likelihood that the same group will fail again in the future ( $F(1,76)=5.3$ ,  $p < .05$ ,  $\eta_p^2=.06$ ) and the likelihood that the participant will also fail when cooperating with a different partner ( $F(1,76)=13.57$ ,  $p < .001$ ,  $\eta_p^2=.15$ ). Post-hoc tests revealed that participants thought that if the group failed because of a stable and controllable cause, they had the highest chances of failing again ( $M=4.00$ ;  $SD=1.21$ ). Somewhat lower ratings for the likelihood of failing again emerged for failure that was

attributed to a stable and uncontrollable cause ( $M=2.90$ ;  $SD=1.41$ ). Both ratings were higher than the ratings for the unstable uncontrollable cause ( $M=1.75$ ;  $SD=1.68$ ) and the unstable controllable cause ( $M=1.45$ ;  $SD=1.05$ ), which led to comparable ratings. In the context of rating the likelihood that the participant will also fail when cooperating with a different partner, the interaction qualified the main effect of stability. Specifically, ratings were higher for the unstable uncontrollable cause than they were for any of the other causes that led to comparable ratings ( $M=3.25$ ;  $SD=1.86$ ,  $M=1.30$ ;  $SD=1.30$ ,  $M=1.95$ ;  $SD=.76$ ,  $M=2.15$ ;  $SD=1.04$ , for unstable uncontrollable, unstable controllable, stable uncontrollable and stable controllable, respectively).

Finally, in a mixed factor ANOVA with the causal dimensions serving as between-subjects factors and the object of anger (i.e., self vs. other) as a within-subject factor forming a 2 (controllability) x 2 (stability) x 2 (the object of anger) design, a main effect for the object of anger emerged; Wilks'  $\Lambda=.49$ ,  $F(1,76)=77.91$ ,  $p<.0001$ ,  $\eta_p^2=.51$ ). As in Study 1, participants expressed more anger toward the self ( $M=2.30$ ;  $SD=1.64$ ) than toward their partner ( $M=.59$ ;  $SD=.79$ ). In addition, an interaction emerged between the object of the anger and stability, Wilks'  $\Lambda=.92$ ,  $F(1,76)=6.98$ ,  $p<.05$ ,  $\eta_p^2=.08$ ). Post-hoc analyses revealed that while anger toward the self was higher for a stable cause ( $M=2.92$ ;  $SD=1.42$ ) than for an unstable one ( $M=1.68$ ;  $SD=1.62$ ), anger toward the partner did not differ between stable ( $M=.70$ ;  $SD=.88$ ) and unstable ( $M=.48$ ;  $SD=.68$ ) causes.

Overall, Study 2 also showed that the reaction of team members to their failure was sensitive to the perceived cause of this failure when the cause is associated with the team. Specifically, the causal dimensions underlying the cause for the failure explain variations in the reactions as a function of the cause. Generally, in many respects Study 2, with dyads formed of friends, replicated the findings of Study 1. However, some of Study 2's results were different from those of Study 1. We discuss the details of these findings below.

#### IV. GENERAL DISCUSSION

The goal of the studies was to use the lenses of Weiner's [1, 2] attribution theory of motivation and emotion to explain team members' reaction to the failure of their team in a cooperative task. Attribution theory of motivation and emotion has been shown to be effective in explaining the emotions and behaviors that individuals experience in response to their solitary achievements [see e.g., 6, 8, 16, 18]. According to this theory, some emotions that people experience in response to their achievements as well as their behaviors depend on the perceived cause for the achievement. Specifically, the properties of the cause for the achievement explain the reactions that it provokes. The locus of the cause determines the extent to which the cause impacts on the achiever's self-esteem; the controllability of the cause determines judgments of responsibility and the stability of the cause shapes expectations for the future. Each dimension also determines the emotions and behaviors that become associated with it [1, 2].

People, however, do not always act alone. They often group together and cooperate in an attempt to bring about a certain end. In such a case, the cause for the group's achievement is at least partly associated with the group. Further, since individuals at times construe their selves in terms of a collective or an entity to which they belong<sup>[11-13]</sup>, some of a member's reactions to the group's achievements may be determined by causes associated with the group. Such reactions can also be predicted by Weiner's<sup>[1, 2]</sup> attribution theory of motivation and emotion. The idea that causal attribution is also relevant to the group level is also consistent with more recent theorizing suggesting that the salience of one's social rather than one's personal identity implies that appraisal processes can occur on behalf of the group to which people belong, in particular when they identify with this group<sup>[35]</sup>.

This was the main assumption tested in the two studies in which dyads cooperated on a task in which their prospects of failure were high despite the fact that the task seemed easy to accomplish. Dyad members who failed received feedback about the causes of their failure, which varied along the causal dimensions of controllability and stability. In both studies the causes for the failure were perceived as planned. Accordingly, the impact of the causes of failure on the reactions of the participants was examined as a function of the underlying causal dimensions. In Study 1 dyads were formed randomly whereas in Study 2 dyads were composed of friends. Despite a potential difference in the strength of the link between dyad members, and hence the importance of the team for its members, results of both studies were mostly similar. On the whole, participants' emotional reactions, expectations and behavioral intentions were shaped by the causes of their failure in a way that is in line with predictions of attribution theory.

Specifically, across both studies, if the failure was due to a controllable cause, team members experienced higher levels of guilt than if the cause of failure was uncontrollable. In Study 1, a controllable cause also led to increased fear of being fired because of the failure and in Study 2 a controllable cause also led to more anger toward the partner and more shame. Thus, when participants viewed the failure as caused by a factor within the team's control, they felt higher levels of guilt. This emotion signals an acknowledgement that the failure could have been prevented if they would have behaved differently<sup>[2, 20, 29]</sup>. The findings in the context of fear of being fired and anger toward the partner are also in line with expectations. Yet, due to the fact that they emerged in only one study, they should be treated cautiously.

Nevertheless, the fact that greater fear of being fired emerged when the cause of the failure was controlled by the group may be explained by the possibility that under such circumstances participants may assume that others (e.g., a manager) who are also aware of the reason for the failure may punish them for choosing to act the way they did. Higher levels of anger toward the partner under these circumstances are also expected as people are more likely to express anger towards others who acted undesirably when these others had control over their actions<sup>[1, 2, 36]</sup>.

The finding in the context of shame is unexpected as shame is typically not linked to the controllability of the cause for a given situation [see e.g., 1, 2, 29]. However, it may reflect a general displeasure with a failure in a context in which the failure is unexpected as the task seems quite easy and it occurs in the presence of someone one cares about. Indeed, previous research suggests that one of the antecedents of shame is the public exposure of some undesirable situation<sup>[37]</sup>. In the present context this may be the feeling that one caused not only one's own failure but also that of a friend. This issue, however, needs further research.

Stability also had the expected effect on participant's reactions. In general, in accordance with expectations, in Studies 1 and 2, stability mostly affected emotions and judgments that concern the future such that stable causes led to emotions and judgments that represent the perception that the future is not expected to bring a change. Specifically, when the failure of the group was caused by stable causes, both shame and helplessness increased. These emotions are associated with the appraisal that the cause of the undesirable state is relatively unchangeable<sup>[2]</sup>. It is interesting to note that even though the stable cause refers to the group and not necessarily to individual members, participants still responded with increased shame and helplessness relative to unstable causes. This may indicate that the stable causes of group failure are seen at least partly as also reflecting some stable properties of the group's members. Alternatively, although a group member may leave the group to work with another partner and thus perhaps increase the group's success rate, and despite the fact the participants report that they are more likely to do so under such circumstances, they may still feel uncomfortable leaving the group. Accordingly, shame and helplessness may relate more to the unpleasantness involved in such a choice rather than to the prospects of the existing group as such. However, these possibilities require further research.

In line with these emotional reactions, participants' expectation that the group will fail in a similar task in the future was higher when the cause of failure was stable. This reaction may be linked partly to the group's increased shame under these circumstances, as fear of failure has been shown to be linked to shame<sup>[38]</sup>. This may also explain why participants reported higher levels of self-anger in these circumstances. Self-anger is associated with an inclination to wait before taking action and a greater desire to escape from a situation<sup>[23]</sup>. Both reactions may be a sign of uneasiness in a situation that can be resolved only by changing the group. Also, in both studies, an interaction between controllability and stability emerged in the context of the likelihood that the participant will fail in a similar task even if she changes the partner. Ratings in this context tended to be higher if the failure was caused by a temporary and uncontrollable cause. In Study 1, this was true only relative to the unstable and controllable cause. In Study 2, this was true relative to all other causes. In Study 2 only, chances that the group will fail again in a similar task were rated as higher if the group failed because of a stable cause as opposed to an unstable one and chances were even higher if the cause was also controllable.

In Study 2, fear of being fired was also higher for stable causes than unstable ones. Possibly, when the group comprises friends, the likelihood that its prospects are not good is more salient, and hence fear increases because there is no hope for a change. Yet, like for all other effects that were unique to either Study 1 or 2, this issue of the effect of friendship among dyad members needs additional research.

Finally, across both studies we failed to find evidence for a self-serving bias as participants expressed more anger toward the self than toward their partner. In addition, their self-anger was more intense if the cause for the failure was stable. This effect raises the possibility that when the cause for the group's failure is stable, participants feel bad about the idea that the group is a failing group and that the way to succeed is to leave the group.

Overall, as can be seen, Weiner's <sup>[1,2]</sup> attribution theory of motivation and emotion can also be used to explain an achiever's reactions to group achievements, including when the cause of the achievement is associated with the group. Further, it can also explain emotions and judgments not tested before in the context of this theory (e.g., self-anger, fear for consequences, willingness to leave the team). Given that many of these reactions showed a similar pattern to results of studies that examined reactions to solitary failure, it will be important in the future to compare the impact of specific causes for failure as a function of their causal dimensions, when the failure is solitary vs. that of a group. The pattern of reaction may indeed be similar, yet the intensity of the reactions might be different. For example, the group may serve as an attenuator of certain emotions in the sense that "trouble shared is trouble halved". On the other hand, reactions may be intensified since (a) the damage is greater because more than one person is affected by it, and, (b) there are witnesses to this failure. Also, it will be important to test more directly the effects of the strength of the link between group members and their reactions. The present research was able to show similarities in reactions across potentially different levels of the strength of this link. However, there were also differences and it remains unclear to what extent these are truly the results of variations in this factor.

The present research also has some further limitations. First it used a dyad as an example of a group. However, this is a minimal group that may not reflect well the complex relations typical of larger groups. Accordingly, it is not clear to what extent our results are relevant to larger groups. Further, we made an attempt to create an ecologically valid design. Yet, the study was still conducted among university students in a somewhat artificial environment. It is therefore unclear to what extent it reflects what would have happened in an actual work setting. In both cases it will be important to test our predictions using larger groups in an actual work setting.

Despite these limitations, we believe that our results do not only contribute to the literature on attribution and emotion but also provide an insight to the role of causal thinking in determining team members' reactions to actual failure. Among other things, such an insight can help managers craft feedback for failure that will better suit their organizational goals. Such as, helping team members to

better cope with their failure or helping them to maintain the group as such.

Finally, on a more general level, we used a new paradigm that appears to be quite sensitive in its ability to show variations in participants' emotional reactions to failure. This paradigm offers promise as a way to test other aspects of people's reactions to failure in a cooperative task. Among other things, it is likely that individual differences in emotional intelligence may moderate the way failing partners cope with the failure or even their ability to eventually succeed in the task.

## V. CONCLUSION

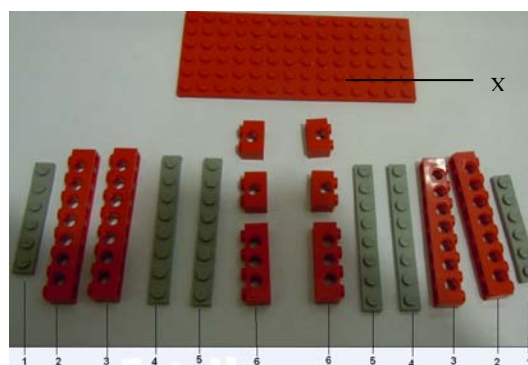
The present research extends the scope of attribution theory of motivation and emotion to causes that are construed at the group rather than the individual level and exemplifies the importance of such causes in explaining achiever's reactions to group achievements. In addition, it provides an effective paradigm for the study of group failure and its consequences.

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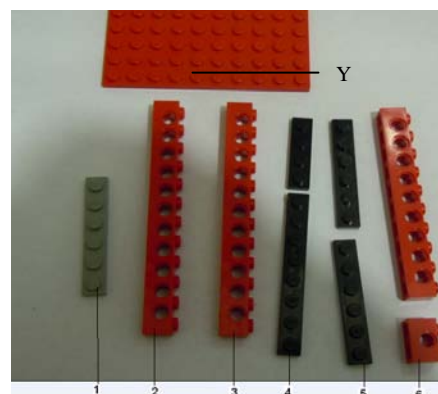
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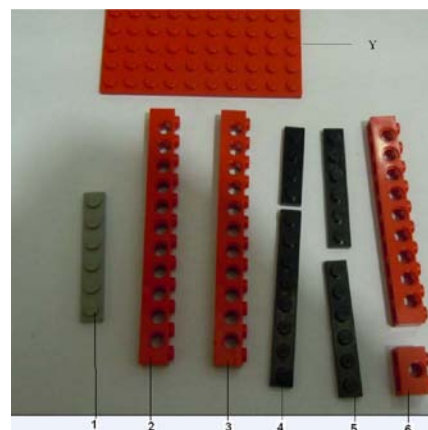
## APPENDIX



1.A. Lego parts included in the "parallel walls". Blocks are connected from 1 (bottom of each wall) to 6 (top of each wall) attached to X (the base of the object).



1.B. Lego parts included in the "single wall". Blocks are connected from 1 (bottom of the wall) to 6 (top of the wall) attached to Y (the base of the object).



1.C. Lego parts included in the "fork". Part A1 is inserted into part A2, which goes through the first hole in the bottom of R. A3 is attached to the tip of A1 on the other side of R. Same is true for the B parts only that B1 goes through the third hole from the bottom of part R.