AN EXAMINATION OF TEAM REACTIONS TO NEGATIVE PERFORMANCE FEEDBACK AND THEIR RELATIONSHIP TO TEAM PERFORMANCE

A Dissertation

by

JOEL RICHARD PHILO

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

December 2004

Major Subject: Psychology

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Approved as to style and content by:

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ABSTRACT

An Examination of Team Reactions to Negative Performance Feedback and Their Relationship to Team Performance. (December 2004)

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Despite the abundant research regarding individual-level feedback, few studies examine team feedback, particularly the relationship between team feedback reactions and organizational performance. Through a field study and a lab study, this paper examines two reactions to team feedback, specifically blaming and strategizing, and their relationship to team performance. Study 1 showed that both blaming and strategizing occur in about 1/3 of team feedback meetings in an international sample of teams. Blaming was found to negatively correlate with productivity improvement (r = -.59), whereas strategizing was found to positively correlate with productivity improvement (r = .33). Study 2 was a lab study conducted to addresses several of the limitations from Study 1. The results from Study 2 were mixed. Although the manipulation failed to differentiate the experimental conditions in Study 2, post hoc correlational analyses showed a positive relationship between strategizing and viability, and a negative relationship between excuse making and viability. Correlational analyses also revealed a negative relationship between blaming or excuse making and team cohesion. These results suggest further research is warranted in this area.

DEDICATION

The pursuit of education and scientific knowledge are worthy endeavors, and it is my hope that this work can in some way contribute to the scientific progress of my field and enable me to serve as a role model to those who would seek to better understand the world they live in. I therefore dedicate this work to my son in the hope that he will someday be a well-informed citizen, with both a Christian foundation and a scientific mind. I pray that this work and this experience may help me to guide him toward wisdom and understanding, and that we will receive all of God's richest blessings.

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INTRODUCTION

Maximizing human capital is becoming increasingly important for organizations (see Boudreau & Ramstad, 2003). Such maximization can be accomplished through numerous means, one of which is the effective provision of performance feedback. Feedback is the action of reporting results on a task to an individual or team. It is thought to lead to increases in performance through both a motivational function and a cueing function (e.g., Nadler, 1979). That is, feedback encourages people to invest effort into tasks, and it helps them direct their behavior in an optimal fashion to form more effective task strategies. A large amount of literature on feedback is available (e.g., Ammons, 1956; Annett, 1969; Ilgen, Fisher & Taylor, 1979; Kluger & DeNisi, 1996; Nadler, 1979; Sassenwrath, 1975; Taylor, Fisher & Ilgen, 1984). Although Kluger and DeNisi (1996) showed feedback effects are more mixed than some have thought, they also noted that many studies have demonstrated the beneficial effects of individual feedback on performance in organizations.

Despite the plethora of research regarding individual-level feedback, there is much less research examining team feedback, particularly the reactions of teams to feedback and the relationship of these reactions to subsequent performance. This relative paucity of research is the impetus for the present study. Specifically, this paper extends the work on feedback to the level of teams and examines reactions to feedback as part of the process of translating feedback to performance improvement. The present paper focused on two specific reactions to team feedback, blaming and strategizing, and the relationship between these reactions and subsequent team performance.

This dissertation follows the style and format of the *Journal of Applied Psychology*.

This research was conducted in the form of two studies. Study 1 examined the research questions in a field setting, focusing on the productivity component of team effectiveness and utilizing a correlational design. Study 2 addressed the inherent limitations of Study 1, specifically its inability to lead to causal inferences, by utilizing an experimental design to examine a more complete picture of team effectiveness. The theoretical and conceptual basis for these studies follows.

Individual Reactions to Feedback

Feedback's relationship to productivity is complex, and researchers such as Kluger and DeNisi (1996) have recently called for greater examination of the process of how feedback relates to subsequent productivity rather than just the end result of feedback. One part of the process between the receipt of feedback and subsequent productivity is the reaction of the feedback recipient. The reaction of individuals to the feedback they receive has been acknowledged as an important area of research by authors such as Anderson and Jones (2000) who stated "responses to feedback regarding organizational behaviors and decisions more generally are among the most essential workplace issues" (p. 130).

Reactions to feedback have been examined in the literature on performance appraisals. Performance appraisals typically consist of feedback on how the individual is performing at work, such as annual performance reviews or productivity reports. By understanding how reactions to performance appraisals relate to subsequent productivity, employers are better able to structure performance appraisals to increase individual productivity. Consequently, research on reactions to performance feedback is prevalent, ranging from reactions to performance appraisals (Cawley, Keeping & Levey, 1998; Keeping & Levy, 2000; Silverman & Wexley, 1984) to reactions to 360-degree feedback (Brett &

Atwater, 2001; Facteau, Facteau, Schoel, Russell, & Poteet, 1998). Although this research stream provides useful information on how individuals react to feedback, it does not speak to how teams or individuals in teams react to feedback.

The Importance of Teams

Workers do not exist in a vacuum. They are embedded in teams or work groups that are themselves within larger social structures or organizations (Ilgen, 1999). Researchers are increasingly recognizing this fact and focusing on team issues to understand organizational performance (e.g., Anderson & West, 1998; Evans & Dion, 1991; Gully, Incalcaterra, Joshi, & Beaubien, 2002; Guzzo & Dickson, 1996).

Some researchers have specifically focused on team-level feedback. For example, Mitchell and Silver (1990) found that group goals are more effective for improving performance than individual goals on a group task, and Matsui, Kakuyama, and Onglatco (1987) emphasized the importance of team members receiving team-level feedback. Nevertheless, in an overview of team research, Kozlowski and Bell (2003) noted the paucity of research on team motivation and feedback, stressing the importance of congruence between team-level and individual-level motivational factors. Most researchers, however, tend to focus on individual-level motivation factors. This paper seeks to shift this focus. However, in shifting from an individual to a team focus, it is important to clarify what constitutes a team.

Teams Defined

There are a variety of definitions of teams. According to Guzzo and Dickson (1996) the term work groups (which they use interchangeably with the term teams) refers to "individuals who see themselves and who are seen by others as a social entity, who are

interdependent because of the tasks they perform as members of a group, who are embedded in one or more larger social systems (e.g., community, organization), and who perform tasks that affect others" (p. 308- 309). In a more recent review, Kozlowski and Bell (2003) also note that the terms work groups and teams can be used interchangeably. Their definition of teams is more comprehensive than that of Guzzo and Dickson. They state that teams are:

> "two or more individuals who (a) exist to perform organizationally relevant tasks, (b) share one or more common goals, (c) interact socially, (d) exhibit task interdependencies (i.e., work flow, goals, outcomes), (e) maintain and manage boundaries, and (f) are embedded in an organizational context that sets boundaries, constrains the team, and influence exchanges with other units in the broader entity" (p. 334).

Although this latter definition is more detailed, the two definitions are highly compatible. The authors agree that teams consist of two or more people engaging in interdependent tasks that impact the larger social structure in which they are embedded, and this is the simple definition that will be utilized throughout this paper.

This definition assumes interdependence, but not all teams are equally interdependent. Tesluk, Mathieu, Zaccaro, and Marks (1997) provide a conceptual model for understanding the possible differences in interdependence across teams. This model, as represented by Arthur, Edwards, Bell and Villado and Bennett's (in press) team task analysis measure, is shown in Figure 1. For the purposes of this paper, it is assumed that the extent to which the reactions of teams to feedback affect subsequent productivity is affected by the interdependence of the team. This is because many of the variables that team feedback reactions might impact, such as cooperation and team mental models, would be less

important to a team that is low on interdependence. Teams that fall into Tesluk et al.'s category of pooled/additive interdependence are not interdependent to a sufficient degree to meet the definition of teams utilized in this paper because their work does not require any significant interaction. The degree to which sequential, reciprocal, and intensive interdependence are differentially affected by team reactions is not as clear, because these forms of interdependence all require interactions between team members. Team interdependence is, therefore, an important moderator to consider when examining individuals who have been classified as a team, as the way in which they work may lead to different team dynamics and require different amounts of cohesion and cooperation for optimal productivity. This logic is supported by Gully et al.'s (2002) meta-analysis, which found that interdependence moderates the relationship between team efficacy and performance. Beyond understanding what constitutes a team, however, it is also important to understand how team effectiveness is defined.

Team Effectiveness

Measuring the effectiveness of teams raises several issues. Kozlowski and Bell (2003) provide a useful summary of these issues in their review of the literature on team effectiveness. Team effectiveness tends to revolve around the Input-Process-Outcomes (IPO) model proposed by McGrath (1964). Shea and Guzzo (1987) describe team effectiveness as the quantity and quality of a team's outcomes. Although this definition was roughly equivalent to a team's productivity in Shea and Guzzo's original conceptualization, it has since been expanded to include the ability of a team to function in the future, or team viability (Guzzo & Dickson, 1996). Effectiveness of a team therefore differs from the effectiveness of an individual. Whereas an individual's effectiveness is often considered as

the extent to which an individual meets performance requirements (Pritchard, 1992), for a team, effectiveness includes both the work outputs of the team and the social consequences of working together. In other words, teams produce both value added outside the team in the form of productivity to the organization and value added within a team which is reflected by their viability, or willingness to work together again in the future. This social aspect of effectiveness differentiates team effectiveness from individual effectiveness.

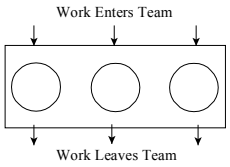
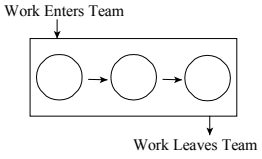
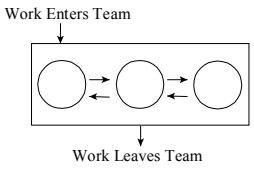
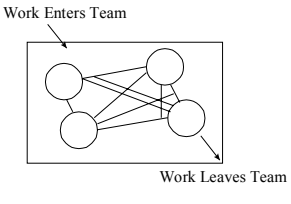
Team Workflow Pattern	Description	Illustration
1. Pooled/Additive Interdependence.	Work and activities are performed separately by all team members and work does not flow between members of the team.	
2. Sequential Interdependence.	Work and activities flow from one member to another in the team, but mostly in one direction.	
3. Reciprocal Interdependence.	Work and activities flow between team members in a back–and–forth manner over a period of time.	
4. Intensive Interdependence.	Work and activities come into the team and members must diagnose, problem solve, and/or collaborate as a team in order to accomplish the team's task.	

Figure 1. Levels of task interdependence

It is important to understand the process that leads to both components of team effectiveness. Industrial/organizational (I/O) psychologists have moved the focus of the IPO

model from processes to inputs and outcomes in the team literature (Ilgen, 1999). Although Ilgen states that there are many benefits to this shift towards a greater focus on predictors and criteria, understanding the intervening variables and processes is also important to diagnosing the reasons behind the variety of feedback effects that Kluger and DeNisi (1996) illuminated. These authors showed an awareness of the importance of shifting back to the middle of the IPO framework when they called for more research on the processes involved in feedback interventions, rather than a continued focus on the outcome of feedback interventions.

Team effectiveness is theoretically impacted by a number of factors. These factors include team mental models (Klimoski & Mohammed, 1994), team climate (Anderson & West, 1998), team coherence (Kozlowski, Gully, McHugh, Salas, & Cannon-Bowers, 1996), transactive memory (Wegner, 1986), cooperation (Wagner, 1995), and communication skills (Glickman et al., 1987). However, many of these factors exist prior to the receiving of feedback and are not likely to represent the process of responding to feedback. The actual process of responding to feedback is a communication process, one component of which is the reaction of the feedback recipient to the communicated feedback. Although there is literature on reactions to performance feedback such as how individuals respond to performance appraisals or 360 feedback (Brett & Atwater, 2001; Cawley, Keeping & Levey, 1998; Facteau, Facteau, Schoel, Russell, & Poteet, 1998; Keeping & Levey, 2000; Silverman & Wexley, 1984;), there is little research on team-level reactions to feedback. Team reactions cannot be considered the same as individual reactions because the different level of analysis must be taken into consideration (Rousseau, 1985). There are interpersonal dynamics at work in a team reaction that cannot occur with an individual reaction. These interpersonal dynamics must be considered when evaluating how the feedback will impact effectiveness,

which is also different at the team level due to the existence of a broader definition of effectiveness at the team level (i.e., viability and productivity, rather than just productivity).

Team Feedback

Individual performance appraisals represent a common form of feedback. The purpose of performance appraisals is often productivity improvement (Pritchard & DeNisi, 2003). However, organizations are often composed of teams, and if productivity is measured at the team level, then performance appraisals might be most effectively conducted at the team level. Although the literature does not often discuss team performance appraisals, some organizations and researchers do recognize and utilize this form of feedback, one example of which is the Productivity Measurement and Enhancement System or ProMES (Pritchard, Jones, Roth, Stuebing, & Ekeberg, 1988, 1989; Pritchard, 1990, 1995). This feedback system generally utilizes team-level feedback and shares this feedback through monthly performance feedback meetings. On average this system realizes productivity gains of 1.4 standard deviations from baseline work performance measures (Pritchard, Paquin, DeCuir, McCormick, & Bly, 2002), suggesting the value of providing team-level feedback. Other researchers also stress the importance of examining feedback systems at the team level. Hey, Pietruschka, Bungard, and Jones (2000) noted that most human resource systems are designed at the level of individuals, and they argued that "group oriented intervention methods and instruments have to be designed and analyzed" (p. 126). If team feedback and how teams respond to such feedback is important, then the issue of how to classify and examine such reactions becomes relevant.

Team Reactions to Feedback

A common form of giving feedback to an entire team is to present team-level performance data at a team meeting. During such a meeting the collective reactions of the team are likely to relate to the extent to which the feedback given to the team impacts future team effectiveness. Teams can react in many ways such as by discounting the feedback (Ilgen et al., 1979) or changing standards (Kluger & DeNisi, 1996). Although these reactions are important and of theoretical interest, they are not easily observable by managers or others who may need to quickly ascertain how a team is responding to feedback. It would be valuable to identify visible reactions of team members to feedback, and how these reactions relate to subsequent performance. This identification and classification would enable managers to more readily identify whether or not feedback is being received in a way that will ultimately benefit future performance.

Many different reactions can occur during a team feedback meeting both between and within team members. Lacking a theoretical framework for classifying team feedback reactions, it would be difficult to aggregate across different feedback contexts and come up with general rules for designing team-level feedback systems and guiding team feedback meetings. Such generalizations are sorely needed. Browne and Payne (2002) found that managers reported the primary purpose of performance appraisals is for employee feedback and development, yet they also identified a lack of training on how to give performance feedback as the most significant barrier to its effectiveness. Understanding the response of a team to performance feedback, and how it relates to team effectiveness, may allow for the training of managers to enable them to more effectively deliver team performance appraisals and conduct feedback meetings in response to those appraisals.

Recognizing the importance of analyzing the reactions of teams to feedback leads back to the issue of classifying reactions into theoretically meaningful dimensions. Although the reactions of teams during feedback meetings can be classified and analyzed in numerous ways, two reactions in particular can be readily observed and theoretically related to subsequent team effectiveness. These reactions are for the team to engage in blaming (internal to the team or external) and for the team to engage in team strategizing. Not only are these reactions easily monitored by managers during feedback meetings, they are also theoretically separable. Blaming likely creates affectively charged situations, which are theoretically important for understanding team performance (Weiss & Cropanzano, 1996). In contrast, strategizing among team members is generally a cognitively laden task which is likely to improve their understanding of the team task, and hence their motivation (Naylor, Pritchard, & Ilgen, 1980). The theoretical arguments linking the behaviors of blaming and strategizing to team performance are expanded below.

Task Strategizing

Pritchard and DeNisi (2003) proposed that, "the more employees are given information and opportunities to develop more effective work strategies, the more performance appraisal will lead to increased performance" (p. 20). Schmidt and Kleinbeck (1990) also noted the importance of work strategies in their review of why goals positively affect performance. They suggested that goals prompt the search for or the development of effective work strategies in order to attain the goals. Many researchers have empirically demonstrated the importance of improving task strategies in order to improve performance (Earley & Perry, 1987; Locke, Frederick, & Bobko, 1984).

Assessment center (AC) researchers have also discussed the importance of learning and developing better work strategies. Thornton and Byham (1982) noted that ACs have increasingly been used for developmental purposes rather than selection. Specifically, Spychalski, Quinones, Gaugler, and Pohley (1997) stated that 40% of ACs have developmental planning as their objective, which indicates that organizations are increasingly focusing on improving the knowledge of their workers, potentially improving worker task strategies.

The importance of task strategies has also been posited at the team level by Hackman's (1987) Normative Model of team effectiveness, which clearly shows the importance of team task strategies. The three components of team effectiveness in his model are team effort, team knowledge and skill, and team performance strategies (ways of accomplishing a common task). When describing the conditions that promote appropriate performance strategies, Hackman noted the importance of performance assessments and a willingness in the team to consider alternative ways to do things. This willingness of teams to consider alternative ways of doing a task suggests the importance of feedback acceptance as a precursor to change.

Developmental feedback acceptance has also been studied by Bell and Arthur (2003), who investigated individual feedback acceptance in ACs. They noted that the "acceptance of the information is paramount to change" (p. 3). Assuming that the task strategies developed in reaction to AC developmental feedback are useful, then acceptance and utilization of the new strategies should ultimately improve performance.

These arguments suggest that acceptance of feedback is an important component of its effectiveness. Ilgen, Fisher, and Taylor (1979) theorized factors that contribute to

feedback acceptance. The sign of the feedback is theorized to be of importance. Specifically, they posited that positive feedback is likely to be seen as more accurate than negative feedback, perhaps because of a self-serving bias. If negative feedback is more likely to be rejected than positive feedback, as several researchers have found (Bell & Arthur, 2003; Halperin, Snyder, Shenkel, & Houston, 1976; Kudisch, 1997), then task strategy development that is perceived as a negative episode of feedback might run the risk of being rejected.

This issue is complicated however by the issue of team-level feedback. Teams are collections of individuals and may not all accept feedback to the same degree. Automatic rejection of negative feedback, however, would prevent work teams from benefiting from the developmental opportunities inherent in many forms of negative feedback. Team strategizing is one way that teams can bring members together to focus on improvements. By collectively discussing ways to respond to negative feedback and achieve improvements, a team may assume some base level of feedback acceptance.

Other reasons for why negative feedback might be accepted, thereby laying the groundwork for strategizing, can be extrapolated from Swann's (1987) self-verification theory, which could be extended to the level of teams. Swann's theory states that individuals will accept feedback regardless of sign, as long as it matches their self-perception. If this theory could reasonably be extrapolated to the team level it would suggest that teams would accept feedback that matches their perception of the performance capabilities of the team. Teams that perceive that they have room for growth might therefore be more willing to accept negative feedback that indicates growth potential. Such extrapolation is likely only justified in situations where the teams have a unified concept of the team.

This logic may partially explain why there is a curvilinear relationship between the amount of time a team is together and the performance of the team (Guzzo & Dickson, 1996). Teams with high familiarity may have high team efficacy, which is the collective belief in the extent to which a team can be effective in accomplishing a task (Edmonson, 1999). High team efficacy may lower the likelihood that corrective, negative feedback will be accepted, as it might conflict with the potent team concept. Not accepting negative feedback that could potentially improve the productivity of the team might therefore prevent the team from correcting problems in their performance, leading to lowered productivity over time.

However, all this logic depends on the premise that individuals can interpret feedback at the level of a team rather than just as individuals. Such shifts in levels of attention are theoretically possible according to Lord, Brown, and Freiberg (1999). In their theory of leadership, they state that not only is it possible for individuals to perceive feedback and actions from multiple levels of an organizational hierarchy, but that such perception shifts are critical to the role of leaders. They theorize that effective leadership is enhanced by the manipulation of followers' working self-concepts. Lord et al. suggested that working self-concepts (which is the view of the self that is active) could be oriented at the self-level, interpersonal level, or group (team) level. Although Swann (1987) focused on the individual, if individuals do have a variety of working self-concepts, then it is likely that the working self-concept that is active at the time of feedback (and theoretically only one can be active) will determine what the feedback would be compared against. This view would suggest that individuals with a team-level working self-concept would react differently to negative feedback than individuals with a self-level working self-concept. Such shifts could

theoretically be instigated by tasks that encourage team cooperation, such as strategizing, or by affective events such as those that can occur from blaming. The theory that team members may react differently to negative feedback depending on their working self-concept leads to several questions.

One question is what happens to a team's working self-concept following feedback? Is it possible that different types of feedback can lead to different working self-concepts being activated? Another question is whether team-generated feedback is similar to self-generated feedback when an individual is operating under a team-level self-concept. Kluger and DeNisi (1996) suggested that self-feedback is most readily accepted and credible. Ilgen, Fisher, and Taylor (1979) similarly stressed the credibility of self-feedback. If self-feedback were similar to feedback generated within a team for individuals working under a team-level self-concept, then this would suggest that strategies developed within a team are especially credible and accepted. This suggests that feedback on how to specifically improve task strategies that is imposed from a source external to a team may be less effective in creating behavior change than strategies developed within a team. Because the goal of negative performance feedback is generally to change the behavior of the team in order to improve performance, it is of interest to know both the extent to which teams will strategize in response to negative feedback and how to encourage a team working self-concept versus an individual self-concept during a feedback session.

Therefore, one of the first research questions addressed in the present study focuses on the extent to which teams engage in strategizing following the receipt of negative team-level feedback. To the extent that they do engage in strategizing, the preceding arguments would suggest that this could enhance their future performance due to the level of acceptance

implied by spontaneous strategizing and due to the improved strategies that may result. It is also possible that strategizing indicates a working self-concept at the team level, which could enhance cooperation. This leads to the first hypothesis.

H1: There will be a significant positive relationship between the percentage of time in a feedback meeting that a team spends strategizing and the degree to which a team's productivity improves following the meeting.

Although strategizing may not always be beneficial, the first hypothesis suggests that more often than not it will be a positive sign for future performance. However, it is possible that team members could differ with one another and that conflict could result in a team feedback meeting. This is a very different reaction from strategizing and could theoretically have the opposite effect. Actions that create friction between team members may be affectively charged and may reduce the sense of cohesion and unity within a team, which could theoretically prompt a shift from a team-level working self-concept to an individual working self-concept. One manifestation of this negativity could be blaming between team members.

Blaming

Team members do not automatically increase their productivity following performance feedback. Kluger and DeNisi's (1996) demonstrated this fact when they found in their meta-analysis that approximately one third of feedback interventions actually had a negative effect on performance. Although this analysis focused on individual feedback, the basic rationale that not all feedback is beneficial to performance likely extends to team feedback as well. One of the reasons for unfavorable reactions to feedback may be a lack of acceptance. Such a lack of acceptance can be caused by numerous factors. In the case of

negative feedback, lack of acceptance may be promoted by the fundamental attribution error (Ross, Green, & House, 1977). The fundamental attribution error is the tendency for individuals to personally take credit for positive outcomes and blame external factors for negative outcomes. In addition, individuals have a tendency to attribute the positive results of others to external factors, and blame negative results on the internal factors of others. There are many factors that can influence the likelihood of making such attribution errors, such as being in an outgroup or potentially the level of attention at which an individual is operating. It is possible that the fundamental attribution error is less likely to occur in a team if the team members are paying more attention to team-level motivational factors than individual level motivational factors (Ellemers, de Gilder, & Haslam, 2004). In sum, it is not uncommon for individuals who personally receive negative feedback to seek to place blame on factors external to themselves, either blaming other team members or factors external to the team, though this error may be less likely if the team members are motivated by and paying attention to team-level phenomenon.

Internal Blaming

There are many potential problems that result from blaming factors internal to the team or finger pointing. The fundamental attribution error would suggest that team members would not only avoid accepting personal responsibility for negative feedback, but might also attribute that feedback to factors external to themselves, potentially even to the activities of fellow team members. Such attributions might negatively affect team performance through more than just the individual rejection of feedback. Blaming internal to the team has the potential to erode the confidence of team members in their own abilities or those of their teammates. It might also interrupt the development of positive team dynamics, such as team

cohesion. The potential threat of being blamed might also lead to decrements in individual performance that negatively affect the team's performance.

Interference with Team Dynamics

Several researchers have proposed that when cohesion within a team is high, the team will be more motivated and will be able to better work together to be productive (Cartwright, 1968; Davis, 1969). Beal, Cohen, Burke, and McLendon's (2003) meta-analysis confirmed that there is a positive relationship between the cohesiveness of teams and their performance on tasks. However, these authors also confirmed the importance of understanding the multi-dimensional nature of cohesion. The three components of team cohesion are generally considered to be interpersonal attraction, task commitment, and group pride. Within-team blaming might interfere with the development and maintenance of team cohesion. Specifically, the negative affectivity that can be associated with being personally and publicly blamed for poor performance has the potential to decrease the interpersonal attraction within a team. For the person being blamed, there might also be a tendency to experience lowered group pride as part of the process of disengaging from the source of negative feedback (in this case, the blaming team members).

To the extent that a task requires cooperation, friction within a team might also lead to a decrease in the extent to which a team perceives that they are able to perform a team task, or a decreased sense of team efficacy, unless team members believe that they can cooperate despite the friction. Teams in which individuals blame each other for negative feedback may therefore have less belief in their ability to accomplish a task as a team, particularly for highly interdependent tasks. Such lowered beliefs in the ability of a team to

effectively perform tasks have been found to be associated with lower levels of team performance (Gully et al., 2002).

Individual Ego Threats

Lowered team efficacy might also be accompanied at the individual level by lowered perceptions of the efficacy of other individual team members. There might also be lowered self-efficacy among individual team members, particularly for those individual team members who are receiving the blame from fellow team members. Ilgen and Davis (2000) theorized that feelings of incompetence and lowered self-efficacy, such as a bout of finger pointing might produce, are a serious problem. Specifically, they stated "the most critical issue for delivering negative feedback is the balance between making it possible for performers to accept responsibility for substandard performance and, at the same time, not lower their self-concept" (p. 561). The individual nature of finger pointing and blaming may lead to a higher risk of lowered individual perceptions of ability, which, according to the Naylor et al. (1980) model of behavior, would have a negative effect on motivation to perform. This might also lead to the seeking of feedback more consistent with one's self-concept.

If team members are prone to blame each other during team feedback sessions, then this might make team feedback more threatening. Creating a more threatening atmosphere in feedback meetings is contrary to Hey et al.'s (2002) recommendation that team feedback be nonthreatening in order to increase its effectiveness. This suggests that when the reactions of a team during a feedback meeting include blaming and finger pointing, the effect of the feedback on performance may be diluted or even be negative due to the ego threats inherent in such a situation.

Utilizing Kluger and DeNisi's (1996) Feedback Intervention Theory framework, one could further theorize that blaming in a team feedback meeting could contribute to the development of detrimental meta-task cognitions among team members. Meta-task cognitions are thoughts about the self as they relate to the task, which are often distracting and tend to compete with task-related thoughts during task performance. If team members feel personally blamed for negative performance, this might contribute to detriments in performance due to the attention distraction of meta-task cognitions among individual team members. This is in line with the research of Hinsz, Tindale, and Vollrath (1997) who theorized that deindividuation increases individual team members' attention to task information. Thus, individualized blaming likely decreases attention to task information and thereby inhibits improvement on tasks and the development of useful team-level phenomena such as transactive memory (Wegner, 1986). There are also motivational differences between team members who deindividuate and shift their focus to the level of the team. Such a person may place greater value on team-level rewards and team dynamics than an individual more focused on the self (Ellemers et al., 2004). Internal blaming could therefore discourage deindividuation. Such blaming might also induce friction within the team at the detriment of team cohesion and cause team members to not want to work together again in the future, lowering the viability of the team.

These arguments suggest that internal blaming is a reaction to feedback that should be studied in order to understand the relationships between team feedback and subsequent productivity. The second research objective is therefore to examine the extent to which individual employees within teams blame each other in response to negative team-level feedback.

External Blaming (Excuse Making)

Blaming can also occur without team members actually blaming each other. Team members can choose to blame negative feedback on factors external to the team. Although this would prevent many of the potential pitfalls of blaming fellow team members, it still may represent a lack of acceptance, which can preempt many of the benefits of feedback. If the feedback system, feedback agent, or other outside processes are perceived as the cause of negative results, then the team members will be limited in the extent to which they perceive that they can change their results and may perceive themselves as having low team efficacy or else reject the feedback outright. Lack of acceptance might be exemplified in a team feedback meeting by the prevalence of excuse making. Blaming that is external to the team may represent an instance of attempting to avoid acceptance of a negative feedback message without engaging in detrimental within-team blaming. This lack of acceptance is problematic because, as Ilgen et al. (1979) note, in the absence of a source of power forcing behavior change, acceptance of feedback is a necessary prerequisite to behavior change. If an individual or a team fails to accept the feedback that they receive, and is not forced to change their behavior, then they are unlikely to change their behavior in response to the feedback. As acceptance of the feedback is a precursor to behavior change (Ilgen et al., 1979), it is not likely that external excuse making will result in improved performance following feedback.

These arguments suggest that blaming is an important reaction to study because it can moderate the motivational effect of feedback. Through external blaming teams could dismiss feedback reducing the potential for goal-setting and motivation towards improvement. Through internal blaming, teams could focus more on self-motives than on team motives which could discourage attempts to promote cohesion and perceptions of team viability.

Conversely, strategizing as a team-level activity might encourage deindividuation and promote cohesion, especially if it shows team cooperation to be an important strategy for success. This cohesive activity could be affectively rewarding and improve the team's sense of efficacy which might increase the perceived viability of the team among the team members. This suggests a hierarchy of team responses to negative performance feedback, with strategizing being positively related to future team effectiveness, internal blaming being negatively related, and external blaming falling somewhere in between. These arguments lead to the following four hypotheses.

H2: There will be a significant negative relationship between the percentage of time in a feedback meeting that a team spends engaging in blaming (both external or internal) and the amount of team productivity improvement following the meeting.

H3: The post-feedback productivity of teams that engage in strategizing will be significantly greater than that of teams engaging in external or internal blaming.

H4: The post-feedback productivity of teams that engage in external blaming will be significantly higher than teams engaging in internal blaming.

H5: Teams that engage in internal blaming will subsequently report significantly lower team cohesion and team viability than teams that engage in external blaming or strategizing.

Examining the Research Questions

The research objectives and hypotheses were examined with a two-study approach. The first study examined a field sample of teams that received productivity feedback at regular intervals. This study addressed the research question of whether naturally occurring teams engage in the behaviors of strategizing and blaming (external and internal) in response

to performance feedback (both positive and negative). This study also allowed for a broad examination of the relationship between these reactions and subsequent productivity improvement. Study 2 utilized a controlled, lab design to address Hypotheses 3 through 5 and to examine causality for the effects observed. The second study attempted to remedy many of the limitations of the first study.

One such limitation is that the size of teams may influence many of the variables of interest and team size varies in Study 1. Team size can limit the extent to which team members can effectively contribute to team strategizing and might also increase the likelihood of in-groups and out-groups forming, which could impact overall team cohesion and viability. Extremely large teams may have different limitations and dynamics than teams that are small enough for all team members to have the opportunity to contribute to team discussions and establish bonds with other team members. Because the size of a team may influence many of the variables of interest, Study 2 controlled for the size of the team by keeping it constant. This second study also separately examined external versus internal blaming, in order to determine if these two forms of shifting blame have different effects on subsequent productivity.

Another limitation of Study 1 is the lack of measures of team cohesion and team viability, as viability is a component of team effectiveness and cohesion is a predictor of team viability. Study 2 specifically included measures of these variables to test the extent to which the three reactions previously discussed impact these related components of team effectiveness. The broad field perspective of Study 1 and the controlled lab setting of Study 2 were meant to complement one another and provide a clearer picture of the relationship

between the team feedback reactions of strategizing and blaming and how they relate to subsequent performance.

STUDY 1

Before any of the hypotheses can be examined, the research question of whether or not teams engage in strategizing and blaming in the field must be addressed. If these reactions are rare or infrequent, this series of hypotheses may be irrelevant or of limited usefulness to managers. The focus of Study 1 is to address the fundamental question of whether real work teams actually engage in strategizing or blaming in response to performance feedback and whether these reactions relate to the team's subsequent productivity. These research questions were addressed using a longitudinal database of field productivity interventions that result in regular team-level feedback.

Method

Participants

The database of field productivity interventions is a result of numerous applications of the Productivity Measurement and Enhancement System or ProMES (Pritchard et al., 1988, 1989; Pritchard, 1990, 1995). ProMES interventions involve a series of team meetings to establish measurements for all of a team's core work duties, prioritize these work duties, and then create a system for providing teams with regular team-level feedback on the extent to which they are contributing to the organization's productivity through their performance on these work duties. Data from these interventions has been collected in a database over several years, resulting in information on longitudinal ProMES interventions for 66 teams from a wide variety of industries, types of jobs, and countries (the diversity of the sample and the relatively small sample size makes it difficult to control for industry, job, or country). With a sample of this size, the power to detect a medium effect size is .79 (p = .05). The size of teams ranges from 3 to 50 with a mean of 21 (SD = 18). In each of these interventions,

teams met regularly to discuss their performance from the previous measurement period. Measurement periods ranged from 1 to 14 weeks with a mean of 4 weeks (*SD* = 2.5).

Procedure

The ProMES database was used for this study. This database consisted of data from 66 ProMES interventions performed on teams from many different nations. There were two main components to this database. The first component consisted of the answers from a questionnaire completed at the end of a ProMES intervention by the person in charge of organizing and running the intervention. This questionnaire covered many aspects of the ProMES project and was completed by the person who facilitated the implementation of the ProMES system shortly after design of the system (follow up measures were collected after a 6 month period of feedback), but only the section of the questionnaire dealing with feedback meetings was utilized for this study. The second component of the database consists of longitudinal data collected over the course of the ProMES project on the productivity of the team. This productivity data is collected both before and after the initiation of ProMES feedback meetings. It can therefore serve as a criterion of the effectiveness of the ProMES intervention.

Measures

Blaming and Strategizing

The facilitators who worked with teams to design and implement the feedback systems filled out a questionnaire once the ProMES system was designed and implemented. In this questionnaire the facilitator thoroughly described many aspects of the final ProMES system, including the average length of feedback meetings and the percentage of time during the feedback meeting that was spent on each of six different possible feedback reactions.

These activities were: constructive performance feedback, problem identification, developing improvement strategies, discussing future goals, blaming and searching for excuses, irrelevant discussion, other positive discussion, and other negative discussion. The percentage of time spent on each of these activities had to sum to 100%. Explanations were provided on the rating sheet for each of these activities and the raters who recorded the information were familiar with both the teams and with providing ratings, though no formal training was conducted to ensure consistency in ratings.

For the purposes of this study, the question regarding the percentage of time spent on developing improvement strategies was used as an index of strategizing. The question on the percentage of time spent blaming and searching for excuses was used as an index of blaming. This section of the questionnaire is shown in Appendix A. For the purposes of Study 1, it was not possible to examine internal and external blaming separately, as this distinction was not made at the time of data collection.

Productivity Improvement

Productivity improvement following feedback was operationalized as the effect size for the ProMES intervention. This effect size was calculated by comparing average total team productivity for the baseline period (before teams received and discussed performance feedback) to average total team productivity during the feedback period (after teams began regularly receiving and discussing performance feedback). The calculation of effect sizes was done by taking the difference between the team's mean performance during baseline and their mean performance during feedback and dividing by the pooled standard deviation of these performance scores across time periods. A sample of a feedback report given to team members that shows overall effectiveness scores is shown in Appendix B.

Results

One condition needed to explore the relationship between strategizing, blaming, and performance is that there actually be blaming and strategizing in the teams studied, and that there is some variability in these feedback reactions across groups. The mean percentage of time spent blaming was 10.5%, (*SD* = 11), with a minimum of 0% (13 cases) and a maximum of 37.5%. The mean percentage of time spent on strategizing was 20%, (*SD* = 14), with a minimum of 0% (2 cases) and a maximum of 45%. These data show that, on average, 30.5% of the time spent in feedback meetings was spent on either developing strategies for improvement or placing blame. Also, there were many more teams that refrained from blaming than there were teams that refrained from strategizing during feedback meetings.

Hypothesis 1 predicted there would be a positive relationship between the percentage of time a team spent strategizing and the team's performance improvement. Conversely, Hypothesis 2 predicted there would be a negative relationship between the percentage of time a team spent engaging in blaming and the team's performance improvement. In a one-tailed test of significance, Hypothesis 1 was supported, r (32) = .32, p = .04, as was Hypothesis 2, r (32) = -.59, p = .00. The number of cases for these analyses was reduced due to missing data. Utilizing pairwise deletion, the pattern of missing productivity information and ratings resulted in the sample being reduced by about 50%. This reduced the power of the analysis, but the findings were significant nonetheless.

In the interest of understanding the influence of time on this phenomenon several post-hoc analyses were conducted. Variation in the sample size for these analyses is due to the pattern of missing data. A regression was conducted controlling for the number of feedback meetings at step one and the average length of feedback meetings at step two (see Table 1).

The relationship at step one of the equation between the number of feedback meetings and performance improvement was not significant R (31) = .34, p = .06. At step two of the regression, the relationship between the number of feedback meetings and the average length of feedback meetings was significant R (31) = .66, p = .00. At step three of the regression, the percentage of time spent blaming and strategizing and performance improvement was not incrementally significant, R (31) = .73, p = .00, although the beta weight for blaming was significantly negative.

Table 1
Regression Predicting Team Performance Improvement Controlling for Total Feedback Time

Step	β	R^2	Δ R^2
1. # FB mtgs	.34	.11	
2. # FB mtgs	.13	.43***	.32***
Avg. mtg time	.60**		
3. # FB mtgs	.13	.54***	.10
Avg. mtg time	.45**		
Strategizing	-.18		
Blaming	-.44*		

Note. N = 31. Feedback (FB) time is the total time spent receiving feedback, strategizing is the percent of time spent strategizing per meeting, blaming is the percent of time spent blaming per meeting
*p<.05, **p<.01, ***p<.001.

In order to further understand whether blaming interacts with time, the dataset was coded into two groups on the basis of whether or not there was any blaming present in the feedback meeting. Group A spent no time blaming, whereas Group B spent at least some amount of their feedback meeting on blaming. The mean performance improvement for Group A was 1.76, whereas for Group B it was .81. A t-test on the performance improvement between these groups was not significant t (30) = 2.18.

Due to the wide range of team sizes and the potential differences in the interpersonal dynamics of large teams versus small teams, team size was also examined. Similar to the procedure followed for the regression controlling for time spent on feedback, team size was entered into the first step of a regression equation followed by the strategizing and blaming variables in step two. Table 2 shows that after controlling for team size, only blaming significantly predicted performance improvement. The correlations between team size, performance improvement, blaming and strategizing were examined in Table 3.

Table 2
Regression Predicting Team Performance Improvement Controlling for Team Size

Step	β	R^2	ΔR^2
1. Team Size	-.35	.12	
2. Team Size	-.07	.35**	.23*
Strategizing	.10		
Blaming	-.48*		

Note. $N = 30$. Team Size is the number of people in the team, strategizing is the percent of time spent strategizing per meeting, blaming is the percent of time spent blaming per meeting
*$p<.05$, **$p<.01$

Table 3
Correlations Among Team Size, Effect Size, Blaming and Strategizing

	Improvement	Blaming	Strategizing
Team Size	-0.21	.46**	-.43**
Improvement		-.59**	.32*
Blaming			-.56**

Note. Team Size is the number of people in the team, strategizing is the percent of time spent strategizing per meeting, blaming is the percent of time spent blaming per meeting, improvement is a measure of the performance improvement of the team following feedback.
*$p < .05$, ** $p < .01$

Study 1 Discussion

The frequency analysis suggests that blaming and strategizing occurred with some regularity in the feedback meetings and there was variability across teams for both measures, suggesting that this is a phenomenon that naturally occurs during feedback meetings. Hypothesis 1 was supported with a significant medium effect between percentage of time spent strategizing and productivity improvement. Hypothesis 2 was also supported, indicating a negative relationship between blaming and performance improvement. However several follow-up analyses suggested that the findings are more complicated due to potential confounds.

In order to examine the question of whether time is acting as a confound in this analysis, two additional analyses were conducted. The first analysis was a regression, which controlled for the total amount of time spent on feedback by entering the number of feedback meetings into step one of the equation and average feedback meeting time into step two. Blaming and strategizing were then entered together into the regression at step three because there was no a priori hypothesis for whether one of the reactions should predict incrementally more than the other. At step three of the regression, percent of time spent blaming was found to predict performance improvement incrementally more than time spent on feedback. In other words, although the total time spent on feedback was a major predictor of productivity improvement, the percentage of that time spent blaming predicted incrementally beyond this total time. Spending more time blaming therefore appears to be related to less performance improvement in a team over time. Strangely, strategizing did not significantly predict performance improvement beyond the total amount of time spent on feedback. The reasons

for this are not clear, although having a better understanding of the qualitative nature of the feedback meetings might shed light on this finding.

A second analysis was to compare teams that engaged in some blaming to those that did not engage in any blaming at all. This was meant to investigate the idea that the mere presence of blaming has a deleterious effect on team performance, and that a little blaming is as bad as a lot of blaming. Although the mean performance was higher in the non-blaming groups than in the blaming groups, the difference between these groups was not significant. In conjunction with the previous analysis, this suggests that blaming is not an all or nothing phenomenon and that a lot of blaming might be worse than a moderate amount of blaming.

Team size was also examined, as performance improvements might be influenced by the size of the team utilizing the feedback. Regression analysis revealed team size to be a significant predictor of performance improvement and blaming and strategizing were not found to predict beyond this variable. Correlational analyses showed that there is a moderate to strong relationship among team size, strategizing, and blaming, suggesting that team size is a possible confound in understanding the relationship among blaming, strategizing, and performance improvement.

Finally, it is important to note that the findings for blaming did not differentiate between internal and external blaming. Because the ratings for blaming included both excuse making and internal blaming, it is possible that the results for Hypothesis 2 were due to excuse making rather than internal blaming. The inability to determine how the two sub-types of blaming contribute to the overall relationship between blaming and productivity improvement is a limitation of Study 1.

The mixed results in Study 1 (such as a negative beta weight for strategizing in Table 1) in conjunction with its limitations (small sample size, no causal inferences possible, variability in team size, and combination of blaming sub-types) suggested a need for a follow-up study to further analyze the relationship between the content of feedback meetings and subsequent team performance. Accordingly, a lab study was designed to more closely examine the research questions.

STUDY 2

The second study was designed to address the limitations of the initial field study. Although external validity is enhanced through the use of field data, the nature of the data and limitations of the manipulations prevent a full examination of the questions of interest. The limitations of the first study include the inability to establish causal relationships, the combination of internal and external blaming into one measure, the possible confound of team size, and the lack of team cohesion or team viability measures. A lab study can address all of these limitations. By utilizing random assignment and experimentally manipulating the responses of teams to feedback it is possible to examine causality. Also, by creating experimental conditions that encourage either external blaming (excuse making) or internal blaming, it becomes possible to examine differences in the effects of these reactions on team effectiveness. The issue of team size can be addressed by holding it constant. Measuring team viability addresses the final limitation and provides a full measure of team effectiveness. By addressing these limitations, Study 2 attempted to examine Hypotheses 3 through 5.

Method

Participants

There were 450 individual participants who were recruited from a large southwestern university and received course credit for participation in the study. The sample of participants was 55% male and 45% female. The sample was 85% Caucasian, 8% African-American, 3% Asian, 2% Hispanic, and 1% Other (1% did not report their race). The age of the participants ranged from 17 to 28, with a mean of 19.14 (SD = 1.07). The majority of the participants were freshman (60%), while 27% were sophomores, 8% were juniors, 4% were seniors, and

1% did not report their classification. The participants were scheduled in teams of three, with the stipulation that team members should not know each other prior to the experiment. A demographic questionnaire was administered to obtain information on the demographics of the sample and included a question assessing the extent to which team members knew each other prior to the experiment. Teams were not allowed to participate in the study if they verbally reported high level of prior knowledge of a team member when told of the study requirements. A questionnaire item also examined the extent to which participants had prior knowledge of a teammate. No participants reported high prior knowledge of their teammates.

Based on a medium effect size predicted in Study 2 due to the results of Study 1, a sample of 150 teams was collected in order to ensure a power of .80 (Cohen, 1992). The goal was 50 teams per experimental condition. Due to unpredictability in the cancellation pattern of experiments, the final sample consisted of 50 teams in the strategizing condition (Condition A), 45 teams in the excuse making condition (Condition B) and 55 teams in the blaming condition (Condition C).

Experimental Task

The task used in this study was designed by Zaccaro, Foti, and Kenny (1991) and is entitled The Manufacturing Task. The objective of the task is for the 3 team members to produce 3 products (jeeps, robots, and boats) to sell to the researcher for a pre-established market price, which changes periodically. The materials required to produce the jeeps, robots, and boats are Lego© blocks. The costs of the raw materials (i.e., the Lego© blocks; see Appendix C), the instructions for assembly (Appendix D), the order form for raw materials (Appendix E), the list of pieces needed (Appendix F), and the diagram for assembly (Appendix G) are provided to the team prior to the production phase of the exercise.

In order to ensure interdependence on the task, the task was slightly modified. Each member of the team was assigned a limitation that necessitated cooperation. One member of the team could not touch the 2x2 Legos. Another member of the team could not touch the 2x4 Legos. The third team member could not buy or sell Legos or products. Because the task required using 2x4s, 2x2s and buying and selling, team members had to rely on each other to complete the task. The team decided together before each performance period who would have which limitation. Having the ability to decide which team member got which limitation allowed team members an additional avenue of strategy.

Procedure

A 3-way (internal blaming condition, strategizing condition, and excuse making condition) between-subjects factorial design was used for this study. Participants attended a one-and-a-half hour experimental session divided into two performance phases. All participants were advised prior to the experiment that if they had a prior relationship with a fellow participant then they would be excluded. Before the experiment participants were asked whether they had a pre-existing relationship with any other study participants. If such a relationship was identified, one of the people in the relationship was excused and the experiment was cancelled if too few people remained.

Participants were randomly assigned to one of three conditions described below. In all three conditions participants began by signing a consent form. They then completed a demographic questionnaire and were given instructions on how to perform their task. The team members were informed that they had 20 minutes to perform the task and that the team with the highest profit among all participants would receive $20 per member as a reward.

The teams performed the task for 20 minutes and, when they finished, they were given a second questionnaire, which measured team viability, team cohesion, deindividuation, task interdependence, and team efficacy. Upon completion of this questionnaire their final profit was calculated. The experimenter then referred to a fictitious norms sheet and informed the participants that their profit was at the 33rd percentile on the task, well below average. The experimenter informed the team that they would be given a second chance to perform the task and obtain a higher profit to increase their chance of getting the reward. Before beginning the second performance period, teams were given instructions depending on which experimental condition they were in.

The teams in Condition A were asked to collectively generate a list of strategies for improving their performance on this task. This represented the strategizing condition. Teams in Condition B were asked as a team to generate a list of excuses and factors outside their control to explain their low profit on the task. This represented the external blaming condition. Teams in Condition C were asked as a team to generate a list of reasons within their control for their low profit on the task. This represented the internal blaming condition. Participants in each of these conditions had 10 minutes following feedback from the first performance period to engage in discussion before engaging in the task for a second time. If participants stopped discussing before the 10 minutes expired, then the amount of time spent discussing was recorded and the next stage of the experiment was started.

Upon completion of the second performance period, teams in all three conditions completed the third and final questionnaire, which contained all the scales from the second questionnaire, but in a different order and with the addition of several items to check the success of the manipulation. Participants were then debriefed.

Measures

Team Viability

Team viability was measured using a three-item scale designed by Sinclair (2003). Sample items include "I would be willing to participate in another study with this same group of individuals." In this study, internal consistency of the scores for this scale was .84 at Time 1 and .90 at Time 2. This scale is shown in Appendix K.

Team Cohesion

The overall functioning of the team was assessed with the Cohesion- Group Environment Questionnaire (Widmeyer, Brawley, & Carron, 1985). This scale was slightly modified by removing the group integration sub-scale, because the items in this scale referenced longer tenured teams. Sample items in the scale used for this study are "I do not like the style of interaction on this team" (reverse scored) and "Our team is united in trying to reach its goals for performance." Internal consistency of the scores for this 9-item scale was .68 at Time 1 and .69 at Time 2. This scale is shown in Appendix L.

Task Interdependence

Task interdependence was assessed using a single item graphical scale designed around Tesluk et al.'s (1997) model of interdependence. This model posits that the amount of team interdependence for tasks can differ along four levels. They call these levels: pooled/additive interdependence, sequential interdependence, reciprocal interdependence, and intensive interdependence. The rating scale used in this study asks participants to make a global judgment regarding the nature of the performance task using this model. As in Arthur et al. (in press), the four levels of team interdependency are graphically represented as

response options to obtain ratings describing the level of interdependency for, in this case, the entire task. This scale is shown in Appendix M.

Another measure of task interdependence was used that utilized a multi-item scale. This allowed for a calculation of the internal consistency of the ratings, and provided an alternative method of assuring that the task was perceived as requiring interdependence. This five-item scale was designed by Kiggunda (1983), and includes items such as "I depend on my teammates' work for information I need to do this task." The internal consistency of the scores obtained for this scale was .70 at Time 1 and .81 at Time 2. This scale is shown in Appendix N.

Deindividuation

Bipolar adjectives were used to measure deindividuation. Taken from Jorgenson (1976), participants rated which of two bipolar adjectives best described their state. Example items were "carefree" versus "concerned", another pair was "anonymous" versus "conspicuous". For this 4-item scale, internal consistency of the scores was .49 at Time 1 and .60 at Time 2. This scale is shown in Appendix O.

Team Performance

Performance was measured by examining profit on the experimental team task. Profit at Time 1 served as a baseline performance measure and a control variable when examining profit at Time 2. The correlation between profit at Time 1 and Time 2 was .33.

Manipulation Check

Three questions in questionnaire given after Time 2 assessed the effectiveness of the manipulation. The questions, which were developed for the present study, were rated on a five-point Likert type scale. The question specifically designed for the external blaming

condition was “I feel that our team spent a lot of time making excuses for poor performance.” The question specifically designed for the internal blaming condition was “I feel that our team spent a lot of time blaming each other.” The question specifically designed for the strategizing condition was “I felt that our team spent a lot of time coming up with better ways of doing this task.” The extent to which the team members agree with the statement appropriate to their condition is a measure of the successfulness of the manipulation. This scale is shown in Appendix P.

Results

The task interdependence measures were first analyzed to ensure that the task was viewed as interdependent, a necessary prerequisite for this study. The two measures of interdependence, the Arthur et al. (in press) scale and the Kiggunda (1983) scale were found to have a near zero relationship. This prompted an examination of the construct validity of the two measures. Consideration of the premise of this study yields several expectations regarding the interdependence measure. A measure of interdependence should show high interdependence, as the task was designed to be interdependent. Interdependence might also be perceived as lower for the blaming condition at Time 2 than for the strategizing condition at Time 2, as this study posits that blaming should interfere with team functioning on a task, which might lead team members to attempt the task in a more individualistic manner. Similarly, cohesion, deindividuation and viability perceptions should be somewhat positively related to perceptions of interdependence. Table 4 shows the means on the two interdependence measures at Time 1 and Time 2 for each condition and overall. Table 5 shows the correlations among the interdependence measures, the cohesion scale, the viability scale and the deindividuation scale.

These analyses suggest that the Kiggunda scale may be more accurately capturing perceptions of interdependence. Several pieces of evidence lead to this conclusion. The Kiggunda scale showed greater interdependence in the strategizing group at Time 2 than in the blaming group. The opposite was true for the Arthur scale. Also, the Kiggunda scale showed significant positive correlations with cohesion and viability, whereas the Arthur scale showed correlations near zero with both of these constructs. Additionally, further consideration of the Arthur scale suggests that it may not be an ordinal scale operating in a linear fashion. To the extent that it's a categorical scale, it cannot be examined in the same manner as the Kiggunda scale. The Kiggunda scale had a high mean across conditions and the Arthur scale's most frequently endorsed category was an interdependent category, suggesting that the task was an interdependent task, a necessary precondition for these analyses.

Deindividuation did not relate to either the Kiggunda or the Arthur scale. Nor did it relate consistently with the viability and cohesion scales. The confusing pattern of relationships with the deindividuation scale at both Time 1 and Time 2 suggests that this scale may not be performing as expected. It is not clear that deindividuation is the construct being tapped with this scale and therefore it should be interpreted with caution in future analyses.

Table 4
Descriptives on Interdependence Across Conditions

		Arthur Scale		*d*	Kiggunda Scale		*d*
		Time 1	Time 2		Time 1	Time 2	
Strategizing	*M*	3.21	3.07	-.21	4.11	4.51	.79
	n	148	150		149	149	
	SD	0.66	0.65		0.53	0.48	
Excuse making	*M*	3.25	3.04	-.33	4.07	4.45	.80
	n	135	135		134	133	
	SD	0.65	0.64		0.50	0.45	
Blaming	*M*	3.21	3.15	-.09	4.02	4.38	.65
	n	164	162		165	165	
	SD	0.73	0.68		0.60	0.51	
Total	*M*	3.22	3.09	-.19	4.07	4.44	.72
	n	447	447		448	447	
	SD	0.68	0.66		0.55	0.48	

Table 5
Correlations Among the Interdependence Scales, Deindividuation, Cohesion and Viability at Time 1 and Time 2

	Arth T2	Kig T1	Kig T2	deind T1	deind T2	coh T1	coh T2	viab T1	viab T2
Arth T1	.45**	.06	.01	.01	-.06	.06	.08	.01	.00
Arth T2		.04	-.07	.02	-.04	.07	.08	.01	.03
Kig T1			.49**	.03	-.01	.20**	.10*	.28**	.21**
Kig T2				.08	.04	.10*	.16**	.22**	.33**
deind T1					.62**	.05	.15**	-.03	.11*
deind T2						-.07	-.05	-.10*	-.10*
coh T1							.48**	.42**	.28**
coh T2								.20**	.50**
viab T1									.46**

Note. Arth T1 and T2 is the Arthur et al. (in press) scale at Time 1 and 2, Kig T1 and T2 is the Kiggunda (1983) scale at Time 1 and 2, deind T1 and T2 is the deindividuation scale at Time 1 and 2, coh T1 and T2 is the cohesion scale at Time 1 and Time 2, and viab T1 and T2 is the viability scale at Time 1 and Time 2.
*$p < .05$, ** $p < .01$

The first step in the examination of the research questions is to determine whether the manipulation succeeded. To this end a MANOVA was conducted across conditions for each

of the three manipulation check items. There was no overall significant difference in responses to the three manipulation check questions across conditions, F (2, 445) = 1.01, p = .42. The descriptives for the manipulation check items across conditions are shown in Table 6. The correlations among the manipulation check items are shown in Table 7. Variation in the sample size for these and all subsequent analyses is due to the pairwise deletion done to preserve sample size despite some missing data.

Table 6
Descriptives on Manipulation Check Items Across Conditions

		Manipulation Check Items		
Condition		Strategizing	Excuse making	Blaming
Strategizing	*M*	4.00	1.25	1.15
	SD	1.00	0.62	0.41
	n	149	150	149
Excuse making	*M*	3.86	1.36	1.26
	SD	1.11	0.67	0.68
	n	135	135	134
Blaming	*M*	3.89	1.41	1.29
	SD	0.98	0.87	0.77
	n	165	164	164

Table 7
Correlation of Manipulation Check Items

	Made Excuses	Blamed
Strategized	-.16***	-.11*
Made Excuses		.49***
Blamed		

Note. *=p<.05, ***=p<.001

The failure to find significant differences in the manipulation check items across conditions suggests that analyzing the hypotheses in Study 2 as presented will be difficult. For the sake of completeness, analyses of the hypotheses were conducted as originally

posited, although clear interpretation is hampered by the failure to find significant differences in the manipulation check items.

Each of the variables of interest in this study was examined through an analysis of covariance (ANCOVA), controlling for the Time 1 version of the variable to see if there were differences across conditions.

Using an ANCOVA, final profit at Time 2 was examined across the 3 conditions to determine the extent to which the manipulations affected the team productivity portion of team effectiveness. At Time 2 final profit was highest for the blaming condition (M = 59,153, SD = 27,812, n = 55), second highest for the strategizing condition (M = 56,441, SD = 25,915, n = 50) and lowest for the excuse making condition (M = 49,722, SD = 21,466, n = 45). These descriptives are summarized in Table 8, and the effect sizes within and across conditions are shown in Table 9. Despite the mean differences, the ANCOVA on Time 2 profit with Time 1 profit as a covariate was not statistically significant across these three groups, F (2, 150) = 2.50, p = .09.

Table 8
Descriptives on Profit Across Conditions

		Profit (in dollars)	
		Time 1	Time 2
Strategizing	*M*	21,345	56,441
	SD	20,883	25,915
	n	50	50
Excuse making	*M*	24,996	49,722
	SD	13,825	21,466
	N	45	45
Blaming	*M*	23,108	59,153
	SD	18,668	27,812
	N	55	55

Table 9
Effect Sizes for Profit Between and Within Conditions

	Strat T1	Strat T2	Excuse T1	Excuse T2	Blame T1	Blame T2
Strat T1	-	1.49	.20	-	.09	-
Strat T2		-	-	-.28	-	.10
Excuse T1			-	1.37	-.11	-
Excuse T2				-	-	.37
Blame T1					-	1.52
Blame T2						-

Note: Effect sizes are Cohen's *d*s; dashes represent conditions where effect sizes could not logically be computed.

Viability was also compared across the three conditions. Viability at the group level was calculated as the average of the viability scale scores at the individual level. Time 1 and 2 viability scores across conditions are shown in Table 10 with the effect sizes in Table 11. The ANCOVA on Time 2 viability with Time 1 viability as a covariate was also not statistically significant across the groups, F (2, 150) = .27, p = .76.

Table 10
Descriptives on Viability Across Conditions

		Viability	
		Time 1	Time 2
Strategizing	*M*	4.20	4.32
	SD	0.64	0.53
	n	150	150
Excuse making	*M*	4.24	4.34
	SD	0.53	0.53
	n	135	135
Blaming	*M*	4.07	4.21
	SD	0.54	0.67
	n	165	164

Table 11
Effect Sizes for Viability Between and Within Conditions

	Strat T1	Strat T2	Excuse T1	Excuse T2	Blame T1	Blame T2
Strat T1	-	.20	.07	-	-.22	-
Strat T2		-	-	.04	-	-.18
Excuse T1			-	.19	-.32	-
Excuse T2				-	-	-.21
Blame T1					-	.23
Blame T2						-

Note: Effect sizes are Cohen's *d*s; dashes represent conditions where effect sizes could not logically be computed.

Table 12 presents the descriptives for cohesion at Time 1 and Time 2, with the effect size shown in Table 13. Cohesion at the group level was also calculated as the average of the cohesion scale scores at the individual level. The ANCOVA for Time 2 cohesion with Time 1 cohesion as a covariate also was not statistically significant across experimental conditions, F (2, 150) = .00, p = .99.

Table 12
Descriptives on Cohesion Across Conditions

		Cohesion	
		Time 1	Time 2
Strategizing	*M*	4.11	4.26
	SD	0.49	0.49
	n	149	149
Excuse making	*M*	4.08	4.19
	SD	0.474	0.50
	n	132	130
Blaming	*M*	4.07	4.22
	SD	0.51	0.52
	n	161	162

Table 13
Effect Sizes for Cohesion Between and Within Conditions

	Strat T1	Strat T2	Excuse T1	Excuse T2	Blame T1	Blame T2
Strat T1	-	.31	-.06	-	-.08	-
Strat T2		-	-	-.14	-	-.08
Excuse T1			-	.23	-.02	-
Excuse T2				-	-	.06
Blame T1					-	.29
Blame T2						-

Note: Effect sizes are Cohen's *d*s; dashes represent conditions where effect sizes could not logically be computed.

Table 4 showed the descriptives for the Kiggunda interdependence scale at Time 1 and Time 2, with the effect sizes shown in Table 14. Interdependence at the group level was calculated as the average of the interdependence scale scores at the individual level. The ANCOVA for Time 2 interdependence with Time 1 interdependence as a covariate was not significant across experimental conditions, F (2, 150) = 1.04, p = .36.

Table 14
Effect Sizes for Kiggunda Interdependence Scale Between and Within Conditions

	Strat T1	Strat T2	Excuse T1	Excuse T2	Blame T1	Blame T2
Strat T1	-	.79	-.08	-	-.16	-
Strat T2		-	-	-.13	-	-.26
Excuse T1			-	.79	-.08	-
Excuse T2				-	-	-.13
Blame T1					-	.64
Blame T2						-

Note: Effect sizes are Cohen's *d*s; dashes represent conditions where effect sizes could not logically be computed.

Table 4 contained the descriptives statistics for the Arthur et al. interdependence scale at Time 1 and Time 2, with the effect size shown in Table 15. Interdependence for this scale at the group level was the average of the interdependence scale scores at the individual level. The ANCOVA for Time 2 interdependence with Time 1 interdependence as a covariate was not significant across experimental conditions, F (2, 150) = 1.07, p = .35.

Table 15
Effect Sizes for Arthur et al. Interdependence Scale Between and Within Conditions

	Strat T1	Strat T2	Excuse T1	Excuse T2	Blame T1	Blame T2
Strat T1	-	-.21	.06	-	.00	-
Strat T2		-	-	-.04	-	.11
Excuse T1			-	-.32	-.06	-
Excuse T2				-	-	.16
Blame T1					-	-.08
Blame T2						-

Note: Effect sizes are Cohen's *d*s; dashes represent conditions where effect sizes could not logically be computed.

Table 16 presents the descriptives for the deindividuation scale at Time 1 and Time 2, with the effect size shown in Table 17. Deindividuation was also aggregated at the group level by taking the mean within teams. The ANCOVA for Time 2 deindividuation with Time 1 deindividuation as a covariate was not significant across experimental conditions, F (2, 150) = 0.55, p = .58.

Table 16
Descriptives on Deindividuation Across Conditions

		Deindividuation	
		Time 1	Time 2
Strategizing	*M*	3.51	3.16
	SD	0.34	0.28
	n	50	50
Excuse making	*M*	3.49	3.11
	SD	0.43	0.28
	n	45	45
Blaming	*M*	3.45	3.13
	SD	0.40	0.25
	n	55	55

Table 17
Effect Sizes for Deindividuation Between and Within Conditions

	Strat T1	Strat T2	Excuse T1	Excuse T2	Blame T1	Blame T2
Strat T1	-	-1.14	-.05	-	-.16	-
Strat T2		-	-	-.16	-	-.09
Excuse T1			-	-1.05	-.09	-
Excuse T2				-	-	.08
Blame T1					-	-.97
Blame T2						-

Note: Effect sizes are Cohen's *d*s; dashes represent conditions where effect sizes could not logically be computed.

The fact that none of these ANCOVAs produced significant differences is not surprising considering the failure of the manipulation to create meaningful group differences. However, in the interest of examining the research questions in greater detail despite the failure of the manipulation, supplementary analyses were run using the manipulation check

items as the independent variables. Four separate regressions were run predicting the key dependent variables of interest, profit at Time 2, viability at Time 2, deindividuation at Time 2 and cohesion at Time 2. Each of these regressions controlled for the corresponding time 1 variable (i.e., profit at Time 2 controlled for profit at Time 1). The regression for profit was run at the team level of analysis using the average team response to the three manipulation check items, due to the fact that the dependent variable, profit, was a team-level variable. The other three variables were collected at the individual level, therefore these regressions were conducted at the individual level of analysis. These analyses are shown in Tables 18 to 21.

Table 18
Team-level Regression Predicting Profit at Time 2

Step	β	R^2	Δ R^2
1. Profit Time 1	.33***	.11***	
2. Profit Time 1	.32***		
Strategizing	.13	.14***	.03
Excuse making	-.04		
Blaming	.15		

Note. ***p<.001

Table 19
Regression Predicting Viability at Time 2

Step	β2	R^2	Δ R^2
1. Viability Time 1	.47***	.22***	
2. Viability Time 1	.41***		
Strategizing	.21***	.32***	.11***
Excuse making	-.19***		
Blaming	-.06		

Note. ***p<.001

Table 20
Regression Predicting Deindividuation at Time 2

Step	β2	R^2	Δ R^2
1. Deind Time 1	.62***	.38***	
2. Deind Time 1	.63***		
Strategizing	-.04	.39***	.01
Excuse making	.08		
Blaming	.02		

Note. ***p<.001

Table 21
Regression Predicting Cohesion at Time 2

Step	β2	R^2	Δ R^2
1. Cohesion Time 1	.48***	.24***	
2. Cohesion Time 1	.37***		
Strategizing	.08	.34***	.11***
Excuse making	-.27***		
Blaming	-.09*		

Note. *p<.05, ***p<.001

The manipulation check variables (the amount of blaming, excuse making, and strategizing) did not significantly increase the prediction of profit or deindividuation at Time 2 when controlling for the corresponding Time 1 variable. However, the manipulation check variables did significantly increase the prediction of cohesion and viability at Time 2 when controlling for the corresponding Time 1 variable. Strategizing positively and significantly predicted viability at Time 2 when controlling for viability at Time 1. Excuse making negatively and significantly predicted viability at Time 2 when controlling for viability at Time 1. Blaming did not significantly predict viability at Time 2. In contrast, for cohesion, blaming significantly negatively predicted cohesion at Time 2 when controlling for cohesion at Time 1. Strategizing did not reach statistical significance in predicting cohesion at Time 2 (p = .06). Excuse making negatively and significantly predicted cohesion at Time 2, and its beta weight was several times larger than that for blaming or excuse making.

A final consideration was the amount of time spent discussing strategies, blaming or making excuses. Although the number of minutes spent on discussion varied across conditions, controlling for this variable did not change any of the findings from the regressions previously reported. Overall, the amount of discussion time was within a very narrow range, by design. The maximum amount of discussion time was 10 minutes. Table 22 shows how the discussion time variable varied across conditions.

Table 22
Descriptives on Discussion Time in Minutes Across Conditions

		Discussion Minutes
Strategizing	*M*	7.10
	n	150
	SD	3.05
Excuse making	*M*	3.41
	n	135
	SD	2.10
Blaming	*M*	4.29
	n	165
	SD	2.61
Total	*M*	4.96
	n	450
	SD	3.05

Study 2 Discussion

Support was not found for Hypotheses 3 and 4, and the results for Hypothesis 5 were mixed. Although Hypothesis 5 was not supported exactly as predicted, possibly due to the failure of the manipulation, there was mixed support for this hypothesis when examined in a post-hoc correlational manner. However, such a correlational analysis was not the goal of this study, as it limits the ability to examine causality. Although the teams appeared to be

reacting appropriately to the manipulation instructions during the pilot session for each condition, more thorough pilot testing and analyses would have been wise, as the failure of the manipulation could have been discovered and remedied.

Although it is not entirely clear why there were no strong differences in the amount of blaming, strategizing, or excuse making between conditions, several possibilities exist: the instructions were not strongly worded enough, the situation was not sufficiently strong enough to create potentially socially uncomfortable interactions (i.e., blaming), or the timeframe was too short. On a 1 to 5 scale of blaming, with 1 representing no blaming, teams averaged 1.3 in the blaming condition and 1.1 in the strategizing condition. This suggests that individual members of teams across conditions did not feel that they were blamed for the poor performance of the team regardless of the condition. In contrast, the teams in the strategizing condition rated their amount of strategizing at 4.0, compared to 3.9 for the blaming condition, indicating that strategizing occurred frequently across conditions. The excuse making condition was similarly undifferentiated.

However, the fact that the amount of discussion was less in the excuse making and blaming conditions than in the strategizing condition suggests an alternative explanation for the lack of blaming and excuse making. It could be the case that the teams were reacting appropriately across conditions, but did not have sufficient things to blame or make excuses about. The discussion period for teams was ended when they were no longer discussing the topic for that condition. On average, teams did not use their full 10 minute discussion period, but this was especially true for the blaming and excuse making conditions, where they used less than half of their discussion period on average. The task was designed to allow for sufficient complexity for teams to be able to strategize, however, insufficient consideration

was given to designing a task that would create conditions for blaming and making excuses. Real world teams are likely to possess history and conditions that would allow for much more blaming and excuse making than occurred in this study.

Despite the failure to create differences across the groups, some differences in responses to the feedback occurred naturally at the individual level. The manipulation check items could be used as a measure of the extent to which individuals within teams felt their team spent a lot of time blaming, strategizing, or making excuses. These items did not measure whether or not the respondent actually felt blamed or personally engaged in strategizing or excuse making, but rather provided the respondent an opportunity to evaluate how much time they felt their team spent on these activities. Because the analysis of the responses to the manipulation questions was purely post-hoc and not constrained by condition, it is not possible to confidently draw causal inferences regarding the direction of the relationship between these perceptions and either viability or cohesion. Nevertheless, the findings provide useful information for future studies and discussion.

Perceptions of the amount of time spent making excuses were negatively associated with both viability and cohesion, yet perceptions of time spent blaming were only significantly negatively associated with cohesion, and were not as strongly related to either variable as excuse making. This was true despite the moderately strong relationship between excuse making and blaming perceptions (r = .49). This suggests that these two reactions although related have different relationships with a component of team effectiveness.

Because the manipulation only measures perceptions of time spent on a reaction rather than the actual length of the reaction or the qualitative nature of the reaction, conclusions are difficult to draw. In a three-person team it is possible for there to be a great

amount of time spent blaming without the majority of the team actually experiencing being blamed. Scapegoating, for example, could result in two of the three team members actually bonding in their blaming of the third team member. This might help to explain the puzzling positive relationship between averaged team responses to blaming and team-level profit. The fact that blaming did not negatively predict profit suggests that perhaps blaming within a team does not necessarily lead to reduced productivity. It might in fact be justified and contribute to higher productivity despite whatever negative affectivity it promotes in specific individuals. In such a case, the negative affectivity of blaming theorized to contribute to lowered team effectiveness might be limited to the individual actually blamed.

Excuse making, on the other hand, might be a more diffuse negative contributor or response to low viability. Specific affective reactions within individuals were not expected from generalized excuse making. Rather, excuse making was postulated to represent a tendency to reject feedback and disengage from the task. Disengagement could be related to lowered perceptions of viability and cohesion.

Strategizing was positively related to both viability and cohesion. It occurred to a relatively high degree across conditions and was negatively related to both blaming and excuse making (with a stronger negative relationship to excuse making then blaming). Although it did not predict productivity as it did in Study 1, strategizing did positively relate to viability and cohesiveness. These findings suggest that it is useful for teams to spend time developing strategies in order to increase team effectiveness, especially the viability component of effectiveness.

Although some results were found, the boundary conditions of Study 2 limited the extent to which the questions could be studied. Boundary conditions in Study 2 include the

restriction on team size, the nature of the task, and the nature of the team. It is possible to conduct a "thought experiment" and imagine how results may have differed if these boundary conditions had been different.

Allowing for variability in team size would have allowed for an examination of this variable as a moderator in a controlled environment. A team size of three, although sufficient to reach the threshold of what could be considered a team, is nevertheless an arbitrary figure that may not reflect the typical team size. Additionally there may be dynamics that occur within different team sizes that could be better investigated with variable team sizes. The formation of cliques or in-groups and out-groups, for instance, is more likely with larger team sizes.

The task in Study 2 was designed to be complex enough to allow for the formation of strategies but easy enough to perform within minutes of being exposed to it. Although such a task meets the needs of a lab study, where students do not have time to learn a truly complex task, it limits the extent to which we can say that the task being studied is representative of what teams face in the field. The simplest job in the field is likely to be much more complex than the task performed in this study. If time permitted for teams to learn and perform a more representative task, the results may have been more generalizable. Allowing for variability in task complexity and measurement of task complexity would also have been useful in understanding how the interaction between team reactions and team effectiveness may be moderated by task complexity.

Finally, the artificial nature of the team must be considered. If it were possible to create a more realistic team, there might have been more opportunity and motivation for blaming or excuse making. In the field, teams are often composed of individuals who are

reasonably familiar with each other and have complex motives regarding the task being performed and the people with whom the task is being performed. There could be political, emotional and relational considerations that could have a significant effect on both how teams react to feedback and how these reactions affect subsequent team effectiveness. The comparative social context of teams might be an important component of how different team reactions influence the motivation and thereby performance of the team. As Ellemers et al. (2004) propose "people will identify more with a particular collective (e.g., their work team) to the extent that it meaningfully distinguishes them from other relevant collectives (e.g., other teams in the organization)" (p. 463). Because the teams in Study 2 had no obvious comparison groups to distinguish themselves against, they may not have felt as motivated to identify themselves with the team. This could be an important distinction from teams in the field, where there are generally numerous teams within an organization that can serve to define each other and create a motivation based on team-level factors. Examining real world teams in a controlled environment may have revealed some of these dynamics and allowed for a better understanding of the issues.

OVERALL DISCUSSION

The results of Study 1 show that in a diverse sample of feedback meetings blaming and strategizing consume about one-third of the meetings on average. Assuming the sample in Study 1 is relatively representative, then strategizing and blaming appear to be relatively common occurrences in team feedback sessions. If such reactions occur with some regularity, then it becomes worthwhile to examine their relationships to performance.

From Study 1, it would appear that strategy formation following feedback is significantly positively related to team performance improvements while team blaming is negatively related to team performance improvements. The many limitations of Study 1, however, suggested the need for a follow-up lab study. Unfortunately, the failure of the manipulation in Study 2 precludes the drawing of substantive inferences from this study. The artificiality of the lab setting, the temporary nature of the teams, and the diluted nature of the manipulation may have led to homogeneity of reactions across conditions.

Despite the failure of the controlled manipulation, some variability in the time spent on these three reactions of interest occurred naturally. This is consistent with the finding of Study 1 that teams naturally display these three reactions to some degree. Supplementary analyses based on these natural variations in blaming, strategizing, and excuse making provided interesting findings that suggest a re-evaluation of several of the hypotheses may be in order.

Although blaming was predicted to be negatively related to productivity, the observed effect was actually in the opposite direction. The predicted effect of blaming on the viability component of team effectiveness was also not found. Although blaming was significantly negatively related to cohesion, it did not significantly predict viability. The short-term and

artificial nature of the three-person student teams may partially explain the conflicting findings with Study 1. There may also be some beneficial effects of blaming that cannot be understood without a more qualitative examination of blaming.

Excuse making was not examined in Study 1, but the findings in Study 2 were somewhat contrary to the hypotheses. Although excuse making was proposed to be a relatively benign phenomenon, the correlations observed in Study 2 suggest that the relationship between viability and cohesion and time spent making excuses is greater and more negative than expected.

As expected, strategizing was related to higher viability and cohesion in Study 2. It was positively related to productivity in Study 1 and was positively related to productivity in Study 2 (though this relationship was not significant). The relationship between spending time on strategizing and improving team effectiveness is theoretically and intuitively to be expected.

Implications for Theory and Practice

As discussed in the introduction, there are numerous theoretical reasons for why the presence of blaming or excuse making during a feedback meeting may serve as a signal that the feedback will not improve performance. These reasons range from a likely lack of feedback acceptance to a breakdown in team cooperation. The picture may be complicated however by the existence of instances where blaming may actually be necessary and important. Although this study suggests that such blaming may somewhat impair viability or at least fail to improve it, the productivity component of team effectiveness may be improved in isolated instances. Study 2 can be interpreted as an example of how team effectiveness can be unaffected by the presence of internal blaming. Study 1, however, would suggest that in

the long term, time spent blaming is negatively related to subsequent productivity improvement. Excuse making, however, was negatively related to team effectiveness in both studies. These findings suggest that excuse making may be more of an issue to managers wishing to encourage team effectiveness, than internal blaming. Neither reaction, however, was found to positively contribute to team effectiveness. Conversely, strategizing appears to have a positive effect on team effectiveness across studies. Teams that engage in strategizing for improvement during a feedback meeting may be signaling some degree of feedback acceptance and are also likely engaging in active cooperation and building a shared mental model.

The results of this paper suggest that managers should pay attention to how teams respond to feedback. If blaming starts to occur, either internal to the team or external as a form of excuse making, it may require an evaluation of whether such blaming is useful and to what extent it should be allowed. Strategizing appears to have a generally positive effect on all components of team effectiveness, therefore, managers may wish to focus the team's attention on how to make improvements rather than blaming. Such a focus shift could lead to better team strategies on work tasks.

Limitations and Directions for Future Research

Although it is tempting to make causal statements about the effects of blaming and strategizing on performance, the correlational nature of Study 1 and of the supplementary analyses in Study 2 limit this. It is possible that feedback indicating performance is high produces more strategizing and feedback that performance is low produces blaming. One approach to the causality issue would be to measure the level of strategizing, excuse making, and blaming during each feedback meeting. Although still not a perfect experimental design,

looking at lagged relationships between performance and the three feedback reactions would allow us to better deal with the causality question.

Another limitation is that Study 1 used only one feedback system, ProMES. Although Study 2 provided an analysis of a different feedback system, the failure of the scripted feedback to create changes in reactions suggests that the feedback in Study 2 may not have been representative of real world feedback. The reactions that actually were observed in Study 2 were likely created within the team as a result of the idiosyncrasies in team composition and performance, rather than as a result of the script read by the experimenter. Field studies utilizing a variety of feedback methods may be best suited to examining the phenomenon of how teams respond to feedback and how this relates to subsequent team effectiveness.

A third limitation concerns the measurement of blaming, strategizing and excuse making. These reactions were measured in both studies through estimates of the amount of time spent on these activities. This creates an implicit assumption that subjective reports of the amount of time spent blaming, strategizing, or excuse making are the same as the actual amount of blaming, strategizing, or excuse making. Also, these reactions were not qualitatively defined, which prevents an examination of how different types of blaming or strategizing might relate to team effectiveness. Finally, the reliability of the scores for some of the constructs measured, such as deindividuation was quite low, making it more difficult to examine the research questions. Future research might investigate the relationship between self-reports of the amount of time spent on these activities and a more direct measure of the actual amount of strategizing, blaming or excuse making that occurs. Future research might

also qualitatively examine these reactions and utilize measures whose scores are more reliable.

Another limitation concerns the potential overlaps between blaming and strategizing. In some cases, blaming could be a form of strategizing, in that the discussion of blame can highlight methods of improvement. To the extent that this "strategic blaming" occurs, separating the effects of blaming and strategizing would be difficult. Because no qualitative differences in excuse making, strategizing, or blaming were investigated, it is not possible to determine how often strategic blaming occurred. Future research should examine qualitative differences in excuse making, blaming and strategizing and how these qualitative differences relate to team effectiveness.

Finally, it is important to note that no measures were taken of the actual affective reactions of team members, which were posited to play a role in predicting team effectiveness. Future research might examine how the affective reactions of team members moderate the relationship between strategizing, blaming, and excuse making and team effectiveness.

Conclusion

Kluger and DeNisi (1996) noted that feedback is not always beneficial and that we need to know more about the process of how feedback leads to performance. These studies focused on three such process variables: blaming, excuse making, and strategizing. The results of the studies showed that these process variables do occur in real-world teams and that there are relationships between these variables and team effectiveness measures. The present study was unable to determine the causal path between these variables and team effectiveness because of the failure of the manipulation in the controlled lab study. Creating a

condition of blaming may be especially problematic in a controlled lab environment where real world social dynamics can be difficult to recreate. Overall, the fidelity of an experiment involving short-term teams of college students may be too low to effectively investigate these potential phenomena. Nevertheless, the results of Study 1 and the post-hoc analyses in Study 2 suggest that excuse making, blaming, and strategizing may be important process variables, and research on their effects may well help us understand the feedback/performance relationship at a conceptual level and enable us to better understand how to provide feedback in work settings.

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APPENDIX A

REACTIONS DURING FEEDBACK MEETINGS SCALE

Question taken from ProMES meta-analysis questionnaire located online at http://www.tamu.edu/promes/meta-gp2.htm.

During initial feedback meetings what percent of the meeting time was characterized by the following behaviors. (These should sum to equal 100%):

_____ Constructive feedback about performance.
_____ Constructive attempts to identify problem causes.
_____ Constructive attempts to develop improvement strategies.
_____ Constructive discussions about future goals.
_____ Irrelevant discussion.
_____ Blaming and searching for excuses.
_____ Other positive discussion.
Explain:_____
_____ Other negative discussion.
Explain:_____

What was the average length of feedback meetings?_____

APPENDIX B

SAMPLE PROMES FEEDBACK REPORT WITH PRODUCTIVITY/EFFECTIVENESS SCORES

PRODUCTIVITY REPORT FOR: SAMPLE department
Basic Effectiveness Data For: may02

==========

Products and Indicators	Indicator Data	Effectiveness Score
Process payroll timely/accurately		
% bills over 2 days w/ action	100.00	100
# months Due To complete by 20th	6.00	85
%pay vouchers cleared on Due To	100.00	25
% pay approval forms signed	75.00	80
% rejects posted w/in 60 days	52.17	7
$amt rejects not posted for 60 days	16000.00	90
Process payroll timely/accurately, Total		387
Excellent & courteous customer svc		
# complaints	1.00	49
% closeout processed in 3 days	99.27	30
Excellent & courteous customer svc, Total		79

OVERALL EFFECTIVENESS SCORE: 466

PERCENTAGE OF MAXIMUM ATTAINABLE: 84%

APPENDIX C

MARKET PRICES FOR THE MANUFACTURING TASK

Manufacturing Task: Market Information #1

First 5 minutes (0:00 - 5:00)

Component Costs

Component	Cost
2 x 4	80
2 x 2	60
1 x 2	40
1 x 1	20
Wheels	200

Selling Prices

Product	Market Price
Jeep	3000
Boat	2300
Robot	2000

Manufacturing Task: Market Information #2

Second 5 minutes (5:00 - 10:00)

Component Costs

Component	Cost
2 x 4	100
2 x 2	75
1 x 2	10
1 x 1	20
Wheels	200

Selling Prices

Product	Market Price
Jeep	2000
Boat	4000
Robot	2500

Manufacturing Task: Market Information #3

Third 5 minutes (10:00 - 15:00)

Component Costs

Component	Cost
2 x 4	100
2 x 2	50
1 x 2	100
1 x 1	50
Wheels	500

Selling Prices

Product	Market Price
Jeep	5000
Boat	2000
Robot	1000

Manufacturing Task: Market Information #4

Fourth 5 minutes (15:00 - 20:00)

Component Costs

Component	Cost
2 x 4	50
2 x 2	50
1 x 2	100
1 x 1	200
Wheels	400

Selling Prices

Product	Market Price
Jeep	3000
Boat	1000
Robot	3500

APPENDIX D

INSTRUCTIONS FOR THE MANUFACTURING TASK.

You are a business organization that manufactures the products displayed on the buyer's table: jeeps, robots, and boats. In this exercise, you will purchase Lego© materials from the supplier, assemble products, and sell finished products back for profit. Your goal is to make as much profit as you can in this task. The teams that make the most profit will receive $20 per team member.

You have been given the following materials to assist you in production:

1) A model, diagram and configuration of each product
2) "Market information" that lists your supply costs and selling prices
3) An Order Request Form to submit to the supplier when ordering material

You are given $10,000 dollars for start-up costs at the beginning of the performance session. You cannot "borrow" more money. So, for example, your first order cannot exceed $10,000. If you over-spend at any point, you will be penalized 15% of your profits at the end of the task. It is your responsibility to keep track of the money you spend and the money you receive from selling the products. You can use the money that you earn (revenue) to buy more raw materials. Therefore, you are not limited to spending the initial $10,000.

You will have a few minutes to read these instructions and organize your materials. The supplier will inform you when the task is to begin. At that time you can take your first order to the supplier. You are allowed only one order at a time, however you may make as many orders as you want. Write all of your orders on your Order Request Form.

You have 20 minutes to perform this task. At any time during the task, you may ask the supplier how much time is remaining. You are responsible for tracking time. To sell your products you must indicate you are selling to the supplier. The supplier will not assume that you want to sell a particular product. If the products do not match your models, then they will be returned to you for repair (colors do not have to match). The revenues that you gain from sales can be used to buy more materials and assemble additional products. All transactions must be completed during the allotted 20 minutes. You may not sell products after performance time expires, and the supplier will not purchase unfinished products or excess materials.

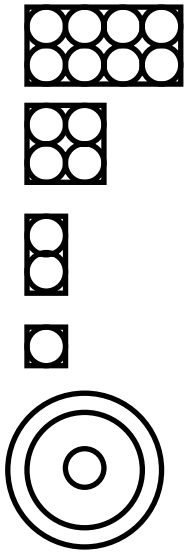
In order to better represent the limitations of a business environment, each of you will have a role that limits what you can do. The person assigned to role X will be unable to touch the 2x4 Legos. The person assigned to role Y will be unable to touch the 2x2 Legos. The person assigned to role Z will be unable to buy or sell Legos. You must decide as a team who will be Person X, Person Y and Person Z. Tell the administrator who is in each role before the experiment begins.

APPENDIX E

MANUFACTURING TASK ORDERING FORM

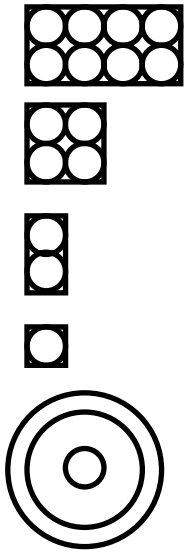
Quantity

Order	#1	#2	#3	#4	#5	#6
2 X 4						
2 X 2						
1 X 2						
1 X 1						
Wheels						



Quantity

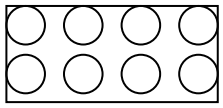
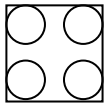
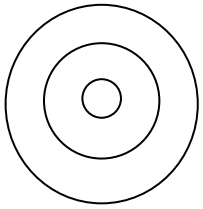
Order	#7	#8	#9	#10	#11	#12
2 X 4						
2 X 2						
1 X 2						
1 X 1						
Wheels						



APPENDIX F

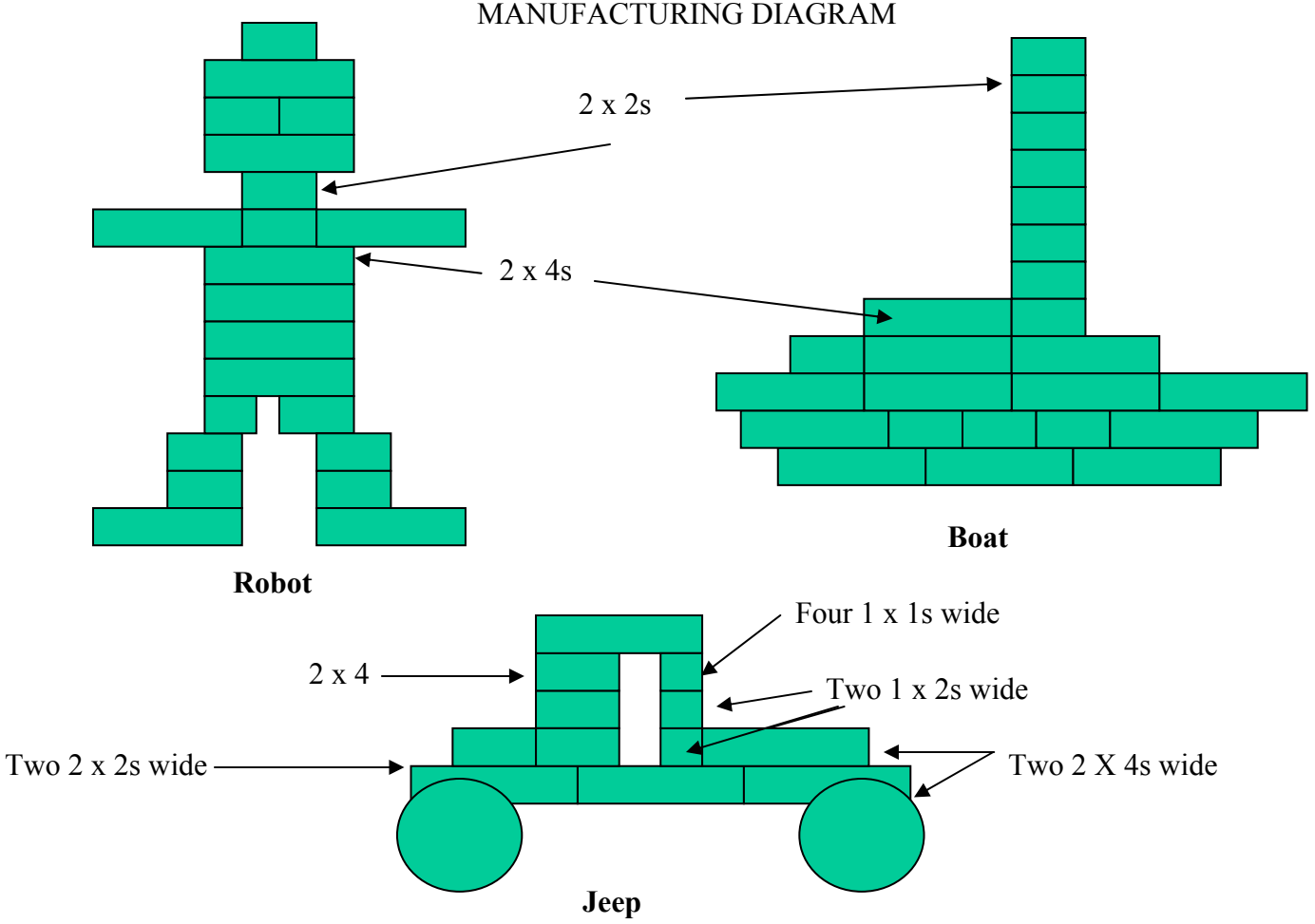
LEGO© CONFIGURATION FOR EACH MODEL

Lego Components

		Jeep	Boat	Robot
2 x 4		13	12	10
2 x 2		2	12	11
1 x 2		4		
1 x 1		4		
Wheels		2		

APPENDIX G

MANUFACTURING DIAGRAM



APPENDIX H

MANIPULATION INSTRUCTIONS CONDITION A

Calculate the team's profit. Provide the team with the following feedback:

"Your profit on this task was <*total the profit from the transaction log(s)*>. According to the norms for this task <*pretend to read the Norms Sheet*>, your team is in the 35th percentile of all students who have done this task. Shortly, you will be given the chance to engage in this task a second time. Your profit on this second task will be used to determine whether or not your team qualifies for the cash prize. Before you begin the second round spend some time discussing and listing all the ways that your team could improve on this task. This is your opportunity to develop better strategies for performance. Please designate one person as the note taker and list all strategies and methods for increasing your profit on this task. You will have up to 10 minutes to discuss how to improve your performance strategies. You may begin."

APPENDIX I

MANIPULATION INSTRUCTIONS CONDITION B

Calculate the team's profit. Provide the team with the following feedback:

"Your profit on this task was <*total the profit from the transaction log(s)*>. According to the norms for this task <*pretend to read the Norms Sheet*>, your team is in the 35th percentile of all students who have done this task. Shortly, you will be given the chance to engage in this task a second time. Your profit on this second task will be used to determine whether or not your team qualifies for the cash prize. Before you begin the second round spend some time discussing and listing all of the reasons this task was difficult to perform. Please designate one person as the note taker and list all the things that were outside of your team's control that contributed to your team doing poorly on the task. You will have up to 10 minutes to discuss and list reasons outside of your control for why your team did not perform as well as it could have on this task. Such reasons include: the experimenter being slow or making mistakes, the instructions being unclear, or the Legos not fitting together properly. You may begin."

APPENDIX J

MANIPULATION INSTRUCTIONS CONDITION C

Calculate the team's profit. Provide the team with the following feedback:

"Your profit on this task was <*total the profit from the transaction log(s)*>. According to the norms for this task <*pretend to read the Norms Sheet*>, your team is in the 35th percentile of all students who have done this task. Shortly, you will be given the chance to engage in this task a second time. Your profit on this second task will be used to determine whether or not your team qualifies for the cash prize. Before you begin the second round spend some time discussing and listing all of the reasons within your team's control that prevented your team from doing well on this task. Please designate one person as the note taker and list all of the things within the control of one or more of the team members that contributed to your poor performance on the task. You will have up to 10 minutes to discuss and list reasons within each person's control for why your team did not perform as well as it could have on this task. Such reasons include lack of effort by specific team members, certain team members not understanding the task, poor cooperation, or making poor decisions about which team members should do what. You may begin."

APPENDIX K

TEAM VIABILITY SCALE

These questions are from Sinclair (2003).

On your scantron, please indicate the extent to which you agree with the following statements. The answer key is as follows:
A. Strongly Agree B. Agree C. Neither Agree nor Disagree D. Disagree E. Strongly Disagree

1. I would be willing to participate in another study with this same group of individuals	A	B	C	D	E
2. I feel that this group of individuals would work well together on another task.	A	B	C	D	E
3. I would enjoy working with this same group of individuals on another task.	A	B	C	D	E

APPENDIX L

TEAM COHESION SCALE

These questions came from Widmeyer et al. (1985) and include the attraction and cohesion parts of the task and integration subscales, but exclude the social subscale

On your scantron, please indicate the extent to which you agree with the following statements. The answer key is as follows:
A. Strongly Agree B. Agree C. Neither Agree nor Disagree D. Disagree E. Strongly Disagree

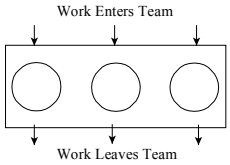
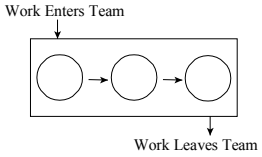
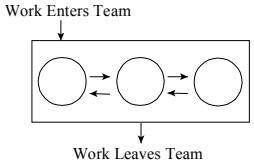
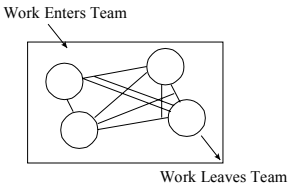
1. I am not happy with the amount of time I get to interact with my team members. (R)	A	B	C	D	E
2. I am unhappy with my team's level of desire to perform well. (R)	A	B	C	D	E
3. This team does not give me enough opportunities to improve my personal performance on this task. (R)	A	B	C	D	E
4. I do not like the style of interaction on this team. (R)	A	B	C	D	E
5. Our team is united in trying to reach its goals for performance.	A	B	C	D	E
6. We all take responsibility for any poor performance by our team.	A	B	C	D	E
7. Our team members have conflicting goals for the team's performance. (R)	A	B	C	D	E
8. If members of our team have problems, everyone wants to help them so we can get back on track.	A	B	C	D	E
9. Our team members do not communicate freely about each team member's responsibilities during our interactions. (R)	A	B	C	D	E

APPENDIX M

ARTHUR MEASURE OF TASK INTERDEPENDENCE

This item came from Arthur et al. (in press).

Below are several descriptions and illustrations of how work could be done in a team. Read each description and look at its accompanying illustration and mark on your scantron which description best describes how work was performed in your team on this task.

Description	Illustration	RESPONSE
Work and activities are performed separately by all team members and work does not flow between members of the team.		①
Work and activities flow from one member to another in the team, but mostly in one direction.		②
Work and activities flow between team members in a back–and–forth manner over a period of time.		③
Work and activities come into the team and members must diagnose, problem solve, and/or collaborate as a team in order to accomplish the team's task.		④

APPENDIX N

TASK INTERDEPENDENCE

These questions came from Kiggunda (1983).

On your scantron, please indicate the extent to which you agree with the following statements. The answer key is as follows:
A. Strongly Agree B. Agree C. Neither Agree nor Disagree D. Disagree E. Strongly Disagree

1. Our task cannot be done unless my teammates do their work.	A	B	C	D	E
2. I depend on my teammates for information I need to do this task.	A	B	C	D	E
3. I depend on my teammates for materials, tools, or supplies that I need to do this task.	A	B	C	D	E
4. This task depends on the work of my teammates for its completion.	A	B	C	D	E
5. Most of my task activities are affected by the task activities of my teammates.	A	B	C	D	E

APPENDIX O

DEINDIVIDUATION SCALE

These questions came from Jorgenson (1976).

Below are several pairs of opposite adjectives. On your scantron, fill in the letter closest to the adjective describing how you feel at the moment. If you are undecided, fill in “c”. For example, if you feel somewhat Carefree, you would fill in the letter “d”.

1. Concerned (a)—(b)—(c)—(d)—(e) Carefree
2. Conspicuous (a)—(b)—(c)—(d)—(e) Anonymous
3. Free (a)—(b)—(c)—(d)—(e) Restrained
4. Inhibited (a)—(b)—(c)—(d)—(e) Uninhibited

APPENDIX P

MANIPULATION CHECK ITEMS

The researcher designed these questions.

On your scantron, please indicate the extent to which you agree with the following statements. The answer key is as follows:
A. Strongly Agree B. Agree C. Neither Agree nor Disagree D. Disagree E. Strongly Disagree

1. I feel that our team spent a lot of time making excuses for poor performance.	A	B	C	D	E
2. I feel that our team spent a lot of time coming up with better ways of doing this task.	A	B	C	D	E
3. I feel that our team spent a lot of time blaming each other.	A	B	C	D	E

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