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The Critical Role of Conflict Resolution in Teams: A Close Look at the Links Between Conflict Type, Conflict Management Strategies, and Team Outcomes

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This article explores the linkages between strategies for managing different types of conflict and group performance and satisfaction. Results from a qualitative study of 57 autonomous teams suggest that groups that improve or maintain top performance over time share 3 conflict resolution tendencies: (a) focusing on the content of interpersonal interactions rather than delivery style, (b) explicitly discussing reasons behind any decisions reached in accepting and distributing work assignments, and (c) assigning work to members who have the relevant task expertise rather than assigning by other common means such as volunteering, default, or convenience. The authors' results also suggest that teams that are successful over time are likely to be both proactive in anticipating the need for conflict resolution and pluralistic in developing conflict resolution strategies that apply to all group members.

Keywords: team conflict, conflict management, team viability

A great deal of empirical and theoretical attention has been focused in the past decade on intragroup conflict and its impact on team performance (see De Dreu & Weingart, 2003, and Jehn & Bendersky, 2003, for reviews). Two recent developments in this line of research are the impetus for this article. First, the intragroup conflict literature has begun to question the notion that measuring levels of conflict by using the tri-partite classification (i.e., task, relationship, and process conflict) will reliably explain group performance. For example, a recent meta-analysis has cast doubt on the usefulness of this classification by questioning the widely theorized benefits of task conflict and suggesting that task conflict predicts similar negative outcomes to relationship conflict (De Dreu & Weingart, 2003). A number of scholars have also reported negative and contradictory associations between process conflict and performance (e.g., Jehn & Mannix, 2001).

The second and related development in the group conflict literature is the move away from the notion that different types of conflict have a direct impact on performance—instead scholars are increasingly suggesting that various aspects of group process and group dynamics serve to ameliorate or exacerbate the impact conflict has on group outcomes generally (see Jehn, 1997, and Jehn & Bendersky, 2003, for a review). For example, task conflict in the presence of trust is more likely to result in positive effects than where trust is low (Simons & Peterson, 2000). Building on these developments, we take a closer look at the effects of conflict resolution (i.e., vs. absolute level of conflict). We want to know how conflict resolution tactics are associated with the impact of task, relationship, and process conflicts on group outputs, and how different approaches to managing each type of conflict are associated with increases versus decreases in team performance. In doing so, we suggest that the way a team manages its conflicts is critically important for predicting team viability and over time performance.

The Role of Conflict Management in Predicting Team Outcomes

A number of scholars have argued that conflict management, and particularly conflict resolution, is an important predictor of the group and/or dyadic conflict–performance relationship (Jehn & Bendersky, 2003; Marks, Mathieu, & Zaccaro, 2001; Mathieu & Schulze, 2006; Tinsley, 2001; Weingart, 1992; Williams & O'Reilly, 1988). In theorizing about this key role for conflict management, previous research suggests that a *process* for managing conflict can help to reduce the negative impact of all types of conflict by restoring fairness, process effectiveness, resource efficiency, working relationships, and/or satisfaction of parties (e.g., Thomas, 1992). For example, Tjosvold (1991) has argued that a cooperative approach to conflict resolution allows conflict of a variety of types to be resolved in a way that is beneficial to the group. The procedural justice literature similarly supports the notion that a process of conflict management that allows groups to resolve their conflicts fairly will result in conflict of all types being

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more effectively resolved, leading to more desirable group outcomes. The group value model, for example, posits that individuals benchmark their status in a group on the basis of how procedures are applied to them during group process (Lind & Earley, 1992). Team conflicts, whether latent or overt, often manifest themselves as process-based conflicts in the form of passive-aggressive behaviors such as power plays, blaming, tardiness, or withholding information (Edelmann, 1993; J. Wall & Callister, 1995). The manner in which members treat each other while working through problems changes expectations for the next group interaction, for member satisfaction with the group (Lind & Tyler, 1988), and for member willingness to continue contributing to the group proactively (Jehn, 1997).

Moreover, there is also a growing body of evidence to suggest that, over time, the actions and reactions groups have to past performance and evolving group dynamics leave teams prone to some degree of chronic conflict, conflict spirals, and/or rigidity in their process management (Ancona & Chong, 1996; Arrow, Poole, Henry, Wheelan, & Moreland, 2004; De Dreu & VanVianen, 2001; Kuhn & Poole, 2000; Peterson & Behfar, 2003; Rahim, 2002). One critical key to understanding group performance lies in better understanding the choices groups make in choosing conflict resolution strategies to deal with this conflict. These choices are key to understanding a team's ability to successfully learn and adapt task strategies to meet performance criteria (e.g., Argyris, 1982; Edmondson, 1999). If teams make conflict resolution choices that do not allow the team to resolve conflict effectively, those teams are likely to be prone to continuous, escalating conflicts as members spend time reacting to provocative conflict behaviors of other team members rather than focusing on the task at hand. Teams that can adapt their processes appropriately, however, are more likely to create teams where members are satisfied and performance is enhanced.

The conflict management process encompasses a wide range of activities, including communication, problem solving, dealing with emotion, and understanding positions (Brett, 2001; Pondy, 1992; Putnam & Poole, 1987). Conflict management behaviors have primarily been studied either as "individual styles" that are stable traits of individuals, as types of behaviors (such as threats or compromises), or as generalized behavioral orientations (e.g., avoiding, accommodating, compromising, competing, problem solving; see Folger, Poole, & Stutman, 2001, for a review of the multiple frameworks). Previous research in this tradition has shown that different conflict management orientations (e.g., collaborating, competing, accommodating) affect success at the individual and team levels (Blake & Mouton, 1964; De Dreu, 1997; Morrill & Thomas, 1992; Putnam & Poole, 1987; Rahim, 1983; Ruble & Thomas, 1976). For example, cooperative or collaborative orientations increase effectiveness in managing task conflict (De Dreu, 2006; Tjosvold, Hui, & Yu, 2003). Relationship conflict, however, is typically described as needing to be managed differently, with some studies recommending avoidance of relationship conflict altogether (e.g., De Dreu & VanVianen, 2001) and other studies reporting that avoidance orientations increase negative emotion (Desivilya & Yagil, 2005). The present article builds on this tradition but takes a more fine-grained look at conflict management tactics (as opposed to generalized strategies such as "cooperation") by trying to get a better understanding of the effects of specific conflict resolution strategies on group outcomes. We ask questions such as how do some teams manage relationship conflict and avoid its usual negative impact, while others do not? More specifically, are there particular conflict resolution tactics that allow for the effective resolution of relationship conflict? Why does task conflict manifest itself as constructive debate in some teams but as open fighting in other teams? In other words, are there specific conflict resolution tactics that a team can chose that will allow for effective management of task conflict? Do certain conflict resolution tactics work across all types of conflict? Or does each type of conflict require different conflict resolution strategies?

This Study: Linking Conflict Resolution Strategies With Team Performance and Member Satisfaction

Our purpose in this study is to examine specific conflict resolution strategies in groups to better understand their potential effects on group outcomes (e.g., performance and satisfaction). To accomplish this, we look at teams with consistently high or increasing group performance and member satisfaction and consistently low or decreasing group performance and member satisfaction over time in order to see which conflict resolution strategies are associated with each of three commonly measured conflict types: task, relationship, and process conflict. Task or cognitive conflict is disagreement over differences in ideas, viewpoints, and opinions pertaining to the group's task (Amason & Sapienza, 1997). Relationship conflict is disagreement resulting from interpersonal incompatibilities, which includes affective components such as feeling tension and friction. Process conflict is conflict about dividing and delegating responsibility and deciding how to get work done (Jehn, 1997, p. 540). Each of these conflicts has been theorized to result in different group dynamics, but very little is known about specific strategies teams employ to manage the different types of conflict or the efficacy of these strategies. In this study, we are specifically interested in understanding (a) how groups perceive that they have managed each type of conflict and (b) how different conflict management approaches are associated with strong or weak outcomes in team performance and satisfaction. By understanding how groups experience and respond to different types of conflicts, we also hope to understand how performance spirals (both upward and downward) are established (cf. Lindsley, Brass, & Thomas, 1995).

Because relatively little research has examined the impact of intragroup (i.e., as opposed to individual member) conflict resolution strategies, we begin by examining the strategies that autonomous work groups create to self-manage their team conflict. We chose to investigate conflict management in autonomous teams for two reasons. First, autonomous groups have become more prevalent in the past 20 years, although often called by different names, including self-managing work teams, leaderless groups, high performance teams, and shared leadership teams (Cohen & Ledford, 1994). Autonomous teams are also widely used in academic settings both as classroom tools as well as for research samples in academic research (Loyd, Thompson, & Kern, 2005). Second, in theory, autonomous teams are particularly well suited to illustrate how the management of team processes, such as communication and conflict management, can enhance versus detract from team viability. Because decision-making power about team processes is shifted from a manager directly to team members, autonomous

team members are also responsible for managing the communication and conflict that results from task decisions and subsequent group processes. Since team viability, or sustainable success over time, depends on a team's ability to adapt in response to changes in the environment, to learn from feedback, and to resolve conflicts when faced with differences between old ways of doing things and new performance expectations (Arrow, McGrath, & Berdahl, 2000; Hackman & Morris, 1975; Ilgen, John, & Jundt, 2005; McGrath, 1991; Okhuysen & Eisenhardt, 2002; Poole, Siebold, & McPhee, 1996; Vancouver, 2000), autonomous teams should be particularly well placed to display this type of adaptability. In practice, however, the empirical evidence has been mixed (see Beekun, 1989; Cohen & Ledford, 1994; Cummings & Griggs, 1977; Pasmore, Francis, & Haldeman, 1982; T. Wall, Kemp, Jackson, & Clegg, 1986). Studies have found that autonomous teams exhibit productivity declines over time, higher turnover rates, coordination problems, and declining member motivation (Cordery, Mueller, & Smith, 1991; Goodman, Devadas, & Hughson, 1988; Guzzo, 1982; Howell, Bowen, Dorfman, & Podskaoff, 1990; Moorhead, Neck, & West, 1998; Steiner, 1972). Therefore, autonomous teams represent a critical test of how the use of specific conflict resolution tactics either facilitates or hinders effective conflict resolution.

Method

Research Setting and Participants

The research sample was the entire 1st-year MBA class of 252 students, or 65 study teams, at an East Coast graduate school of management. The participants worked in the same teams across all four of their first semester core curriculum classes, and the team portion of their work counted for at least 40% of each individual's grade in each class. This sample was chosen because it constituted newly forming, intact autonomous groups with no previous history. Their workload was sufficiently heavy to make task interdependence necessary, and their performance outcomes (i.e., grades) were important to individuals' academic standing (i.e., there were probation consequences for low team grades) and job prospects (for both recruiting and tuition reimbursement). In addition, the school is relatively small, so it was highly likely that the team members would work together again in the course of their MBA program. Thus, while these were student teams, the atmosphere and consequences of the work were a reasonable simulation of autonomous business teams with both task-related work as well as social relationship and reputation consequences if the groups failed. The fact that the teams were newly forming and began their work with the same baseline resources was also important to this study in terms of differentiating the effectiveness of team conflict management strategies.

The students were an average age of 29 years; 27% women, 73% men; 34% born outside the United States; with an average of 4.7 years of full-time work experience after completing undergraduate degrees in a wide range of managerial and technical positions. Groups were randomly assigned with 3–4 members, with the caveat that each team contained at least 1 student born outside of the United States. With the exception of a few students, most of the foreign-born students had spent between 4 and 10 years living, attending university, and/or working in the United States. Teams did not have formally appointed leaders, and they were jointly responsible for the outcomes of the group. None of these demographic variables were significantly associated with our key performance measures and so were not analyzed further.

Although students used their same study groups to do problem sets in accounting and economics, the measurement used for performance in this study was from their graded group assignments in the organizational behavior core course because problem sets had little variance in performance (i.e., they were mostly correct). The organizational behavior course assignments consisted of two five-page case analyses, worth 20% and 30%, respectively, of their final course grades. The two case analysis assignments represent non-routine tasks, as teams were responsible for identifying the management problem represented in the case and for recommending management actions for resolving the problem on the basis of research and theory presented in the core organizational behavior course. The core course met three times per week over 10 weeks. The first paper was due in Week 4, the second in Week 9. Students were given cases to prepare and were asked to "demonstrate your ability to apply what you have learned in selective and creative ways to analyze and diagnose organizational problems and solve them."

Procedure and Measures

Overview of Procedure

The data analyzed below are a mix of qualitative and quantitative analyses. We specifically make links between the qualitative process and quantitative outcome data. Open-ended survey questions were used to gather the qualitative data about team norms, conflicts, and conflict management, which were analyzed both by study participants and academic experts. We chose the open-ended survey format because it elicits brief yet detailed team member accounts, minimizes demand characteristics because it does not constrain team members' options to discuss certain types of conflict/management behaviors, and usually captures the most salient or important aspects of team processes (Fine & Elsbach, 2000; Miles & Huberman, 1994). We chose not to use existing conflict management inventories in this study because we were interested in capturing detail about team-level development and application of different strategies to different types of conflict. Therefore, we rely on a more participant-driven method of inquiry. Survey data were also collected to assess satisfaction.

Measures

Surveys. The teams were administered two surveys that included both open-ended questions and close-ended measures. The first survey was administered after teams had completed their first group assignment but before they received a grade for that assignment (Time 1). Measurement was taken prior to the participants receiving their grades to ensure that they reported their observations about their group experiences instead of their reactions to the group's grade. The Time 1 survey contained an open-ended question about team norms and a close-ended measure of satisfaction, along with other items relevant to the course but not used in this study. The open-ended question asked respondents to describe their team norms, defined as written or unwritten patterns of

beliefs, attitudes, communication, and behaviors that become established among team members (cf. Feldman, 1984; Guzzo & Shea, 1992). While the focus of the study was on conflict resolution, we wanted to cross-reference normative data with our resolution findings as a way of validating our conclusions and to compare early versus later team norms as a reflection of how effective the strategies were (in addition to performance and satisfaction scores; Jick, 1979). The teams received their grade for their first group assignment only after Time 1 surveys were collected.

The Time 2 survey was identical to the Time 1 survey but also included two open-ended questions asking team members to describe the conflicts (if any) they had since their first group assignment and how they addressed or managed those conflicts. During the term, respondents were directed to think about their team experience since their first assignment (T1 measurement) and describe "What types of conflicts or disagreements arose in your team?" and "How did your team manage or resolve these conflicts or disagreements?" The Time 2 survey was administered after they completed their second group assignment but before they received a grade for that assignment or for their final course grade. We chose to collect data about conflict and conflict management only at Time 2 because we were interested in capturing conflict management strategies during a complete team performance *episode* (Marks et al., 2001), defined as distinguishable periods of time over which performance accrues and feedback is available (p. 359). Since teams are not particularly aware of the effectiveness of their process/task strategies until after they receive feedback (Hackman, 1990), and the impact of performance feedback is often that of increased conflict (e.g., Peterson & Behfar, 2003), we were interested in examining conflict resolution strategies when conflict experiences were particularly salient and as teams learned how to adapt or transition their task strategies for their next assignment (Marks et al., 2001). In contrast, team norms are a relatively stable team property (Bettenhausen & Murnighan, 1985), so we measured them at both time periods as a cross-check to the effectiveness of conflict management strategies. We recognize that concentrating on one performance episode limits the conclusions we can draw about conflict management and team viability over time. However, we did so in order to uncover how conflict management is associated with the beginnings of positive versus negative outcome trends.

At Time 1, 244 responses (8 non-responses) were collected, for a response rate of 96.8%; the Time 2 data included 225 responses (27 non-responses), for a response rate of 89.3%. Teams with less than two-thirds of the members answering the surveys across both time periods were dropped from the study (e.g., a 4-person team needed at least 3 respondents to be included). There was no apparent pattern in the non-responses—members of these teams came from a wide range of performance and satisfaction scores. Of the teams, 57 responded at the required level on both surveys to be included in our dataset here, and 8 did not respond and were subsequently dropped from all analyses.

Team outcome measures. In order to investigate associations with team outcomes, team grade and team member satisfaction were treated as "outcome" measures. Because conflict management represents a convergence of cognitive and emotional forces on group decision making (Folger et al., 2001; Hackman & Morris, 1975; J. Wall & Callister, 1995), team grade was the variable we chose to represent a group's ability to successfully adapt its task management strategies. Satisfaction was the variable we chose to represent how well a group was managing the social or affective side of its work.

Grades with a possible range of 60 to 100 were assigned by one of two class professors who taught identical content but different sections of the course. Both professors used the same grading criteria and point systems for grading the cases. The performance scores at Time 1 ranged between 70 and 95, with a standardized mean and median of 80 for both professors. The performance scores at Time 2 ranged between 70 and 95, with a standardized mean and median of 84 for both professors. See Table 1 for descriptive statistics on these data.

Satisfaction was measured with five items rated on a 9-point Likert scale adapted from Peterson (1997) that included asking participants how satisfied they were working with the team, how much they liked other team members, to what extent the other people on the team were generally friendly, if they would like to work with their team again in the future, and how satisfied they thought their fellow teammates were with being a member of the team. Cronbach's alpha yielded a reliability coefficient of .91 at Time 1 and .92 at Time 2 for the satisfaction measure. All scores were aggregated to the team level by calculating the team mean score. See Table 1 for descriptive statistics on these data.

To assess the appropriateness of aggregating the satisfaction items to the team level, the within-group agreement index, r_{wg} (James, Demaree, & Wolf, 1984), and intraclass correlation coefficient, ICC(1), were calculated for Time 1 and Time 2. The r_{wg} index ranges from 0 to 1, where values closer to 1 mean greater within-group agreement. Klein et al. (2000) and numerous others recommend a value of $r_{wg} = .70$ to justify aggregating to the group level, although the .70 cutoff is only a "rule of thumb" (Lance, Butts, & Michels, 2006). Values exceeded this cutoff: at Time 1, $r_{wg} = .94$; and at Time 2, $r_{wg} = .92$. ICC(1) is also used to determine if aggregation is warranted and typically results in much

Table 1
Descriptive Statistics for Group Outcome Measures

Variable	Time 1 performance grade	Time 2 performance grade	Time 1 satisfaction	Time 2 satisfaction
Mean	80	84	7.6	7.0
Median	75	85	8.0	7.2
Standard deviation	7.3	7.5	.98	1.3
Range (min/max)	25 (70/95)	25 (70/95)	4.7 (4.1/8.8)	6.6 (2.4/9)

Note. Performance was measured by students' grades.

lower values (a value $> .12$ is generally considered good; James, 1982). Values exceeded this cutoff: Time 1 = .41; Time 2 = .47. The above findings indicate that there was more significant agreement within groups than between groups, and, therefore, the aggregated satisfaction score was deemed appropriate.

Qualitative Data Analysis

The purpose of analyzing the qualitative responses was to explore three questions: (a) What types of conflict resolution strategies did the teams use to address different types of conflict (task, relationship, and process)? (b) How are those strategies associated with positive versus negative outcome trends between Time 1 and Time 2? and (c) Was the success/failure of conflict management reflected in changes in team norms? The qualitative data from the conflict-type open-ended question were coded by academic experts. The data from the conflict management question were analyzed by participants. The responses to the team norms questions were coded by two professional managers of teams, each with 10+ years of team management experience (more detail in each section below).

Conflict and Conflict Management

The responses to both of the qualitative questions about conflict and conflict management were typically one to three sentences containing one or two ideas about conflict and conflict resolution. All respondents wrote something in for this question, even if it was to indicate that the team experienced very little conflict or did very little to manage it. Therefore, for each team we were able to separate the responses into a list of statements about conflict and a list of resolution strategies employed. The analysis of these data consisted of three stages: (a) an expert rating of the extent to which each conflict statement (responses to the first open-ended question) was related to task, relationship, and process conflict (Jehn, 1997); (b) a categorical coding by participants of conflict resolution strategies (responses to the second open-ended question) with the concept mapping methodology (explained below; Jackson & Trochim, 2002); and (c) examination of how different conflicts and the management strategies employed to resolve those conflicts were associated with different team outcome patterns. Thus, for each respondent, there was a conflict statement, an expert coding of the type of conflict mentioned in that statement, a conflict resolution statement, and a categorical coding of that resolution statement done by the participants from the concept mapping analysis—all of which were linked to team-level trends for performance and satisfaction.

Classifying Conflict Type by Using Expert Ratings

All of the conflict responses from the first open-ended question were decomposed into single statements by Kristin J. Behfar. A sample of the 50 statements was also decomposed by a hypothesis-blind coder with strong agreement (i.e., Cohen's $\kappa = .72$), suggesting acceptable reliability in identifying discreet units of analysis. For example, 1 participant's response was "Commitments were made initially but were not followed up or backed up with the required efforts. Opinions strictly related to projects and write-ups were often interpreted by my teammates as personal comments." This response was decomposed into two separate statements: (a) Commitments were made initially but were not followed up or backed up with the required efforts, and (b) opinions strictly related to projects and write-ups were often interpreted by my teammates as personal comments. Next, a group of 24 academic experts in groups and teams research completed a 9-point Likert scale rating for a subset of the 235 conflict statements generated according to how closely they were related to a specific type of conflict (e.g., task, relationship, or process; Hinkin & Tracey, 1999). These experts were faculty members and doctoral students in management, social psychology, and industrial labor and relations departments. Each statement was evaluated by at least 2 experts on a rating scale from 1 (*not at all related*) to 9 (*completely related*) as to how related it was to each type of conflict. They were given definitions of each type of conflict as presented in Jehn (1997). The interrater reliability for the expert raters was assessed with Cronbach's alpha, yielding reliable ratings of $\alpha = .84$ for task conflict, $\alpha = .79$ for relationship conflict, and $\alpha = .75$ for process conflict.

Classifying Conflict Management by Using Participant Concept Mapping

The concept mapping method can best be thought of as "participatory content analysis" (Jackson & Trochim, 2002) and as a hybrid between traditional content analysis and semantic mapping analysis. We chose this method to analyze the conflict resolution responses because the research objective was to understand how participants themselves (rather than the researchers) think about conflict resolution strategies. Concept mapping as applied to qualitative data analysis (Jackson & Trochim, 2002) combines exploratory statistical analysis with participants' judgments to produce clusters of similar thematic categories by using multidimensional scaling and cluster analysis. The analysis is a five-step process: (a) determining units of analysis, (b) participant sorting of units, (c) multidimensional scaling analysis, (d) cluster analysis, and (e) cluster labeling. Beyond creating units of analysis from the initial responses, the researchers did not make any coding or analysis decisions.

Determining units of analysis. Units of analysis were created from the statements generated by respondents in response to the second open-ended survey question, "How did you resolve those conflicts?" Each raw response from a respondent was typically one to two sentences long. Units of analysis were created by separating respondents' answers into single statements, each containing only one idea about conflict. For example, 1 respondent's answer to the conflict resolution was "The issue was discussed and everyone was asked an opinion. Basically it was the way we approached the case assignments. [and] We had two people work on the first assignment and made turns on the next one." This response was broken into two separate statements: (a) The issue was discussed and everyone was asked an opinion. Basically it was the way we approached the case assignments; and (b) we had two people work on the first assignment and made turns on the next one. All of the conflict resolution responses from the open-ended question were decomposed into single statements by Kristin J. Behfar. This process resulted in 210 statements about conflict resolution—an average of three to four statements per team. These 210 statements were matched with their corresponding conflict statement for anal-

ysis by a respondent identification and team number. A sample of the 50 statements was also decomposed by a hypothesis-blind coder with strong agreement (i.e., Cohen's $\kappa = .90$), suggesting acceptable reliability in identifying discreet units of analysis.

Participant sorting of units of analysis. To avoid introducing researcher bias to the remaining steps of the concept mapping analysis, MBA students were used as decision makers. Second-year students were chosen instead of the original study respondents to protect privacy. Second-year students are a reasonable proxy for the original respondents because they are, as a group, demographically virtually identical and they have experienced the same courses and have been members of similarly composed teams. We gave 15 students, 9 male and 6 female, who responded to a recruiting poster, a set of cards with statements (i.e., units of analysis) on them and instructed them to sort cards containing similar ideas together into piles (cf. Jackson & Trochim, 2002, on the method). The students worked individually, and there was no limit to the number of piles they could create. They were asked to give each of their piles a name. The only restriction was that they could not create a "Miscellaneous" pile—if they thought a statement did not belong with any of the others, they were instructed to leave it in its own pile.

Multidimensional scaling analysis. A multidimensional scaling analysis on the sorting was done to create a map of conceptual similarity between the statements that visually displayed the similarity judgments of the sorters. A 210×210 binary square matrix (rows and columns represent conflict resolution statements) was created for each individual sorter. Cell values represented whether or not a pair of statements was sorted by a particular coder into the same pile (i.e., yes vs. no; 1 vs. 0 coding). These individual matrices were then aggregated by adding together all 15 of the individual matrices. From the aggregated matrices, multidimensional scaling created coordinate estimates and a two-dimensional map of distances between the statements based on the aggregate sorts of the 12 coders. A two-dimensional solution was chosen because it provides the most useful foundation for a cluster analysis (Kruskal & Wish, 1978).

Cluster analysis. Cluster analysis was conducted on the multidimensional scaling coordinates. Two additional 2nd-year MBA students worked together to choose the cluster solution (i.e., number of clusters) that they felt most accurately represented the structure of the data. They made their final decisions by looking at the cluster dendogram and discussing whether or not the contents of clusters merging at each solution were conceptually similar enough to merge. Their decisions about the final number of conceptual clusters to choose represents a final solution for the data.

Cluster labeling. After a final solution was chosen, the same two MBA students re-examined the statements in each cluster, as well as the names the original sorters had given each of their piles, to determine a label that best represented the content of the clusters. They then chose what to name or label each cluster. All cluster groupings and the language of the cluster labels chosen originated from the sorters' labels or from the participants' statements.

Summary Analysis: Linking Conflict Type, Conflict Management, and Outcome Patterns

To examine the link between conflict types, conflict management strategies, and positive versus negative outcome patterns during the teams' life cycle, we divided the qualitative data into four categories: (a) teams with consistently high or increasing performance and satisfaction; (b) teams with consistently high or increasing performance but consistently low or decreasing satisfaction; (c) teams with consistently low or decreasing performance but consistently high or increasing satisfaction; and (d) teams with consistently low or decreasing performance and satisfaction. To create these categories, we first assigned codes to each team on the basis of their outcomes relative to the mean (above or below) between the two time periods. For example, a team that was below the mean at Time 1 but above the mean at Time 2 was coded as increasing. Teams that were above the mean at Time 1 but below the mean at Time 2 were coded as decreasing. Teams that were above or below the mean at both time periods were coded as consistent. This was done for both grade and satisfaction scores at Time 1 and Time 2. We chose to classify teams by their relative position to the mean for two reasons.[1] First, it provides a relatively objective cutoff point for assessing a meaningful change, or an upward versus downward pattern, in a dense outcome distribution. Second, it allows us to capture "high" versus "low" start and end points for each team during the performance episode we are investigating. The object of this analysis was to identify associations between conflict management strategies and outcome patterns—not to identify characteristics of strategies associated with one single high or low performance outcome. We believe this is meaningful because teams performing well early need to remain vigilant about their process effectiveness and resist the temptation to blindly rely on previously successful tactics (e.g., Hackman & Wageman, 2005). Therefore, the lumping of increases with consistently high scores but decreases with consistently low scores represents strategies that allow for continuous growth versus continuous decline.

Intrateam Agreement

In order to construct a team-level account about conflict and conflict management from the individual members' accounts, we followed a two-step decision rule based on within-team concept frequencies. For conflict type, frequency counts were based on the expert rater's classification of the conflict units, and for conflict management frequency counts were based on the concept mapping classification of the resolution units (Miles & Huberman, 1994). In order to minimize validity threats associated with frequency counts, we followed a two-step inclusion/exclusion decision method. First, because of the open-ended "free-recall" nature of the data and the way we created units of analysis, there is the potential for a particularly angry, strong-minded, or verbose team member to generate significantly more units than might those with more moderate tendencies (Geer, 1991). For example, 1 team with 3 survey respondents generated four conflict units. Member 1 was associated with two of those units, both about personality conflicts. This has the potential to overrepresent the distribution of meaning about certain types of conflicts in the sample. Therefore, we followed the convention of constraining frequency counts to only one unique concept per team member (Kraut, 1996). In the above example, this means that we would

[1] The same analysis was done with change scores (Time 2 – Time 1) to create categories for comparison. The results were virtually identical.

eliminate one of Member 1's units about personality conflict. However, if Member 1 had generated one statement about personality conflict and one about task conflict, both units would have been included at this stage. This resulted in the elimination of only six conflict units and five associated conflict resolution units (one of the eliminated conflict units did not have an associated resolution unit). While only six units did not meet inclusion criteria, their exclusion does help correct for potential overrepresentation threats and any unitizing artifacts.

The second step in excluding units was intended to roughly capture intragroup agreement about conflict experiences. Recall that we included teams in the analysis with at least two-thirds of members responding. To assess agreement about the types of conflict each team experienced, we examined the number of individuals that mentioned different types of conflict. We followed a 50% rule for inclusion in 4-person teams and a two-thirds rule for inclusion in 3-person teams (if there were only 2 respondents from a 3-person team, both or 100% had to mention a type of conflict). This exclusion criterion resulted in the elimination of 30 conflict units and their associated conflict management units: 12 about process conflict, 8 about relationship conflict, and 10 about task conflict. After both steps, 174 of the original 210 conflict management units (a reduction of 36 units) and their associated conflict statements were included in the summary analysis.

Interteam Agreement

In order to draw conclusions about how teams in each outcome pattern category addressed the different conflicts, at least one-third of the teams in each outcome pattern category had to report applying that strategy. The one-third criterion was set because there were three types of conflict coded for task, relationship, and process. The majority of teams reported addressing only one type of conflict, but 11 teams (19% of the sample) reported addressing two types of conflict.

Team Norms Data

The data from the team norms questions were used to lend support to the conclusions drawn from the resolution strategies analysis. To better place the strategies in evolving normative team dynamics, we compared the differences between Time 1 and Time 2 accounts of team norms. Two independent coders blind to the purpose of this study coded all of the team norm accounts for mention of trouble or dysfunction. The coders were one male from the engineering field and one female manager from the marketing field, each with over 10 years of team management experience. They were chosen on the basis of their 10+ years of professional experience with both leading and being a member of more than 30 teams. They used a binary coding scheme: Teams received a 1 if trouble was mentioned and a 0 if no trouble was mentioned. Examples of trouble or dysfunction included explicit and specific mention of problems such as coalitions forming against a team member, underlying tension among members, ongoing process problems, and so on. Some examples are (a) "Sometimes we lost focus. Also near the end, we all were so busy, we probably did not try as hard to make things work—we just wanted to get the project over with!"; (b) "We had more problems in the second half of the course. The team meeting was not attended by everyone. Team members walked out of the team when there was a disagreement. An optional case was not completed due to a team member's different opinion. Had we had something in writing as the team norm, we'd be better off dealing with these issues"; and (c) "The norm is, and always has been, that it is not easy going for us. Our problems never really went away." Examples of norms coded as having no mention of trouble include (a) "We have no problem, open, friendly team. Goal is to learn together. Kind, considerate, 'things are under control'"; (b) "A strong intent to seek consensus. Open and frank communication. Willingness to listen to as well as provide views on all group work"; and (c) "Everyone took the team seriously. Nobody ever showed up late. A lot of respect towards the other team members. Great friends. Fun people, but the underlying key to the success was the mutual respect we held."

The coding was done on both Time 1 and Time 2 norms. Cohen's kappa was used to assess the interrater reliability, which met acceptable agreement of .81 at Time 1 and .96 at Time 2 (Fleiss, 1981). On the basis of the coding, we established four categories of norms patterns: (a) Teams mentioning trouble at both Time 1 and Time 2; (b) teams mentioning trouble at Time 1 but not Time 2; (c) teams not mentioning trouble at Time 1 but mentioning Trouble at Time 2; and (d) teams not mentioning trouble at Time 1 and Time 2. A chi-square test was performed to determine whether the frequency of patterns in team norms differed between the four categories of team outcome patterns discussed earlier (e.g., consistently high / increasing performance and satisfaction).

Results

The results section is organized as follows: We first discuss the results of the participant-based concept mapping analysis. We then report how different types of conflict (task, relationship, or process) mesh with choice of conflict resolution strategy and different outcome patterns. We then report how the team norms patterns link to the outcome patterns to verify our outcome patterns.

Concept Mapping of Conflict Resolution Strategies

The concept mapping analysis of conflict resolution statements resulted in seven categories of conflict resolution strategies: voting, compromise or consensus, discuss or debate, open communication, idiosyncratic solutions, avoided or ignored, and rotating responsibilities. The final map from the concept mapping analysis of conflict resolution strategies is presented in Figure 1.

The Concept Map

When interpreting the final map, note that each statement generated by the respondents is represented as a point on the map that is included in a cluster. The position of each cluster on the map (e.g., top, bottom, right, left) is not meaningful—only the distance or spatial relationship between them is relevant. The proximity of the clusters to each other represents how similar the coders/sorters judged the statements within them to be. Clusters that are farther apart on the map contain statements that were sorted together less often than those that are closer together. The statements in the rotating responsibilities cluster, for example, were almost never sorted with those in the open communication cluster. However, the discuss or debate and open communication clusters are close

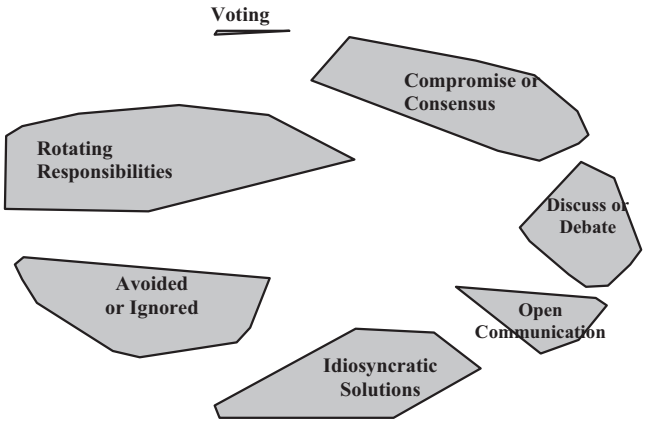

Figure 1. Categories of conflict resolution strategies. The position of the clusters on the map is based on a multidimensional scaling analysis: Only the distance between clusters is meaningful (not their physical location). The more proximal the clusters, the greater conceptual relation they have to each other. Size of the clusters does not indicate statement frequency. The cluster solution and cluster names were chosen by study participants.

together. They both contain statements about team discussion, but the discuss or debate cluster focuses on substantive task debate (e.g., debating alternatives), and open communication focuses on the affective tone of the discussion (e.g., ego-invested vs. amicable task-centric debate). It is reasonable that the participants viewed these as closely related but conceptually distinct. The shape and size of a cluster generally represents whether it is a broad or narrow conceptual area but does not allow for meaningful interpretation (e.g., the size of a cluster does not represent the number of statements in a cluster).

Cluster Content

Representative statements from each cluster are displayed in Table 2. While the content of each cluster represents conceptual similarity (e.g., statements about voting in the voting cluster), there were differences within each cluster in how the different strategies were applied to different types of conflict. In the voting category, for example, there were ideas about using voting to address process problems versus resolving impasses on task debates. In the compromise or consensus cluster, ideas ranged from reaching a secure and collective compromise, to compromising too quickly to preserve relationships, to using compromise as a way to avoid discussion. In the discuss or debate cluster, ideas ranged from debating ideas with evidence-driven discussion to debating about controversial team process issues. The open communication cluster contained ideas about the affective tone of discussion, ranging from ego-invested to amicable. The idiosyncratic solutions cluster contained ideas about how teams punished or prevented conflicts, ranging from creating rules, to making threats or direct confrontations, to empowering 1 person as a mediator. In the avoided/ignored cluster, there were statements about strategies to avoid/prevent conflict from escalating versus ignoring the existence of a conflict. The rotating responsibilities cluster contained ideas about how to manage conflicts by dividing work and team responsibilities, ranging from pre-structuring work assignments to structuring in reaction to previously missed assignments. The next stage of the analysis identified how these differences were associated with increases and decreases in team outcomes.

Linking Conflict Type, Conflict Management Strategies, and Outcome Patterns

The results are reported below according to outcome patterns: (a) teams with consistently high or increasing performance and satisfaction; (b) teams with consistently low or decreasing performance and satisfaction; (c) teams with consistently high or increasing performance but consistently low or decreasing satisfaction; and (d) teams with consistently low or decreasing performance but consistently high or increasing satisfaction. Overall, 21 teams, or 37% of the sample, demonstrated consistently high or increasing outcome trends. These teams generated 55 statements about conflict resolution, which constituted 32% of the sample statements. Fourteen teams, or 25% of the sample, demonstrated consistently low or decreasing outcome trends. These teams generated 40 statements about conflict resolution, which constituted 23% of the sample statements. Eleven teams, or 19% of the sample, demonstrated consistently high or increasing performance but consistently low or decreasing satisfaction. These teams generated 46 statements about conflict resolution, which constituted 26% of the sample statements. Eleven teams, or 19% of the sample, demonstrated consistently low or decreasing performance but consistently high or increasing satisfaction. These teams generated 33 statements about conflict resolution, which constituted 19% of the sample statements.

Changes in Team Norms

We looked next to verify these outcome patterns with data collected on team norms. A significant chi square, $\chi^2(9, N = 57) = 30.91, p < .01$, was found in the 4×4 matrix, revealing that there are statistically significant differences in the proportions of norm changes according to outcome pattern when compared with chance (Nunnally & Bernstein, 1994). Significance testing of these differences in proportions for each type of conflict was found by examining standardized residuals for values greater than or equal to ± 2 (Agresti, 1990). The standardized residual values are approximately normally distributed, and a value of $+2$ or -2, at the $\alpha = .05$ level, indicates that that cell of the row $\times$ column table contains a larger or smaller observed value than was expected (Agresti, 1990). Results are consistent with the conflict management findings. Table 3 illustrates that the consistently high/increasing grouping had a lower proportion of teams with troubled norms at Time 1 and Time 2. In contrast, the teams with consistently high/increasing performance but consistently low/decreasing satisfaction and the teams with consistently low/decreasing performance and satisfaction had a higher proportion of team mentioning troubled norms at Time 1 and Time 2. The norms statements for each group of teams reflect similar trends as the conflict management statements. For example, the teams with consistently high/increasing performance and satisfaction described norms about proactive problem solving, foreseeing and preventing problems, and learning to work with individual member's unique traits. The consistently high/increasing performance but consistently low/decreasing satisfaction teams described norms about prevention, increased process structure, and role clarification or rules. The consistently low/decreasing performance and satisfaction teams described norms of confusion, disorientation, and expectations for trouble. These results

Table 2
Representative Statements From Each Cluster of Conflict Resolution Strategies on the Concept Map

Cluster name and description	Representative conflict resolution statements
Voting *Ideas about using voting procedures*	"We tended to let people express their points of view, but typically majority ruled at decision time." "If no one volunteered for an assignment we voted them in." "We discussed opinions until frustrated and then voted." "Only when we were out of time and at an impasse we voted." "Only a few times it was required to informally get 'votes' for support to resolve conflict." "We recognized when it was time to 'agree to disagree' and then voted."
Compromise or consensus *Ideas about how groups reached agreement*	"We talked each issue deeply and carefully 'til we reach the consensus." "We tried to compromise so as to not jeopardize our relationship." "Compromise—mostly I just said "whatever" which probably wasn't great team behavior." "We reached consensus on who did what." "We talked about our schedules and then compromised. One member gave up a weekend, another agreed to get up early one morning." "We recognized differences in work styles and tried to compromise our preferences." "We would discuss in detail everyone's views until we got a consensus (sometimes more than I could take.)"
Discuss or debate *Ideas about discussing and debating ideas/ opinions*	"If one member thought one thing and another disagreed, we just discussed the pros/cons and quickly came to a conclusion." "We went through each solution to determine which was the easiest to defend with the information in the case." "We met and voiced our concerns regarding the quality and effort put into the paper." "Making sure everyone had a chance to fully explain their views and then went through a logical process of discussion to pick the most convincing argument." "Although the majority of time was spent on determining how to convince one or more members to the ideas."
Open communication *Ideas about the level of affect or emotion in team discussions*	"No one was hard set on making their point, everyone was open." "The team members took the arguments positively and not personally." "To resolve conflict we tried to keep open-minded and learn from one another." "Discussions were very amicable." "We incorporated everyone's ideas." "We all reminded each other to 'not sweat the small stuff.'" "Frustrations boiled over to conversations with classmates that didn't help our problems." "The conflict was dealt with by people involved in talking it out."
Idiosyncratic solutions *Ideas related to fixing or responding to problems*	"Written rules to punish those who are late or lazy." "We tried to correct agreeing too much by challenging things and playing "Devil's advocate" better in the second case." "Condescending tendencies—we gave people 'time-outs'." "We told that person if they made changes again without our permission that we'd kick them out." "We instituted a time for "talking turns" which seemed to keep interruptions and arguments to a minimum." "We told that person to stop rolling his eyes at us." "We created a team calendar and made everyone put their classes and commitments on a week in advance. This made scheduling a little easier." "If you were late you have to buy everyone a Coke."
Avoided or ignored *Ideas about how groups prevented and/or ignored conflict*	"We kept conflicts underground!" "One member completely withdrew." "We did whatever we could to avoid having to have team meetings." "Some people just bit their tongue and went along with the majority in the interest of getting work done." "One member was smart & made good contributions to the group, but was very insulting—so we listened to his points and ignored the bad faces he made." "Sometimes conflicts were not completely dealt with in essence of timing issue." "Resolved conflict by setting up more well-defined processes to ensure group buy-in on timely basis." "We arranged work so angry people could avoid each other."
Rotating responsibilities *Ideas about how to allocate responsibility*	"Who ever was the last "reviewer" of the paper had "veto" power about conflict." "We assigned a member to be "on call" in case someone dropped the ball." "Two people both wanted control. We gave it to the person who we thought had the best writing style and knew the material the best." "Each meeting had a team leader assigned and that person made the agenda." "For example, on one case one guy could have done the case by himself—so we used him to double check the work the rest of us did. So we learned and still did well." "Because the members were not happy, we split the paper into 3 and divided the additional draft work." "We spent more time in meetings rather than individually to work on cases and the result was very good." "We gave everyone a chance to volunteer to do the work they wanted to do."

Table 3
Observed and Estimated Expected Frequencies for Changes in Norms by Outcome Pattern Category

		Team outcome pattern				
Norms Trend		Consistently high/increasing performance and satisfaction	Consistently high/increasing performance, consistently low/decreasing satisfaction	Consistently low/decreasing performance, consistently high/increasing satisfaction	Consistently low/decreasing performance and satisfaction	Total
Time 1 Trouble	Observed	0	6	0	7	13
Time 2 Trouble	(Expected)	(4.8)	(2.5)	(2.5)	(3.2)	(13)
	Std. Residual	**−2.2**	**2.2**	−1.6	**2.1**	
Time 1 Trouble	Observed	4	0	1	0	5
Time 2 No Trouble	(Expected)	(1.8)	(1.0)	(1.0)	(1.2)	(5)
	Std. Residual	1.6	−1.0	0.0	−1.1	
Time 1 No Trouble	Observed	5	5	5	4	19
Time 2 Trouble	(Expected)	(7.0)	(3.7)	(3.7)	(4.7)	(19)
	Std. Residual	−0.8	0.7	0.7	−0.3	
Time 1 No Trouble	Observed	12	0	5	3	20
Time 2 No Trouble	(Expected)	(7.4)	(3.9)	(3.9)	(4.9)	(20)
	Std. Residual	1.7	**−2.0**	0.6	−0.9	
Total	Observed	21	11	11	14	57
	(Expected)	(21)	(11)	(11)	(14)	(57)

Note. Standardized residuals greater than or equal to ±2 are shown in bold.

provide additional evidence that our outcome patterns are meaningful. Examples of these norms are summarized in Table 4.

Consistently High or Increasing Performance and Satisfaction

This group of teams demonstrates the theoretical ideal of teamwork in managing and preventing conflict.

Resolving relationship conflict. Only 1 of the teams in this category reported addressing relationship conflicts, which revolved around negative non-verbal behavior or having to deal with an overly dominant personality. It reported using avoided/ignored to ensure bad behavior did not disrupt the group: "One member was smart & made good contributions to the group, but was very insulting—so we listened to his points and ignored the bad faces he made" (Team 26, Member 3).

Resolving process conflict. Seven teams, or 33% of the teams in this category, reported strategies to address process conflict, which primarily revolved around time management and the impact of domineering members on group process. There were two dominant management strategies: rotating responsibilities and discussion/compromise. Six of the 7 teams used both of these to either mitigate the negative impact of 1 member and/or to prevent any time management conflicts from escalating. For example, 1 team had a member with heavy interview commitments until midquarter—her team's solution was "One member did most of the work later in the quarter, the rest of us pulled the load until then" (Team 34, Member 2). Another team was unsatisfied with the lateness and lack of commitment from 1 member and agreed to take turns ensuring work quality was up to team standards, "We had two people work on first assignment and made turns on next one" (Team 9, Member 2). These teams also used discussion and compromise to generate an understanding about how to mitigate conflicts before they escalated: "We met and voiced our concerns regarding the quality and effort put into the paper (Team 38, Member 1)"; or "We talked about our schedules and then compromised. One member gave up a weekend, another agreed to get up early one morning" (Team 34, Member 1).

Resolving task conflict. Fifteen teams, or 71% of the teams in this category, reported strategies for resolving task conflict. All 15 teams reported using three complementary strategies: compromise/consensus, discuss/debate, and open communication. Teams used these strategies to secure solid understandings behind compromises/group decisions by considering the pros and cons of different opinions, alternatives, and possible solutions. For example, "We put down what the two sides of the conflict were, then came back to them after we had nailed down everything we agreed on" (Team 6, Member 3), "We dealt with conflict by analyzing out each interpretation" (Team 31, Member 2), and "We talked thru the conflict by referencing facts that we collectively brainstormed" (Team 43, Member 3). These teams were able to reach compromise/consensus by considering evidence and convincing all members. For example, "We dealt with conflict by making sure everyone had a chance to fully explain their views and then went through a logical process of discussion to pick the most convincing argument" (Team 13, Member 1). They also identified that the nature of the conversation was not intertwined with negative emotion. For example, "The team members took the arguments positively and not personally" (Team 28, Member 1); and "No one was hard set on making their point; everyone was open" (Team 46, Member 1).

Consistently High/Increasing Performance, Consistently Low/Decreasing Satisfaction

These teams managed conflict with a focus on preventing continuing or escalating conflict by putting more structure in the way individual team members worked together.

Table 4
Examples of Team Norms

Team outcome pattern		Team norms at Time 1	Team norms at Time 2
Consistently high/increasing performance and satisfaction	Team 7, Member 2	"Coming to meetings on time. Take nothing personally—constructive criticism only. Open communication of all ideas via email and at meetings. Make sure everyone on the same page—everyone understands why things are included and excluded in final paper. All functions of team members are interchangeable. Whoever wants to work on particular item just needs to ask—the group will be stronger this way."	"Always think "we can do it." No hesitation in changing opinion. Listen to other members carefully."
	Team 25, Member 1	"We try to have total participation and work to make sure that happens. We have made adjustments to remedy the problem of interrupting one another. We will put in at least a strong "B" and go for an "A." We recognize that grading goals will evolve over the term. We set end times at the beginning of meetings and are pretty good at concluding at that mutually agreed upon time. We seem to balance one another pretty well. I've enjoyed working with this team. We have increased efficiency in the time we've worked together and I think we are pretty well aligned."	"Respect, communication, and general approval."
Consistently high/increasing performance, consistently low/decreasing satisfaction	Team 24, Member 3	"We have to collaborate, even if we don't like it. We want an "A." Our process (the process of getting the work done) is important and needs to be defined and agreed upon in advance."	"We all tend to like to be in control. We have tried to balance control by moving responsibilities for writing from member to member for each draft. Our goals are aligned-we all want to do well. We communicate fairly well, but tend to take sides."
	Team 51, Member 3	"Despite the fact that 3 of us overruled the 4th person, the 4th person was unwilling to accept that. That person then went as far as adding information back into our paper that we had agreed to take out. This ended up compromising our grade. Very frustrating"	"3 of us get along well, work well together, and had a positive experience. The other member was always a challenge for us to deal with."
Consistently low/decreasing performance, consistently high/increasing satisfaction	Team 52, Member 4	"A strong intent to seek consensus. Open and frank communication. Willingness to listen to as well as provide views on all group work."	"Open ideas, trust and agreement."
	Team 65, Member 1	"Overall, the group worked well with one another. I believe we all contributed evenly to the preparation of the case and the write-up. One thing I would recommend is that all members of the group need to show up to meetings on time. Even being a few minutes late should not be tolerated."	"We never spent too much time analyzing the material which I believed hurt us on some cases. It was always known that certain members of the group would be late."
Consistently low/decreasing performance and satisfaction	Team 56, Member 1	"Two members were also easily frustrated and impatient though they had unrealistically short expectations of the amount of time required for a project."	"We have a 2 vs. 2 situation in "How to do the project" viewpoints. 2 tend to cave, 1 tends to be overly aggressive, 1 tends to not be taken seriously."
	Team 59, Member 2	"There is friction about ideas that gets emotional, mostly caused by one person. We compromise to get past it."	"We talk (and talk, and talk, and talk) until a consensus (or agreement that promises an end to talking) is reached."

Note. All table entries are quotations from participants. Consistently low/decreasing performance, consistently high/increasing satisfaction had no significant pattern in the chi-square analysis.

Resolving relationship conflict. Six teams, or 55% of the teams in this category, reported addressing relationship conflicts. These conflicts revolved around recurrent clashes between dominant personalities and direct accusations that members made (e.g., stealing ideas, not caring about the team, and/or rude and condescending behavior). All 6 teams used strategies from the avoid/ignore, idiosyncratic solutions, and discuss/debate categories. Taken together, these teams directly confronted relationship conflict at the group level in order to prevent/avoid its reoccurrence. For example, teams managed escalating emotion by explicitly agreeing to overlook it: "We agreed to recognize when conflicts would help our ultimate goal–to get a better grade. It wasn't easy, but helped everyone calm down" (Team 2, Member 2); and "Emotional outbursts were contained. We all knew the tension was there, we just agreed to not let it interfere" (Team 51, Member 2). While they agreed not to let emotion interfere, they also set up rules or created explicit expectations (idiosyncratic solutions) to help members adhere to this. For example, "When it got personal we ended the meeting. There was a cooling off period of about 30 minutes, and then we came back. This was harder when we procrastinated and didn't have a spare 30 minutes" (Team 51, Member 1) and "We figured out how to avoid each other's trigger points – for one it was meetings that drag on. For me it was being late AND unprepared" (Team 47, Member 2).

Resolving process conflict. Six teams, or 55% of the teams in this category, reported addressing process-related conflicts. These conflicts centered on disagreements about time management and workload distribution because of uneven contributions or commitment from some members. Five of the 6 teams used two strategies together to address these conflicts: rotating responsibilities and idiosyncratic solutions. That is, they developed systems to correct problems and/or rules to prevent problems from occurring again. For example, "We figured out how to get the lame member to do something useful–take minutes, schedule meetings and talk to the TA" (Team 54, Member 2); "Conflict required empowering one person to step up to take charge" (Team 23, Member 1); and "We just agreed things needed to get better. Now you get punished ($10) or embarrassed unless you perform" (Team 2, Member 2).

Resolving task conflict. Five teams, or 45% of the teams in this category, reported managing task-related conflicts. These conflicts centered on differences of opinions and ideas related to case analysis. Only 1 team managed emotionally charged task conflict with rules for "talking turns" (idiosyncratic solutions). The majority (4 of the 5 teams) used two strategies to manage their task conflicts: compromise and voting. Compromise, however, was associated with giving in or giving up one's own opinion in the interest of getting work done. For example, "After considerable dialogue, the one individual agreed to go ahead with the project, but with an extreme amount of reservation" (Team 2, Member 1); and "Some people just said 'OK, let's just move on'" (Team 23, Member 2). The same 4 teams also reported using voting or majority rule to resolve task conflicts: "If you were on the losing side of a vote you just had to deal with it. Suck it up and move on. Be a team player" (Team 30, Member 3); and "We tended to let people express their points of view, but typically majority ruled at decision time" (Team 23, Member 3).

Consistently Low/Decreasing Performance, Consistently High/Increasing Satisfaction

These teams focused on relationships over task when managing conflicts.

Resolving relationship conflict. Only 2 out of 11 teams, or 18% of the teams in this category, reported experiencing relationship conflict. These 2 teams had 1 member that created emotional conflict in the teams. Both teams reported using strategies to avoid the conflict. For example, "We always divided work so those two people did not have to directly work together. The group avoided ever having to deal with that from beginning" (Team 35, Member 3) and "We decided to rally together–we all decided that that one person's style was not a reflection of how the rest of us operate" (Team 45, Member 1). The remaining 9 teams in this category did not mention relationship conflict.

Resolving process conflict. Only 2 teams, or 18% of the teams in this category, reported managing process conflicts. These conflicts centered on team meetings, such as members arriving late or when to schedule a meeting. Both teams resolved these conflicts with strategies from the rotating responsibilities category, which included changing/rotating work approach to foresee member conflicts. For example, "We tried a new way of working together that better considered our busy schedules" (Team 65, Member 1); "We plotted out our busy times before the deadline and avoided meeting during those times" (Team 35, Member 2).

Resolving task conflict. Seven teams, or 64% of the teams in this category, reported managing task conflict. All of the teams used three strategies: open communication, discuss/debate, and compromise/consensus. Different from the teams described previously, these teams did not have emotion intertwined in their task debates. Instead, there was not enough debate and too much focus on compromise: "We avoided conflict. I believe we were too quick to come to consensus" (Team 3, Member 2); and "Resolved by: We went through each solution to determine which was the easiest to defend with the information in the case" (Team 10, Member 3). Task conflicts were resolved by including all ideas rather than engaging in careful analysis.

Consistently Low/Decreasing Performance and Satisfaction

These teams had a hard time assessing the root cause of their performance and seemed willing to try anything to reduce the pain of their team experience.

Resolving relationship conflict. Five of the 14 teams, or 36% of the teams in this category, reported managing relationship conflict. These conflicts were severe: for example, "Tremendous personality clashes" (Team 53, Member 3) and "Members fought like crazy" (Team 59, Member 3). All 5 teams used open communication to address personality conflicts, and all 5 reported no success: "Unfortunately, personality differences created friction which never seemed to go away" (Team 44, Member 1); and "We did not resolve the conflict. We talked about expectations but no tangible improvements came out of that" (Team 53, Member 1).

Resolving process conflict. Eight teams, or 57% of the teams in this category, reported managing process conflicts. These conflicts centered on expectations for time management and creating a process to work together. All of the teams used strategies from

the rotating responsibilities and avoid/ignore categories, but the strategies reflect a lack of success: "We didn't resolve much–still I don't know at what point we went wrong. We did the best we could" (Team 66, Member 4); "We didn't have the sense that everybody was satisfied with how the work was done (Team 41, Member 3); and "We all agreed to be more prepared and responsible, but it's one thing to agree an another thing to actually DO IT" (Team 67, Member 5). The strategies from the rotating responsibilities all described "rotation" of approach to work: "We tried brainstorming, we tried devil's advocate, we tried it all" (Team 66, Member 1); and "We tried different ways/approaches for each case" (Team 42, Member 1).

Resolving task conflict. Nine teams, or 64% of the teams in this category, reported managing task conflict. Eight of these teams reported using the same two strategies: discuss/debate and compromise/consensus. However, the compromise/consensus units reflected a pattern of "giving in" to avoid unpleasant experiences: "Mostly I just said "whatever" which probably wasn't great team behavior" (Team 66, Member 3); and "One member was domineering and a control freak. Most of the time the group gave in to the dominant member" (Team 59, Member 1). The discuss/debate units reflected a focus on issues tangential to the actual work: "Conflict continued about what constituted an analysis versus what was simply a retelling of the case" (Team 56, Member 1) and "Although majority of the time was spent on determining how to convince one or more members to the ideas (Team 19, Member 4).

Summary

These results and differences between the four outcome trends are summarized in Table 5. Overall, the results of the summary analysis suggest that while teams may have reported using strategies from the same conflict resolution categories, the way that they *applied* those strategies to resolve different conflicts was often associated with very different patterns of change in performance and satisfaction.

Discussion

The teams in this study all started from the same point—the groups were newly formed, endowed largely with the same resources, had the same task assignments and performance evaluation criteria, and were working under the same time constraints. Yet, even under these very similar operating conditions, they developed and applied conflict resolution strategies in very different ways with different results. Our results suggest a number of implications for the literature on conflict in teams.

Theoretical Contributions

There are two interrelated theoretical contributions this study makes. The first is to provide detail about how teams manage task, relationship, and process conflicts as well as the performance and satisfaction tradeoffs associated with choices in conflict resolution strategies. For example, our results suggest that majority rule voting is associated with consistently high and increasing task performance but consistently low and decreasing member satisfaction. We reveal these results by looking at these issues through a surprisingly underutilized frame of reference. That is, we look at conflict resolution strategies at the group rather than individual level (i.e., individual conflict styles), and we induce multiple team-level strategies rather than look at or impose a single strategy (e.g., a cooperative frame). In that sense, we take a closer or more fine-grained look at team-level conflict resolution strategies than has been done in the past. Interestingly, our participant-driven categorization of team conflict management does loosely map onto current individual-level conflict management typologies (e.g., Blake & Mouton, 1964; Pruitt & Rubin, 1986; Rahim, 1983; Ruble & Thomas, 1976), and the results of the summary analysis are consistent with the underlying theory. Our results, for example, are consistent with existing conclusions about the benefits of integrative and collaborative approaches to managing conflict and the drawbacks of contending and avoiding approaches (De Dreu & VanVianen, 2001; Pruitt & Rubin, 1986; Tjosvold et al., 2003). The interesting addition to current literature from these results comes from comparing management of the three types of conflict between different outcome patterns. We propose, therefore, that, rather than by directly mapping existing individual-level conflict management "styles" onto our findings, the results of this study can be better characterized by Hackman and Morris's (1975) three criteria for team viability: (a) The team must meet the expectations of those who receive their work (i.e., performance); (b) the team needs to satisfy the individual needs of members in the group experience (i.e., individual member satisfaction), and (c) the process the group uses (e.g., conflict management tactics) must enhance its ability to work together in the future. We do, however, note where there is overlap between the individual conflict management styles literature and our own findings. We also discuss the results of the summary analysis in terms of how differences in conflict management focus reflect (or not) shared governance of team process (criterion #3) and how these are associated with outcome patterns (criteria #1 and #2). In short, we identify overlap with existing individual conflict management style typologies but do not try to force the categories where there is not complete conceptual agreement across levels of analysis.

The teams that were consistently high/increasing in performance and satisfaction represent fulfillment of all three team viability criteria. The focus these teams developed in their conflict management strategies was on "equity," or finding an appropriate (not necessarily equal) way for all members to contribute given their constraints (a mix of accommodating, collaborating, and compromising). They were most likely able to achieve performance goals and high individual member satisfaction by proactively securing solid understanding of the compromises and trade-offs both the team and individual members made in planning how to prevent potentially destructive conflicts. Stated in the language of the commonly cited "dual concerns" approach—these teams had both a concern for their task and a concern for integrating the interests of individual members. They took this approach to managing both task and process conflicts. Their norms at Time 1 and Time 2 were coded as functional, and they seemed to establish clear expectations and shared criteria for selection (e.g., of ideas and work distribution) if there was disagreement.

In contrast, the teams that were consistently high/increasing in performance but low/decreasing in satisfaction had more of a "rules" focus toward conflict management (a mix of competing/forcing and compromising). They were more focused on reacting

Table 5
Summary of Conflict Resolution Strategies Organized by Outcome Category

Type of conflict	Team patterns in applying conflict management strategies: Consistently high/increasing performance and satisfaction (21 teams, 55 conflict management units)	Consistently high/increasing performance, consistently low/decreasing satisfaction (11 teams, 33 conflict management units)	Consistently low/decreasing performance, consistently high/increasing satisfaction (11 teams, 46 conflict management units)	Consistently low/decreasing performance and satisfaction (14 teams, 40 conflict management units)
Task	Used *discuss/debate* and *open communication* to reach *compromise/ consensus.*	Used *compromise/consensus* and *voting.*	Used *discuss/debate* and *open communication* to reach *compromise/ consensus.*	Used *discuss/debate* and *compromise/consensus.*
	Non-emotional, fact-driven discussions helped team members understand how the group reached consensus. Conflicting views were explored and consensus was reached based on evidence that convinced all members.	Compromise was associated with a "majority rules" focus—if one member did not agree he/she conceded to the consensus of the majority. When this concession did not occur, these teams used more formal voting strategies to demonstrate consensus.	Discussion of different ideas was amicable and consensus centered on finding a way to incorporate all member's ideas rather than engaging in debate to select the best ideas.	Consensus was associated with either the group "giving in" to a dominant member or by individuals "giving in" because they were tired of arguing.
Relationship	Inconclusive: Only one team reported managing relationship conflict.	Used *discuss/debate* and *idiosyncratic solutions* to *avoid/ignore* conflicts. These teams explicitly discussed the impact of relationship conflict on the team and agreed it should not be allowed to impede performance. Members agreed to rules or procedures that enforced this agreement (e.g., cooling off periods).	Inconclusive: Only two teams reported managing relationship conflict.	Used *open communication.* These teams experienced severe interpersonal conflict, which members openly discussed. However, all teams reported this did not change or eliminate these conflicts.
Process	Used *discussion/debate* with *compromise/consensus* to employ *rotating responsibilities.* These teams forecasted scheduling and commitment conflicts and discussed quality of work concerns early. Work assignments were made to prevent predicted problems from occurring. Members made compromises in their schedules and work assignments to ensure quality of work.	Used *rotating responsibilities and idiosyncratic solutions.* They created rules or procedures to address previous time management or member contribution issues. Members agreed how to share (rotate) responsibility for correcting problems (e.g., empowering one member as an arbitrator, monetary penalties).	Inconclusive: Only two teams reported managing process conflict.	Used *rotating, responsibilities* and *avoided/ignored.* Rotating Responsibilities centered on "rotation" of work approaches or task strategies intended to correct previous process and performance problems. Units coded in the avoided/ignored category all reflected a lack of resolution.

to conflicts and structuring or creating rules to avoid the continued disruption in meeting performance goals than on preemptively planning to prevent such disruptions. This approach created a focus on task over integrating individual interests and is reflected in their majority-rules approach to task conflict, in the boundary conditions they set for managing relationship conflict, and in the arbitration approach they took for process conflict. As such, the disruptive impact of conflict was "managed" but, as reflected in the team norms accounts coded as troubled, the residual tension among members never completely subsided (they in fact agreed to "overlook" the interpersonal tension).

Reciprocally to these teams, the low/decreasing performance and high/increasing satisfaction teams developed an "equality" focus (very similar to an accommodating style) where complete accommodation of individuals took the place of rules or criteria for selection. While conclusions can be drawn from these data only

about task conflict management strategies, their strategies were heavily classified by participants as "avoidant," as they avoided difficult conversations in the interest of preserving interpersonal relationships and never really seemed to face the difficult task of integrating various interests and perspectives to create a superior team product. Thus, they maintained interpersonal harmony at the cost of relatively poor task performance.

Finally, the teams that were low/decreasing in performance and satisfaction took an ad hoc approach to managing conflict—roles were never clear; the root cause of problems was not identified nor successfully corrected; there was no central/coherent conflict management strategy; and communication came at a high cost. In the traditional conflict management typologies, these teams represent a double-edged mix of competing/forcing and avoiding styles. While these teams were willing to directly confront and argue about their interests, this process (as reflected in the team norms accounts) became an obstacle to working together effectively. As a result, teams tended to resign or make superficial accommodations to get past the conflict, which neither improved their task focus nor integrated the interests of members. For example, they resolved task conflict by either giving into a dominant member or spending too much time trying to convince 1 member; their discussion of relationship conflict usually escalated rather than resolved the problem; and their attempts to resolve process conflict centered on more superficial fixes such as trial and error with different processes. This is consistent with previous findings about teams that have difficulty establishing stable and functional conflict resolution approaches (see Argyris, 1982; Jehn & Mannix, 2001).

The second theoretical contribution of our work is to develop group-level theory about conflict resolution strategies. Taking a step back from the specific conflict resolution tactics we found, an underlying pattern emerges—one of two broad dimensions that describe how the matching of conflict resolution strategies with conflict create a pattern of group outcomes. We show this in Figure 2. Notice, for example, that the teams with mixed outcome changes during the performance episode (22 teams in this sample) demonstrate how a different conflict management focus, either creating rules in reaction to conflict versus accommodating all members to prevent it, can transform the impact of conflict. In the rules-focused teams, for example, the negative impact of process and relationship conflict was suppressed by their conflict management approach and enabled the group to engage in "healthy" debate-driven task conflict. However, a lack of focus on integrating individual interests into the team solution may have caused satisfaction to suffer, perhaps because peers had to enforce rules, and without rules members did not feel they could count on each other to behave in the best interests of the team. In the equality-focused

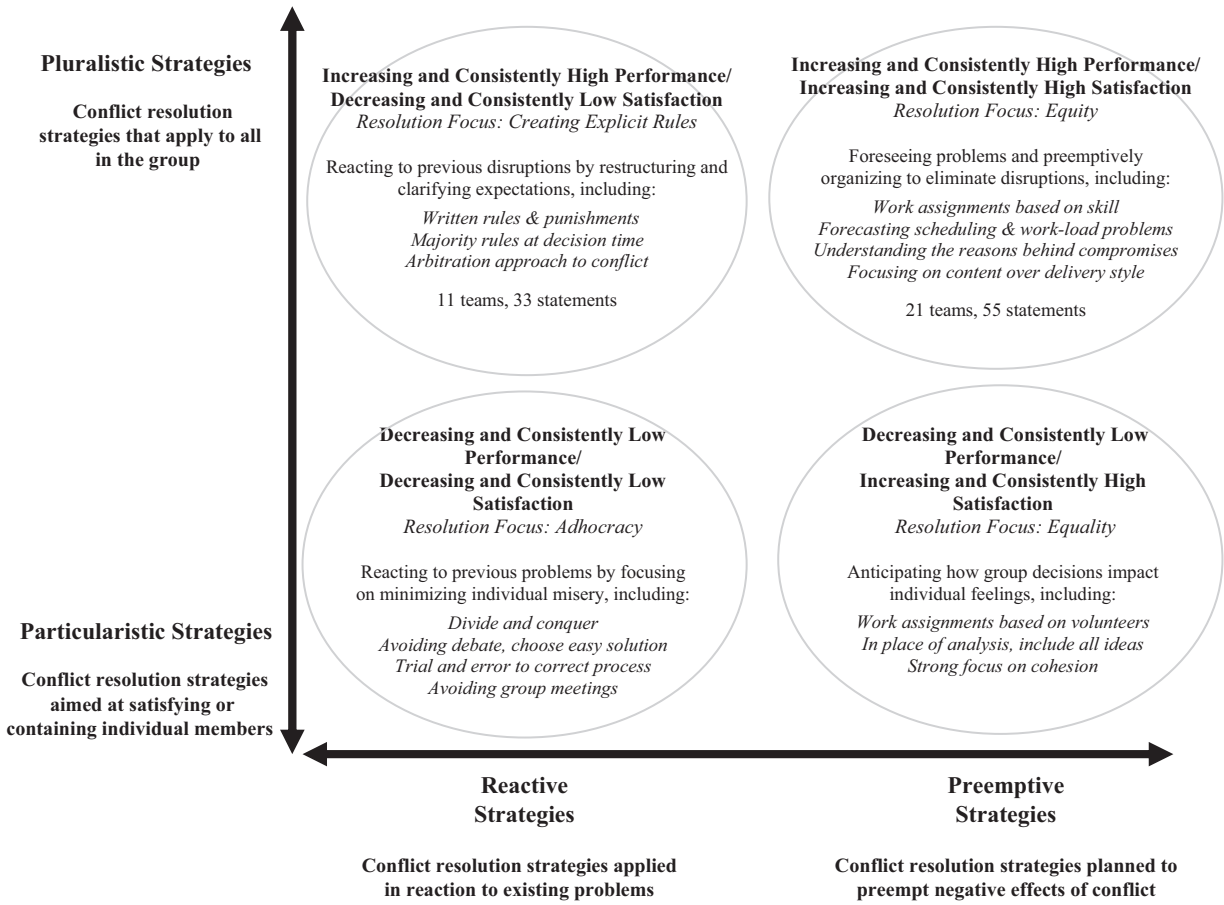

Figure 2. The role of conflict resolution in predicting group outcomes.

teams, there was very little mention of relationship or process conflict as their desire to suppress disagreement influenced the decisions they made in structuring their process. So, while preemptive prevention of conflict made team members feel good, their approach did not address bigger issues underlying task achievement (e.g., extracting member expertise).

Overall, we would argue that these results suggest a theoretical melding of findings from the conflict management literature and Hackman and Morris's (1975) widely cited team viability model. Figure 2, the summary of our key findings, could also be seen as an updated version of this model. These results can be summarized by two striking and interrelated differences that developed between teams in this study. Along the vertical axis, we categorize conflict management as particularistic versus pluralistic. Groups are considered pluralistic if they take a "whole-group" perspective in establishing processes that apply to everyone and are for the benefit of the task performance. A particularistic perspective, on the other hand, is one in which decisions are made to contain or respond to a particular person or situational conflict rather than to enhance the big picture of task performance. Teams with consistently high or increasing performance were more likely to have utilized group-level or pluralistic conflict management strategies (e.g., rules that clarify expectations and apply to all group members), whereas teams with consistently low/decreasing performance were more particularistic and focused on solutions to address individual negative reactions to conflict (e.g., dividing work according to "turns" rather than expertise so as not to upset individuals). Pluralistic conflict management strategies tended to be better at correcting or preventing the root cause of the conflict from continuing to impact the group.

Along the horizontal axis, we categorize conflict management as reactive versus preemptive (cf. Marks et al., 2001; Weingart, 1997). Groups are considered preemptive if they make decisions about group resources (time, member skills, materials, etc.) in a way that integrates individual interests by identifying issues and creating solutions to potential conflicts before they arise. A reactive orientation, on the other hand, is characterized by backward-looking decision making—with previous process mistakes and/or conflict experiences having higher salience in making decisions about how the group should work together in the future than have individual interests. This framework suggests that these strategies may be indicators of conflict management strategies that may or may not break negative spirals before they begin (Brett, Shapiro, & Lytle, 1998).

Overall, teams in the consistently high/increasing outcomes are the ones on a clearly positive trajectory and seem most likely to succeed over time. Figure 2 demonstrates how the intersection of viability criterion number one (performance) and two (satisfaction) affect a group's orientation toward the third (operationalized as conflict management in this study). That is, in order for a team to continue to adapt its processes to achieve performance expectations, it must also manage the social consequences (primarily the relationship and process conflicts) of group behaviors that decrease individual motivation to constructively contribute. Thus, our argument suggests why Figure 2 may represent an updated group viability model summarizing how different applications of conflict resolution strategies can be used to understand why group processes may or may not enhance prospective ability to work together at any given point in time. In sum, we have argued that the way a team manages conflict resolution and adapts its process is of paramount importance to understanding why teams struggle to sustain high performance and/or high individual member satisfaction over the longer term (Hackman & Morris, 1975; Homans, 1950; McGrath, 1964; see also Cordery et al., 1991; Goodman et al., 1988; Guzzo, 1982; Howell et al., 1990; Marks et al., 2001; Moorhead et al., 1998; Steiner, 1972). Our results suggest that it is not just the type of conflict a team experiences that matters; rather, how well conflict resolution strategies address a team-level balance between task and affect management is what yields team viability. An imbalance of one kind or another is associated with a threat to viability.

Limitations and Future Directions

Like all single studies, there are reasons for exercising some caution in generalizing our results. Our study has a number of interrelated strengths and limitations that are related to the sample chosen (i.e., an MBA classroom). First, the categories of resolution strategies used by MBA students may not apply to all work settings. We believe, however, that the external pressures, consequences, and intensity of their work together can provide a reasonable estimation for an organizational outcome to be investigated in future research. This study is only a first step in sketching an overall picture of relationships among conflict resolution strategies, conflict behaviors, and group outcomes. It was conducted to better understand qualitative differences in conflict management strategies in newly forming groups embedded in a relatively simple organizational system. The reward structure and incentives in this sample were relatively standardized compared with an organization with political and economic pressures.

The second limitation of our study revolves around group design. Our groups had complete autonomy to self-manage, whereas most organizational groups have team leaders or mangers that are likely to provide some direction or structure. The teams literature has paid scant attention to the influence of team design, authority, and feedback on group process (for an exception, see Hackman & Wageman, 2005). Although leadership is also often recognized as a structural variable (e.g., Gladstein, 1984), like most group studies that use student groups (autonomous by design), this study does not account or control for the influence of a manager on group process. Intervention of a legitimate authority and performance feedback can have a significant impact on how group process evolves.

The third limitation of our study revolves around the fact that performance feedback was given in the form of a grade rather than a discussion of performance as might be done in an organization. We cannot be entirely certain if teams were revising their process management strategies in reaction to previous process experiences or their grades since it was not observed nor discussed with them. So, although our results specifically suggest that performance feedback and benchmarking task accomplishment are important forces in shaping group process, our results should be interpreted with some caution because they were not delivered in a typical organizational format. The information given to a group through periodic feedback discussion and the legitimate authority of an appointed leader can be important mechanisms for helping a group self-correct a process routine (cf. Argyris, 1985). In addition, the ability to "blame" an external manager for critical feedback or an

outcome, rather than hearing it from and sharing responsibility with peers, may have a different impact on member satisfaction.

Finally, this study investigated only one performance episode. Future investigations should investigate multiple waves of work–feedback cycles to better assess causality between strategies and outcomes. The results of this study can indicate only the initial trajectory a team will have over time. Future research should also investigate how teams might change their process focus over time as well as how different types of task assignments (e.g., creative vs. problem-solving) may require a different conflict resolution focus, and it should more directly document the impact of accumulating performance and process feedback on evolving conflict management approaches. While functional background, gender, and so on, were randomly assigned in this sample, it is not likely to be so in the real organizations. Care needs to be taken to better control for covariates that might magnify between-teams differences (e.g., Cropanzano, Aguinis, Schminke, & Denham, 1999).

All of these limitations should not be overstated, however. Our study investigates autonomous groups that all started from exactly the same place and with the same resources in terms of time and talent. Like all organizational teams, they were under strong work pressure to produce outputs for others who evaluate their work where those evaluations of the work are consequential. Even so, we saw striking differences in the conflict-management strategies these teams employed that were associated with changes in satisfaction and performance over time. We have focused here, however, only on conflict and conflict resolution strategies. Other scholars have demonstrated related links between conflict and additional group-level variables such as diversity, efficacy, cohesions, and emotion (e.g., Ancona & Caldwell, 1992; De Dreu & VanVianen, 2001; Jehn, 1995, 1997; Jehn, Northcraft, & Neale, 1999; Jehn & Shah, 1997). More research needs to be done to fully understand the complex set of relationships between all of these variables. Most importantly, however, this study suggests that conflict resolution strategies in groups ought to receive greater attention in predicting team performance than has been the case to date.

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