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The Effects of Conflict Types, Dimensions, and Emergent States on Group Outcomes

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Abstract In this study, we examine three types of conflict (task, relationship, and process) and four dimensions of conflict (emotions, norms, resolution efficacy, and importance) in decision making groups. We also investigate emergent states (e.g., trust, respect, cohesiveness; Marks et al. 2001; Acad Manag Rev 26: 530–547) as mediating the effects of the conflict types and dimensions on group outcomes (productivity and viability). All three types of conflict decreased positive emergent states in groups and this led to a decrease in group viability (the ability of a team to retain its members through their satisfaction and willingness to continue working together; Balkundi and Harrison 2006; Acad Manag J 49: 49–68). This effect was alleviated by resolution efficacy (the belief that the conflict can be easily resolved) regarding process conflict, but could be exacerbated by any negative emotion associated with relationship conflict. Norms that encouraged task conflict also increased positive emergent states within groups, which marginally and positively influenced group performance.

Keywords Conflict types · Conflict dimensions · Team viability · Group performance · Emergent states

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1 Introduction

There has been a debate in organizational research regarding whether agreement or disagreement within groups is advantageous. While past conflict researchers (Amason 1996; Amason and Schweiger 1994; c.f. Barki and Hartwick 2004; Jehn 1995, 1997) have found relationship conflicts based on personality clashes and interpersonal antagonism to be detrimental to group performance and morale, and task conflicts to be beneficial, a recent meta-analysis by De Dreu and Weingart (2003) found both types of conflict to be negative. However, the meta-analysis was based on studies with, what we consider, a limited view of group conflict in that only two types of conflict (task and relationship) were investigated even though a third type of conflict (process conflict) has also been examined as influencing performance (Behfar et al. 2002; Greer and Jehn 2007; Hinds and Bailey 2003; Jehn and Mannix 2001), as well as various conflict dimensions (Jehn 1997). In addition, authors have recently commented that the conflict research of the last decade has focused on empirical studies and that a return to theory is needed to advance work beyond empirical tests of the two types of conflict covered in the meta-analysis (Mannix 2003; Medina et al. 2005).

In a qualitative study of organizational teams, Jehn (1997) developed a more elaborate theory of conflict types and dimensions which has yet to be tested, and which may help us better understand what is good and bad about conflict. She identified three types of conflict (task, relationship, and process) in organizational workgroups and an additional four separate dimensions of conflict that influence how the different conflict types affect group effectiveness (emotionality, acceptability norms, resolution efficacy, and importance). Thus, while other research has examined process conflict in addition to task and relationship conflict (e.g., Behfar et al. 2002; Greer and Jehn 2007; Hinds and Bailey 2003; Jehn and Mannix 2001; Vodosek 2005), examination of the dimensions of conflict is still lacking.

Much of the past research has also neglected to empirically examine the mediating mechanisms between conflict and group outcomes (c.f. Jehn and Bendersky 2003). Marks et al. (2001) distinguish between team processes and emergent states as two sets of factors that influence team outcomes. Team processes, such as conflict and communication, are interdependent team activities whereas emergent states are properties of a team that includes member attitudes, motivations, values, and cognitions (e.g., trust, respect, cohesiveness). Emergent states are not social processes but evolve in a group based on the interactive team processes (Mannix and Jehn 2004; Marks et al. 2001). For instance, conflict is an interactive social process that can influence the level of trust and respect in the group. Thus, trust and respect, for example, are emergent states influenced by this social process in the group that in turn influences team outcomes. We focus our study on conflict as a social process in teams that influences emergent states (e.g., trust, respect, cohesion) and examine emergent states as a mediating mechanism in explaining the effects of conflict types and dimensions on group performance and viability. Team viability refers to a team's ability to retain its members through attachment to the team and members' willingness to remain part of the team, thus incorporating both aspects of member satisfaction and their behavioral intent to continue working together (Balkundi and Harrison 2006; Barrick et al. 1998; Hackman 1987; Hackman and Wageman 2005). According to Balkundi and Harrison

(2006), team viability is a broad, group-level construct that reflects group member affect and behavioral intentions and is as essential for team functioning as is group performance for the success and continuation of a workgroup.

Our study contributes to research on group decision making and conflict by: (1) examining a more elaborate and fully specified model of the effects of conflict by considering not only multiple types but also multiple dimensions of group conflict (negative emotions, norms, resolution efficacy, and importance; e.g., Jehn 1997), (2) developing a new tool to measure intragroup conflict and its characteristics to capture these often neglected aspects, and (3) examining emergent states as explanatory mediators between the conflict types and group outcomes. We begin with a discussion of the basic conflict types most studied in past research (relationship, task, and process conflict) and then introduce the mediating mechanism of positive emergent states in the relationship between conflict and performance and viability. We follow this with the examination of moderating variables (norms, conflict-related emotion, resolution efficacy, and importance) that will determine under what conditions, if any, conflict can be useful for decision making groups.

2 Conflict Types

Relationship conflicts are disagreements and incompatibilities among group members regarding personal issues that are not task-related. Relationship conflicts frequently reported are about social events, gossip, clothing preferences, political views and hobbies (Jehn 1997). *Task conflicts* are disagreements among group members, concerning ideas and opinions about the task being performed, such as disagreement regarding an organization's current hiring strategies or the appropriate information to include in an annual report. While some research has shown that moderate levels of task conflict can be beneficial for specific types of performance under certain circumstances (e.g., nonroutine tasks, Jehn 1995; innovative tasks, De Dreu 2006), the majority of the research indicates that task conflicts, as well as relationship conflicts, hinder group performance and member satisfaction (c.f. De Dreu and Weingart 2003). An information processing perspective (e.g., Carnevale and Probst 1998) suggests that any type of conflict, including task-related conflict, interferes with cognitive processes needed to adequately process information and make effective decisions. In addition, a normal reaction to any type of conflict or questioning is frustration and dissatisfaction, regardless of the outcome (Ross 1989). This can also impede the willingness of members to work together in the future, or the viability of the team (Amason and Schweiger 1994; Jehn 1995).

There are many group-related work activities, some having to do with the actual task and others having to do with the process of doing the task or delegating resources and duties (Behfar et al. 2002; Hinds and Bailey 2003). Jehn (1997) delineated between task and process conflict based on findings of an ethnographic study of work groups. *Process conflicts* are disagreements about logistical and delegation issues such as how task accomplishment should proceed in the work unit, who's responsible for what, and how things should be delegated. We propose that process conflict is a conceptually separate and important form of conflict that is different from task and relationship

conflict and that has separate effects on group outcomes. This is in line with past conflict research which has also found process conflict to be a distinct form of conflict, separate from the other conflict types with its own unique dynamics (e.g., Behfar et al. 2002; Greer and Jehn 2007; Hinds and Bailey 2003; Jehn 1997; Jehn and Mannix 2001; Vodosek 2005). Conceptually, while task conflict is conflict over the content of the task, process conflict is about the logistical issues of the task or how to get the task done—the question of who should do what (process conflict) rather than what should we do (task conflict). Past theorizing on conflict has acknowledged these logistical based disagreements (e.g., 'conflicts of resources,' Kelley and Thibaut 1969; Rapoport 1960 or distributive conflicts, Kabanoff 1991) and past research on group processes in general has delineated task-content issues from task-process issues. For instance, Weingart (1992) found that group members distinguished between process and task aspects of group functioning. Process issues, according to the members, included planning and task delegation while task-content issues focused more on the content or goal of the task itself. Take a research and development team; when four researchers disagree about data interpretation and the meaning of the results, they are experiencing task conflict. If they argue about who is responsible for writing up the final report and who will make the presentation, they are having a process conflict.

3 Emergent States

The introduction of the concept of emergent states to the organizational group literature was done by Marks et al. (2001) with the intent to better clarify the input-process-output framework of teamwork effectiveness, with emergent states assisting in explaining the mechanisms by which group processes affect group outputs. Emergent states refer to the positive attitudes, values, motivations, and cognitions of group members that can directly influence group outcomes (Kirkman et al. 2004; Mathieu et al. 2006). Research suggests that positive emergent states such as trust and respect increase both performance and satisfaction by increasing the effort, positive attitudes, and cooperation of members (Costa 2003; Costa et al. 2001; Kanawattanachia and Yoo 2002; Klimoski and Karol 1976; Mannix and Jehn 2004). For example, respect as an emergent state impacts group performance and viability as it increases individuals' commitment to the group and their willingness to work cooperatively (De Cremer 2002, 2003; Simon and Stürmer 2003). Cohesion is another positive state in groups that can emerge and positively influence group functioning (Molleman 2005; Marks et al. 2001) as the individual members begin to identify with the team and focus on team outcomes. Cohesive members also strive to keep the group intact, thus increasing the likelihood of group viability. Positive motivational states that can emerge within teams increase members' effort toward task completion and increase the likelihood of high performance levels (Weldon et al. 1991). In this study, we examine the positive emergent state that exists in groups and is influenced by conflict to get an overall picture of how conflict affects group performance and viability.

These positive attitudes, values, and cognitions can emerge during task interaction as they are influenced by social interaction (Marks et al. 2001). We claim that these positive states are less likely to emerge in groups with conflict, given that conflict is

typically considered a negative social process (Coser 1965; c.f. Jehn and Bendersky 2003; De Dreu and Weingart 2003) that decreases members' positive attitudes and cognitions towards the group. The scant research that has been conducted empirically using the theoretic bases of emergent states has examined the positive states (trust, respect, cohesion, empowerment) that emerge and their positive effects on group functioning and outcomes (e.g., Kirkman et al. 2004; Mannix and Jehn 2004; Mathieu et al. 2006); however, we believe that it is also critical to look at conditions under which these emergent states are less likely to emerge or more likely to be eroded due to a negative social process such as conflict. Given that negative events have been found to explain outcomes more strongly than positive events in many arenas such as individual perceptions and judgments (c.f., Labianca and Brass 2006; see Taylor 1991, for a review), we propose to investigate conflict as a negative social process influencing the emergent state of task-focused groups to more fully explain the way in which conflict influences group outcomes.

While we are building on the framework of emergent states to explain the effect of conflict on group performance and viability (Kirkman et al. 2004; Marks et al. 2001; Mathieu et al. 2006), research has suggested that aspects such as trust and respect should be considered separately (e.g., Cronin and Weingart 2006). Therefore in addition to the general rationale for emergent states as a mechanism that influences group performance and viability (Marks et al. 2001), we provide examples of how conflict influences trust, respect, and cohesion in a manner consistent with the emergent state framework. Conflict has been found to cause extreme problems in work groups (Amason 1996; Evan 1965), inhibiting the formation of trust and respect among members (Langfred 2007; Porter and Lilly 1996). Members' constant challenging of each others' opinions, skills, and preferences (i.e., task, process, and relationship conflict, respectively) can impair the trust relationships within the group. For instance, if debates arise among members about appropriate duty and reward allocations, or the best member to do the job or get the funding, this can challenge the level of trust among members by decreasing trust about who is capable of doing what (and also about the respect of each others skills and abilities; Jehn and Mannix 2001; Porter and Lilly 1996). By disagreeing with a decision regarding a task allocated to another group member, members may appear to make a negative assessment of other members' abilities and competencies. This can quickly turn personal, as perceptions of injustice may arise, and negative affect is likely to result (Costa 2003; Greer and Jehn 2007; Judge et al. 2006; Kanawattanachia and Yoo 2002). This conflict over skills and abilities can decrease the level of trust, or the positive emergent state in the group, and impair both the performance and viability of the group through decreased cooperation and information sharing, as well as causing increased levels of negative affect (Costa 2003; Costa et al. 2001; Klimoski and Karol 1976).

According to the emergent state literature, the foundation for positive states such as trust and respect among team members is the constructive group atmosphere regarding attitudes, values, and motivations (Mannix and Jehn 2004; Marks et al. 2001). The potential for these positive states can be lost as group members are unable to verify their own and others' views in an open, accepting environment (Swann et al. 2004). Conflict and questioning of members opinions regarding the task (task conflict), the group relationships (relationship conflict), or the process (process conflict)

decreases the positive state in the group. According to self-verification theory (Swann et al. 2004), conflict can be seen as a challenge to one's own perspective (regarding any of the conflict contents: task, relationship, or process) and can thus decrease the ability of members to trust their immediate environment, or in this case, the other group members. When members challenge and question others within the group, the victims can perceive this as lack of respect for their opinions or abilities. A lack of respect, wherein a member's dignity or status is questioned, may cause negative affect (Bies 1987), which can impair the performance and viability of the team (Brief and Weiss 2002). In contrast, high levels of respect have been shown to increase group members' commitment and feelings of belongingness to the group as well as their willingness to work cooperatively (De Cremer 2002, 2003; Simon and Stürmer 2003). Therefore, conflict in groups decreases the positive emergent states (i.e., trust and respect) which in turn decreases group performance and viability.

The literature on emergent states also suggests that conflict (a social process) can decrease levels of cohesion within a group (Marks et al. 2001). For example, relationship conflicts or heated debates about the group task can disrupt the feelings of connectedness or a positive overarching team identity in the group due to the negative attitudes (e.g., decreased satisfaction with group members; De Dreu and Weingart, 2003; Jehn, 1995) that are often associated with relationship conflict (Jehn 1997; Peterson 1983; Ross 1989). We therefore suggest that members will not feel as connected to each other (i.e., cohesive as a group) after a relationship conflict because of the interference to the positive atmosphere with regards to group identity and cohesiveness (Peterson, 1983). The negative affect associated with relationship conflict weakens the cohesion among members, thus decreasing members intention to continue working in the group. In addition, empirical research has found that interpersonal conflict leads to lower performance and decreased willingness to remain in the workgroup (Schwenk and Cosier 1993). Therefore, we propose a mediating chain between conflict, positive emergent states (e.g., trust, respect, cohesiveness), and group performance and viability of a group such that:

Hypothesis 1 Conflict (relationship, task, and process) is associated with a decrease in positive emergent states.

Hypothesis 2 Positive emergent states are positively associated with group performance and viability.

Hypothesis 3 Positive emergent states in workgroups mediate the relationship between conflict and group effectiveness; that is, conflict is associated with a decrease in positive emergent states that thus decreases group performance and viability.

4 Conflict Dimensions

While the types of conflict (relationship, task, and process) have been researched quite a bit recently (e.g., De Dreu and Van Vianen 2001; Ensley et al. 2002; Greer and Jehn 2007; Jehn and Mannix 2001; Pearson et al. 2002), Jehn's (1997) other dimensions of conflict have not been empirically examined. We therefore propose a more complete model of conflict by also examining her four dimensions as moderators of the

effects of conflict in workgroups. Jehn (1997) proposed that we can broaden the understanding of the negative (and potentially positive) effects of conflict in workgroups by examining not only the type of conflict present (task, relationship, or process) but the group attitudes and beliefs surrounding conflict that also influence how the conflict is perceived and reacted to in the group setting. Therefore, in a qualitative study of high and low performing organizational workgroups, she identified a set of factors that exacerbate the negative effects of conflict (emotionality, importance), that alleviate the negative effects (resolution potential), and that enhance the potential positive effects (acceptance norms). In this study, we theoretically develop and empirically examine her qualitatively developed framework of conflict dimensions as moderators that can help clarify under which conditions conflict may not always have a negative effect on emergent states within a group.

4.1 Negative Emotion

An important aspect of conflict in groups, when considering team effectiveness, is negative emotion (Barki and Hartwick 2004; Barsade 2002; Kelly and Barsade 2001). Jealousy, hatred, anger, and frustration are negative emotions often associated with conflict (Pinkley 1990) that can adversely affect group processes and performance. According to Jehn (1997), these negative emotions can be present with any of the types of conflict and it is the degree of emotion involved that influences the effect of conflict, not only the type of conflict. When members feel negative emotions associated with conflict, they are less likely to focus on the task and work effectively (Argyris 1962; Ross 1989). Trust, respect, and cohesion (positive emergent states) are likely to be reduced when interpersonal conflicts include strong components of negative emotions such as frustration and anger (Baron 1991; Costa 2003; Costa et al. 2001; Mannix and Jehn 2004). In sum, negative emotions tend to overrun rational and thorough reasoning (Thomas 1979), interfere with the existence of positive emergent states within the group, and thus exacerbate the negative effects of conflict. Therefore, we propose that:

Hypothesis 4 Negative emotions moderate the relationship between conflict and emergent states; that is, the greater the negative emotion within the group, the greater the negative effect of conflict on positive emergent states.

4.2 Resolution Efficacy

While much conflict research has examined conflict resolution (e.g., Brett 1984; Brown 1983; Lewicki et al. 1992) and other research has examined types of conflict (e.g., Amason 1996; Jehn 1995), the two lines of research have not been thoroughly integrated (c.f. Weingart and Jehn 2000). Jehn (1997) notes that while prior research on conflict resolution assumes that all conflicts should be resolved, some conflicts can lead to advantageous effects (i.e., task conflict) and therefore should not necessarily be immediately resolved. However, she found that the best predicator of high performance was that team members felt capable of resolving the task conflicts (as well

as relationship and process conflicts), which we term resolution efficacy. When team members believe they can resolve ensuing conflicts, their communication and levels of interpersonal respect increase, thus enhancing the positive emergent states beneficial for team effectiveness.

Resolution efficacy, the belief that the conflict can be easily resolved, is based on the theory of collective efficacy (Bandura 1986). Collective efficacy is a general concept in groups about their ability to succeed (Bandura 1986; Jehn and Bendersky 2003). The collective efficacy (Bandura 1986) that team members feel regarding conflict (resolution efficacy) is a critical component to developing positive emergent states. Thus, resolution efficacy is related to the beliefs in the group that the members are able to resolve whatever conflicts may arise (e.g., how likely do you think it is that your group can resolve this conflict?). The positive affect and increased self-esteem associated with efficacy (Bandura 1986), and specifically, resolution efficacy, reduces the likelihood that group members will perceive the conflicts as detrimental to their group atmosphere, or the positive emergent state in the group. This belief that conflict can be resolved increases the likelihood that conflict will lead to positive emergent states. Therefore, we propose that:

Hypothesis 5 Resolution efficacy moderates the relationship between conflict and emergent states; that is, in groups in which members believe they have the ability to resolve the conflict, the negative effects of conflict on positive emergent states will be weaker than in groups in which members lack the belief that they have the ability to resolve the conflict.

4.3 Importance of Conflict Episode

While past literature on conflict management and negotiations has included the size or scope of the conflict issue as a relevant concept (Thomas 1992; Peterson 1983), this dimension has not been directly linked to the conflict types. Jehn (1997) proposes the dimension of importance to refer to the size or intensity of the conflict to those involved and proposes that when the conflict is viewed as very serious it will strengthen the negative influence of the conflict. A conflict is perceived as more serious when it involves more people, more events, or more influence over future processes and outcomes. This is consistent with an escalation view of conflict: certain conflicts (i.e., those seen as important or especially serious) evoke increasingly strong reactions and become more difficult to manage effectively (Pruitt and Rubin 1986). Bercovitch and Langley (1993) consider the importance of the conflict as a critical aspect in the nature of a dispute which increases the risk of escalation and, we propose, decreases the likelihood of positive emergent states within a workgroup. Therefore, regarding the third dimension of conflict in Jehn's (1997) model, we propose that:

Hypothesis 6 Importance of the conflict moderates the relationship between conflict and emergent states; that is, the greater the importance of the conflict, the greater the negative effect of conflict on positive emergent states.

4.4 Conflict Norms

Past theorizing suggests that communication norms about conflict will influence the degree to which the conflict is ultimately detrimental or beneficial to the group (Brett 1984; Tjosvold 1991). If group members feel that it is appropriate and acceptable to openly discuss their differing opinions, disagreements are more likely to have a positive effect on the group than when disagreements are discouraged or avoided. In Jehn's earlier research (1995), she proposed that open communication norms regarding conflict in general would increase performance; however, she found mixed results and a specific negative impact of openness of conflict discussions on group performance. Her later research (1997) indicated more concretely that while norms regarding task conflict should be open and accepting, norms regarding open discussion of relationship conflict should be less encouraging. If the norms in the group allow open communication about conflicts regarding task issues, members will willingly discuss task problems without feelings of threat or challenge (Jehn 1997) which can decrease positive group states such as feelings of trust, respect, and cohesiveness within the group (Tjosvold 1991). However, according to Jehn's results (1997), groups that promote open discussions regarding non-task, personal issues (i.e., relationship conflict) will have lower levels of cohesiveness. The open communication norms about relationship conflict exacerbates the intensity and negative effects on the group. If members are allowed to openly criticize each other regarding personal issues not related to the task (e.g., personal appearance, political viewpoints, lifestyle issues; Jehn 1994), the respect and trust members have for each other can be damaged (Langfred 2007). Therefore, we propose that open communication norms regarding relationship conflict will strengthen the negative relationship between relationship conflict and positive emergent states.

We also predict that the more open the communication norms are about process conflict, the weaker the negative effect of process conflict on positive emergent states. Process conflicts regarding who should do what, or who is capable of what, can challenge members' feelings of competency (Jehn and Mannix 2001; Behfar et al. 2002; Porter and Lilly 1996) which can cause issues of blame and perceptions of inequity in the group (Bies 1987; Hinds and Bailey 2003; c.f. Jehn and Bendersky 2003). Such perceptions of inequity can then lead to "moral outrage" (Bies 1987), where group members have been found to feel anger and hostility towards the situation (e.g., Judge et al. 2006). If process conflicts are seen as an acceptable topic to openly discuss within the group, then the negative effects of perceived injustices and blaming may be weakened. The norms will dictate that the focus of the process discussion is on improving the task procedure (Jehn 1997), and not on personal attacks of members' abilities. The goal will be to get the best procedure for the task, and therefore the positive atmosphere in the group will be better than if the norms inhibit discussions about delegating and task assignments. The process debates are then more likely to be interpreted as a constructive group discussion about accomplishing the common task goal than as personal, non-task-related attacks on members.

The conflict norm profile described above allows constructive open debates about the task and its process but not critical, personal attacks detrimental to the group and

positive emergent states. Therefore, we propose separate effects of norms regarding the discussion of task, process, and relationship conflict as follows:

Hypothesis 7 Open norms moderate the relationship between conflict and positive emergent states; more specifically:

Hypothesis 7a The more open the norms about *task conflict* are within the group, the *weaker* the negative effect of task conflict on positive emergent states.

Hypothesis 7b The more open the norms about *relationship conflict* are within the group, the *greater* the negative effect of relationship conflict on positive emergent states.

Hypothesis 7c The more open the norms about *process conflict* are within the group, the *weaker* the negative effect of process conflict on positive emergent states.

In sum, we propose that the effect of conflict on positive emergent states will be moderated by the level of negative emotion associated with the conflict, the importance of the conflict, the resolution efficacy, and the norms surrounding the conflict types. We predict that the negative effects of conflict will be exacerbated by the negative emotion associated with and the importance of the conflict, and alleviated by the resolution efficacy (or the belief that the conflict can be resolved). In addition, open communication norms about process and task conflict are expected to weaken the negative effect on emergent states but strengthen the negative effects of relationship conflict.

5 Methods

5.1 Participants and Procedure

The participants (n = 223) were students at a business school in the Northeastern United States enrolled in a Strategic Management class. Fifty-three self-selected groups participated in the study, with an average of 4.4 members per team (no significant effects were found for group size): 37% of the subjects were female, and 9% were born and raised outside of the US. The age ranged between 18 and 56, with an average of 29.6 years. The work experience ranged from zero to 38 years of full time employment, with an average of 6.9 years. All of the participants were either practicing managers or business students who already held executive positions or were likely to become managers within a year or less. A variety of functional backgrounds and industries of employment were represented. The highest represented background subgroups were finance (25.1%) and consulting (12.3%). No significant outcome differences were found between any of the subgroups, and none of the demographic factors significantly affected our dependent variables.

The subjects played the role of a team of consultants, hired to introduce and convince managers to adapt a decision support system, all in a specific organizational context. The exercise consisted of four stages: (1) Individual preparation (1½ h); (2) Group strategy formulation (3 h); (3) Group strategy execution (3 h) and (4) Exercise debrief

(1½ h). After forming teams, each participant received a preparation package, which contained a description of the task and background information about the simulated organization: its history, structure, and names, positions and personal histories of top executives. The package also included an explanation about the purpose of the exercise and answers to frequently asked questions. After examining the background materials, the subjects met in their groups for approximately 3 h to create a strategic plan for accomplishing the simulated task (planning time was controlled for in the analyses). With the subjects' permission, the formulation session was videotaped. Twenty-four hours after the completion of the formulation session, team members met again, this time in a computer laboratory, for the execution stage and post-experimental survey. During this stage, the subjects input their strategy, one tactic at a time, to the simulation software. Each implemented tactic decreased the amount of game "days" left, and provided the team with immediate responses by the software, describing the consequences of the tactic implemented. The subjects had access to all the background materials they had received and could also review the software log, which recorded all the tactics used until that point and their consequences. The simulation session lasted 3 h. Then, the software calculated an objective score of success that can be compared across teams (the number of managers who adopted the proposed system). One week later, the subjects met with an instructor to discuss various issues pertaining to the exercise, such as strategic planning, group decision-making, and group conflict, and were debriefed regarding the research study.

5.2 Measures

We used three measurement methods: self-report surveys, video ratings, and objective computer generated performance scores. All survey items were measured on a 1–7 Likert scale.

5.2.1 Conflict Types and Dimensions

Based on Jehn (1997) and past research using the Intragroup Conflict Scale (Jehn 1995; Pearson et al. 2002), we developed 52 items regarding conflict types (relationship, task, and process) and dimensions (see Tables 1–3). We adapted the past conflict scales (Jehn 1995; Pearson et al. 2002) by deleting emotion terms so that the conflict type scales would reflect only conflict content level (c.f. Barki and Hartwick 2004). We then developed items related to the emotional aspects of conflict, the importance or seriousness of the conflict, and the resolution efficacy and norms based on Jehn and colleagues' survey versions (Jehn 1995; Jehn and Mannix 2001; Jehn et al. 1999) and assessments of the ICS (Intragroup Conflict Scale; Pearson et al. 2002), the Rahim Organizational Conflict Inventory (Rahim and Magner 1995), and Jehn's (1997) conceptualizations, elaborated on conceptually in Jehn and Bendersky (2003). Our items for task conflict are similar to the resultant items of Pearson et al.'s (2002) refinement of the ICS in the task topic terminology (e.g., "ideas," "opinions," "decisions"). However, we deviate from their refined scale in that our relationship conflict items, as stated above, are intentionally void of emotion terms (e.g., "anger," "friction," "tension"),

Table 1 Factor analysis structure matrix[a]*

Items	Component		
	Task conflict	Relationship conflict	Process conflict
**How much fighting about *personal* issues was there in this team?	.14	**.84**	−.43
We disagreed about *non-work* (social or personality things).	.15	**.87**	−.31
We fought about *non-work* things.	.05	**.91**	−.29
Sometimes, people fought over *personal matters*.	.23	**.80**	−.28
We fought about *work matters*.	**.77**	.16	−.46
We had *task-related* disagreements.	**.80**	.11	−.46
How much conflict *of ideas* was there in this team?	**.85**	.11	−.36
How different were members' *viewpoints* on decisions?	**.86**	.14	−.42
How much did this team have to work through disagreements about varying *opinions*?	**.83**	.08	−.33
We often disagreed about *work things*.	**.91**	.22	−.49
How much disagreement was there about *delegation issues* within this team?	.37	.35	−**.85**
We disagreed about the *process* to get the work done.	.47	.19	−**.82**
To what extent did this team disagree about the *way to do things* in the team?	.53	.25	−**.84**
How much disagreement was there about *task responsibilities* within this team?	.30	.52	−**.76**
Eigenvalues	5.87	2.66	**1.33**

Bold represent factors

[a] Extraction Method: Principal Component Analysis. Rotation Method: Oblimin

* We have included all initial items of the newly developed Extended Intragroup Conflict Scale despite the results showing some double-loaded items above .40 (Cohen and Cohen 1983)

** Introductory statements were as follows: Task conflict: "Please answer the following about the level of *task conflict* in your team during this exercise (as opposed to non-work, personality-like conflicts which we will later call *relationship conflicts*)." Relationship Conflict: "Please answer the following about the level of *relationship conflict* in your team during this exercise (as opposed to the above *work or task-focused conflicts*)." Process conflict: "Please answer the following about the level of *process conflict* in your team during this exercise. *Process conflicts* are disagreements about how to do a task and includes discussions about who should do what and how"

which are now used to capture the negative emotion dimension of each type of conflict (e.g., "There was tension surrounding process conflicts."). Please see Table 2 for items referring to the dimensions of conflict.

Initial factor analyses of all fifty-two conflict items with an oblique rotation indicated five distinct constructs: level of conflict, emotions, importance, norms, and

Table 2 Factor analysis structure matrix[a*]

Items	Component		
	Negative emotions	Importance	Resolution efficacy
People in our team got *emotionally upset* about relationship conflicts.	**.72**	−.19	−.06
Emotional displays about interpersonal conflicts (yelling, angry tone) were sometime evident.	**.85**	−.19	−.04
There was *tension* surrounding interpersonal conflicts.	**.85**	−.20	−.13
There was *emotion* involved in our interpersonal conflicts.	**.86**	−.26	−.05
Emotional displays about task conflicts (yelling, angry tone) were sometime evident.	**.71**	−.39	−.11
People in our team got *emotionally upset* about our work conflicts.	**.81**	−.41	−.12
There was *tension* surrounding work conflicts.	**.80**	−.43	−.09
There was *emotion* involved in our work conflicts.	**.74**	−.44	−.06
People in our team got *emotionally upset* about process issues.	**.68**	−.15	−.17
There was *tension* surrounding process conflicts.	**.80**	−.16	−.18
There was *emotion* involved in our process conflicts.	**.75**	−.39	−.05
Emotional displays about process fights (yelling, angry tone) were sometime evident.	**.81**	−.21	−.15
Our interpersonal relationship conflicts were about *important* issues.	.45	**−.79**	.19
These interpersonal conflicts were often about an *important problem*.	.35	**−.81**	.23
Our interpersonal relationship conflicts were about *important* things.	.37	**−.82**	.23
Task conflicts were often about an *important problem*.	.28	**−.87**	.19
Our task conflicts were about pretty *important issues*.	.21	**−.90**	.16
Our task conflicts were about *important* things.	.22	**−.88**	.14
Our process arguments were about *important issues*.	.22	**−.82**	.40
Our process conflicts were about *important things*.	.23	**−.86**	.35
These process conflicts were often about *critical issues*.	.25	**−.76**	.49

Table 2 continued

Items	Component		
	Negative emotions	Importance	Resolution efficacy
Disagreements about relationships were easily *resolved*.	−.01	−.32	**.76**
Relationship conflicts were usually *resolved*.	.12	−.40	**.76**
We *resolved* our relationship conflicts.	.11	−.42	**.75**
If task conflicts arose, we believed we could *resolve* them quickly.	−.37	−.11	**.45**
Disagreements about the *specific work* being done were easily resolved.	−.07	−.20	**.53**
We *resolved* our task conflicts.	−.12	−.33	**.55**
Disagreements about process were easily *resolved*.	−.24	−.13	**.82**
If process conflicts arose, we believed we could resolve them *quickly*.	−.15	−.04	**.76**
Conflicts about who would do what were usually *resolved*.	−.24	−.07	**.79**
Disagreements about who should do what were usually *resolved* in this team.	−.17	−.13	**.79**
Eigenvalues	8.88	2.72	6.68

Bold represent factors

[a] Extraction method: Principal component analysis. Rotation method: Oblimin

* We have included all initial items of the newly developed Extended Intragroup Conflict Scale despite the results showing some double-loaded items above .40 (Cohen and Cohen 1983)

resolution efficacy. We then verified the subconstructs (emotions, importance, norms, resolution efficacy) according to the hierarchical group-factor profile technique to determine common and specific factors (Child 2006; Thompson 2004; see the work of Guilford on the structure of intelligence for an applied example; 1966; 1988). This is a suggested method to present and validate factors and robust subfactors (e.g., "open norms" related to each conflict type, in this study, or "evaluation" as one of the 5 subcategories of the "operation factor" of intellect; Guilford (1988); Hoepfner and Guilford (1965)). The factor analysis of conflict types showed 3 factors—relationship, task, and process conflict (see Table 1)—consistent with past research (Jehn 1995; Jehn and Mannix 2001).[1] The cronbach alpha for relationship conflict was .89, for task conflict .90, and for process conflict .83. Table 2 is the factor analysis of the items related to

[1] In the Tables we include the entire Extended Intragroup Conlfict items initially developed to facilitate future investigations of this scale despite some double loadings above the .40 level (Cohen and Cohen 1983). Hypothesis testing using scales without the double-loaded items show similar results to those presented here.

Table 3 Factor analysis structure matrix[a]*

Items	Component		
	Relationship conflict norms	Task conflict norms	Process conflict norms
Our group *norms* allowed us to argue about non-work things.	**.76**	.30	.30
Fights about personal matters were *allowed*.	**.88**	−.17	.38
It is/was *okay* to fight about non-work things.	**.90**	−.04	.39
How comfortable did your team members feel *questioning* each others' ideas?	.10	**.92**	.12
We were *open* about task disagreements.	−.06	**.93**	.13
Our *norms* allowed us to openly argue about process matters.	.28	.44	**.81**
Disagreements about who should do what were *encouraged*.	.49	−.26	**.79**
Eigenvalues	2.77	1.94	**.92**

Bold represent factors

[a] Extraction Method: Principal Component Analysis. Rotation Method: Oblimin

* We have included all initial items of the newly developed Extended Intragroup Conflict Scale despite the results showing some double-loaded items above .40 (Cohen and Cohen 1983)

the general conflict subfactor dimensions determined by the hierarchical group-factor profile technique: emotions, importance, and resolution efficacy. The cronbach alpha for negative emotions was .93, for importance .95, and for resolution efficacy .89. The open communication norm items were then factor analyzed to determine, as suggested by hypothesis 7, that separate norms exist for each type of conflict. The factor analysis distinguishing norms by type of conflict is shown in Table 3. The cronbach alpha for relationship conflict norms was .84, for task conflict norms .70, and for process conflict norms .55. In addition to the first set of analyses above (assessing the types and dimensions as separate subconstructs), we also conducted factor analyses on each type of conflict and its dimensions (e.g., process conflict items, process conflict norm items, process conflict emotion items, and items concerning the resolution efficacy of process conflict) separately and found distinct factors for each of the four constructs for each type of conflict (type, emotions, norms, importance, resolution efficacy). By conducting these second sets of analyses recommended by the subconstruct factor analysis (Child 2006; e.g., Guilford 1988), we found validation of the 4 conflict dimensions per each type. In this procedure, all process items, for example, are analyzed for subconstructs. When the analysis is forced by conflict type and the item integrity remains (as it did; that is, the same items reflecting each construct) then it is presumed that this factor structure is stable and construct and discriminant validity are sound (Child 2006; Thompson 2004).

5.2.2 Emergent States

Our measure of emergent states (i.e., positive attitudes, values, motivations, and cognitions of group members) included nine items reflecting trust, respect, and cohesiveness that were answered both by the participants as well two coders blind to the hypotheses who watched the videotapes of the teams' interactions. Items reflecting positive emergent states included the questions "Did team members trust each other completely?", "Were team members honest with each other?", "Were team members competent?", "Did you feel comfortable delegating important functions to other team members?", "Did you respect your team members?", "Did team members have a high opinion of one another?", "How well did members seem to know each other in this team?", "How close is the relationship among the people in this team?", and "How concerned were they about maintaining a friendship with the other team members?" The percent agreement of the raters on average across items was 87% with a range of 74% ("Were team members honest with each other?") to 100% agreement ("Were team members competent?"). The overall reliability for the combination of these items across methods was acceptable, with the cronbach alpha equaling .76 and the ICC[1] tests showing a significant relationship between video tape and survey ratings (ICC[1] = .20, $F(1, 53) = 2.49$, $p < .001$) (Klein and Kozlowski 2000).

5.2.3 Group Performance and Viability

The simulation calculated an objective score of success for each team—the number of managers who adopted the proposed system, with penalties subtracting for time delays. Our measure of team viability (Balkundi and Harrison 2006) included four items reflecting member satisfaction and member willingness to do another task with the team ("How satisfied were you working in this team?", "To what extent would you like to participate in another task with the same team members?", "If you could have left this team and worked with another team, would you have?" (reverse-coded), and "I found it enjoyable to work with the other members of my team."), and the cronbach alpha was .82.

5.2.4 Aggregation

To confirm the appropriateness of aggregating our measures, we looked at the intraclass correlation coefficients (ICC[1]s), which estimated the proportion of variance in the outcome variables between groups over the sum of between- and within-group variance. Significant F-tests indicated that aggregation was appropriate for all group variables (Klein and Kozlowski 2000). Specifically, we found task conflict (ICC[1] = .34, F(1, 223) = 671.78, $p < .001$), process conflict (ICC[1] = .17, F(1, 223) = 479.01, $p < .001$), relationship conflict (ICC[1]=.06, $F(1, 223) = 706.23$, $p<.001$), relationship conflict norms (ICC[1] = .03, F(1, 223) = 500.05, $p < .001$), relationship conflict negative emotions (ICC[1] = .15, F(1, 223) = 391.43, $p < .001$), relationship conflict importance (ICC[1] = .14, F(1, 223) = 181.06, $p < .001$), relationship conflict resolution efficacy (ICC[1] = .01, F(1, 223) = 1038.07, $p < .001$), task conflict norms (ICC[1] = .18, F(1, 223) = 2560.89, $p < .001$), task conflict

negative emotions (ICC[1]=.43, F(1, 223) = 178.18, $p < .001$), task conflict importance (ICC[1] = .16, F(1, 223) = 515.32, $p < .001$), task conflict resolution efficacy (ICC[1] = .16, F(1, 223) = 3342.28, $p < .001$), process conflict norms (ICC[1] = .04, F(1, 223) = 1092.21, $p < .001$), process conflict negative emotions (ICC[1] = .32, F(1, 223) = 285.59, $p < .001$), process conflict importance (ICC[1] = .16, F(1, 223) = 374.55, $p < .001$), process conflict resolution efficacy (ICC[1] = .13, F(1, 223) = 2242.52, $p < .001$), emergent states (ICC[1] = .39, F(1, 223) = 5572.11, $p < .001$), and viability (ICC[1] = .26, F(1, 223) = 4312.73, $p < .001$) to all show significant between group variation.

5.3 Data Analysis

Means, standard deviations, and correlations are shown in Table 4. As seen in Table 4, all three conflict types—process, relationship, and task—were negatively and significantly correlated with positive emergent states and group viability. Emergent states positively affected viability, and performance and viability also showed a positive, significant relationship.

We used hierarchical regression analysis to test our hypotheses. All independent and moderating variables were centralized, according to the procedure of Aiken and West (1991). We initially controlled for gender, race, and group size, but as they did not affect our model they were removed from further analyses. We did retain planning time as a control variable. During the course, students were allowed varying amount of time to prepare for the simulation. This time is important to control for when looking at how the relationships developed in the groups and how the groups ultimately performed, as planning time has been shown to have a significant impact in other research (Weingart 1992).

6 Results

6.1 Hypotheses Tests

We hypothesized that conflict of all types would be negatively associated with the quality of emergent states within the group (H1). As seen in Table 5 this hypothesis was supported; all three types of conflict (task, process, and relationship) were significantly negatively associated with the quality of emergent states in the group.

We further hypothesized (H2) that the quality of emergent states would be positively associated with group performance and viability. This was partially supported as emergent states were significantly, positively related to viability, and marginally positively related to performance (see Table 6).

To test if emergent states mediated the relationship between conflict types and group performance and viability (H3), we employed mediation analyses (Baron and Kenny 1986). To establish traditional forms of mediation, a four-step process is required. First, a significant relationship needs to be shown between the independent variable (conflict) and the mediator (emergent states). Secondly, a significant relationship

Table 4 Means, standard deviations (SD), and correlations among variables ($n = 60$)

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Planning time	126.90	26.34																		
2. Task conflict	3.47	.98	.23																	
3. Task conflict emotions	1.83	1.00	.18	.66**																
4. Task conflict resolution efficacy	5.89	.73	.07	−.23	−.29*															
5. Task conflict importance	4.03	1.38	.29*	.48**	.24	.10														
6. Task conflict norms	5.31	.81	.06	.19	.21	.42**	.19													
7. Relationship conflict	1.48	.82	.01	.49**	.46**	−.30*	.17	−.01												
8. Relationship conflict emotions	1.34	.48	−.06	.38**	.64**	.53**	.05	−.16	.72**											
9. Relationship conflict resolution efficacy	5.18	.29	−.01	−.02	.06	.54**	.28*	.35**	−.16	−.16										
10. Relationship conflict importance	2.46	1.38	.15	.34**	.28*	.04	.51**	−.05	.23	.22	.23									
11. Relationship conflict norms	3.00	1.25	.02	.37**	.45**	−.10	.26	.42**	.22	.29*	.22	.17								
12. Process conflict	2.02	.69	.07	.69**	.55**	−.38**	.34*	−.01	.40**	.54**	−.13	.09	.27*							
13. Process conflict emotions	1.58	.68	.14	.60**	.79**	−.32*	.25	.00	.54**	.68**	.07	.29*	.40*	.71**						
14. Process conflict resolution efficacy	5.76	.93	.06	−.15	−.21	.63**	−.03	.44**	−.32*	−.39*	.52**	−.09	−.14	−.28*	−.27					
15. Process conflict importance	3.48	1.46	.31*	.47**	.26	.14	.64**	.27	−.02	−.02	.30*	.26	.24	.25	.32*	.20				
16. Process conflict norms	4.05	1.22	.17	.12	.26	.22	.26	.47	−.34**	.02	.26	.02	.20	.12	.21	.28*	.46**			
17. Group emergent states	5.73	.57	−.03	−.38**	−.14	.44**	−.08	.40**	−.43**	−.26	.21	−.06	.08	−.44**	−.26	.35**	.03	.37**		
18. Performance	35.66	8.84	−.19	−.06	.01	.17	−.09	.19	.22	−.08	.06	−.06	.02	−.13	−.08	.06	−.16	−.25	.12	
19. Viability	5.98	.80	−.04	−.28*	−.14	.68**	−.06	.48**	−.38**	−.29*	.47**	−.06	.14	−.38**	−.24	.56**	.07	.29*	.78**	.37**

*$p < .05$; **$p < .01$

Table 5 Regression analyses with emergent states as the dependent variable and the conflict types and emergent states as the independent variables and mediator. The standardized weights are reported

		Emergent states		
Controls	Planning time	−0.16	−0.16	−0.16
	R^2/Adjusted R^2	.02/.01	.02/.01	.02/.01
	F	1.27	1.27	1.27
Independent variables	Task conflict	−.29*		
	Process conflict		−.45**	
	Relationship conflict			−.25*
	R^2/Adjusted R^2	.10/.07	.22/.19	.08/.05
	F	2.89*	7.13**	2.31^{+}
	ΔF	1.62*	5.86**	1.04
	ΔR^2	.08*	.20**	$.06^{+}$

$^{+}p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

needs to be found between the mediator (emergent states) and the dependent variables (performance and viability). Thirdly, there needs to be a significant relationship between the independent variable (conflict) and the dependent variables (performance and viability). Fourthly, and lastly, the latter effects (of the independent variable on the dependent variable) should then disappear when controlling for the effects of the mediator (emergent states).

We will first discuss the mediation results for the outcome variable viability, and we will then discuss the mediation results as they relate to the performance outcome variable. For viability, the first step of mediation–showing a significant relationship between the independent variable (conflict) and the mediator (emergent states), was supported. As seen in Table 5, all three types of conflict (task, process, and relationship) were significantly, negatively related to emergent statues. The second step of mediation, in which a relationship between the mediator (emergent states) and dependent variable (viability) needs to be shown, was also support. As seen in Table 6 and supported in a regression analysis, emergent states had a significant positive impact on viability. For the third step of mediation, a significant relationship needs to be shown between the independent variable (conflict) and the dependent variable (viability). As seen in Table 6, we found support for this step of mediation as well—we found all three conflict types to be significantly negatively related to viability. For the last step of mediation, the effect of the independent variable (conflict) on the dependent variable (viability) should be shown to become non-significant when entering the mediator (emergent states) into the regression equation. We found support for this last step of mediation as well. As seen in Table 6, when emergent states are entered into the regression equation, the effect of all three conflict types on team viability become non-significant. We thus found support for emergent states in mediating the relationship between the three conflict types and viability. Sobel tests for relationship and process conflict were significant, further corroborating this finding (task conflict: $z = .91$, $n.s.$; relationship conflict: $z = 2.39$, $p < .01$; process conflict: $z = 2.46$,

Table 6 Regression analyses with performance, and viability as the dependent variables and the conflict types and emergent states as the independent variables and mediator. The standardized weights are reported

		Performance						Viability					
Controls	Planning time	−.19	−.19	−.19	−.19	−.19	−.19	−.04	−.04	−.04	−.04	−.04	−.04
	R^2/Adjusted R^2	.04/.02	.04/.02	.04/.02	.04/.02	.04/.02	.04/.02	.00/−.02	.00/−.02	.00/−.02	.00/−.02	.00/−.02	.00/−.02
	F	1.98	1.98	1.98	1.98	1.98	1.98	.08	.08	.08	.08	.08	.08
Mediator	Emergent states				.23^{+}	.23^{+}	.23^{+}				.72***	.72***	.72***
	R^2 /Adjusted R^2				.09/.05	.09/.05	.09/.05				.51/.49	.51/.49	.51/.49
	F				2.41^{+}	2.41^{+}	2.41^{+}				25.95***	25.95***	25.95***
	ΔF				.43^{+}	.43^{+}	.43^{+}				25.87***	25.87***	25.87***
	ΔR^2				.05^{+}	.05^{+}	.05^{+}				.51***	.51***	.51***
Independent variables	Task conflict	−.10			−.04			−.29*			−.09		
	Process conflict		−.14			−.04			−.38**			−.08	
	Relationship conflict			.09			.15			−.38**			−.22*
	R^2/Adjusted R^2	.05/.01	.06/.02	.05/.01	.09/.03	.09/.03	.11/.06	.08/.04	.15/.11	.15/.11	.52/.49	.51/.48	.55/.53
	F	1.22	1.48	1.17	1.60	1.60	2.00	2.16^{+}	4.31*	4.28*	17.39***	17.27***	20.23***
	ΔF	−.76	−.50	.81	−.81	−.81	−.41	2.08*	4.23**	4.20**	−8.48	−8.60	−5.64
	ΔR^2	.01	.02	.01	.00	.00	.02	.08*	.15**	.15**	.01	.00	.04*

$^{+}p < .10$; * $p < .05$; **$p < .01$; ***$p < .001$

$p < .01$). We thus found conflict's effect on emergent states fully mediated its effect on viability for relationship and process conflict.

We also tested whether emergent states mediated the relationship between the conflict types and team performance. For the first step to show mediation, we found support. As seen in Table 5, all three conflict types (the independent variables) were significantly, negatively related to emergent states (the mediator). For the second step of mediation, we found some support—we found emergent states (the mediator) to be marginally significantly positively related to team performance (the dependent variable). However, as seen in Table 6, for the third and fourth steps of mediation we did not find support, as we did not find a significant relationship to exist between the three types of conflict and team performance. This implies that we did not find support for traditional mediation for the relationship of conflict and performance as mediated by emergent states. However, work by Kenny and others has suggested that in certain situations when opposing effects are present, a relationship between the independent variable (conflict) and dependent variable (performance and viability) is not needed to establish mediation (Judd and Kenny 1981; Kenny et al. 1998). In this case, the effect of the independent variables (the different conflict types) on the dependent variable (performance) may not be significant because the independent variables may be acting in a way that both promote and impede the dependent variable (MacKinnon et al. 2000), thus cancelling each other out (p. 175). They state that "the possibility that mediation can exist even if there is not a significant relationship between the independent and dependent variables was acknowledged by Judd and Kenny (1981) but is not considered in most applications of analysis using these criteria." Therefore, we present this as an explanation for the mediation results based on the competing variables (e.g., relationship and task conflict) that can be present in complex models. Recent work by MacKinnon et al. (2000) has found empirical support for this proposition (competing factors). We also found support for suppression, a non-traditional form of mediation (MacKinnon et al. 2000) in our study: the three conflict types were negatively associated with emergent states, and emergent states were significantly marginally related to performance. The lack of direct main effects on performance by the conflict types could be due to suppression. While the conflict types uniformly decrease emergent states, thereby indirectly decreasing performance, it has been also found that some forms of conflict, such as task conflict, can also offer cognitive benefits that can improve performance (e.g., Amason 1996; Jehn 1997). Therefore, our results show support for the suppression form of mediation, where the independent variables (the conflict types) affect the mediator (emergent states), and the mediator affects the dependent variable (performance), but the effects of the independent variables (the conflict types) on the dependent variable (performance) suppress the effects.

After finding that conflict's effect on emergent states in a group may potentially explain the effects of conflict on group performance and viability, we then examined a set of potential moderators that could perhaps help us understand conditions in which conflict may not always have a detrimental effect on emergent states in a group. Specifically, we examined the role of negative emotions, resolution efficacy, importance, and norms in moderating the relationship between conflict and positive

Table 7 Regression analyses with emergent states as the dependent variables and task conflict and dimensions and their interactions. The standardized weights are reported

		Emergent states
Controls	Planning time	−.16
	R^2/Adjusted R^2	.02/.01
	F	1.27
Independent variables	Task conflict	−.31$^+$
	Task conflict negative emotions	−.05
	Task conflict resolution efficacy	.12
	Task conflict importance	.04
	Task conflict norms	.34*
	R^2/Adjusted R^2	.27/.18
	F	2.90**
	ΔF	1.63**
	ΔR^2	.25**
Interactions	Task Conflict × Negative emotions	.82
	Task Conflict × Resolution efficacy	−.03
	Task Conflict × Importance	.75
	Task Conflict × Norms	−.25
	R^2/Adjusted R^2	.33/.17
	F	2.07*
	ΔF	.44
	ΔR^2	.06

$^+p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

emergent states. Given that the initial analyses with the three conflict types and all four conflict dimensions for each conflict type in one model exceeded multi-collinearity limits, we used separate regression analyses to test the moderating effects of the conflict dimensions. As seen in Table 7, we found task conflict norms to be positively related to the quality of emergent states in the group. For relationship conflict (see Table 8), we found that negative emotions marginally significantly moderated its effects on emergent states, such that relationship conflict was less likely to be associated with lower levels of positive emergent states when relationship conflict was accompanied by negative emotions (H4). Finally, for process conflict, we found, as seen in Table 9, that both process conflict resolution efficacy (H5) and open process conflict norms (H7) moderated the relationship between process conflict and positive emergent states. Specifically, process conflict was less likely to be associated with lower levels of emergent states when groups felt they could easily solve their process conflicts (resolution efficacy), as expected (H5), and more likely to be associated with lower levels of emergent states when groups had open norms concerning process conflict (opposite of our expectations; H7c). No significant results were found for the moderating effect of importance of the conflict on emergent states (H6).

Table 8 Regression analyses with emergent states as the dependent variable and relationship conflict and dimensions and their interactions. The standardized weights are reported

		Emergent states
Controls	Planning time	−.16
	R^2/Adjusted R^2	.02/.01
	F	1.27
Independent variables	Relationship conflict	−.10
	Relationship conflict negative emotions	−.16
	Relationship conflict resolution efficacy	.21
	Relationship conflict importance	−.04
	Relationship conflict norms	.22
	R^2/Adjusted R^2	.19/.08
	F	1.71
	ΔF	.47
	ΔR^2	.17
Interactions	Relationship conflict × Negative emotions	1.50^{+}
	Relationship conflict × Resolution efficacy	−.70
	Relationship conflict × Importance	−.11
	Relationship conflict × Norms	.56
	R^2/Adjusted R^2	.37/.20
	F	2.24
	ΔF	.53*
	ΔR^2	.18*

$^{+}p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

7 Discussion

This study investigated the relationship between conflict types (relationship, task, and process), conflict dimensions (emotions, norms, resolution efficacy, and importance), and group outcomes mediated by emergent states (e.g., trust, respect, cohesion). Emergent states, a critical aspect of workgroups not previously studied in conflict research, form out of group processes and influence group outcomes. While group processes such as conflict are interdependent team activities, emergent states are attitudes, values, and cognitions held by members about the group that evolve via the interactive processes and influence group outcomes such as performance and viability (Marks et al. 2001). We predicted and found that all three types of conflict (task, process, and relationship) decrease positive emergent states within groups. In addition, we found support for the hypothesis that the existence of positive emergent states (e.g., trust, respect, cohesion) will increase member viability. More specifically, the negative effects of relationship and process conflict on viability were mediated by emergent states; that is, conflict decreased trust, respect, and cohesion within the group which in turn decreased the team's long term viability (e.g., team member satisfaction and members' intent to remain in the group). Emergent states also marginally

Table 9 Regression analyses with emergent states as the dependent variable and process conflict and dimensions and their interactions. The standardized weights are reported

		Emergent states
Controls	Planning time	−.16
	R^2/AdjustedR^2	.02/.01
	F	1.27
Independent variables	Process conflict	−.56**
	Process conflict negative emotions	.22
	Process conflict resolution efficacy	.16
	Process conflict importance	−.01
	Process conflict norms	.08
	R^2/Adjusted R^2	.28/.19
	F	3.03**
	ΔF	1.76**
	ΔR^2	.26**
Interactions	Process conflict × Negative emotions	−.10
	Process conflict × Resolution efficacy	3.24***
	Process conflict × Importance	.30
	Process conflict × Norms	−4.36**
	R^2/Adjusted R^2	.45/.32
	F	3.43***
	ΔF	.40*
	ΔR^2	.17*

$^{+}p < .10$; * $p < .05$;
** $p < .01$; *** $p < .001$

influenced performance, indicating that a decrease in the development of emergent states precipitated by conflict may also decrease the performance of the group. This contributes to the work on intragroup conflict which continues to debate the effects (negative or positive) of conflict on performance (c.f. De Dreu and Weingart 2003; Jehn and Bendersky 2003). We suggest that research needs to look at the mediating chain between conflict and group outcomes to specifically identify why conflict may have negative (or positive) effects.

In this study, we proposed to follow the lead of the recent research wave identifying emergent states as separate from group processes to identify potential mediators. We found that a combination of emergent states including trust, respect, and cohesion among members were decreased by all three types of conflict and thus decreased group outcomes. However, future research should also take a more nuanced approach to the examination of the mediating processes between conflict and group outcomes by examining the emergent state constructs of trust, respect, and cohesion (as well as others) separately as recent research has shown that there may be differences in the relationships between conflict types and trust and respect (Cronin and Weingart 2006). Given that these differences may be determined by the group work or structure (e.g., common goal or mixed motive groups), we suggest that future research determining

the specifics of the micro-mediating chain also take into account the type of task a group performs (e.g., routine or nonroutine) and the group reward structure (De Dreu and Weingart 2003; Jehn 1995).

After determining in this study that conflict had negative effects on emergent states, we proceeded to examine a set of potential moderators that could help researchers understand the circumstances surrounding conflict that may decrease its negative effects. Using a newly developed extended intragroup conflict measurement tool, we examined and further developed the model presented by Jehn (1997) as a basis for these moderating effects. Jehn's (1997) model includes four factors that influence the effect of conflict on groups: conflict norms, the resolution potential of the conflict, the importance of the conflict, and the emotions surrounding the conflict within the group. We found in this study that the effects of process and relationship conflict are specifically influenced by certain dimensions.

For relationship conflict, we found that the negative emotions associated with the conflict increased the negative effect of conflict on positive emergent states. This is consistent with past research that claims that it is the emotional aspect of conflict that exacerbates its negative effect (Barki and Hartwick 2004; Gayle and Preiss 1998); however, it is inconsistent with the suggestion of Jehn and Bendersky (2003) that says the negative affect surrounding task conflict (and process conflict; Greer and Jehn 2007) can also exacerbate the negative effects (or inhibit positive conflict effects). We found no moderating effect of negative emotions on the relationship between task or process conflict on emergent states. While emotions did exist surrounding task and process conflict (with both having a larger range and higher mean on this variable than relationship conflict), they did not directly influence emergent states or group outcomes, nor did they moderate the effects of task and process conflict on emergent states. It may be that people are better able to separate the emotions related to task-oriented debates such that they do not interfere with the group processes and atmosphere that evolves within the group (i.e., emergent states), than they are able to separate emotions related to relationship-oriented conflicts. This suggest that the adage of separate the people from the problem in negotiations (Fisher and Ury 1981) may actually be what people are doing in groups, and it is the emotion related to the intpersonal, people-problems (not task-focused problems) that gets in the way of successful group states and outcomes. In this study, when groups fought about non-task, relationship issues with high levels of emotion attached to them, the degree of respect, cohesion, and trust among members was significantly decreased. Relationship conflicts that were less emotional had less of a negative effect on emergent states, while the degree of emotion involved in process or task conflict did not influence the negative effects of those conflicts on emergent states.

For process conflict, two moderating factors influenced the effects of process conflict on emergent states: resolution efficacy and open conflict norms. While there is quite a bit of research on conflict resolution (e.g., Brett 1984; Brown 1983; Lewicki et al. 1992) and on conflict types (see De Dreu and Weingart 2003; Jehn and Bendersky 2003 for reviews), there is little research combining the two (c.f. Weingart and Jehn 2000). Our results indicate that it is especially important to consider the resolution efficacy of process conflicts. When members felt capable of resolving process conflicts, it decreased the negative effects of process conflict on positive emergent

states. This may help resolve some of the past contradictory theorizing and findings regarding process conflict. While Jehn et al. (1999) proposed that process conflict would be beneficial due to the better fit between individual ability and task requirements expected, they found that high levels of process conflict deterred constructive task discussions and actual implementation. Consistent with what we found regarding process conflict norms, much of the empirical work examining process conflict has found that it negatively influences processes affecting performance (Behfar et al. 2002; Greer and Jehn 2007; Porter and Lilly 1996; Vodosek 2005) and innovation (Matsuo 2006). The open norms encouraging process conflict discussions may have incited issues of disrespect regarding members' abilities and competency in process decisions, and similar to the findings of Jehn et al. (1999), apparently interfered with effective task accomplishment. However, regarding process conflict resolution efficacy, we found that when members felt capable of solving the process conflicts occurring in their groups, this decreased the negative effects on trust, respect, and cohesion. When groups experience process conflict, the efficacy of members regarding their ability to solve issues of delegation and distribution within the group apparently allows them to maintain positive group states that can assist in effective outcomes.

There were no moderators that influenced the effect of task conflict on emergent states. However, it is interesting to note that task conflict was the only conflict type in which one of the conflict-related factors had a *positive* effect on emergent states. Open norms around task conflict had a positive, direct main effect on positive emergent states. When members felt that they could openly discuss issues about the task or even openly debate and fight about task issues (regardless of the actual level of task conflict), they felt more trust, respect and cohesion with the other members of the group. It may be that the belief that it is possible to disagree about the task and voice one's opinion is more important to creating effective group processes and outcomes than actually having the disagreements. So while the report of the actual amount of task conflicts decreased emergent states, the belief that these things could be openly discussed increased the positive attitudes and motivations of the group members. This point demonstrates that making the distinctions between the conflict types and their dimensions is critical to understanding the effect of conflict dynamics in groups. For instance, the debate surrounding task conflict and whether it is beneficial or detrimental to groups may be better addressed by investigating the various aspects of the task conflict (e.g., open discussion norms, emotions related to the task conflict) rather than only assessing whether members perceive there is a high or low level of task-related conflict (De Dreu and Weingart 2003; c.f. Jehn and Bendersky 2003). We believe future researchers should continue to investigate the various aspects of task conflict, such as open discussion norms, to better inform the debate about whether task conflict is beneficial or detrimental to workgroup functioning.

The degree to which the team members felt the conflict was important did not have an effect on the relationship between conflict types and emergent states within the groups. While we hypothesized that more effective groups would experience their conflicts as having a low level of importance given the research on conflict escalation, low importance of conflicts may actually send a signal that the group or the task is also not important, thus having competing effects on the group attitudes and outcomes. Future

research should investigate the competing mechanisms that may determine whether the degree of importance assigned to the conflict will help or hinder group functioning.

Another interesting aspect of future research is the interplay among the types of conflict and the dimensions on positive, as well as negative, emergent states. For instance, in this study we only examined the effect of negative emotions as a dimension of the conflict types; however, it is possible that there could be positive emotions surrounding conflict, especially if the norms in the group suggest that conflict is a constructive aspect of the group interactions. In addition, we also examined only positive emergent states (e.g., trust, respect, cohesiveness) and it is likely that a social process such as conflict will also increase negative emergent states such as disrespect, distrust, and perceived dissimilarity.[2] Future research should go beyond these boundary conditions of our study (of only examining positive emergent states and negative emotions associated with conflict) and examine the broader array of negative to positive emotions and negative to positive emergent states. In addition, researchers should consider that the dimensions of each type of conflict may be inter-related and should consider examining a more complex model of the dimensions and types of conflict.

One of the limitations of this study is the cross-sectional design of the research. While most research on conflict in workgroups has been cross-sectional (see Jehn and Mannix 2001, for an exception), we strongly recommend that future research utilize a longitudinal design to examine the causality of models incorporating conflict types, conflict dimensions, and the mediators such as emergent states that may influence group member attitudes and group performance outcomes. Another limitation of this study is the number of constructs measured by survey items; however, we were able to triangulate our survey items with behavioral ratings from videotapes and also were able to obtain an objective performance measure from the computer simulation exercise. In addition, this research includes the development of a survey instrument to measure the extended conflict model which includes both conflict types and dimensions. Using this extended intragroup conflict survey allowed us to substantiate Jehn's (1997) inductively developed categorization of conflict characteristics (emotionality, norms, resolution potential or efficacy, and importance) as separate constructs from the three conflict types. We believe this is critical to provide researchers with a tool to examine a more thorough model of the effects of conflict in workgroups in an answer to the call for more elaborate models of conflict (Mannix 2003) beyond the examination of task and relationship conflict (De Dreu and Weingart 2003). Thus, we provide future researchers with the ability to examine the relationships between an extended conflict typology, and additional characteristics surrounding conflict (i.e., norms, resolution efficacy, importance, emotions), to explain its effects.

In sum, we consider this study a next step in research examining conflict in workteams. We suggest an extended model of intragroup conflict including conflict dimensions—and a new tool to measure these conflict characteristics. We also examine positive emergent states in workgroups as mechanisms to increase group performance and viability. Finding that conflict decreased positive emergent states, thus decreasing group viability and possibly performance, we then examined ways to lessen the

[2] We would like to thank an anonymous reviewer for this comment.

negative impact of conflict on positive states in groups by examining the dimensions of conflict. We hope that our findings will assist managers, group members, and leaders in the most constructive way to handle the various types of conflict (e.g., reduce negative emotions, increase ability to resolve conflicts, encourage open norms for task and process conflict). Managers can influence these states and conflict dimensions by promoting positive norms and beliefs surrounding conflict, and providing mechanisms to decrease emotions associated with non-work relationship conflicts (e.g., availability of mediator and ombuds person involvement). Conflict most certainly has a negative side, but we believe that there are conditions under which conflict's negative effects can be diminished, if understood and handled correctly.

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