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Cohesive Conflict: Task Cohesion as a Moderator of Conflict and Group Outcomes

Jonathan Bryce Dellinger
University of Wisconsin-Milwaukee

COHESIVE CONFLICT:

TASK COHESION AS A MODERATOR OF CONFLICT AND GROUP OUTCOMES

by

Jonathan B. Dellinger

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ABSTRACT

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by

Jonathan B. Dellinger

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This study examines the moderating impact of group cohesion on workgroup conflict and product outcomes. The presence of conflict is hypothesized to serve an important purpose for effective group functioning, but the presence of group cohesion is expected to facilitate the role of conflict as a means to productive ends. The development and influence of task-related group cohesion in short-term contexts is of particular interest, as temporary workgroups, such as student project groups, necessarily operate within limited timeframes and uncertain social relationships. Results indicate that task cohesion provides a strong and persistent positive predictor of the outcome variables (grade, reported satisfaction, and group productivity), and often demonstrates an ameliorating effect on the negative predictive ability of workgroup conflict.

Dedicated to

my supportive family,

my sons,

and

Dr. Brittnie S. Peck,

that we might build a better future together for our children.

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Cohesive Conflict:
Task Cohesion as a Moderator of the Impact of Conflict on Group Outcomes

The present study examines a common set of assumptions regarding the role of conflict and cohesion in workgroup outcomes. As abstract variables, conflict and cohesion have proven challenging for social scientists to account for consistently. Here, conflict and cohesion are examined as several types, levels, and in moderating relationships to better understand the benefits and deleterious effects of each. Distinguishing between types of cohesion and conflict should also help researchers to make better observations, predictions, and interventions in the fields of group dynamics and organizational communication. The findings of this study will point theorists and researchers toward more productive and parsimonious models of group behavior. Conflict and cohesion are rarely considered as co-occurring, let alone as essential components to group behavior. This study fills that gap in the literature, identifying and distinguishing between the salient types of conflict and cohesion present in groups and situating these factors in theoretically informed and illustrative models.

Investigations as to the importance of factors like conflict and group cohesion reveal a variety of contextual variables that influence effects on group outcomes. Despite decades of research, few clear answers are forthcoming as to a direct positive or negative influence of conflict or cohesion on group performance outcomes. A lack of consensus on the definition of terms is likely contributing to difficulty in isolating clear relationships. Researchers use as many definitions of conflict and cohesion as the various contexts investigated. Accordingly, one goal of this study is to select and define more meaningful characterizations of conflict and cohesion. However, the principal goal is to not only better definition, but to better determine the complicated and nuanced relationships between these concepts.

This study considers the potentially beneficial relationship between task or goal-related disagreement in the group and group outcomes suggested by previous research (e.g. Jehn, 1995). Previous research demonstrates inconsistent effects and the claim that task-related conflict is productive in groups receives mixed support. Thus, the proposed study adds to previous research by introducing a potentially important moderating variable: a particular kind of group cohesion that functions independently from social identity. Task-related conflict may benefit or harm group outcomes, but other factors moderate this effect. Here, *task-related cohesion*, or commitment to the group's cooperative goals, is proposed and tested as an important contextual variable moderating the relationship between conflict and outcomes such as productivity or satisfaction. Focusing on group's task-related cohesion allows for better insight regarding fundamental motivations for forming cooperative groups.

In the team and workgroup literature, cohesion provides an example of so-called *emergent states*: a group-level dynamic characteristic, typically varying as a function of group inputs, processes, and outcomes (Coultas et al. 2014). In that literature, emergent states mediate group outcomes, and like other emergent states, cohesion is poorly and inconsistently defined. In most investigations, cohesion is construed multidimensionally: combining liking or belonging, task-related cohesion, and social cohesion (Beal et al., 2003; Salas et al., 2012). However, the push to construe cohesion as a multidimensional construct comes in response to the strongest effect sizes attained in analyses. While a multidimensional model of cohesion may capture the largest effects, a multidimensional model does not allow researchers to discern the important differences between those dimensions or which dimension is more or less meaningful in different situations. Understanding the dimensions of cohesion individually may provide essential insights

as to the role and function of cohesion in group outcomes, particularly in groups with notably different contexts and characteristics.

One important recommendation of modern cohesion researchers is the consideration of the role of time in group cohesion (Coultas et al., 2014; McClurg et al., 2017; Salas et al., 2015). This recommendation stems from the concern that cohesion cannot be expected to function in the same way at different stages of group development. However, there remain few useful definitions and even fewer investigations of so-called *swift cohesion* as distinguished from longer-term forms of cohesion. In the literature,

> [swift cohesion] is based on the idea that although people may not have enough time to fully develop the specific dimensions of cohesion – group pride, task cohesion, and social cohesion – they must rely on contextual information to quickly coordinate and communication with other team members, simulating the same processes that cause cohesion to naturally emerge" (McClurg et al., 2017, p. 279).

Although McClurg et al.'s (2017) description does not suffice for a conceptual definition, some important characteristics of atemporal cohesion can be identified from it. Swift cohesion thus functions independently from temporal factors, at least initially, and depends on contextual factors to motivate behavior. For the purpose of practical investigation, swift cohesion is better defined in the following terms. **Swift cohesion is best defined as the impetus for short-term, coordinated group behavior, which requires the inference of group membership through contextual or abstract cues.** Entailed in this definition, the conceptual challenges are evident. Swift cohesion must be measured indirectly, likely through self-reported, post-hoc, reflection on the part of individuals being surveyed. In particular, a good candidate for indications of the theoretical state of swift cohesion may be the task cohesion researchers already point to as an

essential component of the multidimensional definition of group cohesion. While the McClurg et al. (2017) definition of swift cohesion implies that swift cohesion occurs when there isn't time to develop other dimensions of cohesion, including task cohesion, task cohesion is likely the earliest aspect of group cohesion to emerge. Task cohesion's atemporal character has been supported by other organizational researchers (e.g. Beal et al, 2003; Salas et al, 2015).

In this study, accounting for task cohesion is of particular interest. Task cohesion should most readily be observable in the form of reported cooperation and motivation to complete a specific task, not necessarily interpersonal liking or belonging, distinct from conventional definitions of cohesion. The present study pursues the recommendations of modern cohesion researchers (e.g. Coultas et al., 2014; McClurg et al., 2017; Salas et al., 2012) in distinguishing between cohesion types, but also seeks to examine their independent relationships. Particularly, the task-related component of multidimensional cohesion definitions is hypothesized to be a likely candidate for the elusive "swift cohesion" which modern cohesion researchers have called for further research on. Calls for investigation of swift cohesion have not specified its nature, other than it is distinguished from other forms of cohesion by a temporal dimension: a kind of cohesion that occurs rapidly rather than emerging from sustained interaction. Currently, there are no formal investigations of swift cohesion as distinct from other forms of cohesion, despite the recognition that such a distinction would be useful. Task cohesion, as it manifests most readily in short-term, goal-oriented groups, may provide essential insight regarding the role of task conflict in producing desirable group outcomes. Focusing on task cohesion as an indicator of swift cohesion will allow researchers to distinguish between short-term and long-term group development and, eventually, better understanding of the processes of group development.

Task cohesion should moderate *task-related conflict*'s relationship with group outcomes in these short-term groups. Task-related or, simply, task conflict can be defined as disagreement pertaining to goals to be accomplished by the group (Jehn, 1995). In the current investigation, group outcomes are measured as dependent variables, consisting of components of productivity (e.g. decision-making quality), member satisfaction, and grade earned on the task as a product outcome.

First, task-conflict should positively predict reported group products and satisfaction outcomes in the presence of task cohesion. Previous conflict research has shown difficulty determining a consistent influence of task-related conflict, attributing this difficulty to a variety of specific contexts rather than any particular variable. Accordingly, separate processes likely moderate the relationship between task conflict and outcomes. In the current study, swift cohesion was expected to be a good indication of underlying contextual group processes that may help task conflict to be productive. Thus, task cohesion, as an indicator of swift cohesion in the short-term workgroup context, was expected to exist independently from task-related conflict as individuals' motivations to achieve the group's goals, whereas task-related conflict should be a measure of disagreement about how to achieve those goals. Few, however, have attempted to examine the extent to which swift or task cohesion moderates the impact of task-conflict on group outcomes.

The literature also introduces the possibility of a "Goldilocks zone" of conflict in which the conflict remains task-related rather than interpersonal in nature. Jehn (1995) stressed that there was evidence for a curvilinear relationship with task-related conflict; absence of conflict was associated with complacency, while too much conflict interfered with performance. This suggests an optimum level of task-related conflict in workgroups which allows for group

members to better understand their respective roles in group productivity. However, there remains some mystery as to what social factors allow conflict to positively influence outcomes. In the current study, higher levels of task cohesion should indicate individual commitment to group goals and, consequently, the appropriate conditions for conflict to be beneficial. The present study assumes temporary groups benefit most from a moderate level of task-related conflict in the presence of task cohesion improving group outcomes. Thus, the following hypothesis was tested.

H1: Task-related conflict demonstrates a curvilinear relationship with group outcomes when task cohesion is high.

Review of the Relevant Literature

Conflict Types and Contextual Models

Within the organizational literature (e.g. De Dreu & Weingart, 2003), the characterization of conflict as a dysfunctional communication process, particularly within the contexts of group diversity and intergroup contact (e.g. Allport, 1954; Gaertner & Dovidio, 2004; Stahl et al., 2010). The assumption that conflict is always bad precludes valuable possibilities; namely, that a manageable level of conflict is possible or that some conflict is necessary for healthy group functioning. To reach optimal group outcomes, some internally corrective social mechanism must facilitate coordination of group members. Such mechanisms may manifest as conflict but actually be essential to the group's survival and productivity (Tooby & Cosmides, 2010). There are proponents of certain types of conflict being beneficial, within the workgroup literature, as well (Jehn, 1995, 1997). There, researchers distinguish between different types of conflict, beyond simply considering presence, absence, or degrees of conflict.

The popular practice in researching conflict in group processes distinguishes between task-related (disagreement regarding the goals to be addressed as a group) and relational (interpersonal) conflict. The prevailing opinion in the early 21st century was that task-related conflict promotes positive group outcomes, while relational conflict harms the functioning of the group (see De Dreu & Weingart, 2003 for an overview). The underlying logic assumed that the absence of any disagreement reflected complacency regarding group disfunction, so some disagreement assists groups in reaching optimal decisions (Jehn, 1995). Jehn's (1995) investigation of 105 workgroups and management teams identified situations in which task-related conflict improved performance, such as when performing nonroutine tasks (often complex tasks without standard or established solutions). A creative approach was uniquely suited to addressing novel challenges (Jehn, 1995), necessarily entailing the potential for disagreement and conflict. However, suggesting that Jehn (1995) argued task-related conflict generated a uniformly positive effect on group performance, as later critics implied, would be an oversimplification. Rather, Jehn (1995) suggested that certain contexts (i.e. creative and nonroutine) in which task-related conflict can be beneficial exist and should be studied further. At least, these investigations demonstrated that levels of conflict are important, but that types of conflict must also be accounted for.

Interactions between task and relationship conflict, as well as the influence of moderating variables, have also been indicated as important factors in group outcomes (de Wit, Greer, & Jehn, 2012; Jehn, 1995; Jehn, 1997; Tekleab & Quigly, 2014). For instance, when both task conflict and interpersonal conflict are positively correlated, the influence of conflict on outcomes is deleterious. Furthermore, there are many examples of these two conceptually different types of conflict quickly and naturally change to the other. This stresses the importance of distinguishing

between the conflict types and what drives them. If task-related conflict grows into a threat to interpersonal relationships, benefits to group processes become less likely. However, if relational conflict can be refocused to task-related problems, perhaps outcomes can be improved. Still, subsequent investigations began accounting for the influence of both conflict types.

Debate regarding the significance of conflict type distinctions intensified in the early 21st century. De Dreu and Weingart's (2003) meta-analysis found little positive association between task-related conflict and improvements in group performance outcomes. Rather both types of conflict predicted negative outcomes, particularly when correlated with each other. Following De Dreu and Weingart's (2003) meta-analysis, research shifted toward more contextual models of conflict. Questions regarding conflict type grew more complicated in the ensuing decade of research.

A later meta-analysis performed by de Wit, Greer and Jehn (2012) replicated the findings of De Dreu and Weingart (2003) but elaborated on the observed patterns. Specifically, they found that task conflict and group performance are positively related when associations between task and relationship conflict types are relatively weak. In other words, the two conflict types independently influence group processes, but also appear to be interrelated. Elucidating the relationship requires consideration of contextual variables such as the workgroup cohesion. de Wit, Greer, and Jehn (2012) emphasize that most of the findings of conflict type investigations supported the distinction. If there was a strong correlation between task-related and relational conflict, the potential for task-related conflict to have a positive influence on outcomes was diminished. Thus, a decade of research brought investigators back to distinguishing not only conflict types, but a need to determine their sources, interrelations, and driving processes.

There are several important lessons to be gained from the conflict literature for the current study. For one, while not a complete answer, conflict types must be considered separately even though the types tend to change and interrelate. The distinction matters because there remains evidence that task conflict and relational conflict are perceived as different by the individuals studied. Thus, researchers should continue to measure both to better understand the nature of the associations with each other and other variables. For example, higher levels of relational conflict should be consistently and negatively associated with satisfaction and product outcomes, regardless of cohesion measures. In the proposed study, such questions can be answered by accounting for conflict types, levels, and the relationship with the moderating variable.

More complex models, such as demonstrated by the theorize relationships, can teach us more about the role of conflict in predicting group outcomes. As both task-related and relational conflict seem to affect group outcomes uniquely, other unique interactions with contextual variables such as cohesion cannot be excluded. The study of short-term groups, relational conflicts should be less important to accomplishing the very specific goal of the group than task-related conflict. Likewise, cohesion is expected to function differently in a short-term context than in a group of longer tenure. But exploring these implications requires a deeper consideration of how cohesion has been operationalized and measured.

The Importance of Group Cohesion

The intragroup conflict literature described above demonstrates a lack of uniform impacts of conflict on group performance, satisfaction, and other outcomes. There are instances in which conflict leads to productive ends, but identifying isolated contexts is not the same as establishing an encompassing, explanatory, and predictive model for understanding and promoting such

contexts. If the latter is the goal, lessons from the conflict literature should be tempered with an understanding of group formation and maintenance. These essential social processes are often the subject of group cohesion research. Such a view of fundamental human motivations may help to create a parsimonious and predictive model for the effect of conflict.

Humans exhibit a predilection and need for group formation. One of the most fundamental behaviors theorized to be responsible for this tendency is in response to potentially harmful environmental stressors and aversive external stimuli (see, e.g. Tooby & Cosmides 2010). Indeed, from an evolutionary perspective, social group formation operates as a direct response to dangerous environmental pressures and this adaptation allows humans to survive and thrive. For the vast majority of human history, survival was (and continues to be) contingent on group coordination: increasing chances of success when group members bound together through a common identity unified against threats, whether animal, natural disaster, or human. In the absence of saber-toothed threats, however, group formation and social processes are most immediately relevant to our sense of self and wellbeing (e.g. Tajfel & Turner, 1979). Being part of a group is hardwired into our cognition as being essential to survival. The importance of social identities is the principal concern in social psychology and communication studies (Allport, 1954; Gaertner & Dovidio, 2000; Hewstone & Brown, 1986; Miller, 2009). Still, both evolutionary psychologists and social psychologists should consider the role of aversive stimuli in the form of conflict as important to normal group functioning. Solutions, whether evolutionary adaptations or collaborative group strategies, arise in response to problems posed. If aversive stimulus is important for group formation and internal conflict can also be important for group maintenance, questions arise as to whether a degree of aversive stimulus is essential, regardless of an external or internal source. The possibility that there is a fundamental role for either

external or internal conflict in normal group functioning and cohesion should, therefore, be seriously considered.

As discussed in previous sections, research demonstrates that certain conditions exist in which certain kinds of conflict in certain amounts can be beneficial to normal group productivity and other outcomes (De Dreu and Weingart, 2003; de Wit, Greer & Jehn, 2012; Jehn, 1995). The admittedly vague nature of the preceding statement speaks to the need for more comprehensive models and clearly delineated contexts for study. Among the contexts identified in the above literature (norms of discussion, homogeneous, etc.), groups with less interpersonal conflict, in general, seem most likely to reap any benefit from other types of conflict. This may be an indication of the role that healthy social processes, such as cohesion, play in directing efforts and energy of the constituent members of the group towards productive ends. Given the importance of social identity, group members are likely to be distracted by interpersonal threats, detracting from otherwise goal-related efforts. Perhaps cohesion is the key to productively managing conflict if it is associated with less interpersonal conflict. Determining the role of group cohesion may serve to better inform our understanding of social processes in managing, responding to, or deriving benefit from internal aversive stimuli.

Cohesion has, like conflict, been defined inconsistently: sometimes loosely, as in Festinger's (1950) characterization of the sum of variables holding the group together, and sometimes drawing on elements of interpersonal liking or identification. Examples of the latter characterization draw on theories such as Tajfel and Turner's (1979) social identity theory, stressing the importance of one's social group in concepts of self and self-efficacy (see Forsyth, 2010, for a review). Most definitions imply a temporal dimension (Coultas et al., 2014), with social relationships being cultivated through sustained interaction over time. Naturally,

functional social relationships and identities are assumed to be cultivated or built over time, but this temporal dimension ignores relationships that are necessarily temporary. Thus, group cohesion should also be separated into long-term *social cohesion* and temporary or "swift" cohesion (Salas et al, 2015). Here, it may be helpful to remember the difference between task-related and relational conflict: one is associated with goals of the group, the other with relationships between the group members. Likewise, groups that form to address a specific goal with a discrete endpoint may function very differently from groups that have layers of interpersonal obligations and time invested into those relationships. Modern cohesion researchers are quick to call for such a distinction in investigations which may help to better isolate consistent relationships between conflict, cohesion, and group outcomes. However, this distinction has not been traditionally made in the cohesion literature.

Seashore (1954) represents one of the earliest formal considerations of group cohesion, or "cohesiveness," in industrial workgroups. Consistent with other human resources approaches to organizational communication in the mid-twentieth century (see Miller, 2009 for a review), Seashore considers conflict as something to avoid and social relationships (cohesiveness) as a means of addressing conflict. Specifically, Seashore investigated cohesion as attraction to or resistance to leaving a given group. However, the Seashore (1954) investigation did not unequivocally suggest cohesion as a foolproof means of actually improving productivity, and his recommendations were focused on promoting social cohesion over time, rather than considering the role of cohesion in temporary groups.

From the inception of the theoretical concept of cohesion, we can see potentially confounding elements. There was a lack of distinction between goal-based and social elements of groups forming and sticking together. While these two elements are likely to be interrelated, it

remains difficult to understand the nature of that relationship when they are considered unidimensional. Accordingly, swift cohesion or task cohesion should be considered conceptually distinct from other measures of cohesion. Social cohesion will be difficult to distinguish from social identity, whereas swift cohesion would indicate a goal-based motivation. This treatment is supported by modern cohesion scholars and is a departure from traditional conceptions of a multidimensional measure of morale, liking, and cooperation. While there are applications for a generalized multidimensional measure of cohesion, such an index cannot be assumed to behave the same way in short-term groups as it will in long-term groups.

Modern research continues to build on the lessons of previous investigations, offering specific lessons for cohesion scholars. For instance, Beal, Cohen, Burke, and McLendon (2003) discovered that studies found strongest correlations between cohesion and performance when performance was evaluated as a behavior rather than an outcome, and in terms of efficiency rather than efficacy. Another lesson from Beal et al.'s (2003) analysis was that of the three commonly measured domains of group cohesion (interpersonal attraction, task commitment, and group pride) all independently related to group performance. However, Beal et al. (2003) argue, previous research may have disproportionally reflected attraction and task commitment as indicators of cohesion. Again, Beal et al. (2003) seem to be recommending a multidimensional, all-encompassing definition of cohesion; however, this recommendation ignores the possibility that the different elements associated with a multidimensional definition are likely to fulfil different roles in the dynamics of group functioning.

Other investigations have, in fact, called for maintaining and investigating contextual distinctions in the cohesion research. Chiocchio and Essiembre (2009), for example, focused on the different types of teams investigated in the literature. They stressed that understanding the

moderating effect of team type and setting is essential to understanding the effect of cohesion relative to behavioral and performance outcomes. Chiocchio and Essiembre's (2009) meta-analysis demonstrated that the type of team being investigated was hugely important to the relationship between cohesion and performance outcomes. Here, they found that the relationship between cohesion and performance was much more important to creative project teams than to teams working in production. Furthermore, they found that a distinction between task-related and social cohesion was important for effect sizes, with task-related cohesion being more meaningful in academic project teams. This finding is supportive of later distinctions between swift cohesion and social cohesion. Indeed, what is defined as swift cohesion in the present study is closely reflected in the concept of task-related goal-based group cohesion in project groups described by Chioochio and Essiembre (2009).

Similar distinctions were advocated by Salas, Grossman, Hughes, and Coultas (2015); who described the array of cohesion measures in modern research. In general, Salas et al. (2015) described cohesion as a shared bond or attraction, driving team members to stay and work together. Salas et al (2015) endorse a multidimensional definition of cohesion: an approach which tends to find the most significant cohesion-performance relationships. They suggested a measure that simultaneously assesses social cohesion (group identification) and task cohesion (short-term cohesion related to meeting cooperative goals) along with behavioral (e.g. spending time together) and attitudinal (e.g. liking) indicators. The multidimensional approach has been demonstrated in small groups as measures examining morale and belonging (Bollen & Hoyle, 1990; Chin, Salisbury, Pearson, & Stollak, 1999). While social cohesion, belonging, and task cohesion are all important factors to measure, they should not be considered components of the same factor of cohesion.

While advocating a multidimensional measurement of cohesion, Salas et al. (2015) point out the complicating factor of time or sustained interaction in cohesion studies. Salas et al. (2015) note that in short-terms situations, task cohesion is more likely to matter; whereas true social cohesion is more likely to emerge over time. Thus, practical limitations of so-called "swift cohesion" (Salas et al., 2015) requires consideration in any short-term investigation. Distinguishing swift cohesion from social cohesion is a major focus of the present study, not merely for conceptual convenience, but because this distinction may clarify the driving forces of cohesion at a fundamental level of motivation. If swift cohesion is distinct from social cohesion, it is likely to pertain to early stages of group formation that may eventually lead to social cohesion. Thus, it may be more sensible to view swift cohesion as an antecedent of social cohesion, rather than a correlate. The present study will help to determine these relationships. Here, focus is shifted to swift cohesion or task cohesion as a distinct kind of cohesion that functions independently from the other cohesion types. Task cohesion is theorized to be present necessarily in short-term workgroups but also has the potential to develop into social cohesion over time.

Lessons from the Literature: A Preliminary Hypothesis

Considering the lessons from the span of cohesion and conflict studies in organizational contexts, a few notable trends emerge. For one, countless contexts and influences seem to be obscuring the effect of conflict on group outcomes. Researchers tend to focus on specific instances of conflict and group outcomes, rather than seeking to reconcile or inform such investigations from a unifying theoretical model. However, examining a generalized definition of conflict in specific instances uncovers more inconsistent effects, and the same can be said of definitions of cohesion. These problems persist despite evidence that more specific definitions of

the variables help to isolate conflicting relationships. With abstract social concepts such as these, it should not be surprising to researchers that we need to be more specific in our models and definitions to find consistent effects. The path forward is clear: more specific definitions are needed for more parsimonious models. Researchers must be specific about what kinds of cohesion and what kinds of conflict are of interest, and these variables must be situated in comprehensive models that account for their interrelations without conflating them. Arranging the variables in question in a comprehensive model derived from an understanding of group communication and other social processes may provide a much-needed understanding as to what really matters about each.

Cohesion, as measured by a variety of scales, has been described more as a product outcome or predictor than a moderating or mediating variable. However, an extensive literature examining the roles of cohesion measures in communication and small group contexts exists (e.g. Knight, Pearson, & Husinger, 2008). Small group and short-term workgroup contexts provide insight as to how and why cohesion might be expected to influence the relationship between conflict and group outcomes. Notably, the predictive power of cohesion in these group outcomes (including levels and nature of conflict) warrants more investigation to better understand direction and causation. Likewise, conflict is known to influence many of the same outcomes (e.g. group satisfaction, product quality, etc.). However, a more complex picture is likely: interaction between these variables has not been seriously considered and cannot be excluded. Such possibilities warrant further investigation to better understand the mechanisms by which these variables influence group outcomes.

The Goldilocks Zone of Conflict and Mechanisms by which It Improves Outcomes

The target relationship of the present study is task-related conflict improving group outcomes in short-term workgroups, an effect that is likely contingent on the presence of task cohesion. A voicing and working-through of disagreement regarding how tasks should be accomplished is likely to refocus group members on their common goals. However, this relationship is unlikely to be meaningful if there is no sense of cohesion: the group must share some need to meet goals or no coordination is possible in the absence of true social cohesion and its attending obligations. Similarly, this kind of cohesion must be independent from the social bonds developed over time and across sustained interaction.

Furthermore, the degree or level of conflict should be considered in addition to the type of conflict. Conflict types are not static variables; the interrelations demand deeper understanding of how they can be maintained separately, if they are closely interrelated, or if they are separated by anything other than intensity of the conflict. Two existing complications in the literature demand this deeper investigation. First, conflict of either type cannot be assumed to have a linear and positive influence based on previous findings. Second, the likelihood of one rapidly changing to another may be dependent on the level or intensity of conflict: a threshold at which the nature of the interaction shifts. In the case of task-conflict, too little would be associated with no investment in the group goals, while too much conflict is likely to "get personal," moving beyond considerations of how to meet the groups goals. If such a transition is possible and dependent on the amount of task conflict, then answering the question of why task conflict and relational conflict could be strongly associated and contributing to negative outcomes in those instances becomes simpler. These considerations point to an ideal level of conflict, but conflict of a stable, impersonal type.

The likelihood of such as figurative Goldilocks zone of conflict (not too much and not too little) is supported by several key discoveries of the above literature (De Dreu and Weingart, 2003; de Wit, Greer & Jehn, 2012; Jehn, 1995; Jehn, 1997)). A curvilinear relationship between conflict and outcomes is also supported by investigations more specific to the processes by which such relationships are likely to be enacted, that is, communication processes. While previous studies were able to determine that outcomes were worse when the two conflict types were strongly associated with one-another, there was less consideration of the processes that may drive such associations.

Jehn (1995, 1997) proposed that voicing some disagreement allows groups to negotiate and critically assess information that had bearing on the goals of the group and their individual roles in reaching those goals. In this sense, task-related disagreement was thought to contribute to greater creativity and innovation in workgroups. However, considering this improved creativity to be an indicator of group cohesion in any true or intuitive sense might be a shallow diagnosis. Combining the discoveries of organizational communication scholars, a more complete view might emerge. Lessons from across the social sciences should remind investigators that intragroup and interpersonal interactions serve more than strictly utilitarian or mechanistically efficient ends. But even though such interactions may seem inefficient on the surface, they always serve a purpose.

Examples of task-related interactions manifesting in communication studies are readily available in the small-group decision-making and organizational communication literature. Consider, for example, epistemological and ontological treatments of communication processes in small groups, in general. Pavitt (1993), for instance, elaborated five different positions on whether communication matters at all for social influence processes (persuasion). This question

has immediate bearing on how likely task-related conflict and the discussion of such disagreements is likely to affect group cohesion and outcomes. Foremost in Pavitt's conclusions was the lack of unequivocal evidence that communication predicts post-discussional outcomes. More simply put: there are many examples of when discussion does not explicitly lead to persuasion. If the questions is "does communication matter," Pavitt points out, scholars would do well not to conflate "mattering" with predicting post-discussional outcomes such as consensus or persuasion. Indeed, discussion of preferences can simply amount to polarizing existing opinions and establishing expectations, not necessarily improving decision-making or anything other than a sense of commonality among group members (Pavitt, 1993). A parallel might be drawn here to Seashore's (1954) observations that cohesion of the group often served as a kind of amplifier of group norms, whether more productive or less productive than comparatively less cohesive workgroups.

These utilitarian concerns may be assuming too much about the importance of equitable distribution of burden or mechanistic metaphors of efficient group functioning. Group think may be a risk, even in small and short-term workgroups, which would detract from claims such as Jehn's (1997) observation that a moderate level of conflict allows for sharing of opinions. However, that claim entails an assumption that conflict allows for negotiating better strategies, which may be a mischaracterization of normal group processes. This common assumption may even explain some of the "inconsistencies" associate with task-related conflict: researchers are assuming that the benefit of conflict is to increase creativity and thus contribute to better product outcomes. Rather, the possibility remains that these conflicts coordinate group members' individual *roles*, not *strategies*, allowing for the group to ultimately meet the goals or improve member satisfaction. Thus, while not necessarily efficient, the task-related conflict can still serve

an essential function of negotiating individual roles without interpersonal confrontation. This relationship may be harder to detect if researchers are seeking a direct positive effect.

Other communication scholars also have questioned strictly utilitarian approaches to information sharing and communication in small group situations. Steinel, Utz, and Koning (2010), for example, examined information-sharing strategies in small groups as not merely cooperative, but as a mixed-motive strategic behavior involving information withholding for personal gains. Likewise, Steinel et al. (2010) pointed out that individuals in small groups often only reveal information already commonly shared by group members to promote a sense of solidarity and cooperation, but not necessarily further the goals of the group. Such shared information is also likely to be weighted as more important by group members than unshared information (Steinel, Utz, & Koning, 2010). Here, too, is evidence of humans pursuing inefficient, but important, processes even in small or temporary groups. Steinel et al. (2010), in this way, corroborates Jehn's (1995) findings that task-related conflict, at moderate levels, allows individuals to better perceive their own individual roles in the group. This does not mean that their roles will be equitable or guarantee equal distribution of burden or even improve interpersonal relationships, but in a group process sense, it is likely to help the group meet goals. Ergo, sharing and withholding information strategically is not a direct path to product outcomes, but still allows for coordinated effort towards group goals, even in temporary groups with no coherent social identity.

Elements of cohesion and the importance of social processes and pressures can be seen, even in small, temporary groups. While true social cohesion is likely contingent on sustained interaction, the human mind is already primed to readily cohere with others in short-term cooperative tasks. However, these processes are not unidimensional or totally consistent,

reflecting variation in personality, idiosyncrasies, and individual motivations. The tendency may be to reduce confrontation and to strategically promote one's self image, maintaining interpersonal relationships, or simply get the job done, even when the nature of the group is necessarily temporary. It bears reiteration: while over time, social cohesion of groups is likely to emerge, this does not mean that temporary groups are less social. Rather, temporary groups may be ideal sites for examining how fundamental and reflexive social tendencies manifest in relation to cohesion and cooperative problem solving. The social processes leading to better outcomes at the small group level should not be assumed to "make sense" in a mechanistic sense. The goal should not be assumed to be more efficient communication or creative strategies, but rather the negotiation of individual roles in the group to allow the group to meet the needs of the situation.

The need for the present investigation is thus supported: the various contexts and processes must be made clear to make sense of the looming questions and findings of cohesion and conflict researchers. The implications of the proposed investigation are multiple. For one, by studying cohesion and task-related conflict, we may discover unique and fundamental elements of group formation and processes. Short term workgroups may be a window into how long-term groups cultivate true social cohesion. Additionally, better understanding temporary workgroups will serve its own purpose. Examples of temporary workgroups do not stop at student projects but extend into the highest levels of society. Task forces, expert panels, and committees are all examples of short-term groups whose functioning is has profound influence over human existence beyond the tenure of the group or relationships of its constituent members. However, to the extent that the motivations being studied here are fundamental human qualities, findings also have bearing on interpersonal communication and may extend to group interactions of longer

tenure. Truly, the need for considering forms of cohesion that do not reflect all-encompassing identity groups is pressing.

The present study offers a formal investigation of these relationships, revealing new directions and a basis for more comprehensive models of conflict and cohesion. Beyond the previously stated hypothesis, additional analyses revealed a clearer picture of conflict in small group contexts. First, given that H1 assumes a curvilinear relationship should be apparent in the high task cohesion condition, the same relationship will be tested in the condition of low task cohesion. This will further clarify the role of task cohesion. In addition to testing the role of task cohesion, a similar relationship was investigated for relational conflict. This step was taken to clarify the assumptions about the benefits of task conflict and detriments of relational conflict described in the conflict literature (e.g. Jehn, 1995, 1997). Additionally, reviewing the communication literature raises questions as to what dependent variables provide the most meaningful relationships. Thus, in addition to the previously mentioned hypotheses, the following research questions were also examined:

RQ1: What is the relationship between task conflict and group outcomes when task cohesion is low?

RQ2: Does the pattern specified in H1 [pertaining to task conflict] similarly apply to relational conflict?

RQ3: Which of the group outcomes provides the context in which the proposed curvilinear relationship appears most pronounced?

Methods

Data Collection

An anonymous online questionnaire was distributed to undergraduate students enrolled in communication courses at a midwestern university. The sample (N = 174) consisted of 61.45% females and ranged from 18 to 48 years of age. As short-term workgroups are the subject of the proposed research, students reflected on a recent group project in their academic studies, both temporary and goal-based. They were first asked about the nature of the project and how they viewed the experience overall (best 21.18% n = 36, worst 14.12% n = 24, neither 64.71% n = 110). 70.3% of the sample indicated White/Caucasian as their ethnicity, 8.48% as multi-race, 7.88% Black/African American, 6.67% Asian, 6.06% indicating Hispanic, and one student indicated American Indian/Pacific Islander as their ethnicity. Participants received extra credit for participating in the survey. While this context is likely to be less appropriate for addressing questions of long-term social cohesion, it was deemed sufficient for investigating the role of swift cohesion in relation to task-conflict. All survey instruments received IRB approval prior to data collection.

Levels of conflict and group cohesion were measured via self-reported survey data regarding group projects in undergraduate coursework. The online questionnaire consisted of Likert-type scales measuring levels of perceived conflict (both relational and task-related) in the group, as well as group performance measures. Participants were asked to report their workgroup outcomes as a letter grade earned on the task, personal satisfaction, and a battery of productivity items (e.g. decision-making ability of the group).

Measures

Measures were adapted from Jehn (1995) for measuring task conflict and relational conflict. Jehn's conflcit measures have been replicated numerous times and account for both types of conflict (task-related and relational). Open-ended questions inquiring as to the nature of

conflict in the group were also included to characterize the data and prompt participants to think deeply about their experiences.

The cohesion measures were adopted from existing group cohesion measures, with several additional questions designed in light of the above literature review. A variety of measures deigned to capture the various elements of cohesion (e.g. task-related, social, and liking/morality) were included for later exploratory factor analysis to better understand and distinguish the roles of different cohesion types. Among measures included were the Group Cohesion Scale (GCS) revised by Knight, Pearson, and Husinger (2008) for application in student workgroups, as well as the Perceived Cohesion Scale (PCS). Bollen and Hoyle (1990) originally developed the PCS in the context of relatively large reference groups, whereas Chin, Salisbury, Pearson, & Stollak (1999) refined the measures to apply to small groups. They noted the effects of their investigation were limited in generalizability as their experimental groups were artificially formed for a single task. However, for the purpose of measuring swift or task-related cohesion, this context is deemed to be representative. Thus, the proposed study also used the adapted PCS scale for small groups in measuring group cohesion as it was likely to accurately reflect cohesion in the temporary group context.

All cohesion items were measured using a 7-point Likert-type scale ranging from "strongly disagree" to "strongly agree," a neutral point being set as "neither agree nor disagree." Conflict scales were measured with a 5-point scale consistent with Jehn (1995), ranging from "no conflict" to "constant conflict," with the middle value indicating "some". All items were adapted to be equally applicable to temporary student workgroups as with organizational workgroups of varying tenure. These changes were minimal, typically adjusting grammatical subjects, for example from "work unit" to "workgroup."

Results

The dataset was subjected to a variety of statistical analyses to evaluate the theorized relationships. The primary relationship of interest is task-related conflict contributing to improved perceptions of satisfaction and workgroup product outcomes, as mediated by a refined measure of task cohesion. However, additional analyses were performed to assess relationships between task and relational conflict and the outcomes independently and to characterize the dataset.

EFA of target variables examining cohesion and conflict types.

The proposed investigation drew on the established psychometrics of various studies. However, review of the relevant literature gave reason to expect the included psychometrics might overlap and diverge from previous findings. Namely, few of the previous studies sought to separate the various elements of the different kinds of conflict and cohesion. Multidimensional measures of both conflict and task cohesion may be powerful predictors of group outcomes, but their multidimensional nature makes it difficult to isolate specific social processes.

Cohesion items were subjected to exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and reliability testing to determine the relevance of the metrics and latent variables. Principal Components Analysis (PCA) was performed to extract factors, followed by a distillation process using Maximum Likelihood Estimates with direct Oblimin rotation, as factors were expected to correlate. Only items with factor loadings higher than .55 were retained for CFA, following recommendations from Tabachnick and Fidell (2007) for the "good" cut-off. Surviving independent variables were then subjected to Confirmatory Factor Analysis (CFA) through IBM®'s AMOS structural equation modelling (SEM) package [computer software] (version 23.0, Arbuckle, 2014).

EFA and CFA of cohesion items revealed a 3-factor solution was most appropriate. These factors appeared to reflect multidimensional models of cohesion and were named accordingly as task cohesion (seven items, $\alpha = .93$), social cohesion (three items, $\alpha = .87$), and belonging (three items, $\alpha = .79$). The comparative fit index (CFI) = .97, the root square mean error of approximation (RMSEA) = .07, and χ^2 (62, N = 173) = 111.91, $p < .001$. Table 2 shows the surviving items comprising the cohesion scales used for additional analyses. A noteworthy development was that the third factor here labeled belonging consisted entirely of reverse coded items presumed to fall under the other two types of cohesion. This development warrants further investigation, to be discussed in greater detail below. Due to the exploratory nature of the variables in question, final indices were calculated, weighted by the individual factor loadings of the constituent items.

Table 1

FA Pattern Matrix of Items Comprising Cohesion Factors.

Item		F1 (α = .93) Task Cohesion	F2 (α = .87) Social Cohesion	F3 (α = .79) Belonging
1.	Group members were motivated to cooperate on project goals.	**.95**	-.03	-.03
2.	Our group was united in trying to reach its goals for performance.	**.87**	-.14	-.02
3.	Group members had qualities that brought them all together for this project.	**.81**	.12	.05
4.	Group efforts were coordinated.	**.79**	.02	.06
5.	If members of our team had problems in meetings, everyone wanted to help them…	**.79**	.08	-.03
6.	Problem-solving in this group was truly a group effort.	**.73**	.03	.01
7.	Group members usually feel free to share their opinions.	**.60**	.11	.11
8.	Group members would have become friends regardless of the project.	.02	**.88**	-.10
9.	Group time was spent developing relationships among members.	-.06	**.83**	.14
10.	Our group would like to spend time together outside of the project.	.10	**.76**	-.02
11.	I did not enjoy being a part of the social interactions of this group.*	.01	-.06	**.87**
12.	I disliked going to this group's meetings.*	.05	.04	**.78**
13.	If a group with the same goals were formed, I would have preferred to shift to that group.*	-.01	.02	**.57**

Note: * indicates item was reverse coded for analysis. Item five has been abbreviated here; full text included words "…so we can get back together again."

Conflict items adapted from Jehn (1995) were subjected to CFA, following previous investigations of task and relational conflict. CFA was performed using IBM®'s AMOS structural equation modelling (SEM) package [computer software] (version 23.0, Arbuckle, 2014). The two latent variables were programmed to correlated and consist of the eight conflict items included in the questionnaire. All conflict items survived CFA, comprising the two theorized forms of conflict, consistent with Jehn (1995) and others. These surviving items were used to calculate indices of relational conflict ($\alpha = .94$) and task conflict ($\alpha = .88$). Model fit for the two conflict factors was deemed acceptable, according to SEM standards described in Kine (2016). The comparative fit index (CFI) = .98, the root square mean error of approximation (RMSEA) = .08, and χ^2 (18, N = 173) = 39.61, $p = .002$. See the appendix for a full list of items comprising the conflict variables.

Finally, the dependent variable of product outcomes also emerged using the same methods outlined above. The initial questionnaire included six original productivity measures in addition to reported grade and levels of overall satisfaction. Two items dropped out of analysis, which may have indicated redundancy with task cohesion. Surviving items which comprise the designated dependent variable of reported productivity ($\alpha = .88$). Items comprising productivity are listed in the appendix. This factor persisted as being distinct from task cohesion or other salient variables.

Correlational analysis followed to characterize surface level relationships, detect potential issues of multicollinearity, and to determine suitability for linear regression. See Table 2 for bivariate correlations. Analysis proceeded with the 5 independent variables (task conflict, relational conflict, task cohesion, social cohesion, and morale) and the three dependent variables (satisfaction, grade earned, and productivity).

Table 2

Bivariate correlations of independent and dependent variables.

Variable	*M*	*SD*	1	2	3	4	5	6	7	8
1. Grade	4.6	0.57	1							
2. Satisfaction	4.72	1.65	.23**	1						
3. Productivity	5.85	1.46	.22**	.66**	(.88)					
4. Task Cohesion	4.21	1.14	.15*	.76**	.71**	(.93)				
5. Social Cohesion	2.93	1.39	.06	.46**	.40**	.47**	(.87)			
6. Belonging	3.47	1.15	.17*	.54**	.49**	.55**	.26**	(.79)		
7. Task Conflict	2.14	0.82	-.11	-.40**	-.38**	-.37**	-.19*	-.36**	(.88)	
8. Relational Conflict	1.86	0.92	-.12	-.42**	-.41**	-.41**	-.21**	-.47**	.79**	(.94)

*Note: *p < .05, **p < .01, ***p < .001. N = 173. Productivity, satisfaction, task cohesion, social cohesion, and morale were all composite indices of items measured on 7-point Likert-type scales ranging from strongly disagree to strongly agree. Grade was a 5-point scale (F, D, C, B, A). Conflict scales were composite indexes calculated from items rated on a 5-point Likert-type scale ranging from 1 "none" to 5 "constant." Diagonal shows Cronbach's alpha scores.*

Multiple linear regression characterizing salient dependent and independent variables.

Relationships between independent and dependent variables were explored in multiple linear regression to ascertain the predictive ability of independent variables in relation to dependent variables. This preliminary analysis also provided insight as to the importance of short-term and task-related variables versus long-term social variables in influencing temporary workgroup outcomes and was performed prior to hypothesis testing.

First, multiple regression was performed, predicting the reported grade earned. Multiple regression confirmed no significant relationships of the independent variables predicting grade, F (5, 167) = .94, p = .46. It seems that in this context, reported grade earned on a group project is not significantly related to the variables in question. Possibly reasons for this will be elaborated upon in the discussion below.

Next, multiple regression was performed with reported satisfaction as the dependent variable. This model did reveal statistically significant predictors of reported satisfaction F (5, 165) = 54.78, $p < .001$. This model explained 62.4% of the variance. Task cohesion ($\beta = .59$, $p < .001$), social cohesion ($\beta = .12$, $p < .05$), and belonging ($\beta = .15$, $p < .05$) were all statistically significant predictors of satisfaction. The conflict measures, however, did not achieve statistical significance, although they were negative predictors of satisfaction. See Table 3 for full results.

Multiple regression predicting the productivity index was also statistically significant, F (5, 165) = 38.09, $p < .001$. This model explained 53.6% of the sample variance. However, the only statistically significant predictor was task cohesion ($\beta = .57$, $p < .001$). Table 6 shows the full results of this model, revealing similar relationships to the other two models, albeit with fewer of statistical significance.

Overall, preliminary regressions suggest a positive influence of task cohesion on the independent variables measured, while conflict items tended to demonstrate negative relationships. Other forms of cohesion also demonstrated some positive tendencies, but these were less pronounced and less statistically significant than the influence of task cohesion. However, the principal relationships in question are moderating ones, so analysis proceeded.

Table 3

Multiple regression of cohesion and conflict predicting reported satisfaction.

Variable	**β**	***b***	***SE***
Task Cohesion	.59***	.87***	.09
Social Cohesion	.12*	.14*	.06
Belonging	.15*	.21*	.09
Task Conflict	-.09	-.18	.16
Relational Conflict	-.01	-.01	.15

(N = 173) R^2 = .62

Table 4

Multiple regression of cohesion and conflict predicting reported productivity.

Variable	**β**	***b***	***SE***
Task Cohesion	.57***	.75***	.09
Social Cohesion	.08	.09	.06
Belonging	.11	.14	.09
Task Conflict	-.07	-.12	.16
Relational Conflict	-.05	-.08	.15

(N = 174) R^2 = .53

Analysis 1: Curvilinear analysis of task-related conflict and task cohesion.

H1 proposed that task-related conflict would demonstrate a curvilinear relationship with group outcomes when task cohesion is high. Accordingly, analysis was performed to evaluate the

possibility of the theorized "Goldilocks" zone of task conflict. The full dataset was split into three percentile-based categories of low conflict (1 to 1.50), medium conflict (1.75 to 2.25), and high conflict (2.5 to 5) according to scores on the task-related conflict index (M = 2.14). These categories were dummy-coded and used to test for statistically significant differences between the levels of task-related conflict on the three outcome variables. Likewise, data was split into three percentile-based groups of low cohesion (.82 to 3.92), medium task cohesion (3.98 to 4.82), and high task cohesion (4.83 to 5.75) according to scores on the task cohesion index (M = 4.21). To test H1, specifically, regressions were run on only the high task cohesion group.

Two sets of regressions were run: first to compare low task conflict to medium task conflict in the high task cohesion condition, next to compare high to medium task conflict in the high task condition. Regression was run for each dependent variable (grade, satisfaction, and productivity). Full results are visible in Tables 5 and 6. Negative coefficients predicting a dependent variable in both high task conflict and low task conflict conditions, compared to the reference category of medium conflict, would be indicative of a curvilinear relationship.

Table 5

*Linear regressions comparing **low task conflict** to medium, predicting dependent variables in the **high task cohesion** condition.*

Dep. Variable	**β**	***b***	***SE***
Grade (R^2 = .08*)	-.28*	-.30*	.15
Satisfaction (R^2 = .004)	.06	.1	.24
Productivity (R^2 = .03)	.18	.35	.29

Notes: (n = 48) *denotes significance at the p < .05 level, ** for p < .01, *** for p < .001.

Table 6

*Linear regression comparing **high task conflict** to medium, predicting dependent variables in the **high task cohesion** condition.*

Dep. Variable	β	*b*	*SE*
Grade (R^2 = .003)	-.05	-.05	.17
Satisfaction (R^2 = .03)	-.17	-.34	.33
Productivity (R^2 = .003)	-.05	-.14	.42

Notes: (n = 37) *denotes significance at the p < .05 level, ** for p < .01, *** for p < .001.

In the high task cohesion condition, there is only one curvilinear relationship evident, and it fails to achieve overall statistical significance. Grade is statistically significantly and negatively predicted by low task conflict compared to medium task conflict (β = -.28), F (1, 47), p = .051. However, while there was a slightly negative predictive relationship of high task conflict compared to medium task conflict (β = -.05), this relationship was not statistically significant, F (1, 36), p = .76. Results, therefore, offer partial support for H1.

Despite the difficulty in achieving statistical significance with this restricted range, the effects do seem consistent. These findings suggest that there may exist a predominantly linear negative relationship between increased levels of task conflict and group outcomes. The possibility that these relationships are diminished at higher levels of task cohesion was explored further in Analysis 2.

Analysis 2: Further characterization of moderation in the dataset.

Research questions were posed in addition to the central hypotheses to better understand the potentially nuanced relationships between the target variables. These research questions were best answered by a battery of tests using dummy-coded multiple regression. These tests sought both to compare the effects of other levels and types of cohesion and conflict.

RQ1: What is the relationship between task conflict and group outcomes when task cohesion is low?

RQ1 was partially answered by repeating the methods of Analysis 1 but with the regressions run on the low task cohesion condition. Again, the dummy-coded categories of low

and high task-related conflict were used, with medium conflict being omitted as the reference category. Regression was again run for each dependent variable. Full results can be seen in Tables 7 and 8.

Table 7

*Linear regressions comparing **low task conflict** to medium, predicting dependent variables in the **low task cohesion** condition.*

Dep. Variable	**β**	***b***	***SE***
Grade (R^2 = .01)	.11	.13	.23
Satisfaction (R^2 = .08)	-.29	-.87	.61
Productivity (R^2 = .01)	-.1	-.31	.63

Notes: (n = 24) *denotes significance at the p < .05 level, ** for p < .01, *** for p < .001.

Table 8

*Linear regression comparing **high task conflict** to medium, predicting dependent variables in the **low task cohesion** condition.*

Dep. Variable	**β**	***b***	***SE***
Grade (R^2 = .02)	-.14	-.23	.24
Satisfaction (R^2 = .19**)	-.43**	-1.38**	.43
Productivity (R^2 = .09*)	-.29*	-.97*	.47

Notes: (n = 46) *denotes significance at the p < .05 level, ** for p < .01, *** for p < .001.

The model for grade earned failed to achieve statistical significance in the low task conflict and low task cohesion condition F (1, 23) = .29, p = .60. The model predicting grade in the high task conflict and low task cohesion condition also failed to achieve statistical significance, F (1, 45) = .94, p = .34. Models predicting satisfaction suggest a curvilinear relationship, but the low task conflict and low task cohesion condition (β = -.29) failed to achieve statistical significance, F (1, 23) = 2.05, p = .17. In the high task conflict and low task cohesion condition, results indicated that high task conflict was a statistically significantly more negative

predictor (β = -.43) of satisfaction than the medium task conflict reference category, F (1, 45) = 10.19, p = .003. A similar pattern was evident in models predicting productivity in the low task cohesion condition. The low task conflict and low task cohesion condition did not achieve statistical significance but did demonstrate a more negative effect (β = -.1) than the medium task conflict reference group. The high task conflict and low task cohesion condition was a more negative predictor of productivity (β = -.29) than the medium task conflict reference group and this model was statistically significant, F (1, 45) = 4.23, p = .046.

Accordingly, the answer to RQ1 seems to be that there is some evidence of a curvilinear relationship between levels of task-related conflict and the dependent variables of satisfaction and productivity at lower levels of task cohesion. While small subsample sizes made it difficult to achieve statistical significance, the analysis provided evidence that a medium level of conflict is important for group functioning at lower levels of task cohesion.

For a clearer understanding, examination of multiline graphs for levels of task cohesion, levels of task conflict, and the three dependent variables may be helpful. Examination of the data in the multi-line graphs provides similar support, but with some distinctions. There do appear to be some curvilinear relationships of varying magnitude, for example, but these predominantly appear in the low task cohesion condition, rather than in the hypothesized high task cohesion condition. In these instances, medium task conflict appears to have more benefit than the other categories. These instances are in predicting satisfaction and productivity. However, line graphs also confirm that the strongest factor in these models appears to be the level of task cohesion, demonstrating the best outcomes across conditions when task cohesion is high. These effects can be informally examined in Figures 1 through 3 below, allowing for fuller understanding of the answers to H1 and RQ1.

Figure 1

Interactions of Task Cohesion and Task Conflict Predicting Grade Earned.

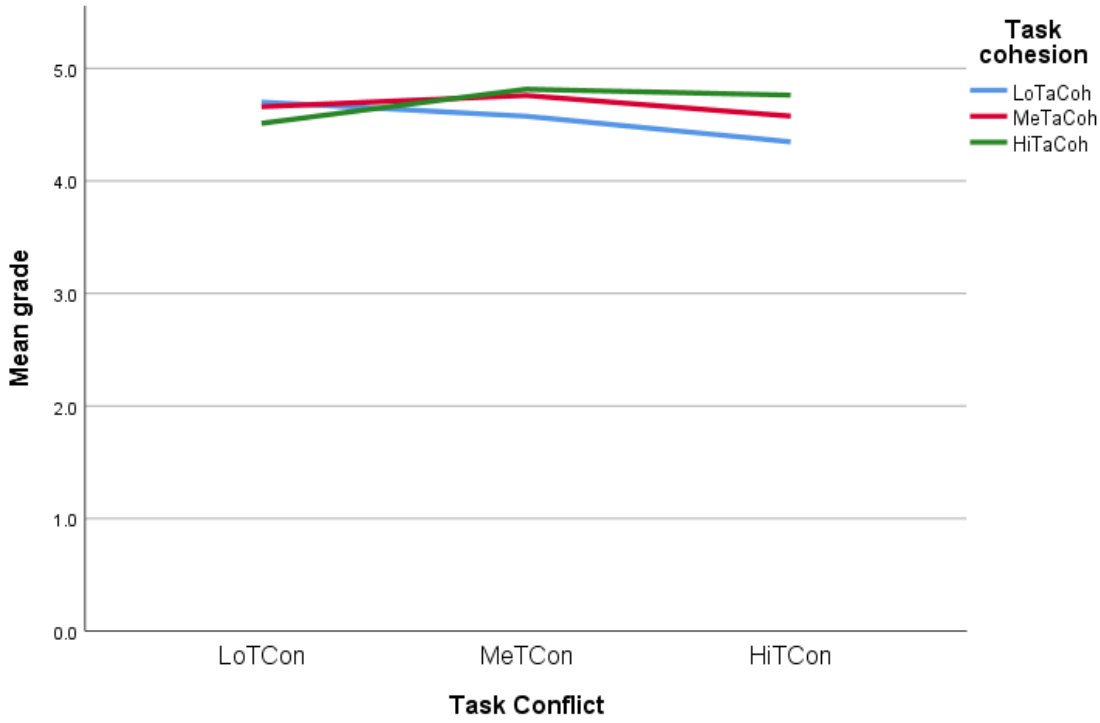


Figure 2

Interactions of Task Cohesion and Task Conflict Predicting Satisfaction.

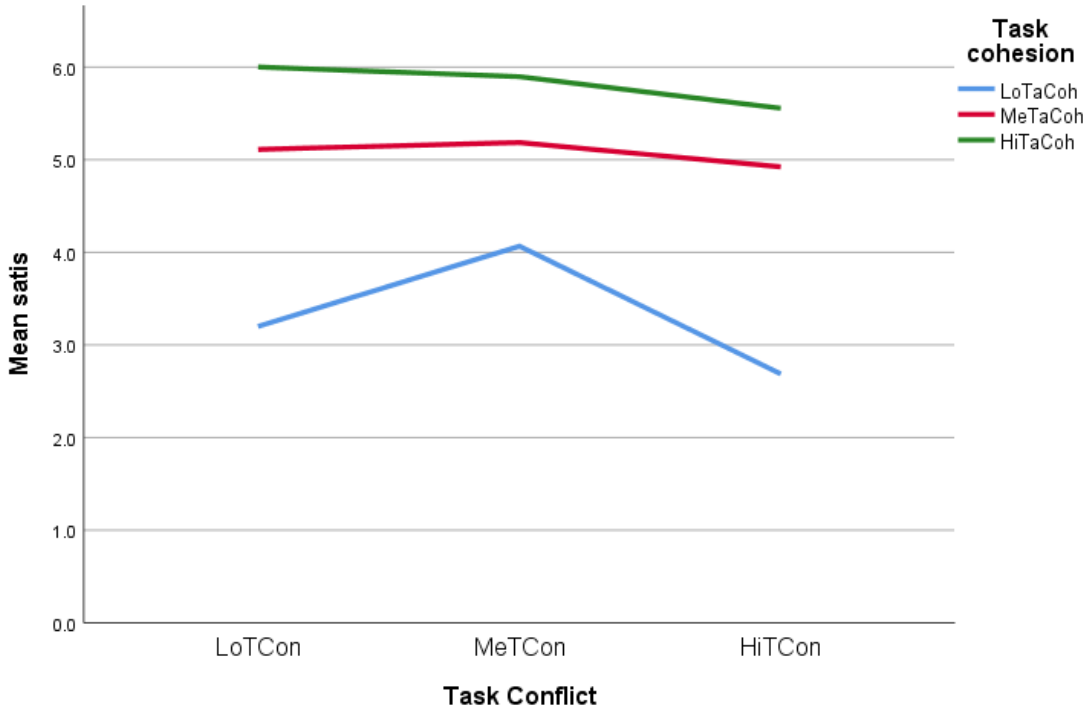
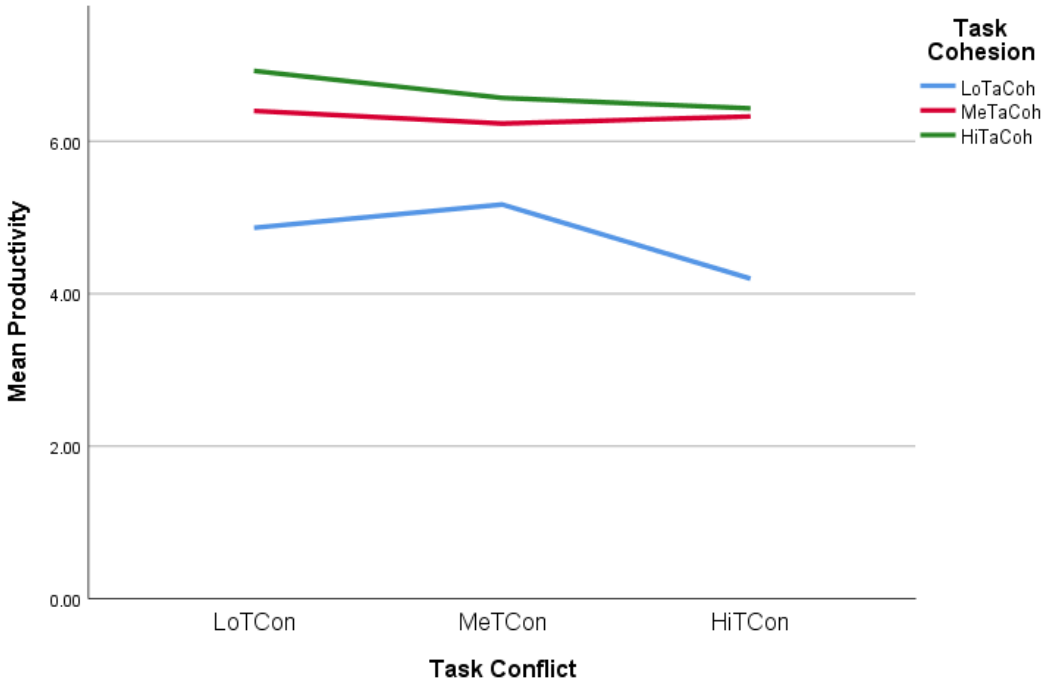


Figure 3

Interactions of Task Cohesion and Task Conflict Predicting Productivity.



RQ2: Does the pattern specified in H1 similarly apply to relational conflict?

RQ2 was answered by running the same analyses for relational conflict. Results suggest very little difference between the role of task conflict and relational conflict in the present sample. Again, there was difficulty achieving statistically significant results, but patterns suggest generally better outcomes with less relational conflict and more task cohesion. Full results of these analyses can be seen in Tables 9 and 10. The interactions between task cohesion and relational conflict can also be informally examined in Figures 4 through 6.

There was one statistically significant model in the relational conflict and task cohesion series of analyses. Under high task cohesion conditions, low relational conflict was a more positive predictor of productivity compared to medium relational conflict ($\beta = .30$), and this

model was statistically significant, F (1, 49) = 4.78, p = .034. Thus, when groups had high task cohesion, they were perceived by members to be more productive the less relational conflict they had.

Table 9

*Linear regressions comparing **low relational conflict** to medium, predicting dependent variables in the **high task cohesion** condition.*

Dep. Variable	**β**	***b***	***SE***
Grade (R^2 = .003)	.06	.06	.15
Satisfaction (R^2 = .004)	.12	.20	.23
Productivity (R^2 = .089*)	.30*	.58*	.26

Notes: (n = 50) *denotes significance at the p < .05 level, ** for p < .01, *** for p < .001.

Table 10

*Linear regression comparing **high relational conflict** to medium, predicting dependent variables in the **high task cohesion** condition.*

Dep. Variable	**β**	***b***	***SE***
Grade (R^2 = .012)	.11	.14	.24
Satisfaction (R^2 = .05)	-.23	-.41	.32
Productivity (R^2 = .00)	.01	.02	.42

Notes: (n = 31) *denotes significance at the p < .05 level, ** for p < .01, *** for p < .001.

Another noteworthy comparison emerges from informal examination of the multiline graphs. Similar to task conflict, there is evidence of a curvilinear relationship in the low task cohesion condition for relational conflict. The model comparing low relational conflict to medium relational conflict was not statistically significant, but it did demonstrate a comparably more negative predictive effect (β = -.22), F (1, 23) = 1.21, p = .282. The model comparing high relational conflict to medium relational conflict did achieve statistical significance and also

showed a negative effect (β = -.47), F (1, 42) = 11.91, p = .001. This pattern closely resembles the pattern associated with task conflict under the same conditions. Thus, both relational and task conflict seem to improve satisfaction at medium levels in the absence of task cohesion. However, the presence of task cohesion is associated with much better outcomes overall than in conditions when it is absent.

Figure 4

Interaction of Task Cohesion and Relational Conflict Predicting Grade Earned.

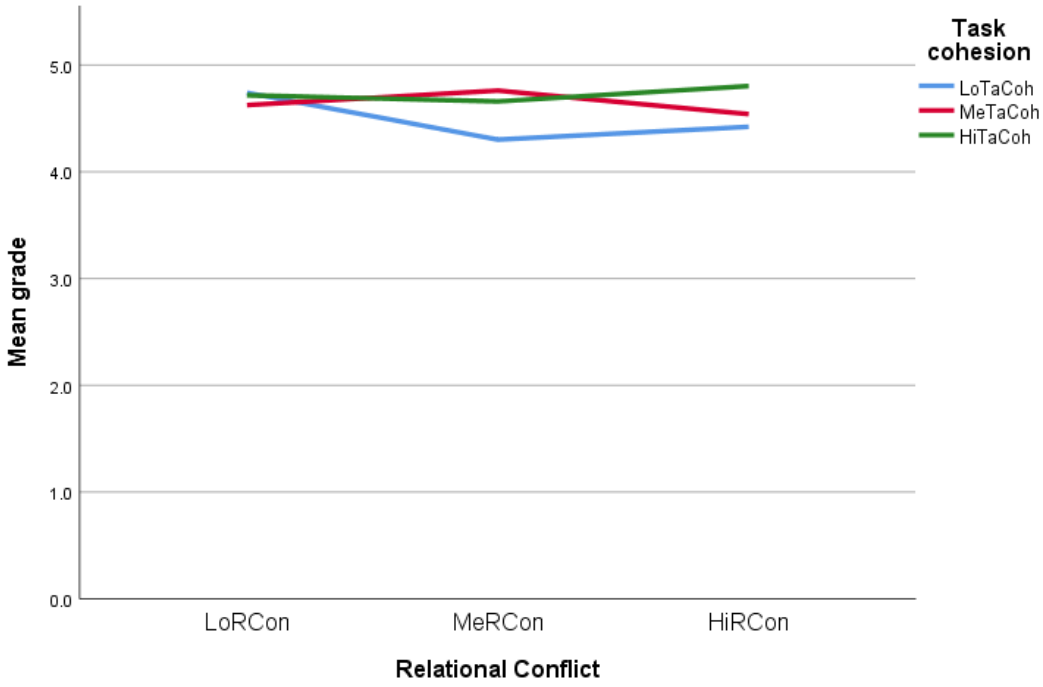


Figure 5

Interaction of Task Cohesion and Relational Conflict Predicting Satisfaction.

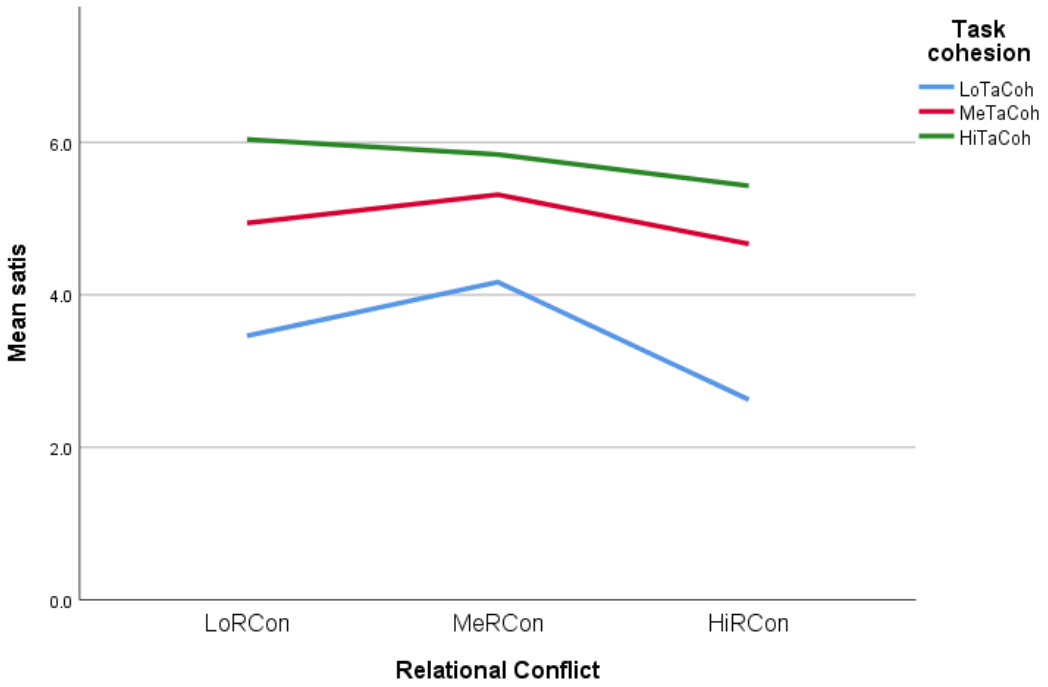
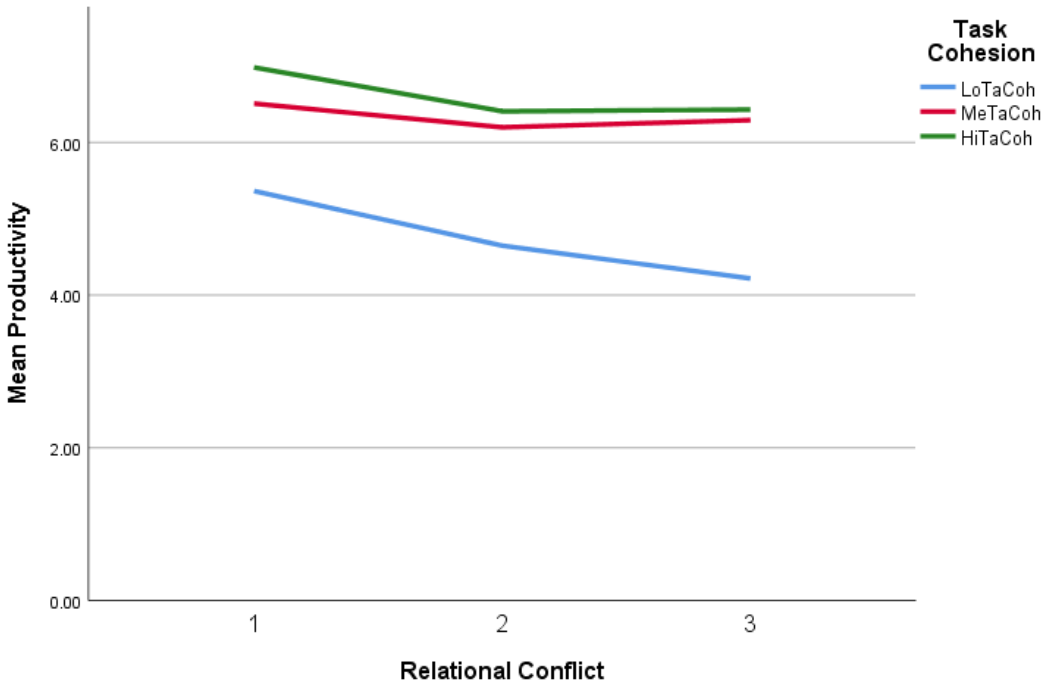


Figure 6

Interactions of Task Cohesion and Relational Conflict Predicting Productivity.



RQ3: Which of the group outcomes provides the context in which the proposed curvilinear relationship appears most pronounced?

Based upon the above analyses and comparing statistically significant results to the plotted line graphs, RQ3 appears to best be answered by Figure 2 above. Dummy-coded multiple regression did suggest a curvilinear relationship, which is visible in Figure 2. As far as the hypothesized Goldilocks zone of conflict is concerned, reported satisfaction with group performance is most directly influenced.

All of the above analyses suggest an overall trend of ameliorating effects of group cohesion and generally deleterious effects of conflict. But the interaction effects paint a more complex picture in which these factors have meaningful relationships which demonstrate the capacity to influence workgroup outcomes.

Discussion

In revisiting the various hypotheses and questions posed at the onset of this study, having performed a wide array of analyses, several lessons are clear. First, in the current sample and context, task cohesion demonstrates a persistently positive influence on group processes and outcomes. This effect seems most pronounced and consistently meaningful across all analyses. Thus, the importance of task cohesion as the one of the most meaningful factors in short-term workgroup dynamics is abundantly clear. However, this study set out to identify even more nuanced relationships between the target variables.

First, in consideration of the initial hypothesis posed, we find partial confirmation. H1, which theorized the existence of a "Goldilocks" zone of conflict, finds support in certain conditions. However, these conditions are not as hypothesized. At low levels of task cohesion, a

moderate amount of task related conflict is the most positive predictor of outcomes such as satisfaction and productivity in the workgroup. Thus, in absence of task cohesion, there does appear to be a sustainable level of conflict that can improve outcomes. Regardless of the level of conflict, task cohesion appears to have an ameliorating effect, although there appears to be some reason to believe that higher levels of conflict see diminishing returns. These relationships should be investigated further in future studies to more accurately describe any hypothetical Goldilocks zone of conflict. While H1 is not entirely supported here, analysis did clearly demonstrate the importance of task cohesion: the higher the levels of conflict, the more important task cohesion becomes for redirecting interactions towards agreeable and productive ends.

RQ2 inquired as to whether positive effects were limited to task conflict or if similar relationships could be observed in the interaction between task cohesion and relational conflict, as well. In fact, a very similar moderation was detectable with relational conflict. It seems based on this study that task cohesion's positive influence is not limited to task-related conflict. Again, a raw effect of a moderate level of relational conflict seems to be better than either too much or too little relational conflict. However, outcomes are worse by far when task cohesion is low and relational conflict is high. A word of caution seems appropriate when interpreting the interactions between task cohesion and relational conflict. While the benefits of task cohesion are clear, the potential for relational conflict to have severely deleterious effects should give us pause. Jehn's (1995) arguments seem appropriate: task-related conflict can be beneficial, and the consequences of social conflict can be redirected beneficially, but this may be an unnecessary struggle.

The answer to RQ3 appears to be that curvilinear effects are most pronounced in predicting reported satisfaction. However, these results should be interpreted with caution due to low statistical significance. Also, it bears reiteration that the curvilinear relationship is less pronounced at higher levels of task cohesion, suggesting that task cohesion is far more important to group outcomes than task conflict. Task cohesion does appear to have the ability to transform conflict of any variety, at any level, in a productive direction, at least in the eyes of group members.

Theoretical Implications

The findings of this study have immediate and significant bearing on the theories in consideration. First, the ongoing debate about the potential benefit of any kind of conflict has been enriched by adding the moderating variable of group cohesion. Task cohesion, in this investigation of short-term small workgroups, is profoundly important for improving workgroup outcomes. This effect is much more consistent and pronounced than any of the effects of conflict. However, the fact that some curvilinear relationships are detectable here provides unique insight on group processes that can derive benefit from conflict. In the absence of task cohesion, that is, mutual commitment to the goals of the group, some conflict appears to be better than nothing. Whether conflict is valuable in lieu of task cohesion, or perhaps contributes to the development of cohesion in the group is beyond the scope of the present studies analysis, but the answer is within reach of future studies.

Regardless, the significance of task cohesion and the function of conflict in its absence may provide new insight for conflict scholars. Applying these findings could resolve some of the controversy surrounding the investigations of conflict types. The study of task cohesion allows for a more fundamental and essential component of group dynamics that is more predictive and

meaningful than accounting for every disparate group context. Indeed, while the addition of cohesion may complicate models somewhat, the end product should be more parsimonious and allow for more precise investigations and models.

Likewise, the study of group cohesion can benefit from the findings of the present study. Namely, task cohesion has been demonstrated quite clearly to be of utmost importance in small, temporary, workgroups. This significance makes task cohesion an excellent candidate for the elusive concept of swift cohesion called for by cohesion researchers (e.g. Salas et al., 2015). Salas et al. (2015) did raise concerns that the cohesion literature disproportionately focuses on task cohesion and social cohesion, over morale or belonging, but this is likely the right move if researchers are interested in identifying the role of swift cohesion in groups.

Practical Implications

The present study provides not only theoretical insight, but also lays important groundwork for practical application of organizational theory. Again, the revelation that task related cohesion is a strong positive predictor of a variety of group outcomes cannot be overstated. If this pattern holds in other contexts, short term groups can benefit from an understanding that focusing on the task at hand is more important than ice-breakers and get-to-know-you games. Furthermore, the possibility for some conflict to be beneficial also means that group members should not shy away from productive debate, but interpersonal conflict should be avoided. Either way, with a strong enough sense of task cohesion, or the mutual commitment to the goals of the groups, conflict should not make or break the group and its outcomes.

Regarding conflict, it was difficult for analysis to truly distinguish between the two types, but one fact remains: too much conflict detracts from outcomes. The two conflict types were strongly correlated here as in other studies. Part of this may be due to the Jehn (1995) measures

inadequately distinguishing between the two, or it may just be that parties involved in conflict tend to perceive the nature of the conflict very differently. This is an ongoing challenge in mediation, therapy, and romantic comedy plots: negotiating disparate view of the same conflict. Thankfully, this is the domain of communication scholars and the present study can contribute to keeping the peace. Here, again, the benefit of keeping disagreements about substantive rather than affective goals is supported. To the extent that these findings reflect fundamental human tendencies, the present study can serve as a reminder that interpersonal conflict should be addressed and reframed in task-related terms if productive outcomes are desired.

Limitations and Future Directions

There are many limitations that, while not damning, should be kept in mind when interpreting results. First, there is a somewhat exploratory element to the factors created here. As with any new model, factor analysis should be performed and confirmed repeatedly in other samples to ensure the reliability and appropriateness. For example, the factor here labeled "belonging" is unlikely to encapsulate the latent variable in its entirety. Here, it is an entirely reverse-coded construct measuring some negative aspect of belonging before being inverted and used as a positive quality, yet it remains conceptually distinct from conflict measures. While the items were reverse-scored for convenience of analysis, this action complicates how the variable is interpreted. Future studies should add and test more items to better characterize whether this latent variable is a negative concept or an inverse measurement of group morale. More items need to be refined and more emphasis should be placed on the role of belonging in groups of all types. Particularly when considering the role of culture, the concept of belonging to the group is likely to be more influential in more collectivistic cultures compared to task cohesion. In fact, task cohesion cannot be assumed to have a similar significance in cultural contexts in which a

sense of group belonging is paramount (see e.g. Ding & Tang, 2009). This question will be investigated further in later projects.

As with any study performed using self-reported data, it is important to remember that these product outcomes, with the exception of grade earned, do not necessarily reflect real-world outcomes. Rather, these latent variables represent ways in which the participants evaluate their groups. As with all self-reported data, these concepts, while still useful, are subjective. Further study is needed to connect the variables in question to real-world outcomes. Likewise, due to this subjectivity, a more pronounced curvilinear relationship or Goldilocks zone of conflict cannot be entirely ruled out in situations with more objective measures. The individual perceptions measured here may actually be hinting at such an influence, an influence that is warped by individual misconceptions about "true" levels of conflict in the group, if such a term is appropriate.

Additionally, grades do not seem to be a good indicator of work productivity outcomes. This may be because most group projects are reported to earn A's at 58.5% of the sample. D's and F's account for a mere 9.5% of the reported grades earned. This makes it difficult to achieve statistical significance in analysis simply because of a lack of variability in responses. That being said, the fact that any deleterious effect can be discerned from this outcome variable speaks to the importance of the variables being studied: even with a standard as generous as a group project grade, we can see the influence of these self-reported latent variables affecting outcomes. This may suggest a potentially critical point of transition from idiosyncratic perceptions to real world outcomes.

The similarity in patterns across conflict types warrants further consideration in relation to previous studies. Previous investigations have shown difficulty in isolating benefit from

conflict when the two conflict types are strongly associated. In the present study, the conflict types are, indeed, strongly correlated. While there were few indications of issues of multicollinearity, results do raise additional concerns. One possible reason for this is the nature of the present study. The context investigated here was deliberately short-term student workgroups. In this context, there may not be much difference between task and relational conflict in the eyes of the participants. Reflecting on the correlation between conflict types may recall previous arguments regarding aversive stimuli: the central argument proposed in the present study is that some conflict is essential for normal group functioning. Thus, the possibility remains that in the low task cohesion condition, some conflict was more beneficial in lieu of the presence of task cohesion or even contributing to the development of cohesion. This supposition is supported by the vastly positive influence of task cohesion at higher levels. Furthermore, as task cohesion is strong enough, any kind of conflict can be made into a benefit. Perhaps this is a sign of group members not negotiating more efficient strategies, again, but rather negotiating and defining individual roles in the group processes (e.g. Jehn, 1997; Pavitt, 1993; Steinel, Utz, & Koning, 2010).

Likewise, 70-80% of respondents reported very little or no conflict. This could reflect avoiding conflict styles being most common among participants or it could point to some aspect of the nature of group work. Whatever the case may be, this likely impeded the study's ability to assess the relationships in questions. However, as with the caveat above regarding grades, meaningful and statistically significant relationships were still detected through the study. If anything, we might assume the importance of task cohesion is underestimated in these analyses.

Conclusions

The present study set out to determine the importance of task-related or swift cohesion in improving workgroup outcomes, particularly through its ability to reduce the negative effect of conflict or redirect it entirely. While this relationship was hypothesized to be a curvilinear one, in which a moderate level of conflict was actually desirable, the results do not indicate that this is necessarily the case. Rather, even high levels of reported conflict, either relational or task-related in nature, seem to be transformed into something beneficial in the presence of task cohesion.

The findings outlined above may bring organizational researchers one step closer to identifying different types of cohesion and discerning their importance in group dynamics. Task cohesion may not be a direct indicator of swift cohesion, but it demonstrates many of the qualities currently associated with swift cohesion: reflecting coordinated effort in the absence of social cues and relationships built over time. The fact that these qualities were so profoundly influential; consistently, positively, and statistically significant; offers some evidence for the importance of studying swift cohesion in the future.

The contributions of this investigation are important not only for communication scholars, studying small group and organizational social processes, but also for social psychologists. Where previous studies have attempted to measure these concepts in various abstract ways, the present study more comprehensively positioned all of these variables in a system of social interactions. Doing so should facilitate future investigations of conflict and cohesion, not only in small groups, but of human coalitions of any size and diversity of constituency. What was tested here is what matters in social coordination, in fundamental and less time-sensitive contexts. The implications will allow for efforts of organizations and pedagogues alike to be more focused and efficient. It has here been demonstrated that the benefits of cohesion need not be carefully cultivated over time and sustained effort, but similar

benefits might be more appropriately achieved through leveraging simpler social processes of challenging discussion and coordinated effort. Such findings can help to disentangle social identity and belonging from other cooperative social processes.

In conclusion, this study has shed light on an essential contextual factor that moderates whether or not conflict is beneficial in group dynamics. Whereas previous scholars have focused on conflict type and level as determining benefit to outcomes, the present study demonstrated that through the influence of task-related cohesion, even grievous social conflict might be redirected and made beneficial to the group. This finding is more applicable than accounting for the myriad possible contexts in which creative tasks require disagreement or where strong social bonds can overcome adversity. This study shows that a cooperative attitude and dedication to a common goal can make the difference between success and failure.

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Appendix

CFA Loadings of Items Comprising Task Conflict, Relational Conflict, and Productivity Variables.

Task Conflict ($\alpha = .88$)

Task_1: (.80) How often did people in your group disagree about opinions regarding the work being done?
Task_2: (.83) How frequently were there conflicts about ideas in your group?
Task_3: (.77) How much conflict about the work you did was there in your group?
Task_4: (.86) To what extent were there differences of opinion in your group?

Relational Conflict ($\alpha = .94$)

Rel_1: (.91) How much friction was there among members in your group?
Rel_2: (.87) How much were personality conflicts evident in your group?
Rel_3: (.96) How much tension was there among members in your group?
Rel_4: (.87) How much emotional conflict was there among members in your group?

Productivity ($\alpha = .88$)

Prod1: (.82) The group demonstrated quality decision-making.
Prod2: (.71) The group was able to meet the goals of the project.
Prod3: (.79) Group interactions helped members to understand their roles with the group.
Prod4: (.91) I would describe group interactions as productive.

CURRICULUM VITAE

Jonathan B. Dellinger, Ph.D.

Department of Communication

University of Wisconsin - Milwaukee

Education

University of Wisconsin-Milwaukee: Milwaukee, Wisconsin
PhD: Communication. (Dissertation defended, May 2019).
Doctoral dissertation title: "Cohesive Conflict: Task Cohesion as a Moderator of Conflict and Group Outcomes."

- Intercultural and organizational focus.
- Emphasis on intergroup contact, diversity, and conflict.
- Quantitative methods

University of Wisconsin-Milwaukee: Milwaukee, Wisconsin
MA: Communication (May, 2014)

- Intercultural health communication emphasis.
- Rhetorical leadership certificate (May, 2014)
- Graduate certificate in Mediation & Negotiation. (May, 2014)

University of Illinois, Urbana/Champaign, Illinois.
BA: East Asian Languages and Cultures (May, 2008).

Recent research and publications

Dellinger, J. B. (2019). *Cohesive Conflict: Task Cohesion as a Moderator of Conflict and Group Outcomes* (Doctoral dissertation). University of Wisconsin – Milwaukee, Milwaukee, WI, USA.

Dellinger, M. J., **Dellinger, J. B.**, & Uchida (2019, in review). Cross-cultural comparisons of fish consumption: Implications for cultural variation in risk characterization. *Journal of Risk Analysis*.

Dellinger, M. J., & **Dellinger, J. B** (2018). Chapter 11: The use of traditional and culturally appropriate modalities. In S. Finn & L. O'Fallon [Eds.] *Environmental health literacy*. Springer International Publishing AG, Cham.

Dellinger, J.B. (2018, November). *Digital Grooming: Human Nature in the Digital Age*. Paper to be presented at the 104th annual convention of the National Communication Association, Salt Lake City, UT.

Dellinger, J.B. (2018, April). *Measuring Group Fitness: An Evolutionary Approach to Improving Intercultural Relations.* Paper presented at the 87th annual convention of the Central States Communication Association, Milwaukee, WI.

Dellinger, J. B. (2017). Correlation: Spearman's. In M. R. Allen (Ed). *The SAGE Encyclopedia of Communication Research Methods*. SAGE.

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Dellinger, J. B., & Kim, S. (2016, November). *Collectivistic Diversity.* Paper presented at the 102nd annual convention of the National Communication Association, International and Intercultural Communication Division, Philadelphia, PA.

Kim, S., **Dellinger, J.**, Ahn, S., Cramer, E. M., Nicolini, K., Marks, L., Wagner, J. (2016, November). *Diminishing cultural differences: Transitioning from cross- to inter-cultural communication.* Paper presented at the 102nd annual convention of the National Communication Association, International and Intercultural Communication Division, Philadelphia, PA.

Dellinger, J. B., Uchida, M., & Dellinger, M. J (2016). *Contrasting the Risks and Benefits of Japanese Fish Consumers with Native Americans: Considerations for Chronic Disease*. Poster presentation for the 5th Conference on Prenatal Programming and Toxicity, Kita-Kyushu, Japan.

Lenox, T., **Dellinger, J. B.** (2016, May). Difficult discussions: Addressing sexual health in aging America. Research presentation submitted and accepted to the Twelfth International Congress of Qualitative Inquiry. Champaign-Urbana, IL, USA

Dellinger, J. B. (2014, May). *Promotive and Preventive Health Practice and Self-Construal* (Master's thesis). University of Wisconsin – Milwaukee, Milwaukee, WI, USA.

Dellinger, J. B. (2012, not published). *Social Determinants and Health in the Tribal Fisheries of the Upper Great Lakes*. Research grant proposal submitted as one of five proposals under NARCH 7 application.

Teaching Experience

Department of Communication Teaching Assistant: UW-Milwaukee

- Communication 450: Cross-cultural Communication (OL, FtF) (Fall '18, Spring '19)
- Communication 350: Intercultural Communication. (OL, FtF) (Fall '16, Spring '17, Fall '17, Spring '17)
- Communication 320: Nonverbal Communication. (OL) (Fall '15, Fall '16, Spring '17)

- Communication 103: Intro to Public Speaking. (FtF)
  (Fall ’13, Spring ’14, Fall ’14, Spring ’15, Spring ‘16)

University Writing Tutor: UW-Milwaukee

- Writing Center tutor for university students and faculty. (Fall ’12 to Fall ’17).
- Tutor university students and faculty in areas of composition, grammar, and editing on a drop-in and appointment basis, online and face-to-face.

Summer Camp Program Director and Counselor: Towering Pines Camp for Boys, Eagle river, WI.

- Worked as Program Director, (seasonally from 2011-present)
- 9 years of counselor experience

Assistant Language Teacher: Sakaiminato Board of Education, Sakaiminato, Japan

- Assistant teacher of English, (July, 2008 – April, 2011)
- Employed through the Japanese Exchange Teaching (JET) Programme.

Service

Guest Lecturer, Risk Communication: (2019, April) *Medical College of Wisconsin, Wauwatosa, WI.* Guest lecture for Matthew Dellinger, PhD, on the subject of health and risk communication and social scientific methodology for the MCW course in Environmental Health.

Ad-hoc committee member: (2018, October) *Native American Research Center for Health, Lac du Flambeau, WI*. For presentation of NARCH awarded student researchers.

Panelist: (2018, April). *Central States Communication Association, Milwaukee, WI.* “Response to Diversity Crisis: Challenges and Strategies for Effective Intercultural Education.”

Respondent: (2018, April) *Central States Communication Association, Milwaukee, WI.* “Rethinking Intercultural and Interpersonal Relationships.”

Reviewer: (2018, November), *Central States Communication Association*, Graduate Student Caucus.

Guest Lecturer, Gender and Communication: (2017, February). *University of Wisconsin-Milwaukee* Guest lectured for T. R. Lennox, PhD, on the subject of evolutionary psychology and social scientific approaches to gender communication.

Professional Associations

Central States Communication Association
National Communication Association