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Los Angeles

Information Sharing Within Groups

A dissertation submitted in partial satisfaction of the requirements

for the degree of Doctor of Philosophy in Management

by

Ming-Hong Tsai

2012

ABSTRACT OF THE DISSERTATION

Information Sharing Within Groups

by

Ming-Hong Tsai

Doctor of Philosophy in Management

University of California, Los Angeles, 2012

Professor Margaret Joan Shih, Chair

UNIVERSITY OF CALIFORNIA

Los Angeles

This dissertation examines the predictors and consequences of information sharing within groups in three papers. The first paper examines the negative impact of ego depletion (i.e., using up limited self-regulatory resources) on preference-relevant information sharing, which in turn reduces integrative outcomes (i.e., outcomes that benefit the whole group) within negotiation groups. The second paper explores the positive effect of group members who have ambivalent attitudes (i.e., attitudes that include positive and negative components) on information sharing within groups. The third paper investigates the effects of divergent task conflict (i.e., discrepant views related to ideas and opinions that occur during the group task work) and convergent task conflict (i.e., discrepant views about the common objective and ultimate solution) on information sharing, which in turn increases group performance. This three-paper dissertation offers new insights on the unexplored antecedents and important outcomes of information sharing.

The dissertation of Ming-Hong Tsai is approved.

Corinne Bendersky

Gary L. Blasi

Craig R. Fox

Margaret Joan Shih, Committee Chair

A dissertation submitted in partial satisfaction of the requirements

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Ming-Hong Tsai

2012

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Corinne Bendersky educates me how to use and develop theories rigorously and inspires me to pursue group conflict research. Gary Blasi shares his knowledge about jury decision-making and gives me useful comments of how to link my dissertation to real-world examples. Craig Fox motivates me to pursue truth in scientific research by examining replication evidence and he also trains me how to present research ideas and experimental designs clearly. Margret Shih teaches me how to design a neat experiment and supports different kinds of ideas I am interested in. Maia Young helps improve my writing and gives me useful comments on my presentation.

I also feel very grateful about the kind people around me. Without their help and support, I cannot survive until now. I don't blame for the mean people around me because I can learn how to get along with different kinds of people.

Finally, I thank my family for supporting and encouraging me to pursue RESEARCH.

VITA

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Decision-making, Group processes

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1. Young, Maia J., Tiedens, Larissa Z., Jung, Heajung, & Tsai, Ming-Hong (2011). Mad enough to see the other side: Anger and the search for disconfirming information. *Cognition and Emotion, 25*, 10-21.

2. Tsai, Ming-Hong & Young, Maia J (2010). Anger, fear, and escalation of commitment. *Cognition and Emotion*, *24*, 962-973.

3. Tsai, Ming-Hong, Chi, Shu-Cheng, & Hu, Hsiu-Hua (2009). Salespeople's *Renqing* orientation, Self-esteem, and their selling behaviors. *Journal of Business and Psychology, 24,* 193-200.

4. Liu, Wu, Chi, Shu-cheng, Friedman, Ray, & Tsai, Ming-Hong (2009). Explaining incivility in the workplace: The effects of personality and culture**,** *Negotiation and Conflict Management Research, 2(2)*, 164-184.

5. Chi, Shu-Cheng, Lo, Hsin-Hsin, Tsai, Ming-Hong, & Niehoff, Brian P. (2008). Bystanders' reactions towards co-punishment events in the Taiwanese military: Examining the moderating effects of organizational norms, *Asian Journal of Social Psychology, 11(4)*, 274-278.

6. Chi, Shu-Cheng, Tsai, Hwa-Hwa, & Tsai, Ming-Hong. (2004). The effects of perceived identity and justice experiences with an ADR institution on managers' decisions. *International Journal of Conflict Management*, *15(1)*, 57-76.

Chapter I Introduction

Information sharing has strong impacts on group outcomes. On one hand, research finds that, in many instances, when groups engage in information sharing, they are capable of integrating knowledge (Cruz, Boster, & Rodriguez, 1997), displaying collective intelligence (Woolley, Chabris, Pentland, Hashmi, & Malone, 2010), and achieving excellent performance, cohesion, and decision satisfaction (Mesmer-Magnus & DeChurch, 2009). When groups do not share information, their members have large differences in preferences and opinions (Moye & Langfred, 2004) and coordinate their tasks inefficiently (Andres & Zmud, 2001). On the other hand, in few situations, information sharing leads to inefficiency during a simple group task in which people can make decisions based on heuristics (De Dreu & Beersma, 2010; De Dreu, Nijstad, & van Knippenberg, 2008).

Since information sharing behaviors are strongly connected to important group outcomes, researchers devote their attention to factors that positively affect information sharing, such as management support (Connelly & Kelloway, 2003), beliefs of knowledge ownership (Kolekofski & Heminger, 2003), and justice (Schepers & van den Berg, 2007). A recent review has noted that the predictors of information sharing have not been fully investigated (Wang & Noe, 2010). Wang and Noe (2010) develop a theoretical model to integrate the predictors of information sharing and mention that some types of predictors are overlooked, such as the predictors relevant to team characteristics and processes. Therefore, it is critical to examine these unexplored factors that influence information sharing.

Past research on team characteristics or processes focuses on how group members' external characteristics, such as demographic diversity, affect information sharing (Ojha, 2005; Wang & Noe, 2010) whereas my dissertation focuses on how members' internal characteristics,

such as members' preferences, influence information sharing. Studying internal characteristics may be also important because group members usually rely on their external characteristics to infer each other's internal characteristics. These internal characteristics may subsequently affect their behavior. For instance, people of different races may assume that they have different preferences because they associate different external characteristics with different stereotypes about the others' internal characteristics (e.g., talents, traits). Consequently, they may not share information with each other. Thus, it is very important to examine how members' internal characteristics affect information sharing within groups.

To study the impact of preference-related factors that affect information sharing, I examine three internal factors, including 1) ego depletion (related to failing to regulate preferences), 2) ambivalent attitudes (related to intrapersonal conflicting preferences), and 3) task conflicts (related to conflicts over different preferences among group members), that affect information sharing within groups in the next three chapters.[1] I also examine the consequences of information sharing to demonstrate its importance in some chapters. Chapter II explores how ego depletion (i.e., using up limited self-regulatory resources, Dorris, Power, & Kenefick, 2012; Muraven & Baumeister, 2000; Schmeichel, Vohs, & Baumeister, 2003) affects information sharing in negotiation situations, which subsequently influences integrative outcomes (i.e., outcomes that benefit the whole groups) in negotiation groups. Research on ego depletion focuses on exploring its individual-level consequences (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Muraven, 2008). However, it is critical to examine its effects on group processes and outcomes. Group processes that involve intense interpersonal interactions may enhance or dampen the impact of ego depletion because group members can either feel depleted about others

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[1] The author collaborates with Dr. Margaret Shih on Chapters II and III and Dr. Corinne Bendersky on Chapter IV.

(Westman, Bakker, Roziner, & Sonnentag, 2011) or receive emotional support from others (Huffmeier & Hertel, 2011; Jimmieson, McKimmie, Hannam, & Gallagher, 2010; McDonough, Sabiston, & Ullrich-French, 2011).

In addition, negotiation requires regulating each other's interests within groups and this regulation process may also cause depletion of self-regulatory resources. Since individuals have limited self-regulatory resources, they may perform poorly in a negotiation task if they spend significant self-regulatory resources on a prior task. Thus, it is very critical to examine the carryover effects of depletion in a prior task on negotiation processes and outcomes with groups. This chapter examines ego depletion as a factor that reduces information sharing, which may subsequently decrease integrative outcomes in negotiation groups.

Chapter III also contributes to our understanding of the factors that affect information sharing by investigating how the presence of group members who have ambivalent attitudes (i.e., attitudes that include both positive and negative components) affects information sharing. Past research on attitudes and group processes focuses on how one-sided attitudes, either positive or negative attitudes, affect group processes (e.g., Emerson, 1954; Schachter, 1951). However, before making group decisions, people often feel ambivalent due to competing options. They may need to evaluate ideas carefully and then make a decision. Individuals may also expose themselves to different perspectives in a group setting, they easily become ambivalent. Thus, it is very important to study how ambivalent individuals influence group processes. This chapter examines whether the presence of people who have ambivalent attitudes increases one's information sharing by enhancing his or her perceptions that the ambivalent group members are open to others' ideas and opinions.

In addition to the effects of ambivalent attitudes on information sharing, Chapter IV examines the differential effects of divergent and convergent task conflicts (Bendersky et al., 2010; Tsai & Bendersky, 2011) on information sharing, which may subsequently affect performance. Past research has shown the inconsistent effects of task conflict (i.e., discrepant views related to the group's task) on information sharing and team performance (Jehn, 1995; Moye & Langfred, 2004). Divergent task conflict refers to discrepant views about ideas and opinions expressed during group task work whereas convergent task conflict refers to discrepant views about the ultimate solution and/or common objective. Chapter IV validates the constructs of divergent and convergent task conflicts and examines the distinct effects of the two task conflicts on information sharing and group performance. This chapter examines whether divergent and convergent task conflicts are two separate factors and whether they contribute to information sharing and performance in opposite directions. Specifically, divergent task conflict increases group performance by enhancing information sharing whereas convergent task conflict decreases group performance by reducing information sharing. These findings are very important because they address the inconsistent effects of task conflict on information sharing and group performance.

These three chapters may have different predictors of information sharing but their central theme is to investigate how preference affects information sharing. People cannot live without a preference: Some people may not have enough energy to regulate their preference(Fischer, Greitemeyer, & Frey, 2008); others may have conflicting preferences (Clark, Wegener, & Fabrigar, 2008); still others may have conflicts due to their strong one-sided preferences (Jehn, 1995). Chapter II suggests that failing to regulate preference may reduce information sharing; Chapter III concludes that two-sided preference may benefit information

sharing; Chapter IV implies that conflicts over different preferences may help information sharing during idea generation processes but may hurt information sharing during idea selection processes. My dissertation includes different forms of preference and demonstrates their effects on information sharing. This work offers new insights on how preference affects information sharing within groups.

In the next three chapters, I use multiple methods of data collection and engage in different levels of analysis to understand group phenomena. Chapter II includes experimental groups in the laboratory, which involves both individual-level and group-level analyses. Chapter III includes online experiments, which involves only individual-level analysis. Chapter IV includes surveys in real-world groups, which involves both individual-level and group-level analyses. These chapters cover a wide range of research methods and data analyses for group research.

In conclusion, this dissertation explores the antecedents and consequences of information sharing within groups by using multiple methods of data collection and performing different levels of analyses. It is important to examine predictors and outcomes of information sharing because information sharing strongly influences group outcomes. Using multiple methods of data collection facilitates improving our internal (i.e., causal inferences) and/or external validity (i.e., generalization of the findings). Performing different levels of analyses helps our understanding of whether the predictions are consistent and robust across individual-level phenomena (i.e., individual members' interpretations of the groups) and group-level phenomena (i.e., shared perceptions among group members). Thus, the dissertation uses rigorous methods to examine an important issue of how information sharing operates within groups, which can facilitate increasing overall utility and performance of groups.

Chapter II How Do Depleted Groups Negotiate? The Impact of Ego Depletion on Integrative Outcomes in Negotiation Groups

Abstract

Achieving integrative outcomes (i.e., outcomes that benefit the whole group) requires effort in negotiations. Negotiators may fail in achieving integrative outcomes when they exert effort on engaging in unrelated, complex tasks before the negotiation. This chapter explores how ego depletion (i.e., using up limited self-regulatory resources) affects group-based processes and outcomes in negotiations. Study 1 finds that ego depletion lowers expectations of integrative outcomes. Study 2 demonstrates that ego depletion decreases the likelihood of achieving integrative outcomes by reducing preference-sharing within negotiation groups. Study 2 also excludes fatigue and cooperation as alternative explanations of the associations between ego depletion and integrative outcomes. Unlike most recent research that focuses on the individual-based consequences of ego depletion, our results offer new insights on the adverse effects of ego depletion on group processes and outcomes.

One weekday evening, three roommates plan to negotiate how to divide up different kinds of responsibilities, such as cooking, cleaning the kitchen, and washing the bathroom. Before their negotiation, they spent so much energy at their workplace that they cannot regulate their own behavior to reach an agreement that benefit all of them, which will subsequently increase future conflicts and hurt the quality of the relationships among them.

This everyday example illustrates that a negotiation group must have sufficient energy to regulate the behavior of members or the group may fail to achieve integrative outcomes (i.e., outcomes that benefit the whole group, Beersma & De Dreu, 1999, 2005). Failing to achieve integrative outcomes may be due to limited *self-regulatory resources*, which are resources, similar to strength or energy, that influence the capacity to override and alter one's behavioral tendency (Baumeister & Vohs, 2007). Thus, when negotiators have already depleted their self-regulatory energy or strength before the negotiation, they may fail in regulating their conflicting preferences, thus lowering the chances of achieving integrative outcomes.

Consistent with this description, the literature on ego depletion (i.e., using up limited self-regulatory resources, Dorris, et al., 2012; Inzlicht, McKay, & Aronson, 2006; Muraven & Baumeister, 2000) has suggested that using self-regulatory resources in one setting will make less self-regulatory resources available in a subsequent setting, leading to failure or incapability in this subsequent setting (Dorris, et al., 2012; Fennis, 2011; Muraven & Baumeister, 2000; Schmeichel, et al., 2003; Unger & Stahlberg, 2011). Thus, self-regulatory resource depletion in a non-negotiation task may have significant impacts on integrative outcomes in a subsequent negotiation task.

In the present chapter, we examine how ego depletion affects integrative outcomes in negotiation groups. Group processes that involve intense social interactions may enlarge or

mitigate the effects of ego depletion because group members can either feel exhausted about others (Westman, et al., 2011) or receive social support from others (Huffmeier & Hertel, 2011; Jimmieson, et al., 2010). In addition, negotiation requires regulating each other's interests within groups and this regulation process may also cause depletion of self-regulatory resources. Since individuals have limited self-regulatory resources, they may perform poorly in a negotiation task if they spend significant self-regulatory resources on a prior task. Thus, it is very critical to examine the carryover effects of depletion in a prior task on group processes and outcomes. Previous studies focus more on individual-based consequences of ego depletion (e.g., DeBono, Shmueli, & Muraven, 2011), but this chapter serves as an initial attempt to explore the effects of ego depletion on subsequent group processes and outcomes in negotiations.

The Effects of Ego Depletion

We propose that ego depletion will reduce the likelihood of achieving integrative outcomes by causing fatigue, reducing cooperation, and decreasing preference-sharing. Fatigue is defined as a subjective feeling of exhaustion (Webster, Richter, & Kruglanski, 1996). Cooperation is defined as shared perceptions that group members work with others to complete the group's task (Lester, Meglino, & Korsgaard, 2002). Preference sharing refers to group members' perceptions that other group members share information about their personal preferences (De Dreu, Koole, & Steinel, 2000; Thompson, 1991). We examine fatigue, cooperation, and preference sharing as separate factors because they mediate the relationships between ego depletion and integrative outcomes for different reasons.

Fatigue as a Mediator

Ego depletion may lower the chances of achieving integrative outcomes by causing fatigue. People who engage in ego-depletion tasks report higher fatigue than those who engage in

non-ego-depletion tasks (e.g., Finkel et al., 2006; Friese & Hofmann, 2009; Muraven, Baumeister, & Tice, 1999; Stewart, Wright, Hui, & Simmons, 2009). Such a difference in fatigue between the two tasks is because performing ego-depletion tasks requires greater effort than performing non-depletion tasks (Hagger, Wood, Stiff, & Chatzisarantis, 2010). In addition, some scholars propose that fatigue reduces integrative outcomes because it leads to the use of heuristics and close-mindedness (Gelfand, Fulmer, & Severance, 2010). Depleted negotiation groups, therefore, have low integrative outcomes because they experience subjective fatigue. Thus, we propose the following hypothesis:

Hypothesis 1: Depleted negotiation groups have lower integrative outcomes than non-depleted negotiation groups because the former have higher levels of fatigue than the latter.

Cooperation as a Mediator

Ego depletion may dampen cooperation among negotiators and therefore it may reduce the opportunity to obtain integrative outcomes. Scholars propose that ego depletion decreases cooperation because cooperation involves self-regulatory activities, such as forgoing short-term benefits and suppressing aggressive behavior (Balliet & Joireman, 2010). Consistent with this proposition, depleted individuals are less likely to be helpful (DeWall, Baumeister, Gailliot, & Maner, 2008; Fennis, Janssen, & Vohs, 2009) and to accommodate others (Yovetich & Rusbult, 1994). Research also finds that cooperation increases integrative outcomes because it fosters trust and discourages contention (Beersma & De Dreu, 1999). Based on these arguments, we predict that depleted negotiation groups will have low integrative outcomes because the group members feel reluctant to cooperate with each other. Thus, we propose the following hypothesis:

Hypothesis 2: Depleted negotiation groups have lower integrative outcomes than non-depleted negotiation groups because the former have lower levels of cooperation than the latter.

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Preference Sharing as a Mediator

In addition to the mediating effects of fatigue and cooperation, preference-sharing may mediate the negative impact of ego depletion on integrative outcomes. A depleted group has a lower likelihood of engaging in preference sharing because the group members may want to conserve their self-regulatory resources to alter their preferences. Specifically, if negotiators are to expose themselves to conflicting preferences within a group, they must regulate their immediate desire to avoid the information inconsistent with their own preference (i.e., preference-inconsistent information) or they have to suffer the negative cognitive and emotional consequences of preference-inconsistent information. The consequences include cognitive dissonance (Festinger, 1957; Frey, 1986), difficulty in information processing (Ditto & Lopez, 1992; Ditto, Scepansky, Munro, Apanovitch, & Lockhart, 1998), distorted perceptions of low-quality information (Fischer, Jonas, Frey, & Schulz-Hardt, 2005), a threat to one's self-concept (Pyszczynski & Greenberg, 1987), or negative emotional responses (Kruglanski & Klar, 1987). These cognitive and emotional consequences will also deplete one's self-regulation resources (Fischer, et al., 2008). Consistent with this reasoning, research has shown that depletion of self-regulatory resources decreases the frequency of seeking preference-inconsistent information (Fischer, et al., 2008). In order to avoid preference-inconsistent information, we can expect that depleted groups will be less likely to engage in preference-sharing than non-depleted groups.

Research has suggested that preference-relevant information sharing activities increase integrative outcomes within groups because this information may help identify underlying interests (De Dreu, Beersma, Stroebe, & Euwema, 2006; Pruitt, 1983; Sheppard, Blumenfeld-Jones, & Roth, 1989; Thompson & Hastie, 1990). Specifically, when negotiators share information about others' preferences for each solution and priorities of different issues, they

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have a higher likelihood of achieving integrative outcomes than those who do not share this information (De Dreu, et al., 2000; Thompson, 1991). Research also demonstrates that even if only one of the bargaining pair provides or seeks more information about preference-relevant information, the bargaining pair can significantly improve integrative outcomes (Thompson, 1991). These studies suggest that when a negotiation group shares more information about its conflicting preferences, the group will be more likely to increase integrative outcomes. In conclusion, depleted negotiation groups may have low integrative outcomes because the group members feel reluctant to share their own preference with each other. Thus, we propose the following hypothesis:

Hypothesis 3: Depleted negotiation groups have lower integrative outcomes than non-depleted negotiation groups because the former have lower levels of preference-sharing than the latter.

The Present Studies

In this chapter, we report the results of two studies examining the effects of ego depletion on integrative outcomes. Study 1 serves as a pilot study by examining whether depleted individuals will have lower expectations for integrative outcomes. Study 2 tests the formal hypotheses by exploring whether depleted groups will decrease their integrative outcomes by causing fatigue, dampening cooperation, and preventing preference sharing.

Study 1: Expectations of Integrative Outcomes

The purpose of Study 1 is to examine whether ego depletion lowers the expectations for integrative outcomes.

Method

Participants. Thirty-nine adults (58.97% female; age: $M = 20.03$, $SD = 3.12$) participated in the study in exchange for monetary compensation.

Design. The study consists of a two-condition between-subject design. The conditions include the *Ego-Depletion* condition (N = 20) and the *No-Depletion* condition (N = 19). Participants were randomly assigned to these two conditions. Participants in the Ego-Depletion condition completed an ego-depletion task whereas those in the No-Depletion condition engaged in a no-depletion task.

Procedure. As participants arrived in the laboratory, the experimenter took each participant to separate cubicles containing a desktop computer. The experimenter then explained to the participant that they would be completing two unrelated tasks during the experiment. First, they would complete 1) a "crossing off *e"* task and afterwards 2) negotiation evaluation task, including reading a negotiation scenario and answering questions related to their behavior and demographics.

Participants first engaged in the "crossing off *e"* task, a task adapted from Baumeister, Bratslavsky, Muraven, and Tice's (1998) paper. The basic rule of the task is to cross out the instances of the letter e in a text. The participants were randomly assigned to the Ego-Depletion condition or No-Depletion condition. They were given a typewritten page from a statistics book and told that they would cross out the instances of the letter *e* in a text with specific rules. Participants in the Ego-Depletion condition were told that they could cross off a letter e only if the letter e is not adjacent to another vowel or one extra consonant away from another vowel. In addition, the photocopy of the text page had been lightened, making it relatively difficult to read. Therefore, participants in this condition need to concentrate on the task. In contrast, participants in the No-Depletion condition were told that they could cross off all instances of the letter e without further rules. Participants also received a legible photocopy of the text page. After the task, the participants answered one question that served as a manipulation check item: "*To what*

extent did you have to concentrate on the task of crossing off the es?" where 1 = *Very little* and 7 = *Very much.*

Then the participants read a scenario modified from negotiation simulation (Beersma & De Dreu, 1999). In the scenario, a bakery, a flower shop, and a grocery store planned to open a market together. Participants imagined that they were serving as a representative of the grocery store and had to reach an agreement with representatives of the florist and bakery on three issues: the design of the market, the temperature, and the distribution of rental costs. There were five options for each issue. Participants would need to reach an agreement with their negotiation partners on a particular option for each issue. This negotiation task did not involve any interactions between participants. Participants also received a point table in which grocery representatives' preferences for the different options of each issue were expressed by the number of points assigned to each option (See Appendix).

After reading the negotiation scenario, the participants indicated their expectations for an integrative outcome: "I will want everyone to earn the same number of points," where 1 = *Strongly disagree* and 7 = *Strongly agree.* They also reported their demographics, such as age and gender. Finally, we debriefed the participants and thanked them for their participation.

Results and Discussion

We first examine whether our manipulation has effects on the manipulation check item. The results of t-test reveal a marginally significant effect of the conditions on the manipulation check item, $t(68) = 2.50$, $p < .10$. People in the Ego-depletion condition ($M = 5.85$, $SD = 0.99$) have to concentrate on the crossing-off e task more than those in the No-depletion condition ($M = 5.05$, $SD = 1.68$). Thus, the results confirm the success of our manipulation.

Then we examine how ego depletion affects expectations for an integrative outcome. We also find a significant effect of the conditions on expectations for an integrative outcome, $t(68) = -2.50$, $p < .05$. People in the *Ego-depletion* condition ($M = 4.10$, $SD = 1.62$) have lower expectations for an integrative outcome than those in the *No-depletion* condition ($M = 5.26$, $SD = 1.28$) (See Figure 1-1).

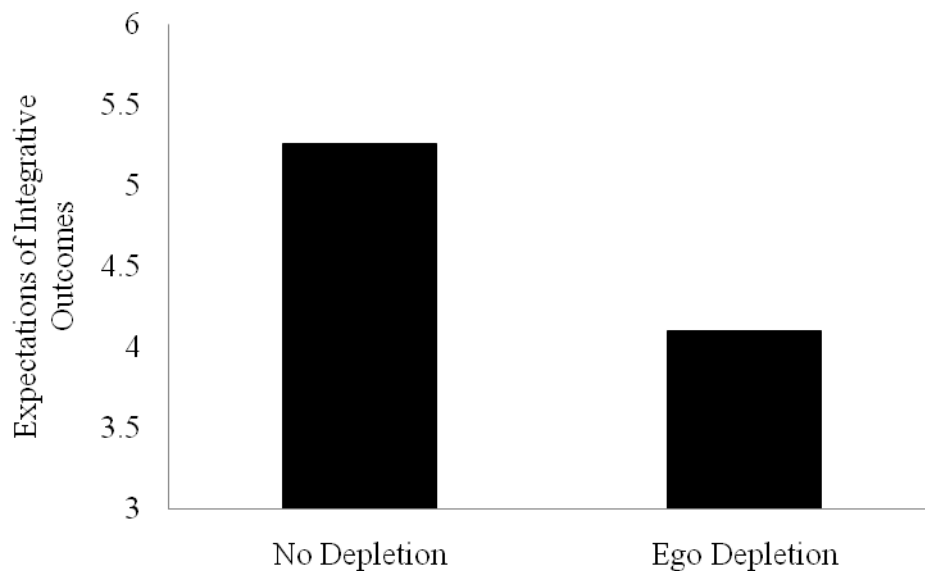*Figure 1-1.* The Associations between Ego Depletion and Expectations of Integrative Outcomes in Study 1

Although the results reveal that depleted individuals have lower expectations for an integrative outcome than non-depleted individuals, we are not sure whether ego depletion reduces integrative outcomes in real negotiation situations and its underlying process. Study 2 will address these limitations.

Study 2: Integrative Outcomes in Negotiation Groups

The purpose of Study 2 is to examine how ego depletion has an impact on integrative outcomes by affecting the perceptions of other group members. Specifically, we test whether ego depletion reduces integrative outcomes by raising fatigue (Hypothesis 1), reducing cooperation (Hypothesis 2), and decreasing preference sharing (Hypothesis 3) within groups.

Method

Participants. One hundred and seventy-seven adults (59 three-person groups, 68.36% female; age: $M = 20.02$, $SD = 3.76$) participated in the study in exchange for monetary compensation.

Design. The study consists of a two-condition between-subject design. Participants were assigned to one of two conditions: *Ego-Depletion* (N = 90) or *No-Depletion* (N = 87). Again, participants in the Ego-Depletion condition engaged in an ego-depletion task whereas participants in the No-Depletion condition engaged in a non-depletion task.

Procedure. As participants came to the laboratory, the experimenter took each of three participants to a separate room. First, they engaged in the same task as in Study 1. Then participants read the same negotiation case we used in Study 1, but this negotiation involved real interactions between participants. Participants served as representatives of a bakery, a flower shop, and a grocery store. They planned to open a market together. They were requested to reach an agreement with their negotiation partners on three issues: the design of the market, the temperature, and the distribution of rental costs. There were five options for each issue. Participants read that they would need to reach an agreement with their negotiation partners on a particular option for each issue.

Participants also received their point table based on which role they played. In the point table, their characters' preferences for the different options were expressed in the number of points assigned to each option (See Appendix). To motivate participants to engage in the negotiation seriously, they were informed that their points would be positively associated with the chances of winning a cash prize of $50. Their points would be converted to lottery tickets. The more points they got, the more lottery tickets they would obtain. Therefore, they were more likely to win a cash prize of $50.

After reading the instructions of the negotiation task, each group was asked to reach an agreement within 20 minutes, or would be assigned 0 points. Participants were also informed that they could talk about anything but were not allowed to exchange their point tables. After the negotiation task, participants answered questions related to their levels of fatigue, perceptions of cooperation, perceptions of preference sharing, and demographic information. Finally, participants were thanked and debriefed.

Measures

The self-reported measures include fatigue, cooperation, and preference-sharing. The order of the items was randomized. We manipulate ego depletion based on groups rather than individuals, and therefore fatigue can be regarded as a group-level concept. Cooperation and preference-sharing are shared perceptions within groups. Therefore, fatigue, cooperation, and preference-sharing are all regarded as group-level concepts. To assess the appropriateness of averaging individual-level fatigue, cooperation, and preference-sharing data at the group level, we calculate the intra-class correlation coefficients, ICC1 (Hayes, 2006). Values of ICC1 greater than .12 are considered acceptable (James, 1982). In addition, factor analysis supports a three-factor solution, distinguishing among fatigue (common variance explained = 23.85%),

cooperation (common variance explained = 35.71%), and preference-sharing (common variance explained = 16.18%).

Fatigue. Participants answered two items that assess their fatigue ($\alpha = 0.89$; *ICC1* = 0.14): "To what extent did you feel tired/exhausted while working on the negotiation task?" where 1 = *Very little* and 7 = *Very much*.

Cooperation. Participants answered four items that measure their perceptions of cooperation ($\alpha = 0.84$; *ICC1* = 0.33): "During the task, we cooperated to get the work done;" "During the task, we worked together to engage in negotiation;" "During the task, we found it easy to work with each other;" "During the task, there was a lot of cooperation among us." The responses ranged from 1 for *Strongly Disagree* to 7 for *Strongly Agree*.

Preference Sharing. Participants answered four items that measures their perceptions of others' information sharing ($\alpha = 0.73$; *ICC1* = 0.16): "The others shared information about their preferences for the alternatives," "The others shared information about their prioritization of the issues," "I shared information about my preference for the alternatives in the task;" "I shared information about my prioritization of the issues." The responses ranged from 1 for *Strongly Disagree* to 7 for *Strongly Agree*.

Integrative Outcomes. The measure of integrative outcomes is the total points earned by each group.

Results and Discussion

First, we examine whether our manipulation has effects on the item of manipulation check. A t-test reveals a significant effect of the conditions on the manipulation check item, $t(178) = 2.22$, $p < .05$. People in the Ego-Depletion condition ($M = 5.16$, $SD = 1.38$) have to

concentrate on the crossing-off e task more than those in the No-Depletion condition ($M = 4.71$, $SD = 1.38$). The results demonstrate the success of our manipulation.

Since ICC1's justify the group aggregation (all $ICC1's \geq 0.12$), we use group-level data to examine the effects of ego depletion. We dummy code ego depletion conditions (1 = ego-depletion condition, 0 = no-depletion condition) in regression analysis. First, we find that ego depletion reduces preference sharing ($\beta = -0.28$; $p < .06$), raises fatigue ($\beta = 0.23$; $p < .05$), and decreases integrative outcomes ($\beta = -0.26$; $p < .05$), but does not have any significant effect on cooperation ($\beta = 0.03$; $p > .10$). Second, when ego depletion, fatigue, cooperation, and preference-sharing are included as independent variables predicting integrative outcomes, ego depletion ($\beta = -0.15$; $p > .10$), fatigue ($\beta = -0.01$; $p > .10$), or cooperation ($\beta = 0.17$; $p > .10$) does not significantly predict integrative outcomes, but preference sharing ($\beta = 0.46$; $p < .001$) increases integrative outcomes. Only preference sharing serves as a significant mediator of the associations between ego depletion and integrative outcomes (the 90% boostrapping confidence interval = [-17.87, -2.39], Preacher & Hayes, 2008) (See Figure 1-2 for the summary of the mediation results).
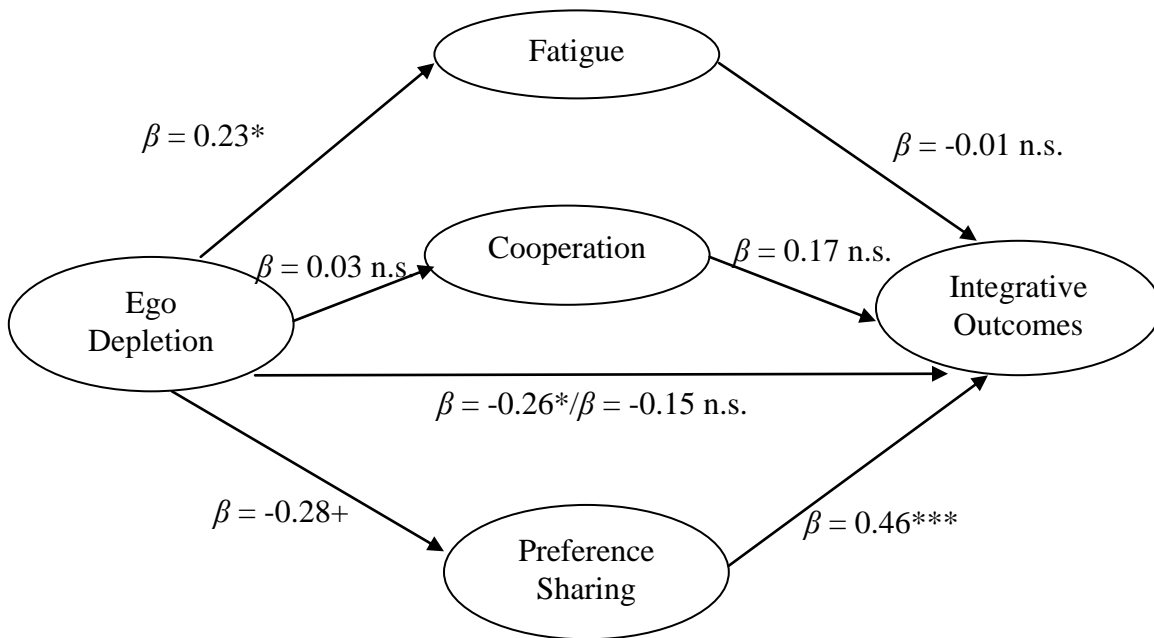
Figure 1-2. The Mediating Processes of the Associations Between Ego Depletion and Integrative

Outcomes in Study 2. The 95% bias-corrected bootstrapping confidence interval does not span

zero only for the indirect effects via preference sharing.

Therefore, our results support our Hypothesis 3 that depleted negotiation groups have

lower integrative outcomes than non-depleted groups because the former have a lower level of

preference sharing than the latter.

General Discussion

The ability to regulate one's self has been described as a means of achieving positive

group outcomes (Finkel, et al., 2006). Consistent with this description, the results of our studies

reveal that depleted groups (i.e., those who have limited resources to regulate their behavior)

have difficulty in achieving integrative outcomes in negotiations. Study 1 finds that ego

depletion lowers expectations of integrative outcomes. Study 2 finds that ego depletion decreases

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integrative outcomes because it reduces preference-sharing in groups.

Furthermore, our work contributes to our understanding of how ego depletion affects decision-making consequences. Most of the work in this area focuses on individual decision-making behavior. For instance, depleted people are more likely to seek risk (Bruyneel, Dewitte, Franses, & Dekimpe, 2009; Freeman & Muraven, 2010), rely on heuristics and consider fewer options (Masicampo & Baumeister, 2008; Pocheptsova, Amir, Dhar, & Baumeister, 2009) than non-depleted people. By extension, our findings indicate that depleted negotiation groups are less likely to make decisions for achieving integrative outcomes than non-depleted negotiation groups because the former are less likely to engage in preference sharing than the latter.

Although our research demonstrates neither fatigue nor cooperation mediates the effects of ego depletion, the literature on ego depletion may offer explanations for these non-significant findings. For instance, ego depletion is not connected to cooperation because participants may have strong pro-social motives. Balliet and Joireman (2010)'s findings indicate that ego depletion does not reduce cooperation when individuals have strong pro-self motives because they often monitor and regulate their behavior based on others' needs, therefore becoming less susceptible to ego depletion effects (DeWall, Baumeister, Stillman, & Gailliot, 2007). In addition, fatigue does not predict integrative outcomes because the effect of fatigue in an experimental setting may be relatively minimal. Also, scholars propose a competing effect of fatigue – the fatigue may increase integrative outcomes because it inhibits competitive intentions (De Dreu & Harinck, 2011; Harinck & De Dreu, 2008; Rusting & Nolen-Hoeksema, 1998). Therefore, future studies may consider using participants with strong pro-self motives or experimental stimuli that cause strong fatigue to explore the possibility of significant mediators.

Although our work contributes to the literature on ego depletion, some questions provide opportunities for future studies. First, research has shown that ego depletion increases inappropriate social interactions (e.g., DeBono, et al., 2011), which may also serve as alternative explanations of how ego depletion affects integrative outcomes. For example, depleted people tend to cheat (Muraven, Pogarsky, & Shmueli, 2006), lie (Mead, Baumeister, Gino, Schweitzer, & Ariely, 2009), steal (DeBono, et al., 2011), display aggressive behavior (Stucke & Baumeister, 2006) or be over-talkative and arrogant (Vohs, Baumeister, & Ciarocco, 2005). These negative consequences may prevent negotiators from achieving integrative outcomes.

Second, most research on ego depletion focuses on how ego depletion has an impact on individual-based outcomes and therefore future research should examine its effects on group processes and outcomes. Although our work provides initial evidence of how ego depletion affects intra-group preference sharing and integrative outcomes, future research ought to investigate group-based processes and outcomes in a wide range of contexts, such as group decision-making (Bahar & Hansell, 2000) or brainstorming (Paletz & Schunn, 2010).

Third, since our work demonstrates that the negative effects of ego depletion exist within negotiation groups, future research should focus on group-specific interventions. Most research focuses on how non-group-specific interventions, such as emotion regulation training (Hoyle, 2006), glucose supplementation (Gailliot & Baumeister, 2007; Gailliot et al., 2007), or long rest period between tasks in the dual-task paradigm (Oaten, Williams, Jones, & Zadro, 2008; Tyler & Burns, 2008), alleviate the adverse effects of ego depletion. Increasing group commitment and identification may also minimize its harmful effects on group processes and outcomes because these interventions can result in stronger emotional support from members within groups.

Chapter III "I'm not sure, so please tell me more": The Impact of Perceived Ambivalence on Information sharing in Groups

Abstract

Research on attitudes and group process focuses on how one-sided attitudes influences information sharing. However, the current research indicates the impacts of ambivalent attitudes (attitudes that contain conflicting positive and negative elements) on group process. Our results demonstrate that the presence of ambivalent people (i.e., those who weigh the arguments on conflicting sides equally and are undecided about an issue) in a group increases information sharing within the group. Study 1 finds that the presence of ambivalent members increases a perception of how much group members consider others' opinions and ideas (i.e., perceived openness to others' viewpoints), which in turn increases the willingness to share information. Study 2 finds that the presence of ambivalent people increases actual information sharing behavior. These findings offer new insights on how the perceptions of other group members' attitudes have an impact on information sharing behavior.

Information sharing plays a critical role in affecting group outcomes. On the positive end, research has found that, in many instances, groups that engage in more information sharing display higher collective intelligence (Woolley, et al., 2010), promote knowledge integration (Cruz, et al., 1997) and show improved team performance, cohesion, and decision satisfaction (Mesmer-Magnus & DeChurch, 2009). Groups that do not share information exhibit larger differences in preferences and opinions among members (Moye & Langfred, 2004), and poorer task coordination (Andres & Zmud, 2001) than groups that share information. At the same time, on the negative side, in certain situations, information sharing can make groups less efficient during a straightforward group task in which people can make quick decisions based on simple rules and heuristics (De Dreu & Beersma, 2010; De Dreu, et al., 2008).

Since information sharing behaviors are found to have such a strong relationship with important group outcomes, researchers have devoted attention to better understanding the factors that influence information sharing in groups (e.g., Cummings, 2004; Kozhevnikov, 2007). For instance, researchers propose that the demographic composition of group members is related to information sharing (Wang & Noe, 2010). Specifically, demographic diversity (e.g., member differences in sex, age, or tenure) among the group members is associated with a decrease in information sharing because demographic diversity leads group members to perceive greater dissimilarities with other group members (Ojha, 2005; Wang & Noe, 2010).

However, demographic characteristics are not the only dimension along which group composition can vary, but groups may also vary in composition based on members' attitudes. We examine the effects of group attitude composition and specifically, the effects that the presence of ambivalent group members may have on information sharing. Ambivalent attitudes contain

conflicting positive and negative elements (Clark, et al., 2008; Jonas, Diehl, & Bromer, 1997; Maio, Bell, & Esses, 1996). For example, an individual may evaluate skiing positively because she regards it as a means to enjoy excitement but she may also evaluate it negatively because she regards it as a chance to get hurt. Therefore, she may be undecided about whether she will go to skiing. In this paper, we define ambivalent people as those who are undecided because they see the conflicting sides of an issue. We examine whether the presence of ambivalent people has a positive impact on information sharing within groups.

The Effects of Group Attitude Composition on Information Sharing

Groups may be made up of individuals who differ in their attitudes about an issue. Some groups may be polarized and include only members with one-sided attitudes (i.e, only members who support and oppose an issue) whereas others groups may include members who are ambivalent about their position on an issue.

There is evidence to show that the composition of attitudes within groups influences how information is shared. For instance, work on minority influence finds that groups engage in high information sharing when their minority members' opinions deviates from the majority of other group members (e.g., Emerson, 1954; Schachter, 1951). This may be because members with one-sided attitudes are motivated to convert opinions (Schachter, 1951), or to support their own positions (Kenworthy, Hewstone, Levine, Martin, & Willis, 2008). Thus, much of the information sharing processes may revolve around influencing others in groups with members whose attitudes are only one-sided (Wittenbaum, Hollingshead, & Botero, 2004).

Unlike most of work on group processes which examines the effects of one-sided attitudes on information sharing, our work examines the effects of ambivalent attitudes on information sharing. We examine how the presence of ambivalent individuals affects information

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sharing because group members often have not formed their attitudes or feel ambivalent due to competing options before making group decisions. In the next subsection, we will describe how the presence of ambivalent people affects information sharing behavior.

Effects of Ambivalence on Information sharing

We predict that the presence of ambivalent individuals in a group will enhance information sharing by increasing the perceptions that fellow group members are open to others' viewpoints (i.e., perceived openness to others' ideas). Research suggests that ambivalent individuals may be more likely to consider others' perspectives than non-ambivalent individuals. For instance, ambivalent individuals are more likely to be influenced by others' opinions than those who have formed their attitudes (Bell & Esses, 2002; Craig, Martinez, & Kane, 2005). Ambivalent people are also more susceptible to persuasion because they are more likely to accept new information (Zemborain & Johar, 2007). In alignment with this finding, people who have ambivalent self-esteem (i.e., those who have both positive and negative self-evaluations, Gramzow, Sedikides, Panter, & Insko, 2000) are more likely to change their self-evaluations from others' explicit success or failure feedback than those with un-ambivalent self-esteem (Riketta & Ziegler, 2007). Since ambivalent individuals are more easily influenced than those who have taken a position, group members may infer that the ambivalent individuals are more likely to be open to others' viewpoints than non-ambivalent individuals.

Individuals who perceive other group members as people who are open to others' ideas and opinions may be more likely to share information within a group. For instance, scholars argue that perceived openness to others' ideas has positive effects on information sharing (Cronin & Weingart, 2007; Jehn, 1995, 1997; Jehn, Northcraft, & Neale, 1999; Phillips, Mannix, Neale, & Gruenfeld, 2004; Todorova, Brake, & Weingart, 2010). Consistent with these

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arguments, we propose that when a group member perceives that his or her group members consider others' viewpoints, he or she will be willing to share information with his or her group members.

In a summary, we propose that the presence of ambivalent individuals may increase perceptions that the group members are open to others' ideas and opinions, which in turn may increase information sharing.

The Present Studies

We report the results of two studies examining the effects of ambivalent group members on information sharing. Study 1 tested whether the presence of ambivalent individuals increases perceptions of consideration from other group members and whether this increased perception will in turn raise one's willingness to share information. Study 2 examined whether the presence of ambivalent group member increases actual information sharing behavior.

Study 1: Willingness to Share Information

Method

Participants. Seventy-six adults (57.89% female; age: $M = 34.12$, $SD = 11.38$) participated in the online study in exchange for monetary compensation.

Design. The study design consisted of two conditions: *Ambivalent* vs. *Non-Ambivalent*.

Procedure. Participants were first presented with a business plan describing an opportunity to invest in diesel fuel in China. This opportunity had the benefit of tremendous growth, but the drawback of potentially harming the environment. Participants were asked to determine whether they approved of moving forward with this opportunity and to provide their opinions about the plan. They were then presented with the judgments and opinions of two other simulated "participants" in the study. In reality, the opinions of these "participants" were

generated by the experimenters. To make the cover story believable, participants were also asked if they would be willing to share their thoughts anonymously with other participants in the study.

Participants were randomly assigned to see one of two sets of judgments and opinions in the study. Participants in the *Ambivalent* condition (n = 38) saw that the other two simulated "participants" weighed the pros and cons of the business plan equally and were undecided about whether they approved of moving forward with the plan. Participants in the *Non-Ambivalent* condition (n = 38) saw that one member supported the plan while the other opposed the plan.

After reading the simulated group members' opinions, participants were asked to imagine that they were engaged group decision making task with the two other "participants" and to type what they think is relevant to the task. After the group task, participants reported their group members' consideration for others' viewpoints and their intended information sharing behavior.

Measures

Perceived openness to others' ideas: Participants rated their perceived openness to others' ideas for two items on a 7-point scale with endpoint anchors of 1 (*strongly disagree*) and 7 (*strongly agree*) (α = 0.69). The items included "*My group members would care about the ideas of others.*" and "*My group members would be concerned about the opinions of others.*"

Willingness to share information: They also responded to three items that measured willingness to share information: "*I would share information about the issues of the task with others when engaging in the task.*"; "*I would explain the information about the business plan to my group members.*"; "*I would help my group members to understand the information about the business plan.*" where 1 = Strongly disagree and 7 = Strongly agree (α = 0.82).

Results and Discussion

A t-test result reveals that participants has higher perceived openness to others' ideas in the *Ambivalent* condition ($M = 5.42$, $SD = 0.95$) than those in the *Polarized* condition ($M = 4.97$, $SD = 1.03$), $t(74) = 1.97$, $p < .05$, one-tailed. In addition, participants also reported higher expectations for information sharing in the *Ambivalent* condition ($M = 6.05$, $SD = 0.72$) than those in the *Non-Ambivalent* condition ($M = 5.62$, $SD = 1.05$), $t(74) = 2.07$, $p < .05$ (See Figure 2-1).
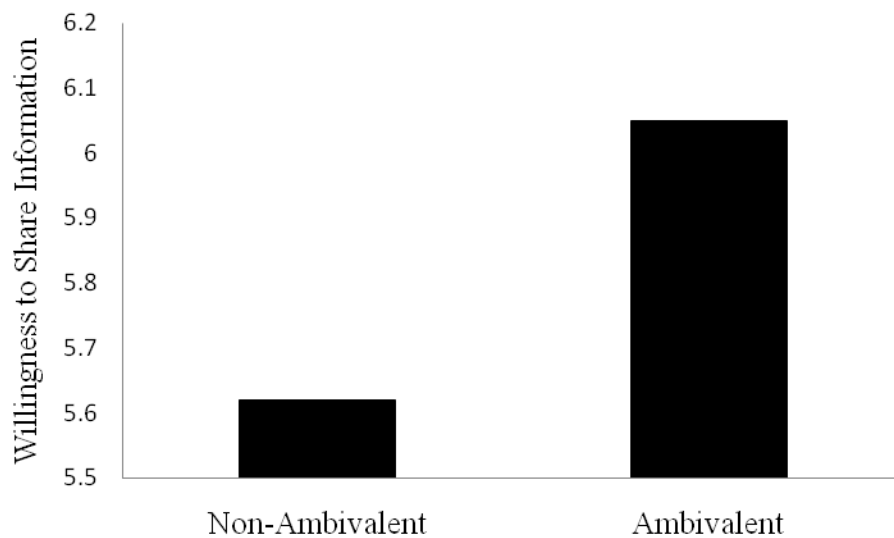
Figure 2-1 The relationship between the presence of ambivalent members and willingness to share information in Study 1

We test the associations among the presence of ambivalent members, perceived openness to others' ideas, and information sharing using the seemingly unrelated regression and bootstrapping mediation (Preacher & Hayes, 2008). First, we find that the presence of ambivalent individuals is positively associated with information sharing ($\beta = 0.23$, $p < .05$). Second, we find that the presence of ambivalent individuals is significantly positively associated with perceived openness to others' ideas ($\beta = 0.22$, $p < .10$). We next regress the information

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sharing on perceived openness to others' ideas and the presence of ambivalent members, simultaneously. We find that perceived openness to others' ideas is positively associated with information sharing ($\beta = 0.26$, $p < .10$), but the presence of ambivalent members is no longer associated with information sharing ($\beta = 0.18$, $p > .10$). Thus, perceptions of consideration from others mediate the association between the presence of ambivalent members and information sharing ($0.01 \leq$ Bootstrapping 90% CI ≤ 0.27) (See Figure 2-2).

Perceived Openness to Others' Ideas

$\beta = 0.22+$

$\beta = 0.26*$

The Presence of Ambivalent People

Willingness to Share Information

$\beta = 0.23* / \beta = 0.18$ n.s.
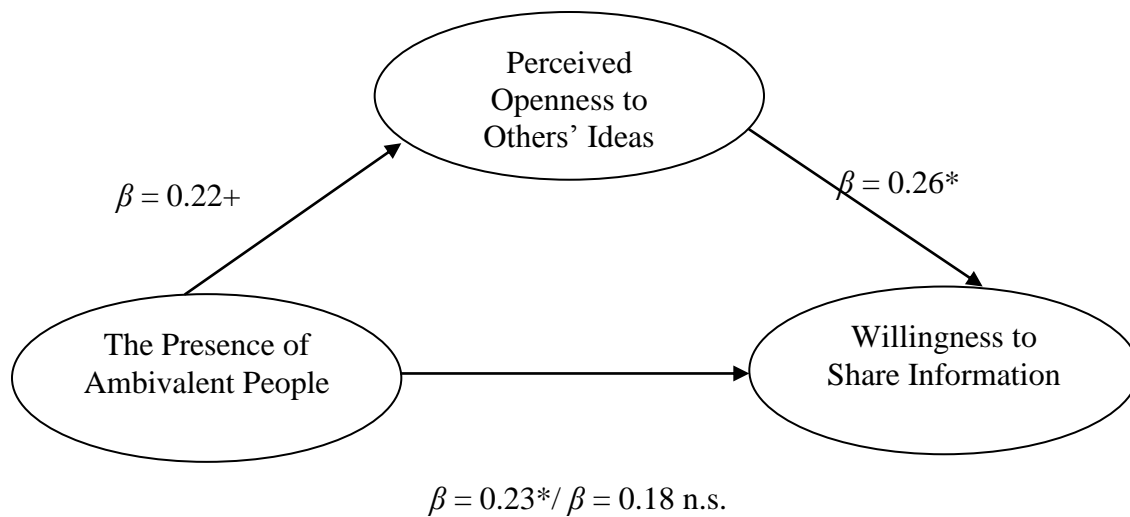
Figure 2-2 The mediating effects of consideration on the associations between the presence of ambivalent people and willingness to share information in Study 1. The 90% bias-corrected bootstrapping confidence intervals does not span zero.

Our results demonstrate that participants in a group with ambivalent individuals perceive that their group members are more open to others' ideas and therefore report higher willingness to share information with others than those in a group with people who have one-sided opinions. However, in Study 1, we measured only participants' self-reported expectations for their

information sharing behavior. We follow up Study 1 to examine whether the presence of

ambivalent individuals would increase actual information sharing behavior. We also examine

whether the effects of ambivalence on information sharing in Study 1 would be replicable in

another type of group task (i.e., an idea generation task).

Study 2: Information sharing Behavior

Method

      Participants. Sixty-six adults (54.50% female; age: $M = 31.91$, $SD = 10.56$) participated

in an online study in exchange for monetary compensation.

      Design. The study consisted of a two-condition between-subject design (Group attitude

composition: *Ambivalent* vs. *Non-Ambivalent*).

      Procedure. The study was administered online with procedures similar to study 1.

Participants were presented with the same business plan as in Study 1 and asked to provide their

judgment and opinions about the plan. Similar to study 1, participants randomly assigned to the

Ambivalent condition (n = 33) or *Non-Ambivalent* condition (n = 33) where they saw the

judgments and opinions of two other simulated "participants" in the study.

      After reading the simulated group members' opinions, participants were asked to imagine

that they were working together with these two other group members to come up with

recommendations consistent with the mission of the business plan (i.e., providing low-cost but

environmentally-friendly energy). Participants were then given 5 minutes to share their

recommendations with the other members. For instance, one participant's shared

recommendations included, "Improvement of the plan will come from emphasizing the pros and

downplaying the cons," and "Create a better environmental management plan." Two research

assistants who are blind to the conditions coded for the number of recommendations participants

made as our measure of information sharing. Their rate of agreement is 100%. Since sharing

information generally refers to sharing ideas and opinions about work issues within the group

(Bunderson & Sutcliffe, 2002), the number of the recommendations related to the task would be

an appropriate measure of information sharing behavior.

We also examine opinion difference between the two other simulated participants as an

alternative explanation since opinion difference is larger in the non-ambivalent condition than

that in the ambivalent condition. In addition, opinion difference restricts information sharing

because it may also translate into negative perceptions of others (Devine, 1999). Participants

responded to one item that measured opinion difference between these two other participants:

"*How large is the opinion difference in the business plan between Participant A and Participant*

B?" where 1 = *Not large* and 7 = *Very large*[2].

Results and Discussion

We examine the association between opinion differences and information sharing. We

did not find any significant relationship between opinion differences and information sharing[3].

Thus, we excluded this variable of opinion difference in the subsequent analysis.

We also examine whether the presence of ambivalent individuals affects information

sharing behavior. Participants in the *Ambivalent* condition (M = 4.72 recommendations, SD =

2.11) engage in higher information sharing behavior than participants in the *Non-Ambivalent* (M

= 3.79 recommendations, SD = 1.43), $t(64)$ = 2.12, $p < .05$ (See Figure 3).

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[2] We used "Participant A and Participant B" in this question because when we present two others' opinions to participants, we use Participant A or Participant B as a personal identifier.
[3] Participants' position on the relevant issues (i.e., opinions about the business plan in the two studies) did not have any significant effects on information sharing in the two studies. We excluded the variable of the position on the relevant issue in our analyses.
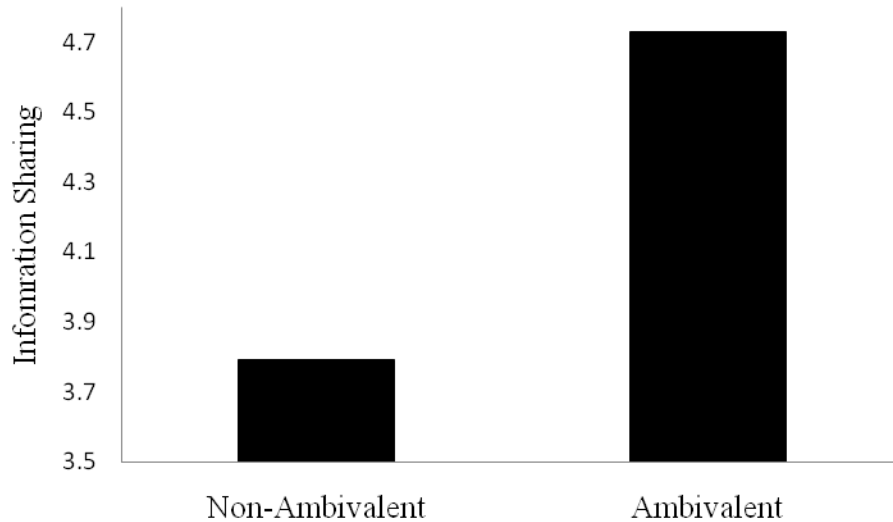
Figure 2-3 The relationship between the presence of ambivalent members and information sharing behavior in Study 2

General Discussion

The two studies reveal the positive impact that the presence of ambivalent members may have on information sharing within groups. Study 1 finds that participants in groups with ambivalent individuals perceive that their group members would consider others' ideas and opinions more than those in groups with members have formed their opinions. This, in turn, leads participants to report higher expectations for their own information sharing behavior. Study 2 finds that the presence of ambivalent members increases participants' actual information sharing behavior.

The current research contributes to the literature on information sharing by identifying the effects of ambivalent individuals on information sharing among group members. Research

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has examined a wide range of factors that affect information sharing, such as management support (Connelly & Kelloway, 2003), beliefs of knowledge ownership (Kolekofski & Heminger, 2003), and justice (Schepers & van den Berg, 2007). By extension, we find that the presence of ambivalent group members can also increase information sharing.

While scholars have recently investigated the antecedents and consequences of intra-personal ambivalence on individual behavior, we focus on the effects that the presence of the ambivalent has on perceivers' behavior. Ambivalence occurs when people receive counter-attitudinal messages (Holbert & Hansen, 2006), process information systematically (Barker & Hansen, 2005), and have at least two core values and beliefs coming into conflict in an issue (Sparks, Harris, & Lockwood, 2004). In addition, individuals who feel ambivalent toward the candidates become unwilling to vote and avoid an early voting decision (Mutz, 2006), and are less likely to participating in political campaign activities (Nir, 2005). Our work further demonstrates that presence of the ambivalent individuals increases other group members' information sharing behavior.

Although there is a growing body of work on the effects of intra-personal ambivalence, little is known about is about the perception effects of ambivalent members on group processes. Maio, Greenland, Bernard, and Esses (2001) found that participants who felt ambivalent about their group (i.e., being priming with both negativity and positivity of their groups) had lower psychological arousal than those who feel non-ambivalent (i.e., being priming with only negativity or positivity of their groups). However, this work still focused on how intra-personal ambivalence influenced individual behavior. Our work examines how the perceptions of other ambivalent group members affect one's own information sharing behavior.

Future studies could examine the effects of contextual factors that affect the current model in future studies. For instance, the goals (accuracy vs. efficiency) of the tasks (Morrow et al., 2008) may moderate the effects of the presence of the ambivalent members on information sharing and group performance. Specifically, when group tasks require accuracy, ambivalent members may help elicit others' ideas and opinions, which may improve performance. However, when the group tasks require efficiency, ambivalent members may distract other group members from performing the task because they have not fully formed their opinions. This may lead others to be unwilling to share information with the ambivalent individuals, which in turn dampens group performance. Thus, it is worthwhile to investigate the contextual factors that interfere with the relationship between the presence of ambivalent individuals and information sharing.

Although we examine the impact of ambivalent individuals on information sharing, we do not have any information about the effects on actual group dynamics. In these studies, participants engage in an online survey, as we were only interested in individual outcomes. Future studies could examine the effects of the presence of ambivalent members may have on group dynamics, and the effects experiencing these dynamics may have on individuals. Thus, future studies could be run with actual groups.

Finally, the current findings may have implications for groups and organizations that frequently deal with controversial issues. For instance, the policy makers often make decisions on controversial issues, such as the healthcare and immigration. The presence of members who are ambivalent on such issues might potentially have an impact on information sharing.

Chapter IV Not All Task Conflicts Are Created Equal: Divergent and Convergent Task Conflicts in Groups

Abstract

To address the inconsistent effects of task conflicts on group performance, we propose that task conflicts in groups have distinct effects if they occur during divergent task processes, when ideas are being generated, or convergent task processes, when decisions are being made. We validate the constructs of divergent and convergent task conflicts in Studies 1 and 2 and examine the distinct effects of the two task conflicts on information sharing and group performance in Study 3. Studies 1and 2 demonstrate that divergent and convergent task conflicts are two separate factors. Study 3 shows that the two types of task conflicts contribute to information sharing and performance in opposite directions. Divergent task conflict increases group performance by enhancing information sharing whereas convergent task conflict decreases group performance by reducing information sharing. These findings offer a novel resolution to the paradoxical effects of task conflicts on group processes and outcomes.

In the mid-1990s Karen Jehn introduced the tantalizing possibility that intra-group task conflicts – discrepant views pertaining to a group's task – may positively affect group task performance (Jehn, 1995, 1997). Since then, determining the robustness and boundaries of this positive relationship has become something of a holy grail for conflict researchers. A recent meta-analysis examined the effects reported in 116 empirical studies (De Wit, Greer, & Jehn, 2011, August 15) and found that task conflicts' effects on group performance are still unclear.

This question has motivated so much research because conflict is a fundamental part of group decision making that has generally been considered a process loss, or a negative side effect of having groups of diverse people work together on tasks. Since total conflict suppression is unrealistic, the idea that at least some kinds of conflicts may be functionally beneficial implies a nuanced approach to harnessing the potential benefits while avoiding the pitfalls that resonates with scholars, students and practitioners alike. Yet task conflict presents a true paradox: On one hand, research has shown that task conflict has a positive impact on group performance because it leads group members to scrutinize task issues and to process task-relevant information deliberately, thereby increasing group effectiveness and performance (De Dreu, 2006; Jehn, 1995). On the other hand, research has shown that task conflict has a negative impact on group performance because task conflicts may disrupt standard operating procedures and impede group efficiency (De Dreu & Weingart, 2003b; Khan, Afzal, & Rehman, 2009).

The extant approaches to resolving this paradox do not fully solve the puzzle. Many conflict scholars have proposed possible moderators to identify when task conflict can be beneficial, such as situations involving high task interdependence (Jehn & Bendersky, 2003), low relationship conflict (De Dreu & Weingart , 2003a), high group potency (Lira, Ripoll, Peiro, & Gonzalez, 2007), high outcome interdependence (Cunningham & Waltemyer, 2007), and low

status conflict within groups (Bendersky & Hays, 2010). The effects of those moderators appear unstable, however. For example, some research has shown that task conflicts are detrimental to routine tasks but are beneficial to creative tasks (De Dreu & Weingart, 2003b; Jehn, 1995). The meta-analysis mentioned above indicates that task type does not moderate the associations between task conflicts and group performance, however (De Wit, et al., 2011, August 15). Other scholars have investigated curvilinear relationships between task conflict and team performance (De Dreu, 2006; Farh, Lee, & Farh, 2010; Shaw et al., 2011). In these models, the effects of task conflict on performance appear positive at low to moderate levels and negative at high levels of task conflict, yet the exact tipping point that makes groups more or less tolerant of task conflict are still open questions. The relationship may also vary depending on when in the task life-cycle the task conflict occurs, yet the prescriptive implications from this line of research are unclear. For example, some work indicates that task conflict may have the most positive effects when it occurs in the middle of a group's task work (Jehn & Mannix, 2001), while other finds that it is most impactful when it occurs in the early phase of the group project (Farh, et al., 2010). Integrating all this research suggests that task conflicts are generally detrimental to group performance, but that under very limited conditions, task conflicts can be extremely helpful – if not essential – to effective group work. Thus, the boundaries wherein task conflict positively affects performance are still fuzzy.

In the present paper, we take a different approach to resolving the paradoxical associations between task conflict and group performance. Instead of using Jehn's original measure of task conflict and identifying the conditions under which task conflicts may or may not be functionally beneficial to group task work, we use two new measures of task conflict to examine those that occur during different task processes, specifically, divergent or convergent

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processes. The goal of divergent processes is to generate a wide range of ideas whereas the goal of convergent processes is to select the optimal idea and make a decision (Guilford, 1967). In divergent process, groups focus on expanding the range of ideas and options that are being considered as the group performs its task. The classic example of divergent processes is brainstorming. During convergent processes, groups pursue achieving consensus or agreement on the desired outcome for the group's task. In other words, convergent processes occur when the ideas that were generated are evaluated relative to specified selection criteria.

We posit that distinct types of task-related conflicts, with different effects on group processes and outcomes, may occur during these two types of group processes. We define intra-group *divergent task conflict* as discrepant views about different ideas and opinions that occur during group task work, e.g., during brainstorming processes. Conflicts that occur during divergent group processes may help expand the quantity and quality of the ideas that contribute to decisions, thus potentially helping groups' performance. Intra-group *convergent task conflict* refers to discrepant views about the ultimate solution and/or a common objective for the group's task, e.g., during idea selection processes. Conflicts that occur during convergent group processes may harm performance by disrupting consensus-building and motivating group members to disengage from sharing information.

Although the conceptual definition of Jehn's original task conflict construct is more consistent with divergent task processes (e.g., debating and expressing differing opinions), her measurement scale includes elements of both divergent and convergent processes. Specifically, two of the items from her original scale (Jehn, 1995) seem consistent with divergent task conflict ("there are differences of opinion" and "there are frequently conflicts about ideas"). The other two items ambiguously refer to "work," which could be interpreted either way ("there is often

conflict about the work we do" and "people often disagree about opinions regarding the work being done") (Bendersky, et al., 2010). These latter two items can either refer to disagreement about the outcome of tasks or debates over alternative opinions related to the task. We posit that some of the ambiguous effects of task conflict on performance that have been found using the Jehn (1995) scale, thus, may be due to confounding divergent and convergent task conflicts.

To examine these constructs and their unique effects more systematically, we conducted three studies to identify the distinct effects of divergent task conflict and convergent task conflict on group performance. In Study 1, we examine the two task conflict measurement scales that we modified from Bendersky, et al. (2010) by performing exploratory factor analyses (EFAs).[4] In addition, we investigate the associations between the two new types of task conflict items and the original task conflict items from Jehn's (1995) scale. These analyses indicate that divergent and convergent task conflicts are distinct constructs that tap into different aspects of Jehn's original task conflict scale. In Study 2, we determine that divergent and convergent task conflicts are two separate constructs by performing confirmatory factor analyses (CFAs). In addition, we investigate if it is appropriate to aggregate individual-level data of perceptions of these two concepts to the group-level of analysis. These analyses confirm that divergent and convergent task conflicts are separate constructs that can be used to measure conflicts within groups. In Study 3, we explore the effects of divergent and convergent task conflicts on group performance. Past research has suggested that information sharing serves as the theoretical mechanism for how task conflicts impact performance (Jehn, 1995; Pelled, Eisenhardt, & Xin, 1999). Thus, we also examine information sharing as a mediator of the relationship between both types of task conflicts and performance.

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[4]Bendersky, et al.'s (2010) propositions and preliminary measurement model of task conflict is part of a larger, broad project that has not yet been published. We are focussing on this one aspect of their model in depth here.

We aim to contribute to the literature on group conflict in several ways with this paper. First, we take a new approach to resolving the paradoxical effects of task conflict on group performance by classifying task conflicts into divergent and convergent types and introducing valid measurement scales for them. Finding that task conflicts function differently during those distinct group processes offers a more nuanced conceptualization of task conflict that may improve the predictive validity of the constructs with fewer boundary conditions on their effects. Second, most research examines the relationship between task conflict and group performance by proposing theoretical mechanisms without empirically measuring their mediating effects (e.g., Amason, 1996; Jehn & Mannix, 2001). Our empirical investigation of information sharing as a mediator of the relationships between task conflicts and group performance increases our understanding of how conflict affects group outcomes. Thus, we provide a new way of thinking about task conflicts in groups that has the potential to move beyond contingency models of task conflict's circumscribed functional benefits. Our results offer a clear prescription to encourage divergent and discourage convergent task conflicts within groups, thus helping to shine some more light on the holy grail.

Theoretical Background and Hypotheses

Divergent thinking refers to fluency in generating as many appropriate ideas as possible whereas convergent thinking refers to systematic reasoning directed towards identifying the best options whereas (Wolf & Mieg, 2010). Although much of the research on divergent and convergent thinking processes focuses on individuals' creativity (King, Walker, & Broyles, 1996; McCrae, 1987) and intelligence (Dodrill, 1981; Hawkins, Faraone, Pepple, & Seidman, 1990; Wonderlic, 2000), in our paper we extend it to help us understand how conflicts during each process affect individuals' engagement in group tasks. In particular, we emphasize how

convergent and divergent thinking processes affect social interactions. Divergent thinking leads people to consider an issue from multiple perspectives (Nemeth & Goncalo, 2005; Nemeth & Rogers, 1996) while convergent thinking leads people to collaborate and coordinate with each other (Bahar & Hansell, 2000; Larey & Paulus, 1999).

Performance effects

During divergent group processes, members are exposed to dissent in various forms, such as outsider views, devil's advocate, and minority disagreement (Nemeth & Rogers, 1996). Exposure to dissenting information leads group members to think more broadly about solving problems. Research has found that when different viewpoints are expressed, group members use more strategies to improve performance (Nemeth & Kwan, 1987), show more flexibility in thought (Peterson & Nemeth, 1996), and have more originality (Nemeth & Kwan, 1985), and recall more relevant information (Nemeth, Mosier, & Chiles, 1992) than when opinions are not expressed. Conflicts during divergent group processes are a form of expressing dissent and, therefore, they may increase performance.

Divergent group processes require generating a wide range of ideas. This induces group members to have deliberative mindsets (i.e., cognitive procedures relating to how individuals choose among different alternatives) (Beckmann & Gollwitzer, 1987). Those with deliberative mindsets engage in objective and impartial analysis of information about the feasibility and desirability of competing plans (Beckmann & Gollwitzer, 1987; Gollwitzer & Kinney, 1989; Taylor & Gollwitzer, 1995). They are open and receptive to alternative perspectives (Heckhausen & Gollwitzer, 1987), perhaps because people expect to be exposed to different forms of dissent (Janis, 1972; Nemeth & Rogers, 1996). Thus, when task conflicts occur during divergent group process, group members may perceive conflicting opinions as informative rather

than threatening. Divergent task conflict may promote exploration and integration of multiple perspectives by encouraging deeper information processing, such as careful evaluation of the desirability and feasibility of potential options (Cronin & Weingart, 2007; Taylor & Gollwitzer, 1995). Indeed, research has found that when faced with a conflict, people with deliberative mindsets display persistence during the task (Brandstatter & Frank, 2002). Thus, we expect that group members may react to divergent task conflicts by engaging more in their group task, which in turn may increase group performance.

In contrast, conflicts that occur during convergent task processes may hurt group performance because they encourage members to disengage from their task. During convergent group processes, people work on collaborating and reaching consensus (Bahar & Hansell, 2000; Larey & Paulus, 1999). They focus on points of agreement and often repeat one another, which reinforces common perspectives (Larey & Paulus, 1999). This is similar to what happens when people have implementation mindsets (i.e., cognitive procedures relating to the planning of actions individuals must take to achieve a chosen goal) (Beckmann & Gollwitzer, 1987). Once they have decided to take action, people advocate for it and are not receptive to information that might contradict their choice (Heckhausen & Gollwitzer, 1987). Thus, they are susceptible to escalating their commitment to that position when faced with others' competing preferences (Brockner, 1992; Staw, 1976; Staw & Ross, 1987). For example, people with implementation mindsets overestimate the desirability and feasibility of their chosen option (Beckmann & Gollwitzer, 1987; Taylor & Gollwitzer, 1995). Members may be unwilling to compromise, because doing so requires each member to give up some positive features of their preferred option and accept some negative features of less desirable options, creating cognitive dissonance (Brehm & Cohen, 1962). Thus, convergent task conflicts may disrupt members from achieving

consensus on their ultimate solutions and common objectives, thereby reducing group efficiency (De Dreu & Weingart, 2003b). Concerns about their preferences not being adopted by the group may reduce members' motivation to engage in the task (Brandstatter & Frank, 2002).

It is possible that disrupting convergence could have a positive effect on group performance if it discourages members from achieving premature consensus by forcing people to test their assumptions (Aldag & Fuller, 1993; Janis, 1972). This would require group members to willingly process dissenting information. Yet extant research suggests that when faced with a conflict, those with implementation mindsets (that are typical during convergent processes) tend to disengage from the task rather than engage in deeper information processing (Brandstatter & Frank, 2002). Thus, it seems more likely that conflict during convergent processes may harm performance because group members interpret the expression of dissenting preferences as competition or threats, and, therefore, pull back and disengage from the task in a kind of threat-rigidity reaction (Carnevale & Probst, 1998; De Dreu, et al., 2006; Staw, Sandelands, & Dutton, 1981; Toma & Butera, 2009). We, therefore, predict that conflicts that occur during convergent group processes largely harm performance by introducing decision inefficiency, reducing reinforcement of shared perspectives, and lowering work motivation. Thus, we propose the following hypotheses:

Hypothesis 1a: Divergent task conflict has a positive relationship with group performance.

Hypothesis 1b: Convergent task conflict has a negative relationship with group performance.

Information sharing effects

The key theoretical mechanism through which task conflict may affect task performance is information sharing (Jehn, 1995; Pelled, et al., 1999). Information sharing includes such activities as speaking up and listening to ensure that ideas and opinions about work issues will be

informative within the group (Grant, Parker, & Collins, 2009). Jehn (1995) argued that task conflicts increase thoughtful consideration of criticism and alternative suggestions related to work issues and therefore increase the performance of non-routine task groups (see also Jehn, et al., 1999). However, research has also demonstrated negative relationships between task conflicts and information sharing. Moye and Langfred (2004), for example, find that information sharing reduces task conflicts because it minimizes mistakes and coordination errors, which in turn mitigates task conflicts. They measured the variables of information sharing and task conflicts simultaneously, however, which leaves the direction of causality uncertain.

We propose that these inconsistent results can be resolved by distinguishing the different effects of divergent and convergent task conflicts on information sharing within groups. In divergent task processes, group members aim to generate lots of ideas and opinions (Paletz & Schunn, 2010) and are receptive to all types of available information (Heckhausen & Gollwitzer, 1987). Conflicts that occur during divergent processes may facilitate understanding each member's perspectives and expand the work issues under consideration (Amason, 1996; Hollenbeck et al., 1995; Schwenk, 1990). People may expect to receive different types of information during divergent processes, so conflicts may serve to test assumptions and lead each group member to share more and more diverse information with the others (Jehn, et al., 1999). Divergent task conflict may allow people to explore and integrate multiple viewpoints (Cronin & Weingart, 2007; Nemeth & Goncalo, 2005; Nemeth & Rogers, 1996) and to process problem-related information deeply (Phillips, et al., 2004), which can subsequently increase information sharing.

In convergent task processes, group members may expect their desired solutions or objectives to be highly feasible and attractive to other members of the group (Beckmann &

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Gollwitzer, 1987; Taylor & Gollwitzer, 1995). The goal of reaching consensus on group decisions (Aldag & Fuller, 1993; Bahar & Hansell, 2000) focuses members on common information rather than on unique information (Stasser & Titus, 1985; Stasser, Vaughan, & Stewart, 2000). Conflict that occurs during these processes challenges the assumption that others agree with one's evaluation, thus disrupting group members' ability to reach agreement. This disruption is contrary to the process goal of making a decision, so may generate rigidity behaviors, where people defensively withhold information in response to threat's to the group's task effectiveness or cohesion (Staw, et al., 1981). Furthermore, conflict during convergent processes in which group members have formed their preferences or chosen certain options may reduce information sharing because group members seek only information that confirms their preference (the confirmation bias) (Hergovich, Schott, & Burger, 2010; Snyder & Swann, 1978), or commit an escalation bias by becoming entrenched in their selection option in the face of competition (Ku, Galinsky, & Murnighan, 2006; Ku, Malhotra, & Murnighan, 2005), thus making them less willing to compromise. Based on these arguments, we propose the following hypotheses:

Hypothesis 2a: Divergent task conflict has a positive relationship with information sharing.

Hypothesis 2b: Convergent task conflict has a negative relationship with information sharing.

Mediation

We propose that divergent and convergent task conflicts can affect group performance via information sharing. Sharing work-relevant ideas and opinions has a robust positive association with performance (Mesmer-Magnus & DeChurch, 2009) because it leads people to consider a wide range of task-relevant factors (Argote, Gruenfeld, & Naquin, 1999). Hollingshead (1998) suggests that sharing information improves performance because it

facilitates knowing and integrating each group member's expertise. If, as we have proposed, divergent task conflict has a positive relationship with information sharing whereas convergent task conflict has a negative relationship with information sharing, then these two types of task conflict could differentially affect performance through this mechanism. This would explain the low overall correlation between the non-differentiated task conflict measure and performance (De Dreu & Weingart, 2003b ; De Wit, et al., 2011, August 15). Thus, we propose the following hypotheses:

Hypothesis 3a: Information sharing mediates the relationship between divergent task conflict and group performance. Divergent task conflict increases group performance through enhanced information sharing.

Hypothesis 3b: Information sharing mediates the relationship between convergent task conflict and group performance. Convergent task conflict decreases group performance through reduced information sharing.

Study 1: Construct Development

The purpose of Study 1 is to develop the constructs of divergent and convergent task conflicts. We modified items from Bendersky et al.'s (2010) working paper and developed a three-item survey scale for divergent and convergent task conflicts, respectively. We also included four items from Jehn's (1995) task conflict scale that has been the standard measure since its introduction. We investigate whether the divergent and convergent task conflict scales are distinct constructs that tap into different aspects of Jehn's original task conflict scale using exploratory factor analysis (EFA).

Our research setting is the management school of a large West Coast university. This school requires MBA students to work as teams on a consulting-style project with one external

business client for two academic quarters. These groups constitute an ideal research setting for several reasons. First, an accomplishment of the project is an important part of the degree requirement. Therefore, MBA students regard team outputs as consequential. Second, participants have worked as teams for two quarters during which intra-group conflict can naturally occur. Third, the department set up the same general requirements across groups, thereby increasing similarity among the groups. Finally, the student groups serve a wide range of clients, from local enterprises to large international corporations, which increase the external validity of the current study.

Sample and Procedure

The sample consisted of 140 students who participated in the group project, organized into 40 teams (M size = 4.00, SD = 1.00). Students participated in exchange for the chance to win one of two $100 Amazon gift cards. We measured their level of conflicts seven weeks after the formation of the groups.

Measures and Analyses

Participants were asked to fill in a questionnaire containing items to assess divergent and convergent task conflicts, and Jehn's original task conflict within the group. They rated these items on a seven-point scale with endpoint anchors of one "strongly disagree" and seven "strongly agree." To examine the association among items, we perform an EFA using Principal Components extraction with Promax rotation (kappa = 4) because we expect the constructs to be correlated. We also conduct individual-level inter-item reliability tests. Cronbach's alphas greater than .65 are considered acceptable and alphas greater than .70 are considered respectable (DeVellis, 1991).

Results and Discussion

We present the results of our EFA in Table 1. Two factors account for 57 percent of the variance. The four items that measure Jehn's task conflict load on two different factors. Three items: "There is conflict about the work we do in our team," "People in our team disagree about opinions regarding the work being done," and "There are frequently conflicts about ideas in our team," load on the convergent task conflict factor. The single item "There are differences of opinion in our team" loads on the divergent task conflict factor. The three divergent task conflict items load together, positively and uniquely on the factor of divergent task conflict. Two of the three convergent task conflict items load together, positively and uniquely on the convergent task conflict factor. One of the convergent task conflict items (i.e., "We regularly debate opposing views about the final course of action for our work") loads on the divergent task conflict factor. Thus, we removed this item from convergent task conflict scale. Alphas for divergent and convergent task conflict scales are both acceptable (divergent task conflict: alpha =.65, convergent task conflict: alpha = .73).

TABLE 1:
Exploratory Factor Analyses of Task Conflict Items

	Convergent Task Conflict	Divergent Task Conflict
Jehn's Task Conflict Items		
There is conflict about the work we do in our team.	0.86	-0.16
There are differences of opinion in our team.	0.21	0.55
People in our team disagree about opinions regarding the work being done.	0.78	0.02
There are frequently conflicts about ideas in our team.	0.75	0.01
Divergent Task Conflict Items		
We often engage in debate about our different opinions and ideas.	-0.06	0.83
We regularly express differing viewpoints about the issues involved in our work.	-0.01	0.61
We often deliberate about one other's alternative viewpoints during our task discussion.	-0.22	0.83
Convergent Task Conflict Items		
We often disagree about the most appropriate solution to choose for our tasks/assignments.	0.70	0.19
We frequently have disagreements about our objectives.	0.82	-0.05
We regularly debate opposing views about the final course of action for our work.	<u>0.24</u>	<u>0.64</u>

[a]Items in bold used in subsequent confirmatory factor analysis. Unanticipated loadings are underlined.

[b] Extraction Method: Principal Component Analysis. Rotation Method: Promax (Kappa=4) with Kaiser Normalization.

In summary, divergent and convergent task conflicts appear to be distinct, acceptably reliable constructs. As expected, Jehn's original task conflict measure seems to be associated with aspects of both divergent and convergent task conflicts, although the items did not load exactly as we predicted in the introduction of this paper. In the next study, we use another sample to confirm that the two-factor structure of divergent and convergent task conflicts is robust and examine if it is appropriate to use the scales to measure the group-level concepts.

Study 2: Construct Validation

The purpose of Study 2 is to validate the constructs of divergent and convergent task conflicts. We use survey data to achieve the following objectives. First, we investigate if the divergent and convergent task conflict scales are distinct constructs using comparative confirmatory factor analysis (CFA). Second, we evaluate if it is appropriate to aggregate the individual level data to the group level of analysis.

Again, our research setting is the management school of a large West Coast university where MBA students work as teams on a consulting-style project with one external business client for two academic quarters. Participants had worked as teams for seven weeks at the time of the survey.

Sample and Procedure

The sample consist of 429 students who participated in the group project, organized into 102 teams ($M = 4.21$ members, $SD = 0.89$). Completing the surveys was a mandatory program requirement, but students could voluntarily opt out of the research project. We measured their level of conflict seven weeks after the formation of the groups.

Measures and Analyses

Participants were asked to fill in a questionnaire containing items to assess divergent and convergent task conflicts within the group. They rated these items on a seven-point scale with endpoint anchors of one "strongly disagree" and seven "strongly agree."

Comparative CFAs. We examine the discriminant validity –the degree to which the constructs are not related to each other (American Psychological Association, National Council on Measurement in Education, & American Educational Research Association, 1999) – of the divergent and convergent task conflict scales. In other words, we compare the hypothesis that the

constructs of divergent and convergent task conflicts differ from each other rather than tap into a single factor. We do this by conducting comparative CFAs to determine if the two-factor model represents a better fit of the data than a one-factor model that combines the items into a single factor.

Group Aggregation Analyses. To assess appropriateness of aggregating individual-level divergent and convergent task conflict data to the team level, we calculate the within-group agreement index, r_{wg} (James, Demaree, & Wolf, 1984) and the intra-class correlation coefficients, ICC(1) and ICC(2) (Hayes, 2006). R_{wg} indices greater than .70 justify group aggregation (Klein et al., 2000). ICC(1) is a point estimate of inter-rater reliability that takes into account group size. A value greater of ICC(1) than .12 is generally considered acceptable (James, 1982). ICC(2) is a measure of mean stability in ratings, which is very sensitive to group size. A value of ICC(2) greater than .70 is generally considered acceptable (Klein & Kozlowski, 2000). We also use Cronbach's Alpha to measure inter-item reliability of the measures at the group level.

Results and Discussion

Fit statistics for the modified unconstrained two-factor model meet standard criteria: $\chi^2 = 1.03$ (4, N = 429), $p > .10$, CFI = 1.00, RMSEA = .00. Fit statistics for the one-factor model with the covariance between the two latent conflict factors set equal to one did not meet standard criteria: $\chi^2 = 103.64$ (5, N = 429), $p < .001$, CFI = 0.69, RMSEA = .21. Results of a chi-squared differences test to assess whether or not the two-factor model fit the data better than the one-factor model confirmed that our two-factor model was significantly better than the one-factor model, $\chi^2 = 102.61$ (1, N = 429), $p < .001$.

The statistics generally support group-level aggregation of the scales (median r_{wg} = .80, ICC(1) = .14, ICC(2) = .40 for divergent task conflict; median r_{wg} = .76, ICC(1) = .14, ICC(2) = .39 for convergent task conflict) and for group-level inter-item reliability (alpha = .73 for divergent task conflict; alpha = .70 for convergent task conflict). Note, however, that the size of the ICC(2) correlations are modest. Past research uses significant F values to justify group aggregation when ICC scores are low (e.g., de Jong & Elfring, 2010). We determine that all of the F-statistics are significant. ICC(2) is a function of ICC(1); all things being equal, the larger the group size, the larger ICC(2).[5] The relatively low ICC(2) scores, therefore, are probably a function of the small group sizes. Having validated the constructs, in the next study, we examine the effects of divergent and convergent task conflicts in a longitudinal survey.

Study 3: Effects of The Two Types of Task Conflicts

The purpose of Study 3 is to explore how divergent and convergent task conflicts affect information sharing and group performance. Our research setting is again the management school of a large university. This school requires MBA students to take an Organizational Behavior (OB) course in their first quarter of the program. In this class, all students are formed into study groups to complete group assignments. Completion of the required course is a degree requirement, so students regard their group performance as consequential. Since the present study was conducted during the students' first quarter, this reduces some potential confounding factors, such as familiarity among group members that exist in our first two samples and would exist in an organizational field setting. Additionally, the study groups are exogenously created by

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[5]Klein and Kozlowski (2000) used an example to explain the relationships between, ICC(1), ICC(2), and sample size. When ICC(1) is .20 and the average group size is 5 in one certain sample, the expected value for ICC(2) will be .56. However, when ICC(1) is .20 and the average group size is 20 in this sample, the expected value for ICC(2) will be .71. Given this limitation, although we reported the ICC(2) values in the subsequent studies, we should maintain a degree of skepticism about using ICC(2) to judge the within-group agreement because the group size of the groups in our studies is relatively small.

an algorithm, which avoids potential self-selection bias. Because the students are currently employed at the time, their responses are more generalizable to employees' responses in the real business world than those of full-time student samples.

Sample and Procedure

The sample consists of 261 students who enrolled in the 10-week OB course, organized into 50 study groups. The average number of group members is 5.22 (*SD* = .82). The participants were formed into study groups at the beginning of the 10-week academic quarter and worked together on all course assignments and in-class exercises. They completed a survey to report their levels of generosity, which we use as a control variable (described below), between the third week and the fourth week of the quarter. They completed another survey to report their levels of divergent and convergent task conflicts and information sharing in their group during the sixth week of the quarter. A group project that required students to develop a case write-up about how an organization's performance evaluation system can be assessed by applying some key principles from the course was due in the class during the ninth week. Group performance was the grade of the group assignment. Grades were determined by teaching assistants who were blind to the hypotheses of the study. Thus, our control variable was measured between weeks three and four (generosity), our independent variables (divergent and convergent task conflicts) and mediator (information sharing) were measured in week six, and our dependent variable (performance) was measured between weeks nine and ten.

Study 3 Measures

Students rated the survey items on a seven-point scale with endpoint anchors of one "strongly disagree" and seven "strongly agree." We then aggregated each group member's

responses to create group-level variables. We also calculated group-level Cronbach's alpha to assess inter-item reliability.

Divergent and convergent task conflicts. We used the same items as in Study 2. We first replicate the distinctions between divergent and convergent task conflicts by performing comparative CFAs on the individual level data. Fit statistics for the modified unconstrained two-factor model meet standard criteria: $\chi^2 = 4.39$ (4, N = 261), $p > .10$, CFI = 1.00, RMSEA = .02, whereas those for the one-factor model with the covariance between the two latent conflict factors set equal to one do not (fit statistics for the one-factor model: $\chi^2 = 60.90$ (5, N = 261), $p < .001$, CFI = 0.72, RMSEA = .21). A chi-squared differences test confirmed that the two-factor model has a significantly better fit: $\chi^2 = 55.51$ (1, N = 261), $p < .001$.

The statistics also support group-level aggregation of the scales (median $r_{wg} = .81$, ICC(1) = .13, ICC(2) = .43 for divergent task conflict; median $r_{wg} = .74$, ICC(1) = .18, ICC(2) = .53 for convergent task conflict) and for group-level inter-item reliability (alpha = .81 for divergent task conflict; alpha = .76 for convergent task conflict). We, therefore, use the group-level data for our hypotheses tests.

Information sharing. Information sharing was measured by three modified items from the scale developed by Van Dyn and LePine (1998) (see also Grant, et al., 2009). We modified three items that unambiguously include activities such as speaking up and listening to ensure that the information about work issues will be informative within the group. A sample item is "Team members communicate their opinions about work issues to others in this group." The statistics indicate support for group-level aggregation (median $r_{wg} = .93$, ICC(1) = .24, ICC(2) = .62) and for group-level inter-item reliability (alpha = .74).

Group performance. Group performance was the grade on the group assignment. The OB course has four sections. Although the group assignment was evaluated by different teaching assistants, the syllabus describes the same case write-up assignment and the teaching assistants followed the same grading criteria to evaluate the quality of group assignment. To minimize the differences in grading standards among the sections, we mean-centered the grades within evaluator.

Control variables. Research has suggested that generosity-related traits are associated with intra-group conflicts (Jong, Song, & Song, in press), information sharing (McKnight, Choudhury, & Kacmar, 2002), and group performance (Beersma & De Dreu, 2005). Therefore, we measured each group member's generosity as an important control variable to reduce potential unobserved heterogeneity in our analyses of these constructs. Generosity was measured by five modified items from the scale developed by Flynn, Reagans, Amanatullah, and Ames (2006). Although the full five-item modified generosity scale was unreliable (Alpha = .52), the first three items (e.g., "I am willing to help when needed," "I ask for help from others but do not reciprocate in turn (Reverse-coded)," and "I am flexible and try to accommodate others' needs") achieved a respectable group-level Cronbach's alpha of .70. Then we used the group mean and standard deviation of the three-item generosity scale to create two control variables, group generosity composition and group generosity variance.[6]

Analyses and Results

In Table 2, we present the means, standard deviations, and correlations among the variables at the group level of analyses.

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[6] We also examined demographic variables as control variables, including gender and work experience. However, we did not find any significant associations of these variables with task conflicts, information sharing, or performance. Research has also suggested that demographic variables have inconsistent effects on group processes and outcomes (Mohammed & Angell, 2004). Therefore, we removed the demographic variables from our regression model.

TABLE 2
Descriptive Statistics for Variables in Study 3

Variable	Mean	s.d.	1	2	3	4	5
1. Group Generosity Composition	6.19	0.30					
2. Group Generosity Variance	0.63	0.29	-.62				
3. Divergent Task Conflict	4.89	0.58	.27	.06			
4. Convergent Task Conflict	3.07	0.74	.05	- .11	.30		
5. Information Sharing	5.63	0.42	.35	- .17	.36	-.40	
6. Group Performance	-0.00	1.40	-.00	.19	.33	-.24	.45

n = 50. |Correlations| ≥ .24 are significant at $p < .10$; |Correlations| ≥ .30 are significant at $p < .05$; |Correlations| ≥ .62 are significant at $p < .001$

We examine the effects of divergent and convergent task conflicts on information sharing and group performance (Table 3). Since our hypotheses involve estimation of multiple paths simultaneously, we use seemly unrelated regression and bootstrapping mediation estimation of the indirect paths (Preacher & Hayes, 2008). To obtain standardized coefficients in the regression model, we use z-scores of each variable.

TABLE 3
Results of Regression Analysis of the Effects of Task Conflicts in Study 3

Variable	Model I: Group Performance	Model II: Information Sharing	Model III: Group Performance
Group Generosity Composition	-.05	.14	-.09
Group Generosity Variance	.10	-.18	.16
Divergent Task Conflict	.45**	.50***	.27
Convergent Task Conflict	-.36**	-.58***	-.16
Information Sharing			.36*
R^2	.25**	.49***	.32***

Recall that in Hypothesis 1, we predict that divergent task conflict will increase group performance, whereas convergent task conflict will decrease group performance. In support of

this hypotheses, in Model I of Table 3 we find that divergent task conflict enhances group performance ($\beta = .45$, $p < .01$) and convergent task conflict reduces group performance ($\beta = -.36$, $p < .01$).

In Hypothesis 2, we predict that divergent task conflict will increase information sharing, whereas convergent task conflict will decrease information sharing. In Model II of Table 3, we find that divergent task conflict enhances information sharing ($\beta = .50$, $p < .001$) and convergent task conflict reduces information sharing ($\beta = -.58$, $p < .001$), which supports Hypothesis 2.

In Hypothesis 3, we predict that information sharing mediates the relationships between both types of task conflict and group performance. In Model III of Table 3, when using both types of task conflict and information sharing as independent variables, divergent task conflict ($\beta = .27$, $p > .05$) and convergent task conflict ($\beta = -.16$, $p > .05$) are no longer significantly associated with group performance, but information sharing still significantly increases group performance ($\beta = .36$, $p < .05$). Bootstrapping results demonstrate that information sharing mediates the effects of both types of task conflict on performance. Divergent task conflict increase group performance by enhancing information sharing (95% bias-corrected confidence interval = .01, .44) whereas convergent task conflict decrease group performance by reducing information sharing (95% bias-corrected confidence interval = -.52, -.01). The results support Hypothesis 3 (see Figure 3-1 for a summary of these results).
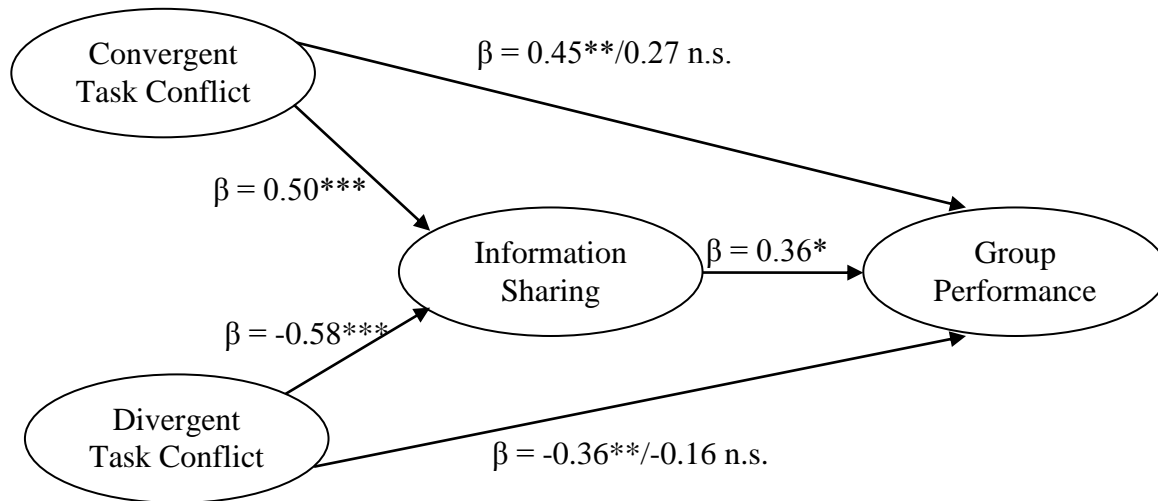
Figure 3-1. The mediating effect of information sharing on the associations between the task

conflicts and group performance in Study 1. The two 95% bias-corrected bootstrapping

confidence intervals do not span zero.

Results and Discussion

The results support our general proposition that divergent and convergent task conflicts

affect information sharing and group performance in opposite directions. They also indirectly

affect group performance via information sharing, again in opposite directions.

A limitation of the study is that we did not measure our independent and mediator

variables at chronological intervals that are consistent with our causal inferences. This also

introduces the possibility of common method variance biasing our results. That is, the use of

single-source assessment produces artificially high inter-correlations (Avolio, Yammarino, &

Bass, 1991). We addressed this limitation to some extent. We measured our group performance,

separately and at a later point-in-time than our predictor variables; performance was evaluated by

third parties; and we averaged individual-level data to the group-level of analysis (Podsakoff & Organ, 1986). We also ran an alternative model by switching the order of independent variable and mediator and found non-significant mediating effects of task conflicts on the connections between information sharing and group performance. To further address this concern of the direction of causality between the task conflicts and group processes, a trained third-party could evaluate participants' information sharing behavior, or the constructs could be measured by surveys administered at separate points in the groups' lives.

General Discussion

This research contributes to the literature on group conflict by indicating that separating task conflict into divergent and convergent categories helps resolve conflicting findings of the effects of task conflict on group processes and outcomes. We have argued that the past, unitary conceptualization and operationalization of task conflict from Jehn (1995; 1997) has inconsistent effects on information sharing and group performance due to confounding these two types of task conflicts. Our results demonstrate that by distinguishing divergent and convergent task conflicts, the relationships are consistent and robust across information sharing and group performance.

The primary contribution of our work is that task conflicts appear to benefit groups when the conflicts occur during divergent, idea-generation task processes because they enhance information sharing. When task conflicts occur during convergent, decision-making task processes, the conflicts are disruptive and counter-productive. Our research offers clear practical advice that group leaders should encourage divergent and discourage convergent task conflicts to improve team performance. They may do so by asking team members to debate over new ideas or alternative suggestions and by formulating and articulating the group objective to establishing

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common understanding among group members to reduce convergent task conflicts. By their effects on divergent and convergent task conflicts, these actions can substantially improve group performance.

Theoretical Implications

Existing research on group conflict has focused on the situations in which task conflicts are beneficial or detrimental to organizations (C. De Dreu & L. Weingart, 2003; De Dreu, Harinck, & Van Vianen, 1999) but ignored the idea that task conflicts could be distinguished according to different aspects of group processes. Using theoretical arguments from the literatures on creativity (King, et al., 1996; McCrae, 1987), intelligence (Dodrill, 1981; Hawkins, et al., 1990; Wonderlic, 2000), group processes (Guilford, 1967; Larey & Paulus, 1999; Nemeth & Kwan, 1987) and task mindsets (Brandstatter & Frank, 2002; Gollwitzer, 1999; Taylor & Gollwitzer, 1995), our paper expands the construct of group task conflict to consider two different group processes that are affected by task conflicts. Research has suggested that task conflict increases group divergent processes but is not related to group convergent processes (Paletz & Schunn, 2010), but our results imply that task conflict can be associated with group convergent processes as well. In addition, our results demonstrate that the convergent task conflicts that decrease group performance are more strongly connected to the traditional task conflict scale than are the beneficial divergent task conflicts, despite the theoretical similarity to divergent task conflict. This may explain why most of research has indicated a negative relationship between task conflict and group performance (De Dreu & Weingart, 2003b). Introducing this distinction helps resolve the paradox of group task conflict in a more robust and parsimonious way than do contingency approaches. Distinguishing convergent from divergent

task conflicts in future research should produce clearer and more nuanced relationships and improve our understanding of the effects of task conflicts in groups.

Future Research

Although our paper offers several new insights, its limitations offer direction for future research. First, although we find that divergent and convergent task conflicts have effects on group performance, researchers ought to identify potential boundary conditions of the relationships between task conflicts and group performance, such as intensity of conflict and types of tasks. It is possible that both divergent and convergent task conflicts can be beneficial to groups at some intensity level and afterwards become detrimental to the groups. For instance, mid-level goal conflicts lead group members to use existing information and resources more creatively than no conflict. However, high goal conflicts dampen group members' creativity in using information and resources (Farh, et al., 2010). Although we tested for curvilinear effects of the task conflicts on our outcomes in Study 3 by adding quadratic divergent and convergent task conflict variables in post-hoc analyses, none of the coefficients were significant. Nonetheless, in future studies, researchers may consider manipulating the intensity of divergent and convergent task conflicts to examine if curvilinear effects of task conflicts on the group outcomes exist under any circumstances. The effects may also vary by task type: Divergent task conflict may have positive effects on group performance when tasks are related to idea generation whereas convergent task conflict may have a positive impact on group performance when tasks are relevant to idea selection. Varying the task context in future research will help extend our understanding of the effects of these constructs.

Second, our divergent and convergent task conflict measures can be also separated based on expression of conflict. Specifically, when task conflict occurs during the divergent process,

people *debate* or *deliberate* their ideas and opinions. By contrast, when task conflict occurs during the convergent process, people *disagree* their ultimate solution and common objective. Future studies should examine whether or not expression of conflict results in the distinction between divergent and convergent task conflict.

Third, we link divergent and convergent task conflicts to group cognitive processes – information sharing, but we ought to classify the cognitive processes into divergent and convergent processes in future studies. For instance, divergent processes are related to information search whereas convergent processes are associated with information evaluation (Paletz & Schunn, 2010). Thus, scholars may consider examining the impacts of the two task conflicts on information search and information evaluation separately in future studies.

Fourth, we measure divergent and convergent task conflicts simultaneously but they may appear in different temporal phases of group tasks. A group may generate ideas without any judgment and then select the best one or few ideas they will implement as sequential task phases (Rietzschel, Nijstad, & Stroebe, 2010). This linear process is the prescriptive ideal, but it is not descriptively accurate (Baruah & Paulus, 2009). More often, groups engage in these activities simultaneously or go back and forth between them repeatedly. Thus, it may be that divergent and convergent task conflicts have different effects when they occur simultaneously than when they happen sequentially.

Finally, our use of MBA student samples in all three studies may limit the external validity and generalizability of the findings. Although we find consistent factor structures from groups of MBA students who are working on long-term consulting projects with external clients and short-term course related activities, we do not determine if the consequences of the two types of task conflict are the same in these different task domains. Future research should examine the

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effects of divergent and convergent task conflicts in different kinds of groups, particularly in

organizational field settings. These limitations offer many opportunities for subsequent research

to increase our understanding of how different types of task conflicts may function in task

groups.

Chapter V Conclusion

In the dissertation, I examine the predictors and outcomes of information sharing within groups. In the first paper, the results demonstrate that ego depletion lowers the chances of achieving integrative outcomes within negotiation groups because it reduces preference-relevant information sharing. In the second paper, the results demonstrate that the presence of ambivalent people increases information sharing because it increases perceptions that the fellow members are open to others' ideas and opinions. In the third paper, the results demonstrate the distinction between divergent and convergent task conflicts and these two task conflicts have opposite effects on information sharing and group performance. Divergent task conflict increases group performance by enhancing information sharing whereas convergent task conflict decreases group performance by reducing information sharing.

Although I identify some unexplored predictors of information sharing, such as ego depletion, ambivalent individuals, and divergent and convergent task conflicts, future research can focus on the joint effects of these predictors on information sharing. For instance, depleted people may evaluate ambivalent people as those who reject others opinions rather than consider others' viewpoints because the depleted people have a tendency to display aggressive behavior (Stucke & Baumeister, 2006) and therefore assume that others will oppose their own opinions. Divergent task conflict may have strong positive effects on information sharing in a group that includes ambivalent members because ambivalent members are perceived as those who consider others' viewpoints. Future studies ought to examine the potential interaction effects of ego depletion, ambivalent attitudes, and task conflicts on information sharing.

In addition, future research can focus on the association between conflict and depletion, which subsequently affects group processes and outcomes. For instance, when people resolve a

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conflict, they may need to regulate their emotions, which can lead to self-regulatory resources depletion. Consequently, they may perform poorly in subsequent, unrelated tasks. This new stream of research offers a novel reason why conflict can influence group processes and outcomes.

Future studies can also examine the effects of ambivalent individuals on perceivers' ego depletion. Research has found that when one mentally simulates self-regulatory activities of other people, the individual will also feel depleted (Ackerman, Goldstein, Shapiro, & Bargh, 2009). I suspect that when people mentally simulate the actions of an ambivalent individual, they also feel depleted because the ambivalent individual may keep changing their opinions, which may also involve self-regulatory activities. Thus, it is worthwhile to examine the effects of ambivalent individuals on perceivers' depletion.

The current dissertation not only offers future research directions but also has strong practical implications. The results of the dissertation demonstrate the association between information sharing and overall utility or performance of groups. Team or business leaders can increase information sharing to enhance team performance and utility by reducing team members' ego depletion, inserting ambivalent individuals, encouraging divergent task conflict, and discouraging convergent task conflict. My hope is that business or team leaders can use these unexplored predictors of information sharing to develop relevant management practices, ultimately achieving high team effectiveness.

Appendix

Point table of the representative of the grocery

Design	Temperature	Distribution of Rental Costs
design D (50)	20 ˚C (100)	distribution 3 (200)
design E (37.5)	18 ˚C (75)	distribution 5 (150)
design C (25)	16 ˚C (50)	distribution 4 (100)
design A (12.5)	14 ˚C (25)	distribution 1 (50)
design B (0)	12 ˚C (0)	distribution 2 (0)

Point table of the representative of the bakery

Design	Temperature	Distribution of Rental Costs
design B (200)	20 ˚C (50)	distribution 2 (100)
design A (150)	18 ˚C (37.5)	distribution 1 (75)
design C (100)	16 ˚C (25)	distribution 4 (50)
design E (50)	14 ˚C (12.5)	distribution 5 (25)
design D (0)	12 ˚C (0)	distribution 3 (0)

Point table of the representative of the florist

Design	Temperature	Distribution of Rental Costs
design D (100)	12 ˚C (200)	distribution 2 (50)
design E (75)	14 ˚C (150)	distribution 1 (37.5)
design C (50)	16 ˚C (100)	distribution 4 (25)
design A (25)	18 ˚C (50)	distribution 5 (12.5)
design B (0)	20 ˚C (0)	distribution 3 (0)

Reference

Ackerman, J. M., Goldstein, N. J., Shapiro, J. R., & Bargh, J. A. (2009). You Wear Me Out: The Vicarious Depletion of Self-Control. *Psychological Science, 20*(3), 326-332.

Aldag, R. J., & Fuller, S. R. (1993). Beyond fiasco: A reappraisal of the groupthink phenomenon and a new model of group decision processes. *Psychological Bulletin, 113*(3), 533-552.

Amason, A. (1996). Distinguishing the effects of functional and dysfunctional conflict on strategic decision making: Resolving a paradox for top management teams. *Academy of Management Journal, 39*(1), 123-148.

American Psychological Association, National Council on Measurement in Education, & American Educational Research Association. (1999). *Standards for educational and psychological testing*. Washington, DC: American Educational Research Association.

Andres, H. P., & Zmud, R. W. (2001). A contingency approach to software project coordination. *Journal of Management Information Systems, 18*(3), 41-70.

Argote, L., Gruenfeld, D., & Naquin, C. (Eds.). (1999). *Group learning in organizations.* New York: Erlbaum.

Avolio, B. J., Yammarino, F. J., & Bass, B. M. (1991). Identifying common methods variance with data collected from a single source: An unresolved sticky issue. *Journal of Management, 17*(3), 571-587.

Bahar, M., & Hansell, M. H. (2000). The relationship between some psychological factors and their effect on the performance of grid questions and word association tests. *Educational Psychology, 20*, 349–364.

Balliet, D., & Joireman, J. (2010). Ego depletion reduces proselfs' concern with the well-being of others. *Group Processes & Intergroup Relations, 13*(2), 227-239.

Barker, D. C., & Hansen, S. B. (2005). All things considered: Systematic cognitive processing and electoral decision-making. *Journal of Politics, 67*(2), 319-344.

Baruah, J., & Paulus, P. B. (2009). *Enhancing group creativity: The search for synergy* (Vol. 12): Emerald Group Publishing Limited.

Baumeister, R. F., Bratslavsky, E., Muraven, M., & Tice, D. M. (1998). Ego depletion: Is the active self a limited resource? *Journal of Personality and Social Psychology, 74*(5), 1252-1265.

Baumeister, R. F., & Vohs, K. D. (2007). Self-regulation, ego depletion, and motivation. *Social and Personality Psychology Compass 1*(1), 115–128,.

Beckmann, J., & Gollwitzer, P. M. (1987). Deliberative vs. implemental states of mind: The issue of impartiality in pre- and postdecisional information processing. *Social Cognition, 5*(3), 259-279.

Beersma, B., & De Dreu, C. K. W. (1999). Negotiation processes and outcomes in prosocially and egoistically motivated groups. *International Journal of Conflict Management, 10*(4), 385-402.

Beersma, B., & De Dreu, C. K. W. (2005). Conflict's consequences: Effects of social motives on postnegotiation creative and convergent group functioning and performance. *Journal of Personality and Social Psychology, 89*(3), 358-374.

Bell, D. W., & Esses, V. M. (2002). Ambivalence and response amplification: A motivational perspective. *Personality and Social Psychology Bulletin, 28*(8), 1143-1152.

Bendersky, C., Behfar, K., Weingart, L., Jehn, K. A., Todorova, G., & Bear, J. (2010). *Revisiting the dimensions of intra-group conflict: Theoretical and psychometric construct*

refinement Paper presented at the the 23rd Annual International Association of Conflict Management Conference.

Bendersky, C., & Hays, N. A. (2010). Status conflict in groups. *Organization Science*. Retrieved from http://orgsci.journal.informs.org/cgi/content/abstract/orsc.1100.0544v1.

Brandstatter, V., & Frank, E. (2002). Effects of deliberative and implemental mindsets on persistence in goal-directed behavior. [Article]. *Personality and Social Psychology Bulletin, 28*(10), 1366-1378.

Brehm, J., & Cohen, A. (1962). *Explorations in cognitive dissonance*. New York: Wiley.

Brockner, J. (1992). The escalation of commitment to a failing course of action: Toward theoretical progress. *Academy of Management Review*, 39-61.

Bruyneel, S. D., Dewitte, S., Franses, P. H., & Dekimpe, M. G. (2009). I felt low and my purse feels light: Depleting mood regulation attempts affect risk decision making. *Journal of Behavioral Decision Making, 22*(2), 153-170.

Bunderson, J. S., & Sutcliffe, K. M. (2002). Comparing alternative conceptualizations of functional diversity in management teams: Process and performance effects. *Academy of Management Journal, 45*(5), 875-893.

Carnevale, P. J., & Probst, T. M. (1998). Social values and social conflict in creative problem solving and categorization. [Article]. *Journal of Personality and Social Psychology, 74*(5), 1300-1309.

Clark, J. K., Wegener, D. T., & Fabrigar, L. R. (2008). Attitudinal ambivalence and message-based persuasion: Motivated processing of proattitudinal information and avoidance of counterattitudinal information. *Personality and Social Psychology Bulletin, 34*(4), 565-577.

Connelly, C. E., & Kelloway, E. K. (2003). Predictors of employees' perceptions of knowledge

        sharing cultures. *Leadership & Organization Development Journal, 24*((5/6).), 294−301.

Craig, S. C., Martinez, M. D., & Kane, J. G. (2005). *Ambivalence and response instability: A*

        panel study. New York: McMillan.

Cronin, M. A., & Weingart, L. (2007). Representational gaps, information processing, and

        conflict in functionally diverse teams. *Academy of Management Review, 32*(3), 761-773.

Cruz, M. G., Boster, F. J., & Rodriguez, J. I. (1997). The impact of group size and proportion of

        shared information on the exchange and integration of information in groups.

        Communication Research, 24(3), 291-313.

Cummings, J. N. (2004). Work groups, structural diversity, and knowledge sharing in a global

        organization. *Management Science, 50*(3), 352-364.

Cunningham, G. B., & Waltemyer, D. S. (2007). The moderating effect of outcome

        interdependence on the relationship between task conflict and group performance.

        [Article]. *International Journal of Sport Psychology, 38*(2), 163-177.

De Dreu, C., & Weingart, L. (2003). Task versus relationship conflict, team performance, and

        team member satisfaction. *Journal of Applied Psychology, 88*(4), 741-749.

De Dreu, C. K. W. (2006). When too little or too much hurts: Evidence for a curvilinear

        relationship between task conflict and innovation in teams. [Article]. *Journal of*

        Management, 32(1), 83-107.

De Dreu, C. K. W., & Beersma, B. (2010). Team confidence, motivated information processing,

        and dynamic group decision making. *European Journal of Social Psychology, 40*(7),

        1110-1119.

De Dreu, C. K. W., Beersma, B., Stroebe, K., & Euwema, M. C. (2006). Motivated information processing, strategic choice, and the quality of negotiated agreement. *Journal of Personality and Social Psychology, 90*(6), 927-943.

De Dreu, C. K. W., & Harinck, F. (2011). When does taking a break help in neogiations? The influence of breaks and social motivation on negotiation processes and outcomes. *Negotiation and Conflict Management Research, 4*(1), 33-46.

De Dreu, C. K. W., Harinck, F., & Van Vianen, A. E. M. (1999). Conflict and performance in groups and organizations. In C. I. Cooper & I. Robertson (Eds.), *International review of industrial and organizational psychology* (pp. 369-414). New York: Wiley.

De Dreu, C. K. W., Koole, S. L., & Steinel, W. (2000). Unfixing the fixed pie: A motivated information-processing approach to integrative negotiation. *Journal of Personality and Social Psychology, 79*(6), 975-987.

De Dreu, C. K. W., Nijstad, B. A., & van Knippenberg, D. (2008). Motivated information processing in group judgment and decision making. *Personality and Social Psychology Review, 12*(1), 22-49.

De Dreu, C. K. W., & Weingart, L. (2003a). A contingency theory of task conflict and performance in groups and organizational teams. In M. West, D. Tjosvold & K. Smith (Eds.), *International handbook of teamwork and cooperation* (pp. 151-165). Chincester, UK: Wiley.

De Dreu, C. K. W., & Weingart, L. (2003b). Task versus relationship conflict, team performance and team member satisfaction: A meta-analysis. *Journal of Applied Psychology, 88*(4), 741-749.

de Jong, B. A., & Elfring, T. (2010). How does trust affect the performance of ongoing teams? The mediating role of reflexivity, monitoring, and effort. *Academy of Management Journal, 53*(3), 535-549.

De Wit, F. R. C., Greer, L. L., & Jehn, K. A. (2011, August 15). The paradox of intragroup conflict: A meta-analysis. *Journal of Applied Psychology. Advance online publication*.

DeBono, A., Shmueli, D., & Muraven, M. (2011). Rude and Inappropriate: The Role of Self-Control in Following Social Norms. *Personality and Social Psychology Bulletin, 37*(1), 136-146.

DeVellis, R. F. (1991). *Scale Development*. Newbury Park, NJ: Sage Publications.

Devine, D. J. (1999). Effects of cognitive ability, task knowledge, information sharing, and conflict on group decision-making effectiveness. *Small Group Research, 30*(5), 608-634.

DeWall, C. N., Baumeister, R. F., Gailliot, M. T., & Maner, J. K. (2008). Depletion Makes the Heart Grow Less Helpful: Helping as a Function of Self-Regulatory Energy and Genetic Relatedness. *Personality and Social Psychology Bulletin, 34*(12), 1653-1662.

DeWall, C. N., Baumeister, R. F., Stillman, T. F., & Gailliot, M. T. (2007). Violence restrained: Effects of self-regulation and its depletion on aggression. *Journal of Experimental Social Psychology, 43*(1), 62-76.

Ditto, P. H., & Lopez, D. F. (1992). Motivated skepticism: Use of differential decision criteria for preferred and nonpreferred conclusions. *Journal of Personality and Social Psychology, 63*(4), 568-584.

Ditto, P. H., Scepansky, J. A., Munro, G. D., Apanovitch, A. M., & Lockhart, L. K. (1998). Motivated sensitivity to preference-inconsistent information. *Journal of Personality and Social Psychology, 75*(1), 53-69.

Dodrill, C. B. (1981). An economical method for the evaluation of general intelligence in adults. *Journal of Consulting and Clinical Psychology, 49*(5), 668-673.

Dorris, D. C., Power, D. A., & Kenefick, E. (2012). Investigating the effects of ego depletion on physical exercise routines of athletes. *Psychology of Sport and Exercise, 13*(2), 118-125.

Emerson, R. M. (1954). Deviation and Rejection: An Experimental Replication. *American Sociological Review, 19*(6), 688-693.

Farh, J. L., Lee, C., & Farh, C. I. C. (2010). Task Conflict and Team Creativity: A Question of How Much and When. *Journal of Applied Psychology, 95*(6), 1173-1180.

Fennis, B. M. (2011). Can't get over me: Ego depletion attenuates prosocial effects of perspective taking. *European Journal of Social Psychology, 41*(5), 580-585.

Fennis, B. M., Janssen, L., & Vohs, K. D. (2009). Acts of Benevolence: A Limited-Resource Account of Compliance with Charitable Requests. *Journal of Consumer Research, 35*(6), 906-924.

Festinger, L. (1957). *A theory of cognitive dissonance*. Evanston, IL: Row, Peterson.

Finkel, E. J., Dalton, A. N., Campbell, W. K., Brunell, A. B., Scarbeck, S. J., & Chartrand, T. L. (2006). High-maintenance interaction: Inefficient social coordination impairs self-regulation. *Journal of Personality and Social Psychology, 91*(3), 456-475.

Fischer, P., Greitemeyer, T., & Frey, D. (2008). Self-regulation and selective exposure: The impact of depleted self-regulation resources on confirmatory information processing. *International Journal of Psychology, 43*(3-4), 405-405.

Fischer, P., Jonas, E., Frey, D., & Schulz-Hardt, S. (2005). Selective exposure to information: The impact of information limits. *European Journal of Social Psychology, 35*(4), 469-492.

Flynn, F. J., Reagans, R. E., Amanatullah, E. T., & Ames, D. R. (2006). Helping one's way to the top: Self-monitors achieve status by helping others and knowing who helps whom. *Journal of Personality and Social Psychology, 91*(6), 1123-1137.

Freeman, N., & Muraven, M. (2010). Self-control depletion leads to increased risk taking. *Social Psychological and Personality Science, 1*, 175-181.

Frey, D. (1986). Recent research on selective exposure to information. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 19). New York: Academic Press.

Friese, M., & Hofmann, W. (2009). Control me or I will control you: Impulses, trait self-control, and the guidance of behavior. *Journal of Research in Personality, 43*(5), 795-805.

Gailliot, M. T., & Baumeister, R. F. (2007). The physiology of willpower: Linking blood glucose to self-control. *Personality and Social Psychology Review, 11*(4), 303-327.

Gailliot, M. T., Baumeister, R. F., DeWall, C. N., Maner, J. K., Plant, E. A., Tice, D. M., et al. (2007). Self-control relies on glucose as a limited energy source: Willpower is more than a metaphor. *Journal of Personality and Social Psychology, 92*(2), 325-336.

Gelfand, M. J., Fulmer, C. A., & Severance, L. E. (2010). The psychology of negotiation and mediation. In S. Zedeck (Ed.), *APA Handbook of Industrial and Organizational Psychology* (Vol. 3, pp. 495-554). Washington, DC: American Psychological Association.

Gollwitzer, P. M. (1999). Implementation intentions - Strong effects of simple plans. *American Psychologist, 54*(7), 493-503.

Gollwitzer, P. M., & Kinney, R. F. (1989). Effects of deliberative and implemental mind-sets on illusion of control. *Journal of Personality and Social Psychology, 56*(4), 531-542.

Gramzow, R. H., Sedikides, C., Panter, A. T., & Insko, C. A. (2000). Aspects of self-regulation and self-structure as predictors of perceived emotional distress. *Personality and Social Psychology Bulletin, 26*(2), 188-205.

Grant, A. M., Parker, S., & Collins, C. (2009). Getting credit for proactive behavior: Supervisor reactions depend on what you value and how you feel. *Personnel Psychology, 62*(1), 31-55.

Guilford, J. P. (1967). *The nature of human intelligence*: McGraw-Hill New York.

Hagger, M. S., Wood, C., Stiff, C., & Chatzisarantis, N. L. D. (2010). Ego Depletion and the Strength Model of Self-Control: A Meta-Analysis. *Psychological Bulletin, 136*(4), 495-525.

Harinck, F., & De Dreu, C. K. W. (2008). Take a break! or not? The impact of mindsets during breaks on negotiation processes and outcomes. *Journal of Experimental Social Psychology, 44*(2), 397-404.

Hawkins, K. S., Faraone, S. V., Pepple, J. R., & Seidman, L. J. (1990). WAIS-R validation of the Wonderlic Personnel Test as a brief intelligence measure in a psychiatric sample. *Psychological Assessment, 2*, 198-201.

Hayes, A. F. (2006). A primer on multilevel modeling. *Human Communication Research, 32*(4), 385-410.

Heckhausen, H., & Gollwitzer, P. M. (1987). Thought contents and cognitive functioning in motivational versus volitional states of mind. *Motivation and Emotion, 11*(2), 101-120.

Hergovich, A., Schott, R., & Burger, C. (2010). Biased Evaluation of Abstracts Depending on Topic and Conclusion: Further Evidence of a Confirmation Bias Within Scientific Psychology. *Current Psychology, 29*(3), 188-209.

Holbert, R. L., & Hansen, G. J. (2006). Fahrenheit 9-11, need for closure and the priming of

    affective ambivalence: An assessment of intra-affective structures by party identification.

    Human Communication Research, 32(2), 109-129.

Hollenbeck, J. R., Ilgen, D. R., Sego, D. J., Hedlund, J., Major, D. A., & Phillips, J. (1995).

    Multilevel theory of team decision-making: Decision performance in teams incorporating

    distributed expertise. [Article]. *Journal of Applied Psychology, 80*(2), 292-316.

Hollingshead, A. B. (1998). Communication, learning, and retrieval in transactive memory

    systems. *Journal of Experimental Social Psychology, 34*(5), 423-442.

Hoyle, R. H. (2006). Personality and self-regulation: Trait and information-processing

    perspectives. *Journal of Personality, 74*(6), 1507-1525.

Huffmeier, J., & Hertel, G. (2011). Many cheers make light the work: how social support

    triggers process gains in teams. *Journal of Managerial Psychology, 26*(3), 185-204.

Inzlicht, M., McKay, L., & Aronson, J. (2006). Stigma as ego depletion - How being the target of

    prejudice affects self-control. *Psychological Science, 17*(3), 262-269.

James, L. (1982). Aggregation bias in estimates of perceptual agreement. *Journal of Applied*

    Psychology, 67(2), 219-229.

James, L., Demaree, R., & Wolf, G. (1984). Estimating within-group interrater reliability with

    and without response bias. *Journal of Applied Psychology, 69*, 85-98.

Janis, I. L. (1972). *Victims of Groupthink*. Boston: Houghton Mifflin.

Jehn, K. A. (1995). A multimethod examination of the benefits and detriments of intragroup

    conflict. *Administrative Science Quarterly, 40*(2), 256-282.

Jehn, K. A. (1997). A qualitative analysis of conflict types and dimensions in organizational

    groups. *Administrative Science Quarterly, 42*, 530-557.

Jehn, K. A., & Bendersky, C. (2003). Intragroup conflict in organizations: A contingency

 perspective on the conflict-outcome relationship. In R. Kramer & B. Staw (Eds.),

 Research in Organizational Behavior (Vol. 25, pp. 189-244). Amsterdam: Elsevier.

Jehn, K. A., & Mannix, E. (2001). The dynamic nature of conflict: A longitudinal study of

 intragroup conflict and group performance. *Academy of Management Journal, 44*(2),

 238-251.

Jehn, K. A., Northcraft, G. B., & Neale, M. A. (1999). Why differences make a difference: A

 field study of diversity, conflict, and performance in workgroups. *Administrative Science*

 Quarterly, 44(4), 741-763.

Jimmieson, N. L., McKimmie, B. M., Hannam, R. L., & Gallagher, J. (2010). An Investigation

 of the Stress-Buffering Effects of Social Support in the Occupational Stress Process as a

 Function of Team Identification. *Group Dynamics-Theory Research and Practice, 14*(4),

 350-367.

Jonas, K., Diehl, M., & Bromer, P. (1997). Effects of attitudinal ambivalence on information

 processing and attitude-intention consistency. *Journal of Experimental Social*

 Psychology, 33(2), 190-210.

Jong, A., Song, M., & Song, L. Z. (in press). How lead founder personality affects new venture

 performance: The mediating role of team conflict. *Journal of Management*.

Kenworthy, J. B., Hewstone, M., Levine, J. M., Martin, R., & Willis, H. (2008). The

 phenomenology of minority-majority status: Effects on innovation in argument

 generation. *European Journal of Social Psychology, 38*(4), 624-636.

Khan, M. A., Afzal, H., & Rehman, K. u. (2009). Impact of task conflict on employee's performance of financial institutions. *European Journal of Scientific Research 27*(4), 479-487.

King, L. A., Walker, L. M., & Broyles, S. J. (1996). Creativity and the five-factor model. *Journal of Research in Personality, 30*(2), 189-203.

Klein, K., Bliese, P., Kozlowski, S., Dansereau, F., Gavin, M., Griffin, M., et al. (2000). Multilevel analytical techniques: Commonalities, differences, and continuing questions. In K. Klein & S. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions* (pp. 512-553). San Francisco: Jossey-Bass.

Klein, K., & Kozlowski, S. W. J. (2000). From micro to meso: Critical steps in conceptualizing and conducting multilevel research. *Organizational Research Methods, 3*(3), 211-236.

Kolekofski, K. E., & Heminger, A. R. (2003). Beliefs and attitudes affecting intentions to share information in an organizational setting. *Information & Management, 40*(6), 521-532.

Kozhevnikov, M. (2007). Cognitive styles in the context of modem psychology: Toward an integrated framework of cognitive style. *Psychological Bulletin, 133*(3), 464-481.

Kruglanski, A. W., & Klar, Y. (1987). A view from a bridge: Synthesizing the consistency and attribution paradigms from a lay epistemic perspective. *European Journal of Social Psychology, 17*(2), 211-241.

Ku, G., Galinsky, A. D., & Murnighan, J. K. (2006). Starting low but ending high: A reversal of the anchoring effect in auctions. *Journal of Personality and Social Psychology, 90*(6), 975-986.

Ku, G., Malhotra, D., & Murnighan, J. K. (2005). Towards a competitive arousal model of decision-making: A study of auction fever in live and Internet auctions. *Organizational Behavior and Human Decision Processes, 96*(2), 89-103.

Larey, T. S., & Paulus, P. B. (1999). Group preference and convergent tendencies in small groups: A content analysis of group brainstorming performance. *Creativity Research Journal, 12*(3), 175-184.

Lester, S. W., Meglino, B. M., & Korsgaard, M. A. (2002). The antecedents and consequences of group potency: A longitudinal investigation of newly formed work groups. *Academy of Management Journal, 45*(2), 352-368.

Lira, E. M., Ripoll, P., Peiro, J. M., & Gonzalez, P. (2007). The roles of group potency and information and communication technologies in the relationship between task conflict and team effectiveness: A longitudinal study. [Article]. *Computers in Human Behavior, 23*(6), 2888-2903.

Maio, G. R., Bell, D. W., & Esses, V. M. (1996). Ambivalence and persuasion: The processing of messages about immigrant groups. *Journal of Experimental Social Psychology, 32*(6), 513-536.

Maio, G. R., Greenland , K., Bernard, M., & Esses, V. M. (2001). Effects of intergroup ambivalence on information processing: The role of physiological arousal. *Group Processes and Intergroup Relations, 4*, 355-372.

Masicampo, E. J., & Baumeister, R. F. (2008). Toward a physiology of dual-process reasoning and judgment: Lemonade, willpower, and expensive rule-based analysis. *Psychological Science, 19*(3), 255-260.

McCrae, R. R. (1987). Creativity, divergent thinking, and openness to experience. *Journal of Personality and Social Psychology, 52*(6), 1258-1265.

McDonough, M. H., Sabiston, C. M., & Ullrich-French, S. (2011). The Development of Social Relationships, Social Support, and Posttraumatic Growth in a Dragon Boating Team for Breast Cancer Survivors. *Journal of Sport & Exercise Psychology, 33*(5), 627-648.

McKnight, D. H., Choudhury, V., & Kacmar, C. (2002). The impact of initial consumer trust on intentions to transact with a web site: a trust building model. *Journal of Strategic Information Systems, 11*(3-4), 297-323.

Mead, N. L., Baumeister, R. F., Gino, F., Schweitzer, M. E., & Ariely, D. (2009). Too tired to tell the truth: Self-control resource depletion and dishonesty. *Journal of Experimental Social Psychology, 45*(3), 594-597.

Mesmer-Magnus, J. R., & DeChurch, L. A. (2009). Information Sharing and Team Performance: A Meta-Analysis. *Journal of Applied Psychology, 94*(2), 535-546.

Mohammed, S., & Angell, L. C. (2004). Surface- and deep-level diversity in workgroups: examining the moderating effects of team orientation and team process on relationship conflict. *Journal of Organizational Behavior, 25*(8), 1015-1039.

Morrow, D., Raquel, L., Schriver, A., Redenbo, S., Rozovski, D., & Weiss, G. (2008). External support for collaborative problem solving in a simulated provider/patient medication scheduling task. *Journal of Experimental Psychology-Applied, 14*(3), 288-297.

Moye, N. A., & Langfred, C. W. (2004). Information sharing and group conflict: Going beyond decision making to understand the effects of information sharing on group performance. *International Journal of Conflict Management, 15*(4), 381-410.

Muraven, M. (2008). Prejudice as self-control failure. *Journal of Applied Social Psychology, 38*(2), 314-333.

Muraven, M., & Baumeister, R. F. (2000). Self-regulation and depletion of limited resources: Does self-control resemble a muscle? *Psychological Bulletin, 126*(2), 247-259.

Muraven, M., Baumeister, R. F., & Tice, D. M. (1999). Longitudinal improvement of self-regulation through practice: Building self-control strength through repeated exercise. *Journal of Social Psychology, 139*(4), 446-457.

Muraven, M., Pogarsky, G., & Shmueli, D. (2006). Self-control depletion and the general theory of crime. *Journal of Quantitative Criminology, 22*(3), 263-277.

Mutz, D. C. (2006). *Hearing the Other Side: Deliberative Versus Participatory Democracy.* New. York: Cambridge University Press.

Nemeth, C. J., & Goncalo, J. A. (2005). Creative collaborations from afar: The benefits of independent authors. *Creativity Research Journal, 17*(1), 1-8.

Nemeth, C. J., & Kwan, J. L. (1985). Originality of word associations as a function of majority and minority influence. *Social Psychology Quarterly, 48*(3), 277-282.

Nemeth, C. J., & Kwan, J. L. (1987). Minority influence, divergent thinking and detection of correct solutions. *Journal of Applied Social Psychology, 17*(9), 788-799.

Nemeth, C. J., Mosier, K., & Chiles, C. (1992). When convergent thought improves performance: Majority versus minority influence. *Personality and Social Psychology Bulletin, 18*(2), 139-144.

Nemeth, C. J., & Rogers, J. (1996). Dissent and the search for information. *British Journal of Social Psychology, 35*, 67-76.

Nir, L. (2005). Ambivalent social networks and their consequences for participation. *International Journal of Public Opinion Research, 17*(4), 422-442.

Oaten, M., Williams, K. D., Jones, A., & Zadro, L. (2008). The effects of ostracism on self-regulation in the socially anxious. *Journal of Social and Clinical Psychology, 27*(5), 471-504.

Ojha, A. K. (2005). Impact of team demography on knowledge sharing in software project teams. *South Asian Journal of Management, 12*(3), 67−78.

Paletz, S. B. F., & Schunn, C. D. (2010). A social-cognitive framework of multidisciplinary team innovation. *Topics in Cognitive Science, 2*, 73–95.

Pelled, L., Eisenhardt, K., & Xin, K. (1999). Exploring the Black Box: An analysis of work group diversity, conflict, and performance. *Administrative Science Quarterly, 44*, 1-28.

Peterson, R. S., & Nemeth, C. J. (1996). Focus versus flexibility: Majority and minority influence can both improve performance. *Personality and Social Psychology Bulletin, 22*(1), 14-23.

Phillips, K. W., Mannix, E. A., Neale, M. A., & Gruenfeld, D. H. (2004). Diverse groups and information sharing: The effects of congruent ties. *Journal of Experimental Social Psychology, 40*(4), 497-510.

Pocheptsova, A., Amir, O., Dhar, R., & Baumeister, R. F. (2009). Deciding Without Resources: Resource Depletion and Choice in Context. *Journal of Marketing Research, 46*(3), 344-355.

Podsakoff, P. M., & Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management, 12*(4), 531-544.

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and

    comparing indirect effects in multiple mediator models. *Behavior Research Methods,*

    40(3), 879-891.

Pruitt, D. G. (1983). Integrative Agreements: Nature and antecedents. In M. Bazerman & R.

    Lewicki (Eds.), *Negotiating in Organizations*. Beverly Hills: Sage.

Pyszczynski, T., & Greenberg, J. (1987). Toward an integration of cognitive and motivational

    perspectives on social inference: A biased hypothesis-testing model. *Advances in*

    Experimental Social Psychology, 20, 297-340.

Rietzschel, E. F., Nijstad, B. A., & Stroebe, W. (2010). The selection of creative ideas after

    individual idea generation: Choosing between creativity and impact. *British Journal of*

    Psychology, 101, 47-68.

Riketta, M., & Ziegler, R. (2007). Self-ambivalence and reactions to success versus failure.

    European Journal of Social Psychology, 37(3), 547-560.

Rusting, C. L., & Nolen-Hoeksema, S. (1998). Regulating responses to anger: Effects of

    rumination and distraction on angry mood. *Journal of Personality and Social Psychology,*

    74(3), 790-803.

Schachter, S. (1951). Deviation, rejection, and communication. *Journal of Abnormal and Social*

    Psychology, 46(2), 190-207.

Schepers, P., & van den Berg, P. T. (2007). Social factors of work-environment creativity.

    Journal of Business and Psychology, 21(3), 407-428.

Schmeichel, B. J., Vohs, K. D., & Baumeister, R. F. (2003). Intellectual performance and ego

    depletion: Role of the self in logical reasoning and other information processing. *Journal*

    of Personality and Social Psychology, 85(1), 33-46.

Schwenk, C. (1990). Conflict in organizational decision making: An exploratory study. *Management Science, 36*(4), 436-449.

Shaw, J. D., Zhu, J., Duffy, M. K., Scott, K. L., Shih, H. A., & Susanto, E. (2011). A Contingency Model of Conflict and Team Effectiveness. *Journal of Applied Psychology, 96*(2), 391-400.

Sheppard, B. H., Blumenfeld-Jones, K., & Roth, J. (1989). Informal thirdpartyship: Studies of everyday conflict intervention. In K. Kressel, D. G. Pruitt & Associates (Eds.), *Mediation Research: The Process and Effectiveness of Third-Party Intervention*. San Francisco: Jossey-Bass Publishers.

Snyder, M., & Swann, W. B. (1978). Hypothesis testing processes in social interactions. *Journal of Personality and Social Psychology, 36*(11), 1202-1212.

Sparks, P., Harris, P. R., & Lockwood, N. (2004). Predictors and predictive effects of ambivalence. *British Journal of Social Psychology, 43*, 371-383.

Stasser, G., & Titus, W. (1985). Pooling of unshared information in group decision-making: Biased information sampling during discussion. *Journal of Personality and Social Psychology, 48*(6), 1467-1478.

Stasser, G., Vaughan, S. I., & Stewart, D. D. (2000). Pooling unshared information: The benefits of knowing how access to information is distributed among group members. *Organizational Behavior and Human Decision Processes, 82*(1), 102-116.

Staw, B. (1976). Knee-deep in the big muddy: a study of escalating commitment to a chosen course of action. *Organizational Behavior and Human Performance, 16*, 27-44.

Staw, B., & Ross, J. (1987). Behavior in Escalation Situations - Antecedents, Prototypes, and Solutions. *Research in Organizational Behavior, 9*, 39-78.

Staw, B., Sandelands, L. E., & Dutton, J. E. (1981). Threat Rigidity Effects in Organizational Behavior: A Multilevel Analysis. *Administrative Science Quarterly, 26*(4), 501-524.

Stewart, C. C., Wright, R. A., Hui, S. K. A., & Simmons, A. (2009). Outcome expectancy as a moderator of mental fatigue influence on cardiovascular response. *Psychophysiology, 46*(6), 1141-1149.

Stucke, T. S., & Baumeister, R. F. (2006). Ego depletion and aggressive behavior: Is the inhibition of aggression a limited resource? *European Journal of Social Psychology, 36*(1), 1-13.

Taylor, S. E., & Gollwitzer, P. M. (1995). Effects of mindset on positive illusions. *Journal of Personality and Social Psychology, 69*(2), 213-226.

Thompson, L. (1991). Information exchange in negotiation. *Journal of Experimental Social Psychology, 27*(2), 161-179.

Thompson, L., & Hastie, R. (1990). Social perception in negotiation. *Organizational Behavior and Human Decision Processes, 47*(1), 98-123.

Todorova, G., Brake, M., & Weingart, L. (2010). Task conflict and idea sharing in interdisciplinary research groups: Expertise diversity salience matters. *Unpublished manuscript*.

Toma, C., & Butera, F. (2009). Hidden Profiles and Concealed Information: Strategic Information Sharing and Use in Group Decision Making. [Article]. *Personality and Social Psychology Bulletin, 35*(6), 793-806.

Tsai, M. H., & Bendersky, C. (2011). *Divergent and convergent task conflicts within groups*. Paper presented at the The 24th Annual Conference of the International Association for Conflict Management.

Tyler, J. M., & Burns, K. C. (2008). After depletion: The replenishment of the self's regulatory resources. *Self and Identity, 7*(3), 305-321.

Unger, A., & Stahlberg, D. (2011). Ego-Depletion and Risk Behavior Too Exhausted to Take a Risk. *Social Psychology, 42*(1), 28-38.

Van Dyne, L., & LePine, J. A. (1998). Helping and voice extra-role behaviors: Evidence of construct and predictive validity. *Academy of Management Journal, 41*(1), 108-119.

Vohs, K. D., Baumeister, R. F., & Ciarocco, N. J. (2005). Self-regulation and self-presentation: Regulatory resource depletion impairs impression management and effortful self-presentation depletes regulatory resources. *Journal of Personality and Social Psychology, 88*(4), 632-657.

Wang, S., & Noe, R. A. (2010). Knowledge sharing: A review and directions for future research. *Human Resource Management Review, 20*(2), 115-131.

Webster, D. M., Richter, L., & Kruglanski, A. W. (1996). On leaping to conclusions when feeling tired: Mental fatigue effects on impressional primacy. *Journal of Experimental Social Psychology, 32*(2), 181-195.

Westman, M., Bakker, A. B., Roziner, I., & Sonnentag, S. (2011). Crossover of job demands and emotional exhaustion within teams: a longitudinal multilevel study. *Anxiety Stress and Coping, 24*(5), 561-577.

Wittenbaum, G. M., Hollingshead, A. B., & Botero, I. C. (2004). From cooperative to motivated information sharing in groups: Moving beyond the hidden profile paradigm. *Communication Monographs, 71*(3), 286-310.

Wolf, K. M., & Mieg, H. A. (2010). Cognitive determinants of the success of inventors:

    Complex problem solving and deliberate use of divergent and convergent thinking.

    European Journal of Cognitive Psychology, 22(3), 443-462.

Wonderlic, E. F. (2000). *Wonderlic personnel test and scholastic level exam user's manual*.

    Libertyville: IL: Wonderlic.

Woolley, A. W., Chabris, C. F., Pentland, A., Hashmi, N., & Malone, T. W. (2010). Evidence for

    a Collective Intelligence Factor in the Performance of Human Groups. *Science,*

    330(6004), 686-688.

Yovetich, N. A., & Rusbult, C. E. (1994). Accommodative behavior in close relationships:

    Exploring transformation of motivation. *Journal of Experimental Social Psychology,*

    30(2), 138-164.

Zemborain, M. R., & Johar, G. V. (2007). Attitudinal ambivalence and openness to persuasion:

    A framework for interpersonal influence. *Journal of Consumer Research, 33*(4), 506-514.