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Good and bad simultaneously?: Leaders using dialectical thinking foster positive conflict and employee performance

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Leaders using dialectical thinking foster positive conflict and employee performance

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Abstract
Purpose – This study aims to introduce a new cognitive style, dialectical thinking, to demonstrate how it can influence a leader's impact on team conflict and employee performance. Specifically, this study intends to answer the research questions "whether and how leader's dialectical thinking would influence employee performance" with conflict management perspective in the Chinese context.
Design/methodology/approach – Multilevel structural equation modeling was used to test the theoretical model with 222 employees in 43 teams from Chinese high-tech manufacturing firms.
Findings – The authors found that the leader's dialectical thinking had positive relationships with employee creativity and in-role performance and that the relationships were mediated by the leader's conflict management approach and team conflict in sequence.
Practical implications – Selecting, recruiting or promoting of leaders with a dialectical thinking style or providing training to enhance leaders' dialectical thinking is important for facilitating team conflict management and employee performance.
Originality/value – This is the first empirical paper to introduce dialectical thinking into the leadership, conflict and employee performance literatures.

Keywords Conflict management, Creativity, Dialectical thinking, In-role performance, Team conflict

Paper type Research paper

Introduction
To gain a competitive advantage in a rapidly changing global economy, high-tech firms are increasingly calling on their leaders to promote high levels of employee performance (Bai *et al.*, 2012; Gong *et al.*, 2009; Li *et al.*, 2012; Tjosvold *et al.*, 2004; Wang and Rode, 2010). Complicating matters is the fact that firms and firm processes are increasingly

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team-based. Consequently, the performance of employees is highly dependent on the intra-group processes of teams. In particular, conflict, which has been argued to be an inevitable factor in team interaction processes; thus, how leaders deal with conflict has been shown to play a critical role in predicting employee performance (De Dreu and Weingart, 2003; De Wit *et al.*, 2012; Farh *et al.*, 2010; Jehn, 1995).

In this paper, we introduce leader dialectical thinking as a potential antecedent of conflict management strategies as well as team process (i.e. team conflict) and employee performance. Dialectical thinking has been argued to be a cognitive tendency to tolerate contradictions, ambiguities and inconsistencies (Chen *et al.*, 2013; Peng and Nisbett, 1999). However, others have suggested that a more accurate definition of dialectical thinking would have the tendency to resolve seeming contradictions through compromise and integration (Ho, 2000). Individuals characterized by high levels of dialectical thinking are inclined to see opposites as being perpetually in a state of flux and transforming into the opposite. For example, hot becomes cold or light becomes dark. The origins of such thinking are very old. For instance, the philosopher Empedocles argued that the world was constantly in a flux between love and hate and that this results in cycles between harmony and destruction. In management, one could argue that dialectical thinking is present when firms are able to perceive rival firms as both competitors and as potential partners. For instance, when Microsoft invested $170 million in Apple in 1997 and kept it from going bankrupt. Prior research has established that such thinking occurs across cultures, but that this cognitive style is particularly prevalent and even preferred in East Asian cultures (Ho, 2000; Peng and Nisbett, 1999). This can be seen in the writings of both Sun Tzu and Mao Tse-Tung where military strategy follows the use of complementary opposites that are informed by changes in the situation (Mao, 2000; Sun, 2005). As noted above, Westerners may have a long history with this manner of thinking, but tend to prefer hard truths and often sees the properties of objects as being more fixed in nature (Hamamura *et al.*, 2008; Peng and Nisbett, 1999; Spencer-Rodgers *et al.*, 2010a, 2010b).

In addition to exploring the relationship between a leader's dialectical thinking style and employee performance, we also make an effort to study two mediators: the conflict management strategies used by leaders and the resulting forms of group conflict (i.e. task and relationship conflict). We argue that leaders with a highly dialectical thinking orientation will welcome differences in the team by fostering a cooperative (as opposed to competitive) team environment, that this may lead to increased levels of task conflict and reduced levels of relationship conflict, and that this will ultimately enhance the level of employee performance.

This paper seeks to make three primary contributions. First, there is an emerging but still meager stream of research devoted to dialectical thinking in the field of management. Dialectical thinking has been found to affect individual emotions, creativity, psychological well-being and decision-making in social psychology (see Spencer-Rodgers *et al.*, 2010a, 2010b for a review). The present study attempts to expand that range of outcomes to examine the degree to which dialectical thinking may impact employee performance (including in-role performance and creative performance in this study) in management context. Second, the present study elaborates on the process of how dialectical thinking may impact individual performance in organizational settings by examining how dialectical thinking influences conflict management strategies and the resulting types of team conflict. Third, the present study examines the process by

which leaders may influence employee performance in a Chinese context. We believe that this context is particularly well-suited to testing the theoretical model under investigation because dialectical thinking is deeply entrenched in East Asian philosophical and religious traditions, including Confucianism, Taoism and Buddhism (Peng and Nisbett, 1999). These traditions have had influenced the Chinese culture and the mindsets of its populace for thousands of years. Consequently, dialectical thinking is both more prevalent and more preferred in collectivistic cultures than in individualistic cultures (Spencer-Rodgers *et al.*, 2010a, 2010b). Our conceptual model is presented in Figure 1.

Theoretical framework and hypotheses development

Dialectical thinking and employee performance

Undoubtedly different culture and ideologies will influence the manner in which individual's perceive and interpret information. Peng and Nisbett (1999) proposed that the high cognitive tendency to tolerate contradictions is due to three Chinese ideological principles rooted in Chinese Taoist traditions: *Principle of Contradiction*, i.e. two ostensibly opposing positions may both be true and coexist simultaneously; *Principle of Change*, the world and reality are unpredictable, dynamic and constantly changing; *Principle of Holism*, everything is interrelated, inseparable from the whole. On the contrary, the Westerners' low dialectical or non-dialectical thinking tend to emphasize three principles derived from Aristotelian formal logic (Peng and Nisbett, 1999):

(1) *Law of Identity*: Everything must be identical with itself (if *A* is true, then *A* is always true).

(2) *Law of Non-contradiction*: No statements can be both true and false at the same time (*A* cannot equal not-*A*).

(3) *Law of Excluded Middle*: Any statement is either true of false, with no middle term (all propositions must be either true or false).

Therefore, it seems that compared with Chinese, Westerners might be less inclined to think dialectically (Peng and Nisbett, 1999; Spencer-Rodgers *et al.*, 2010a, 2010b).

Moreover, research has shown that Chinese tend to tolerate and dialectically accept, rather than eschew or choose one side of, contradiction (Peng *et al.*, 2001). Chinese people usually cognitively recognize objects in duality (Yin/Yang, Li, 2012, 2014, 2015), like strength and weakness, good and bad that exist in the same object or event

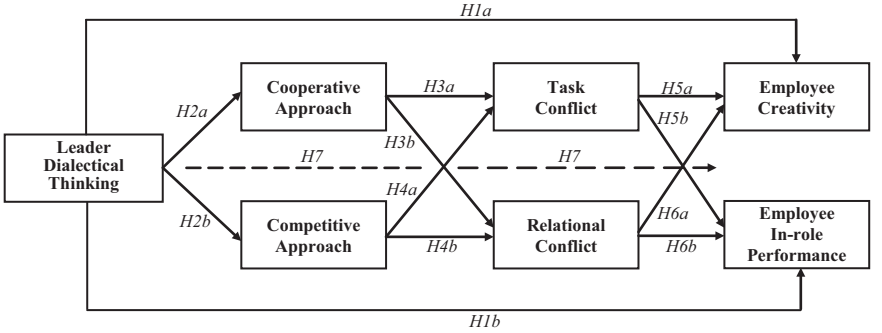


Figure 1.
A conflict management model of dialectical thinking to employee performance

simultaneously. In contrast, individuals raised in Western cultures are often uncomfortable with incongruity or cognitive dissonance (Festinger, 1957). Consequently, that tend to display a basic need or preference to define the status of objects as dichotomous or bipolar in nature, and tend to accept only one extreme (Spencer-Rodgers *et al.*, 2004).

In addition to other cultural values (e.g. collectivism-individual, power distance) that are typically used to explain the difference between cultures (Hofstede, 2001; House *et al.*, 2004), it has been suggested that dialecticism is a dimension particularly well-suited to explaining East–West differences (Spencer-Rodgers *et al.*, 2010a, 2010b). However, it remains almost completely unstudied in the field of management. In particular, dialectical thinking may provide insights into conflict management in the workplace because it impacts how employees process emotions, cope with stress, interpret events and interact with one another. For example, individuals with dialectical orientations have been argued to be capable of holding mixed emotions, as they are taught to emphasize balance over positivity, moderation over intensity and complexity over purity in their emotional experiences (Hui *et al.*, 2009; Lindquist and Feldman Barrett, 2008). Further, they may show greater coping flexibility when encountering stressful situations (Cheng, 2009) by incorporating more causes and considering more indirect, downstream consequences when explaining events (Maddux and Yuki, 2006). In addition, those with a dialectical thinking orientation may be more likely to criticize the decisions and behaviors of in-group members (friends, family members and ethnic in-group members; Endo *et al.*, 2000; Ma-Kellams *et al.*, 2011) and to be less hostile to out-group members because they do not perceive these behaviors as contradictory to their feelings. Finally, because dialectical perceivers tolerate contradiction, they tend to avoid extreme positions, prefer a "middle road" to conflict resolution and have greater willingness to share information with a potential competitor (Keller *et al.*, 2010).

In this study, we will include two types of employee performance: in-role performance and creativity. In-role performance refers to an employee's actions that are specified and required by an employee's job description (Janssen and Yperen, 2004). It could significantly contribute to the performance of the organization and is common as the first-chosen outcome in management field. Creativity refers to the "production of new and useful ideas" (Amabile, 1983, p. 126). This variable is significant in both practice and theory because it is essential to organizational survival and growth and being required in almost all employees at all levels/positions of the organizations (Amabile *et al.*, 2004). Inclusion of these two outcomes would be critical for illustrating the importance of dialectical thinking being introduced to management field.

In the team context, team members are expected to discuss solutions to solve their facing problems. According to Mumford *et al.* (2002) there are three key types of support leaders can offer that facilitate performance:

(1) idea support;

(2) work support; and

(3) social support.

Leaders high on dialectical thinking are most likely to use idea support because they are more likely to allow team members to voice their opinions and provide novel or even seemingly contradictory solutions to problems. One possible result of this is that

communications between team members are more likely to produce a wider set of diverse ideas and more thoughtful solutions to solve their problems. Information processing theory suggests that teams can be understood as information processing instruments and assumes that diverse information, knowledge and perspectives will help the team reach high-level of creativity and job performance (Homan *et al.*, 2007; Van Knippenberg and Schippers, 2007). Based on this theory, a team under a leader who engages and promotes dialectical thinking will tend to generate a wide range of ideas. Moreover, these ideas are more likely to receive full consideration by the leader and the team in terms of whether they provide a solution. Because of this, dialectical thinking by leaders should be associated with higher level of employee creative performance (Agrell and Gustafson, 1994; Amabile, 1983; Perry-Smith and Shalley, 2003; Shalley and Gilson, 2004). If one's job entails problem resolution, whether creative or not, these same mechanisms should be associated with higher levels of ratings of in-role performance, as they would promote both individual and team-level performance outcomes. Prior research provides some evidence of the value of generating or integrating new and diverse information to generate both more creative and a greater number of solutions to problems. For example, Kasperson (1978) found that scientists with access to different scientific disciplines were more likely to make a more creative contribution to their own field. De Bono (1999) argued that looking at a decision from all points of views (changeable, rational, intuitional, negative and positive points of views) would result in a better and creative solution. Therefore, it is reasonable to argue that there is a positive relationship between a leader's dialectical thinking and an employee's creativity and in-role performance:

H1a. A leader's dialectical thinking style would be positively related to an employee's creativity.

H1b. A leader's dialectical thinking style would be positively related to an employee's in-role performance.

A conflict management perspective of the mediation process

Next, we will discuss how a leader's dialectical thinking affects employee performance. In this study, we adopted the conflict management perspective by investigating the sequential mediating roles of conflict management and team conflict between the relationship of leader's dialectical thinking and employee performance.

Leader's dialectical thinking and conflict management approach. There are two major approaches of conflict management: cooperation oriented and competition oriented (Deutsch, 1973, 1980). When taking cooperative approach to manage conflict, leaders emphasize the tolerance of others and build their efforts on the others' direction to achieve a "win–win" result (Chen *et al.*, 2005; Tjosvold *et al.*, 2006). In contrast, in competition-oriented conflict management, leaders advocate the incompatible goals among team members which leads to a "win–lose" result in team.

Leaders with a dialectical orientation may be more likely to adopt the cooperative approach as they see different or even opposite views not as "either/or" relation, but could be both right and contribute to a mutual goal (*Principle of contradiction*). As they are more tolerant of contradiction, they welcome more different perspectives in group discussion for a holistic and integrative solution. Leaders with dialectical orientations are more concerned with collecting additional information and a wide range of

perspectives to capture the entirety of a problem. This can be very helpful if one is to obtain a holistic solution (*Principle of holism*). Thus, the efforts of team members are directed toward providing unique and differing views to achieve a mutually beneficial solution and there is no need for members to focus on trying to outdo one another. Prior research has found that Chinese usually prefer cooperative approach (including integration/collaboration and compromising), rather than competitive approach to handle team conflicts (Chan *et al.*, 2008; Fu *et al.*, 2008; Wang *et al.*, 2007). For leaders without a dialectical thinking style, there is a greater likelihood that they will assume that there is only one right perspective (*law of non-contradiction*) and they may be therefore more inclined to direct members to seek the only one solution to the problem. Further, because non-dialectical leaders tend to accept only one extreme (e.g. is the situation good or bad?) (*law of excluded middle*), they may be more inclined to direct members to compete in the "either/or" game to reach a final solution. Therefore, we hypothesize:

H2a. Leader's dialectical thinking style would be positively related to cooperative conflict management approach.

H2b. Leader's dialectical thinking style would be negatively related to competitive conflict management approach.

Conflict management approach and team conflict. Different conflict management approaches tend to result in different levels of team conflict. Conflict is defined as incompatible activities; conflict occurs when the behavior of one person is interfering or obstructing the actions of another (Deutsch, 1973). Two types of team conflict tend to occur when team members interact: *Task conflict* refers to the disagreement about the distribution of resources, about procedures and policies and about judgments and interpretation of facts (De Dreu, 2006). Task conflict could increase employee performance by encouraging diverse views being voiced and information being collected during debate (De Dreu and West, 2001); *Relationship conflict* refers to the tension and collision concerning personal tastes, political preferences, values or interpersonal styles in team interaction (De Dreu, 2006). During relationship conflict, team members are distracted from their tasks, but interpersonally confront each other in tension, annoyance and animosity, which would reduce the synergy of team on solving problems (Jehn, 1995, 1997).

A cooperative approach to manage conflict draws members' attention to make efforts to build on mutual goals. When the leader takes a cooperative approach to manage conflict, he/she is likely to channel team members to focus on the specific issue in dispute with the aim of achieving mutually beneficial goals (Tjosvold, 1998; Tjosvold *et al.*, 2006). In other words, a cooperative approach is focused on attaining a "win–win" solution. One would expect with leaders' cooperative-orientation, task conflict among members may be reduced. However, we would argue that the recognition that the success of the team is most likely to be achieved when the group has more options to choose from should lead to team members' providing more perspectives, information and diverse viewpoints (i.e. high task conflict). This would ultimately lead to a better understanding of the problem and a better solution for the team as a whole. Consequently, for each individual team member, the optimal solution is to generate a wider array of opinions and perspectives. In addition to idea generation, Tjosvold *et al.* (2006) has argued that the cooperative approach prompts team members to be more

open-minded, to listen and understand each other and to be less concerned about losing face or damaging social relationships. Prior research supports the suggestion that cooperative conflict management strategies are associated with higher levels employee team trust (Chan *et al.*, 2008; Hempel *et al.*, 2009) and that this, in turn, is negatively related to relational conflict and benefit to task conflict in other research (Han and Harms, 2010).

When leaders take competitive approaches to manage conflict, they advocate the incompatible goals among team members which leads to a "win–lose" result in team, which is more likely to direct members' attention to unresolved problems and fragmented relationships by enlarging the range and intensity of the issues (Deutsch, 1973). Members in competitive context would make every effort to make their goals dominate others in the team. The tactics used by individuals competing in these contexts involve attempts to provide additional information to prove their perspective is correct or at least superior to rivals, but also blaming or attacking others and their opinions to provide evidence that they are worse (Tjosvold *et al.*, 2006). Of course, providing more valuable information to support their ideas is good, but when they question others' opinions, relationship tension would increase. Based on the self-verification theory (Swann *et al.*, 2004), when a person feels that his/her viewpoints were challenged by his/her team members, he/she may assume that his/her abilities were being negatively assessed. Gradually, members would perceive each other as closed-minded and aggressive, which ultimately lead to discontent, stress, frustration and conflict in relationship (Dijkstra *et al.*, 2005; Simons and Peterson, 2000). Thus, in addition to opposing more ideas and information to support their own standpoints (i.e. higher task conflict), team members under competitive conflict management approach are more likely to conclude that they have personality and other relational conflicts. Therefore, we hypothesize:

H3a. Cooperative conflict management approach would be positively related to task conflict.

H3b. Cooperative conflict management approach would be negatively related to relational conflict.

H4a. Competitive conflict management approach would be positively related to task conflict.

H4b. Competitive conflict management approach would be positively related to relational conflict.

Team conflict and employee performance. Team conflict can be conducive and/or detrimental to employee performance. Task-related disagreement among team members may stimulate information exchange, thorough exploration of opposing opinions, questioning the status quo and brainstorming possible solutions. This helps to generate new ideas and novel solutions and improve the old way of how work to be done to improve their in-role performance (Hulsheger *et al.*, 2009; Shalley and Gilson, 2004). Work on the importance of constructive conflict for performance has found that task conflict can be beneficial to creativity and in-role performance (Jehn, 1995). This is particularly true in the knowledge economy where in-role and creative performances are closely aligned. That is, that performance may not simply be viewed as generating novel solutions, but also a large number of potential solutions or even helping to process,

interpret, integrate and evaluate the solutions of others. Based on the argument that task conflict can provide more information and new insights during group discussion, which will be beneficial to employee performance, we will hypothesize a positive relationship between task conflict and both creative and in-role performance outcomes.

Relational conflict describes the tension, annoyance and animosity among group members stemming from interpersonal disagreement (Jehn, 1995). It is different from task conflict and will cause negative emotions, like strain, fear, anger and frustration. Researchers have addressed that these negative emotions absorb energy and distract members' attention from performing their tasks and creative work to focusing on interpersonal hostility (De Dreu and Weingart, 2003; Jehn, 1995; Hulsheger *et al.*, 2009). Empirical studies have evidenced the negative relationship between relational conflict, creativity and job performance (Clercq *et al.*, 2009). Hence, we hypothesize a negative relationship between them:

H5a. Task conflict would be positively related to employee creativity.

H5b. Task conflict would be positively related to employee in-role performance.

H6a. Relational conflict would be negatively related to employee creativity.

H6b. Relational conflict would be negatively related to employee in-role performance.

Team members need to collaborate with each other to improve their work performance. Based on information processing theory, the information, knowledge and perspectives provided in the team discussion are valuable for achieving higher level of creativity and job in-role performance (Homan *et al.*, 2007; Van Knippenberg and Schippers, 2007). Task conflict in team process could facilitate the multiplicity of task-related information or cognitive exchanges that broadens information richness. When provided with richer information and a more diverse pool of views, members can come to a more comprehensive understanding of the problems they face and may be able to more critically evaluate potential solutions. Relational conflict, however, induces emotional tension among members and result in less cohesiveness, but more interpersonal conflict and distrust among members. It distracts members' attention to contribute more task-related information and perspectives, but leaves members with fear, anger and offensive behaviors. Leaders engaging in dialectical thinking should be more effective at bringing out constructive viewpoints and preventing negative inputs in team discussions. Because leaders higher on dialectical thinking are not only open to different viewpoints but are also likely to seek to integrate or resolve them, they are more likely to adopt a cooperative conflict management approach than competitive conflict management approach (Chan *et al.*, 2008; Fu *et al.*, 2008; Wang *et al.*, 2007). Thus, we expect leaders higher on dialectical thinking to promote being considerate of the ideas of others and to be more likely to suggest working collaboratively toward better solutions. In this "win–win" discussion process, members are more likely to provide extensive information to diagnose the merits and pitfalls of different viewpoints with a lessened concern for others taking criticism as personal insults. In contrast, leaders incapable of dialectical thinking may be more inclined to try to seek out a single opinion or viewpoint as being optimal. This type of thinking can lead to more extreme solutions (i.e. polarization, Stoner, 1968), as it may be perceived that only one individual or faction can "win" the debate and there may be a motivation to denigrate the ideas of others. The

resulting competitive environment may promote destructive interpersonal conflict as members fight to establish their positions as superior. In sum, we would argue that leaders engaged in dialectical thinking are more likely to adopt a cooperative conflict management approach than a competitive conflict management approach, and that the cooperative approach leads to higher levels of task conflict and lower levels of relational conflict and that this facilitates higher levels of employee creative and in-role performance. Therefore, making a connection of *H2*, *H3*, *H4*, *H5* and *H6*, we hypothesize:

H7a. The conflict management approach and team conflict would sequentially mediate the relationship between leader's dialectical thinking and employee creativity.

H7b. The conflict management approach and team conflict would sequentially mediate the relationship between leader's dialectical thinking and employee in-role performance.

Method

Sample and procedure

Participants were employees from three high-tech manufacturing companies in eastern China. Employees in the firms usually work in teams and are engaged in providing high-tech products for customers. Besides the requirement of employees' job description in daily work, they are also required to provide novel ways to improve the manufacturing process and quality of the products. Although it has been noted that most occupations in the modern economy require and place high value on creative performance (Mumford *et al.*, 1997; Reiter-Palmon and Illies, 2004), the nature of these firms makes this type of creative performance particularly important for the organizations. Employee's work often occurs in team settings under the direction of leaders. These leaders are lower-level work-team managers who are in direct contact with employees and who are in charge of monitoring and stimulating team employees' behaviors in daily work. Consequently, the focus on how leadership may influence team processes and employee performance (including in-role performance and creativity) is highly suited to this research setting.

Across the three firms, there were 43 work teams that typically had between five and eight members. We distributed a consent form introducing our study, informing the supports from the CEOs on the survey and ensuring confidentiality to each participant in teams. After receiving consent, we collected data from two data sources: we collected the leader dialectical thinking and ratings of the employees' in-role performance and creativity from leaders and the conflict management approach and team conflict from the employees. The employee identification number was used to match the leader and employee data and each leader was asked to rate multiple subordinates. The reason that we used different data sources was to avoid the threat from single-source common method biases.

In total, 287 questionnaires were distributed. After excluding incomplete and unmatched questionnaires, a total of 222 useable paired data in 43 teams remained (with average team size of 5.16), constituting the final sample for the study (overall response rate 77.4 per cent). The overall average age of the employee was 32.24 years (SD = 8.05), with an average job tenure of 4.49 years (SD = 4.67). Most of the employees were male

(70.3 per cent). The leaders had an average age of 36.91 years (SD = 10.46), with an average job tenure of 9.95 years (SD = 10.09). Most of the leaders were male (76.7 per cent).

Measures

The surveys were written using standard back translation: a native speaker translated all of the materials from English to Chinese, and then another native speaker translated them back to English to ensure clarity and consistency (Brislin, 1986).

Dialectical thinking. The brief 14-item version of the Dialectical Self Scale (DSS) developed by Spencer-Rodgers *et al.* (2008) was used to measure leader's dialectical thinking style. The DSS possesses adequate cross-cultural validity and reliability (Hamamura *et al.*, 2008; Spencer-Rodgers *et al.*, 2008, 2010a, 2010b). It was rated on a seven-point scale (1 = *strongly disagree* to 7 = *strongly agree*). A sample item was "When I hear two sides of an argument, I often agree with both". The alpha reliability coefficient of DSS in this study was 0.89.

Conflict management approach. Scales for cooperative and competitive approaches to conflict were adopted from Chen *et al.* (2005). These scales were originally designed for team members. We added "Team leader encourages/advocates" in each item to make it leader's strategies on conflict management. There were five items for cooperative approach (a sample item was "Team leader encourages team members to treat conflict as a mutual problem to solve") and four items for competitive approach (a sample item was "Team leader advocates that team members treat conflict as a win-lose contest"). They were rated on a seven-point scale (1 = *strongly disagree* to 7 = *strongly agree*). The alpha reliability coefficients for cooperative and competitive approaches were 0.82 and 0.89, respectively.

Team conflict. Jehn's (1995) eight-item intra-group conflict was used to evaluate the degrees of task conflict and relational conflict. There were four items for each conflict. A sample item for task conflict was "How frequently do people in your work group disagree about the work being done?" A sample item for relational conflict was "To what extent are personality clashes present in your work group?" Answers were rated on a five-point scale ranging from 1 = "not at all" to 5 = "a lot"). The alpha reliability coefficients for task and relational conflict were 0.76 and 0.89, respectively.

Employee creativity. The four-item scale developed by Farmer *et al.* (2003) was used to assess the employee creativity. It was rated on a seven-point scale (1 = *strongly disagree* to 7 = *strongly agree*). A sample item was "This employee tries new ideas or methods first". The alpha reliability coefficient was 0.87.

In-role performance. The five-item scale developed by Janssen and Yperen (2004) was used to assess the employee in-role performance. It was rated on a seven-point scale (1 = *strongly disagree* to 7 = *strongly agree*). A sample item was "This employee always completes the duties specified in his/her job description". The alpha reliability coefficient was 0.84.

Data analysis

The hypothesized model was hierarchical by nature, with the dependent variables as individual-level constructs and the predictor and mediators as team-level constructs. The data structure was also hierarchical in nature with employees nested within teams. All of the variables contained multiple items as well. Thus, we conducted multilevel

structural equation modeling with EQS 6.1 (Bentler and Wu, 2005) which explicitly takes into account this cross-level data structure as well as the information richness of the multiple-item constructs (Preacher *et al.*, 2011, 2010). In addition, the hypothesized model had sequential mediators and SEM could test all the hypotheses in one step.

Results

Aggregation of team-level variables

The first analytical step was to check the viability of the team-level variables, including cooperative and competitive conflict management approaches, task conflict and relationship conflict. We computed r_{wg} values using uniform null distribution for these variables and obtained median values of 0.81 for cooperative approach, 0.78 for competitive approach, 0.88 for task conflict and 0.85 for relationship conflict. These r_{wg} values were above the conventionally acceptable r_{wg} value of 0.70 (James *et al.*, 1993). Additional evidence was collected following the suggestions of Bliese (2000). We first conducted one-way analysis of variance and found between-groups variance for all four variables significant at the 0.01 level ($F(42, 197) = 2.15$ for cooperative approach; $F(42, 197) = 2.90$ for competitive approach; $F(42, 197) = 2.82$ for task conflict; $F(42, 197) = 3.53$ for relationship conflict). We then obtained the following values of the inter-rater reliability index (ICC1) and the reliability of group mean index (ICC2): for cooperative approach, ICC1 = 0.34 and ICC2 = 0.70; for competitive approach, ICC1 = 0.40 and ICC2 = 0.75; for task conflict, ICC1 = 0.40 and ICC2 = 0.75; for relationship conflict, ICC1 = 0.51 and ICC2 = 0.82. All of these values were comparable to the median or recommended ICC values of team-level constructs reported in the literature (Schneider *et al.*, 1998). On the basis of these results, we concluded that aggregation was justified.

Analyses of measurement model

Table I presents the results of the multilevel-confirmatory factor analysis (CFA) with all variables included. The fit statistics indicated that the baseline model with the seven factors (dialectical thinking, cooperative and competitive approaches, task and relational conflicts, creativity and in-role performance) had a good model fit ($\chi^2 = 1115.37$, df = 745, $\chi^2/\text{df} < 2$; RMSEA = 0.05; CFI = 0.94, IFI = 0.94). In addition, all of the items loaded significantly onto their respective factors. Further, several competing CFA models were tested for discriminant validity of the measures. As shown in Table I, all alternative rival models (RM1 combined leader's dialectical thinking and cooperative approach; RM2 combined dialectical thinking and competitive approach; RM3 combined cooperative and competitive approaches; RM4 combined cooperative approach and task conflict; RM5 combined cooperative approach and relational conflict; RM6 combined competitive approach and task conflict; RM7 combined competitive approach and relational conflict; RM8 combined task conflict and relational conflict; and RM9 combined creativity and in-role performance) had worse fits than our baseline model, indicating that the seven factors were distinct constructs. A summary of the descriptive statistics and correlations among variables was presented in Table II. The correlations were in the expected direction that dialectical thinking was positively related to cooperative approach ($r = 0.24, p < 0.05$) and negatively related to competitive approach ($r = -0.31, p < 0.05$); cooperative approach was positively related to task conflict ($r = 0.18, p < 0.05$) and negatively related to relational conflict ($r = -0.15, p < 0.05$); competitive approach was positively related to both task and relational conflict

Table I.
Results of the confirmatory factor analyses[a]

Model	Factors	χ^2	df	$\Delta\chi^2$	RMSEA	CFI	IFI
Baseline Model (seven-factor model)	**Dialectical thinking, cooperative and competitive approaches, task and relational conflicts at team level and creativity and in-role performance at individual level**	**1115.37**	**745**		**0.05**	**0.94**	**0.94**
Rival Model 1	Combine dialectical thinking and cooperative approach	1221.00	751	105.63 (6)*	0.05	0.89	0.89
Rival Model 2	Combine dialectical thinking and competitive approach	1319.30	751	203.93 (6)*	0.06	0.85	0.86
Rival Model 3	Combine cooperative and competitive approaches	1256.02	751	140.65 (6)*	0.06	0.88	0.88
Rival Model 4	Combine cooperative approach and task conflict	1209.43	751	94.06 (6)*	0.05	0.90	0.90
Rival Model 5	Combine cooperative approach and relational conflict	1258.48	751	143.11 (6)*	0.06	0.88	0.89
Rival Model 6	Combine competitive approach and task conflict	1224.03	751	108.66 (6)*	0.05	0.89	0.89
Rival Model 7	Combine competitive approach and relational conflict	1229.14	751	113.77 (6)*	0.05	0.89	0.89
Rival Model 8	Combine task conflict and relational conflict	1205.75	751	89.38 (6)*	0.05	0.90	0.90
Rival Model 9	Combine creativity and in-role performance	1323.76	752	208.39 (7)*	0.06	0.85	0.86
Rival Model 10	Null model	1895.39	766	780.02 (21)*	0.08	0.63	0.64

Note: [a]*$p < 0.05$

(rs = 0.23 and 0.50, respectively, ps < 0.05); both task conflict and relationship conflict were significantly related to in-role performance (rs = 0.20 and −0.24, respectively, ps < 0.05); only task conflict was significantly related to creativity ($r = 0.17, p < 0.05$), while relational conflict was not ($r = -0.08, p > 0.1$).

Analyses of structural model

Before examining parameter estimates to test hypotheses, we assessed whether creativity and in-role performance had significant between-group variance. The ICCs were 0.31 and 0.40 for creativity and in-role performance, respectively. Thus, a multilevel analytical approach was appropriate. We tested for the best-fitting structural model among a set of rival models. We chose the model with conflict management and team conflict as full mediators between leader dialectical thinking and creativity as our baseline model (in Table III). This model yielded an acceptable model fit (χ^2 = 1,157.31, df = 756, χ^2/df < 2; RMSEA = 0.05; CFI = 0.92, IFI = 0.92). Rival Models 1-3 tested the possible direct effects of dialectical thinking to performance (RM1), dialectical thinking to team conflict (RM2) and conflict management approach to performance (RM3). Among them, rival Models 1 and 3 did not yield better model fit than our baseline model (the differences in chi-square were not significant). Rival Model 2, in which a direct link from dialectical thinking to team conflict was added, yielded the best fitting indices (χ^2 = 1145.55, df = 754, $\Delta\chi^2(2) = -11.76$, $p < 0.05$). In addition, we tested a set of possible mediation models (RM4-8) that adjusted the orders of the variables. However, none of the Rival Models 4-8 had a better model fit than our baseline model (all had larger chi-squares than the baseline model or the differences were significant at the 0.05 level). Therefore, as RM2 provided the best fit for the data, we chose it as our final model to test our hypotheses (as shown in Figure 2).

H2 predicted that leader dialectical thinking would be positively related to cooperative conflict management approach and negatively related to competitive approach. In Figure 2, the path coefficients from leader dialectical thinking to cooperative and competitive approaches were both significant and in expected directions ($\beta = 0.18$ for path to cooperative approach and $\beta = -0.29$ for path to competitive approach, both $ps < 0.05$), supporting *H2*.

H3 predicted that cooperative conflict management approach would be positively related to team task conflict and negatively related to relational conflict. *H4* predicted that competitive conflict management approach would be positively related to both team task conflict and relational conflict. The results fully supported these two hypotheses that the path coefficients from cooperative approach to task conflict and

No.	Variable	Mean	SD	1	2	3	4	5	6	7
1	Leader's dialectical thinking	3.93	1.11	(0.89)						
2	Cooperative approach	4.53	1.30	0.24*	(0.82)					
3	Competitive approach	4.11	1.31	−0.31*	0.00	(0.89)				
4	Task conflict	3.09	0.90	0.05	0.18*	0.23*	(0.76)			
5	Relational conflict	2.76	1.15	−0.35*	−0.15*	0.50*	0.32*	(0.89)		
6	Creativity	4.36	1.32	0.06	0.25*	0.16*	0.17*	−0.08	(0.87)	
7	In-role performance	4.68	1.30	0.31*	0.31*	−0.05	0.20*	−0.24*	0.33*	(0.84)

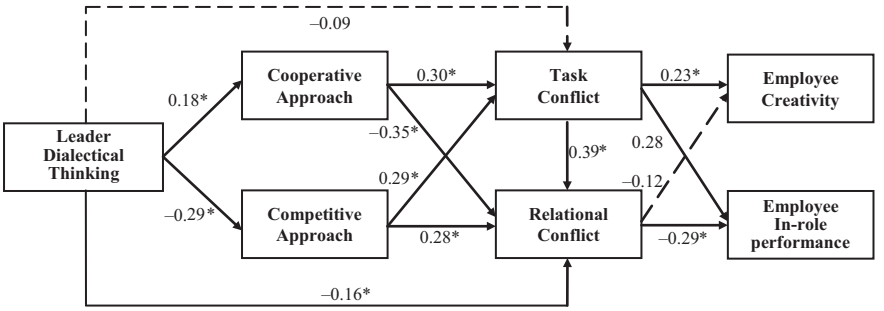
Notes: [a]Numbers in parentheses on the diagonal are reliabilities of the scales; *p< 0.05

Table II. Means, standard deviations and correlations of the variables[a]

Table III.
Results of the structural model analyses[a]

Model	Factors	χ^2	df	$\Delta\chi^2$	RMSEA	CFI	IFI
Baseline Model	**Dialectical thinking → cooperative and competitive approaches → task and relational conflicts → creativity and in-role performance**	**1157.31**	**756**		**0.05**	**0.92**	**0.92**
Rival Model 1	Baseline model + dialectical thinking → creativity and in-role performance	1154.85	754	−2.46 (2)	0.05	0.92	0.92
Rival Model 2	**Baseline model + dialectical thinking → two conflicts**	**1145.55**	**754**	**−11.76 (2)***	**0.05**	**0.93**	**0.93**
Rival Model 3	Baseline model + two approaches → creativity and in-role performance	1156.63	752	−0.68 (4)	0.05	0.92	0.92
Rival Model 4	Dialectical thinking → task and relational conflicts → cooperative and competitive approaches → creativity and in-role performance	1176.08	756	18.77	0.05	0.92	0.92
Rival Model 5	Cooperative and competitive approaches → dialectical thinking → task and relational conflicts → creativity and in-role performance	1187.68	758	30.37 (2)*	0.05	0.91	0.91
Rival Model 6	Cooperative and competitive approaches → task and relational conflicts → dialectical thinking → creativity and in-role performance	1176.38	758	19.07 (2)*	0.05	0.92	0.92
Rival Model 7	Task and relational conflicts → dialectical thinking → cooperative and competitive approaches → creativity and in-role performance	1191.32	758	34.01 (2)*	0.05	0.91	0.91
Rival Model 8	Task and relational conflicts → cooperative and competitive approaches → dialectical thinking → creativity and in-role performance	1186.07	758	28.76 (2)*	0.05	0.91	0.91

Note: [a]*$p < 0.05$



Notes: [a]method: multilevel structural equation modeling; *$p < 0.05$

Figure 2.
Final results of the structural model[a]

relational conflict were both significant and in different directions ($\beta = 0.30$ for path to task conflict and $\beta = -0.35$ for path to relational conflict, both $ps < 0.05$), and competitive approach was significantly and positively related to both task and relational conflicts ($\beta = 0.29$ for path to task conflict and $\beta = 0.28$ for path to relational conflict, both $ps < 0.05$).

H5a and *H6a* proposed that task conflict would positively and relational conflict would negatively influence employee creativity. In Figure 2, the path coefficient from task conflict to creativity was 0.23 ($p < 0.05$); however, the coefficient from relational conflict to creativity was not significant ($\beta = -0.12$, $p > 0.10$). Thus, *H5a* was supported, while, *H6a* was not. *H5b* and *H6b* proposed that task conflict would positively and relational conflict would negatively affect employee in-role performance. The path coefficients from task conflict and relational conflict to in-role performance were both significant and at the expected directions ($\beta = 0.28$ for path from task conflict and $\beta = -0.29$ for path from relational conflict, both $ps < 0.05$). Thus, both *H5b* and *H6b* were supported.

H1 proposed that leader dialectical thinking would be positively related to employee creativity and *H7* proposed that conflict management approach and team conflict would mediate the relationship of *H1*. We consider these hypotheses jointly because tests of *H7* would provide strong evidence for testing *H1*. Tests of *H2* to *H6* provide evidence that all the paths from dialectical thinking to in-role performance through the mediators (i.e. conflict management approach and team conflict) were significant. Since relational conflict was not significantly related to creativity, dialectical thinking could only influence creativity through conflict management and task conflict. In addition, when both dialectical thinking and the mediators are included in the effects on dependent variables, the effect of dialectical thinking on dependent variables was insignificant by rejecting the direct link from dialectical thinking to creativity and in-role performance in RM1. Thus, based on Baron and Kenny (1986), conflict management approach and team conflict (both task and relational conflicts) fully mediated the relationship between leader dialectical thinking and employee in-role performance, while only task conflict and conflict management approach fully mediated the relationship between dialectical thinking and employee creativity. The results supported the sequential mediating roles of conflict management approach and team conflict in *H7*.

For *H1*, although leader dialectical thinking did not have a direct effect on employee performance, it may still have an indirect influence through conflict management and

team conflict. We adopted Hayes *et al.*'s (2010) bootstrapping approach for estimation of indirect effects in multistep mediation. The bootstrapping approach is superior to other mediation testing methods (such as Sobel test) as it does not require the assumption of a normally distributed sampling distribution for the indirect effect, which is not always justified or met (Hayes *et al.*, 2010). The bootstrapping results (bootstrapping = 1,000) showed that the indirect effect of dialectical thinking on creativity through enhancing cooperative approach and then task conflict was significant ($z = 0.07$, the confidence interval was [0.02, 0.14], not containing 0); the indirect effect through reducing competitive approach and then task conflict was insignificant ($z = -0.04$, the confidence interval was [−0.13, 0.01], containing 0). Thus, at least, cooperative approach and task conflict would mediate the positive relationship between leader dialectical thinking and creativity, supporting *H1a* and partially supporting *H7a*. For in-role performance, the results showed that the indirect effect of dialectical thinking on in-role performance through enhancing cooperative approach and then team conflict was significant ($z = 0.12$, the confidence interval was [0.02, 0.22], not containing 0); the indirect effect through reducing competitive approach and then team conflict was insignificant ($z = 0.05$, the confidence interval was [−0.04, 0.12], containing 0). This provides evidence that the cooperative approach and team conflict would mediate the positive relationship between leader dialectical thinking and in-role performance, supporting *H1b* and partially supporting *H7b*.

Discussion

Creativity is important for all organizations, and for high-tech firms in particular, to establish and maintain a competitive advantage in the fiercely competitive and highly dynamic global economy. Often, however, the creative process can be hindered in collectivistic cultures such as China by the need to maintain interpersonal harmony by avoiding conflict (Leung, 1997). This may even include attempts to suppress more constructive forms of conflict such as task conflict (Chen and Tjosvold, 2002; Leung, 1997; Tjosvold *et al.*, 2006). That said, East Asian cultures are also characterized by a preference for and a tendency to engage in dialectical thinking, a cognitive style associated with tolerating and actively resolving seemingly contradictory information. The present study suggests that dialectical thinking in leaders is associated with more constructive team processes and, ultimately, higher levels of employee performance. Our results showed that leader dialectical thinking was positively related to employee creativity and in-role performance via conflict management approaches as well as team conflict. Specifically, leaders with a dialectical thinking style tended to use cooperative, as opposed to competitive, conflict management approach when leading groups charged with creative tasks. This cooperative approach tended to enhance levels of constructive task conflict and reduce levels of destructive relational conflict within the team and this, in turn, was associated with higher levels of employee creative and in-role performance. Thus, the present study illustrates the important roles played by leaders and team processes as determinants of employee performance outcomes.

Theoretical implications

This study attempts to shed light on several streams of research. It contributes to the literature on conflict management in the Chinese context in multiple important ways. To begin with, we integrated the dialectical thinking and conflict management literatures

for the first time. Although some have considered it to be a new-found sixth dimension of cross-cultural difference (Spencer-Rodgers *et al.*, 2010a, 2010b), nearly all of the research on Chinese dialectical thinking to date has been conducted in the social psychology literature (e.g. Chen *et al.*, 2013; see Spencer-Rodgers *et al.*, 2010a, 2010b for review). We introduce it into the management field, in particular, the conflict management and creativity literatures to unveil how it influences team conflict and employee outcomes in Chinese context. We believe that this will help to enrich our understandings of conflict management processes in general, but that it may be particularly relevant in the Chinese context.

In addition to demonstrating the relationship between the dialectical thinking of the leader and employee creative and in-role performance, we also examined the process by which this effect occurs. Specifically, we found that it is the cooperative conflict management strategy, rather than competitive strategy, that can contribute to the reduction of relationship conflict which consequently lead to a higher level of employee creativity. Previous studies proposed that that competitive approach is more appropriate in an individualistic culture (Chan *et al.*, 2008; Hempel *et al.*, 2009). Although beyond the scope of the current paper, it would be very interesting to see whether the results of this study generalize to other non-Chinese settings. It should again be noted that dialectical thinking is a cross-cultural phenomenon and the processes described in this study are intended to speak to conflict management and to the creative process and performance literatures more broadly. Consequently, there is no reason to believe that the findings from the present study would not be replicated in other cultures.

Our study also has important practical implications for organizations. First, organizations placing a high value on creative performance may want to select individuals with dialectical orientations to lead teams. Second, because it is believed that cognitive style is influenced by culture and ideology, organizations may want to align their organizational values around dialectical principles and to encourage dialectical thinking in their employees. For example, they could initiate training programs designed to illustrate or model using dialectical principles to enhance the development of creative solutions at the individual or group level. Beyond the effects of dialectical thinking, the present results provide further evidence that team leaders need to be mindful of their choices of conflict management strategies and how they can enhance or detract from successful group processes and performance. In particular, the present results are illustrative that the cooperative approach to conflict management is more than simply preferred in the Chinese context. It is also more successful. Consequently, managers should be encouraged to use this approach when administering teams, particularly teams' tasks with creative goals.

Limitations

As with all studies, the present study has limitations. One notable concern may be the cross-sectional research design. Although we collected data from two data sources, some independent variables and dependent variables (e.g. leader dialectical thinking and employee performance) were from the same source. Future research could apply a longitudinal design to test the model for better control of the common method variance and causal relationship. Second, we only included leader cognitive style as an antecedent of the leader's choice in conflict management strategies. The follower

cognitive style may be controlled in the model, or future research could examine the effects of (dis)similarity of team composition or leader–member dyad in terms of dialectical thinking style on different interpersonal or team process as well as employee outcomes. In addition, future research could also include other variables, such as personality, leadership behaviors or emotional intelligence. Doing so would allow researchers to examine the unique incremental effects of this new construct above and beyond well-established predictors. It should also be recognized that the use of abbreviated measures in the current study may have resulted in underestimates of the relationships between the variables in our model (Credé *et al.*, 2012). Future research may benefit from more precise effect size estimates by using longer measures that have more construct coverage and higher reliability. One final concern might be that this study was conducted exclusively in the Chinese context. As noted throughout the paper, we believe that the processes described in the present study are not specific to a particular culture. Instead, the preference for dialectical thinking, like the preference for conflict management approaches, is likely to vary both between and within cultures. Put another way, just as there was substantial variance in the degree to which leaders endorsed dialectical thinking in the present sample, it is likely that samples in other countries would also show substantial variance despite lower average levels of endorsement. Thus, although there remains a need to test whether the positive effects found for dialectical thinking in the present study generalize to other cultures, we believe that the results are likely to be a matter of "how much?".

Conclusion

The present study demonstrates how dialectical thinking can influence the conflict management styles of leaders and, in doing so, enhance employee creativity and in-role performance by reducing destructive relational conflict and increasing positive task conflict. In particular, the positive effects of dialectical thinking were seen as influencing the choice to use cooperative conflict management strategies which were well-suited to the Chinese context. These findings are suggestive that cognitive styles may play an important role in determining leader behavior and, in turn, group performance outcomes. Finally, the present study adds to the growing literature demonstrating the uniqueness of the Chinese organizational context and for the need to develop culture-specific theories to better explain organizational processes in that context.

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