# Poster TITLE Team Conflict Profiles and The Mediating Role of Conflict Management

# ABSTRACT

Conflict is common among team members, and the shared experience of conflict defines a team's conflict state. The current study examined the mediating role of cooperative and competitive conflict management between conflict states and team outcomes. Findings suggest cooperative, rather than competitive conflict management plays a significant mediating role.

# PRESS PARAGRAPH

Task, relationship, and process conflicts are common among members of a team. The simultaneous and shared experience of these three types of conflict defines a team's conflict state. Using a team-centered approach and structural equation mixture modeling, the current study sought to examine the presence of qualitatively different conflict states and the role conflict management processes have in mediating the relations between conflict states and team outcomes. Findings demonstrate a replication of earlier research on the nature of conflicts states, and suggests that cooperative, rather than competitive conflict management plays a significant mediating role.

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Although organizations are increasingly using work teams to complete projects and tasks, the interactive and interdependent nature of teams almost always results in conflict between members (DeChurch, Mesmer-Magnus, & Doty, 2013). *Conflict* is generally considered a perceptual state involving an individual perceiving difference between him- or herself and another individual in terms of interests, values, or practices (De Dreu & Gelfand, 2008). Seminal research by Jehn (1995, 1997) identified three distinct types of conflict: task conflict (TC), relationship conflict (RC), and process conflict (PC). TC involves incompatibilities in opinions, views, and perspectives about the task. RC involves interpersonal incompatibilities involving friction, annoyances, and personality clashes. PC involves incompatibilities in roles, responsibilities, and schedules for task completion.

Recent research on the role of conflict has focused on the *processes* involved in the emerging perceptual state of conflict. In particular, DeChurch et al. (2013) described a process of how early interactions between team members contribute to a team's conflict state. According to DeChurch et al., conflict states, will consecutively influence the conflict management (CM) processes a team uses to work through the task and interpersonal disagreements to subsequently influence team outcomes. In our view, a team's conflict state is characterized by the simultaneous, and shared, experience of all three conflict variables. The current study aimed to provide a test of DeChurch et al.'s theory, and examined the mediating role of CM in the relation between team conflict states and team outcomes.

### **Conflict States**

The complexity perspective of team conflict posits that team outcomes are a function of multiple forms of conflict simultaneously occurring in a team (Janssen, Van de Vliert, & Veenstra, 1999). This view has its roots in conventional wisdom that teams can benefit from

task-related conflicts, but should discourage person-related conflicts as they can be detrimental to team performance (De Dreu, 1997). Thus, according to the complexity perspective, TC has the potential to be most useful and constructive when both RC and PC are low (e.g., Jehn & Mannix, 2001).

This ideal pattern of TC, RC, and PC, and its implied three-way interaction has found little support in the literature. However, the literature may be limited thus far in terms of solely relying on variable-centered frameworks for investigating the nature and role of conflict states. In contrast, person-centered analyses, or team-centered analyses in the current study, may provide an advantage because they treat the individual person, or team, in a more holistic manner. Using a team-centered approach, teams would be represented as a system of interactions, which would take into account intra-team variation in the conflict state components (i.e., TC, RC, and PC) to represent the simultaneously, and shared, perception of the three forms of team conflict. Moreover, a team-centered framework may help improve alignment between the complexity perspective of conflict states. Thus, the current study aims to apply a team-centered framework to identify the number and nature of conflict states, and the effects of conflict states on team outcomes.

#### **Conflict Management**

In general, meta-analytic research has found that RC and PC tend to be unproductive for teams, and TC is, on average, unrelated to performance (O'Neill, Allen, & Hastings, 2013). Thus, contrary to the complexity perspective, one could argue that conflict should be avoided. As such, researchers have been actively trying to improve the *management* of intra-team conflict. As mentioned earlier, DeChurch et al. (2013) suggested CM may be an important process that could improve our understanding of the relation between teams' conflict state and team outcomes.

According to the theories of CM from of Tjosvold (1998) and Alper, Tjosvold, and Law (2000), individuals often take a cooperative or a competitive approach to resolving conflict.

In cooperative CM (CoopCM), individuals "put aside" their individual goals to pursue shared goals. Thus, CoopCM takes a more collective approach to resolving conflict by identifying goals that allow each individual to pursue their interests without compromising the interests of others.

Competitive CM (CompCM), on the other hand, involves a more combative approach to goal achievement. Individuals treat conflict as a battle wherein there can only be one winner. CompCM, therefore, manages conflict through individuals' self-interest and does not take into consideration possible shared solutions.

DeChurch et al. (2013) found that CoopCM correlated positively with team performance at  $\rho = .33$  (95% Confidence Interval [CI] = .24 - .42), and CompCM correlated negatively with team performance at  $\rho = -.21$  (95%CI = -.33 - -.09). Thus, both forms of CM relate to important team outcomes.

### **Current Study**

The purpose of the current study is to provide an empirical test of the DeChurch et al.'s (2013) functional pathway of team conflict states relating to team outcomes through CM.

Our first hypothesis revolves around the application of team-centered analyses to the study of team conflict states. Using latent profile analysis (LPA), O'Neill, McLarnon, Woodley, and Allen (2014) investigated the presence and nature of conflict states that emerged in two samples of engineering design teams. O'Neill, McLarnon et al. used LPA to recover four qualitatively and quantitatively distinct types of conflict states based on varying levels of TC, RC, and PC. Namely, these states were labeled (1) task conflict-dominant (TCD), characterized by a

high level of TC and low levels of RC and PC, (2) RC/PC Minor (RPM), characterized by a similar pattern of conflict variables as TCD, but with higher levels of RC and PC, (3) Mid-Range Conflict (MRC), characterized by moderate levels of all three conflict variables, and (4) Dysfunctional (DYS), characterized by high levels of all three conflict variables. Thus, O'Neill, McLarnon et al.'s study provided the analytical background and precedence for the number and nature of the conflict states that will be found in a new sample of teams.

**Hypothesis 1.** Four conflict states will be the optimal number of profiles, and they will reflect the states of TCD, RPM, MRC, and DYS.

Marks, Mathieu, and Zaccaro's (2001) model of emergent states posits that teams experience cycles of interactions, during which previous interactions serve as inputs for later interactions. In terms of temporal ordering of conflict states and CM processes, DeChurch et al. (2013) theorized that conflict related interactions (i.e., CM) contribute to stable conflict states, which, in turn, influence subsequent CM processes. In addition, CM is more proximal to team outcomes, such as performance, than conflict states because CM captures how the team approached recent incompatibilities, and conflict states represent the team's environment of inter-member conflict.

We examined team potency as a team outcome. Potency involves the team's general, collective belief about its ability to perform (Guzzo, Yost, Campbell, & Shea, 1993), and is one of the most robust predictors of team performance (Gully, Incalcaterra, Joshi, & Beaubien, 2002). However, as potency is broad and general in nature, we also examined a contextualized performance proxy variable: team efficacy for innovation (TEI). TEI was more specific to the groups involved in the current investigation, as the teams were required to complete a series of projects that required them to be innovative. The positive relation between task-specific efficacy and performance has also been demonstrated across many research investigations (see Bandura, 1997).

Therefore, based on DeChurch et al.'s (2013) theoretical perspective, conflict states should influence potency and TEI indirectly through cooperative and competitive CM. As such, we proposed:

**Hypothesis 2a.** Cooperative CM will mediate the relation between conflict states and potency.

**Hypothesis 2b.** Competitive CM will mediate the relation between conflict states and potency.

**Hypothesis 3a.** Cooperative CM will mediate the relation between conflict states and TEI.

**Hypothesis 3b.** Competitive CM will mediate the relation between conflict states and TEI.

### Method

### **Participants and Procedure**

Participants were 566 students from a Canadian university organized into 177 engineering design teams ( $M_{number of respondents per team} = 3.20$ , SD = .94). Over the course of a 13week semester, teams were required to complete several engineering design projects such as constructing a bridge and a racecar. The course was heavily team-based, as these projects made up 80% of students' course grades. Surveys measuring conflict states, CM, and potency beliefs were administered 11 weeks into the teams' lifecycle.

### Measures

We adopted Behfar, Mannix, Peterson, and Trochim's (2011) conflict scales. To measure TC, Behfar et al. represented task conflict as "discussing and debating opinions about the content of the work" (p. 150), rather than using the terms "conflict" or "disagreements," which may be interpreted negatively by team members. We adapted Behfar et al.'s item structure to develop four items that referred to specific stages of an engineering project: identifying the problem, considering design alternatives, developing a prototype, and preparing presentations. RC was assessed with four items used by both Behfar et al. and Jehn (1995). PC items were taken from Behfar et al.'s three-item logistical conflict scale, which is similar to Jehn's (1997) definition of PC. Table 1 provides examples of all three conflict state items, reliabilities, and ICCs.

CoopCM and CompCM were measured with five and four items, respectively, from Alper et al. (2000). Potency was measured using four items from Guzzo et al. (1993). TEI was assessed with four items developed for the current research. Reliabilities and ICCs for the CoopCM, CompCM, potency, and TEI measures are presented in Table 2.

### **Analytical Procedure**

To investigate CM's mediating roles in the relation between conflict states and team outcomes we used structural equation mixture modeling (SEMM; i.e., Bauer & Curran, 2004). As a first step we conducted LPA using *Mplus* 7 and its robust maximum likelihood estimator (Muthén & Muthén, 2012). As Hypothesis 1 predicted the presence of four classes of team conflict states, we followed Morin, Morizot, Boudrias, and Madore's (2011) recommendations and explored the optimal class solution by initially specifying a one-class model, and then adding classes in subsequent models. Class solutions with the lowest Bayesian Information Criterion (BIC) and sample-size adjusted BIC (aBIC) values, and those with a bootstrap likelihood ratio

test (BLRT; evaluates the fit between k and k-1 class models; McLachlan & Peel, 2000) of p < .05 were favored.

Once the optimal conflict state LPA was determined, we used the procedure described by Asparouhov and Muthén (2014; see also Nylund-Gibson, Grimm, Quirk, & Furlong, 2014) to include the mediating and outcomes variables in the LPA model. This secondary stage allowed us to treat conflict state as the independent variable in a mediation framework. Using Hayes and Preacher's (in press) recommendations, we examined the statistical significance of the mediated pathways using bias-corrected bootstrapping.

#### Results

Examining the mediating role of conflict management first required aggregating the measures to the team level (see Chan, 1998). Tables 1 and 2 contain the intraclass correlations (ICC[1]) values, which reflect the percentage of variance attributable to team membership. All ICC(1) values surpassed those reported by previous researchers (e.g., Jehn, Greer, Levine, & Szulanski, 2008), and supported aggregation. Table 3 contains team-level descriptives and correlations.

Table 4 provides the LPA model fit indices. The BIC value decreases to a minimum with the five-class solution, whereas the aBIC decreases marginally past the six-class solution. Morin and Marsh (in press) suggested using an "elbow plot" of the BIC and aBIC values when there is no clear minimum. The elbow plot suggested the four-class solution be preferred because the decreases in BIC and aBIC due to additional classes were trivial. The four-class solution also provided a significant BLRT *p*-value, indicating superiority to the three-class solution. However, the BLRT also suggested a five-class solution provided incremental fit over the four-class solution, the

additional class represented a minor distinction from one of the classes in the four-class solution. Therefore, with support from several empirical indicators of model fit, parsimony, and interpretability, we adopted the four-class solution. The four-class solution was further supported by the findings of O'Neill, McLarnon et al. (2014), who found a remarkably similar set of profiles. Figure 1 presents the profile of TC, RC, and PC means across the four conflict states. As we recovered a similar set of conflict states as O'Neill, McLarnon et al., we maintained their labels: TCD, RPM, MRC, and DYS. Therefore, Hypothesis 1 was supported.

Table 5 presents the means of the mediating and outcome variables across the four conflict states. Equivalence of means was tested with a pseudo-Wald  $\chi^2$  test (see Asparouhov & Muthén, 2014). These results indicate that the CM variables, potency, and TEI were most favorable for teams classified as TCD, followed by RPM, MRC, and, lastly, DYS.

Following Hayes and Preacher's (in press) recommendations for examining mediation with a categorical independent variable, three comparisons were needed. To examine the proposed mediated relations the MRC, RC/PC, and DYS conflict states were compared against TCD. TCD was chosen as the reference group as their potency and TEI advantages could conceivably be due to their favorable levels of CoopCM and CompCM.

The relations between each conflict state and the CM variables (i.e., relative *a* pathways) reflect the mean differences in the CM variables between TCD and the other conflict states. As in traditional mediation analyses, the *b* pathway represents the linear regression of the outcome on the mediator. This regression is equal across all conflict states to maintain the homogeneity of regression assumption (Hayes & Preacher, in press). The same principle describing *a*, holds for the relative direct effects, *c'*. *c'* represents the mean differences between TCD and the other conflict states for each outcome. Evidence for mediation is given when at least one relative

indirect effect  $(a_k \times b)$  has a 95% bias-correct bootstrap CI that excludes zero. *Relative* is used because the *a*, *c*', and *ab* parameters represent differences between TCD and the other conflict states.

Table 6 provides the results of the mediation tests. The relation between conflict states and potency is mediated by teams' usage of CoopCM. In particular, TCD's potency advantage relative to the other three conflict states is related to a higher level of CoopCM. Thus, Hypothesis 2a was supported. TCD's potency advantage, however, was not related to lower CompCM, as all three *ab* coefficients had a 95% CI that included zero. Thus, Hypothesis 2b was not supported.

Hypothesis 3a considered the mediating role of CoopCM in the relation between conflict states and TEI. All of three *ab* coefficients were found to have 95% CIs that excluded zero, suggesting TCD's advantage on TEI is related to their greater usage of CoopCM. Further, the 95% CIs for *c*' included zero, suggesting a 'complete mediation.' Thus, Hypothesis 3a received support. However, Hypothesis 3b was not supported, as no *ab* coefficient had a 95% CI that excluded zero, indicating that TCD's advantage on TEI is not related to lower CompCM.

#### Discussion

The current study focused on providing a test of DeChurch et al.'s (2013) proposed model of a team's conflict state impacting team outcomes through CM processes. Using LPA, four distinct profiles were found to represent teams' conflict states: TCD, RPM, MRC, and DYS. This four-class solution was supported by several empirical fit indices, and also corresponded to the typology presented by O'Neill, McLarnon et al. (2014). Thus, the four conflict states presented here appear to be fairly robust.

The TCD conflict state offered the most advantageous pattern of CoopCM, CompCM, potency, and TEI scores. Teams with a TCD conflict state were found to have significantly

10

higher CoopCM, potency, and TEI, and lower CompCM relative to the other three conflict states. Significant differences in the CM and outcome variables suggest that DYS was the least desirable. Specifically, MRC represented an improvement over that of DYS, and RPM represented an even further enhancement over DYS.

Results of the mediation analyses suggested that TCD's advantageous levels of potency and TEI is related to higher levels of CoopCM. Thus, partially because of more effective CoopCM use, TCD teams will experience greater potency. When the mediating role of CoopCM is accounted for in the relation between conflict states and TEI, the relative direct effect of TCD is not significant. This provides evidence for a complete mediation of the relation between TCD and TEI. TCD's TEI advantage is, therefore, fully accounted for by TCD's greater usage of CoopCM.

Across both outcome measures, and all relative indirect effects, teams' usage of CompCM did not provide any evidence of mediation. Accordingly, lower levels of CompCM did not help explain TCD's potency or TEI advantage. As the tasks teams in the current study were responsible for completing were additive or conjunctive in nature (Steiner, 1972), future research will be required to examine whether CompCM would meditate the relation between conflict states and performance in disjunctive tasks.

In sum, DeChurch et al.'s (2013) propositions received support in terms of the mediated mechanism associated with CoopCM, but not CompCM. These contrasting findings suggest that organizations should develop more effective CoopCM strategies, rather than reducing CompCM. Thus, encouraging open-mindedness, information seeking, and the other CoopCM behaviors will likely have a more positive effect on teams than reducing competing interests and other behaviors associated with CompCM (see also De Dreu, 2007).

As TCD appears to be the most advantageous conflict state, it may be beneficial to provide training to teams. Training team members on the interactions that comprise each state may encourage self-regulation that may help teams achieve the TCD state (see O'Neill, Hoffart et al., 2014). Further, including constructive controversy training (see Tjosvold, 1985) may further assist teams in reaching, and maintaining, the TCD state.

### **Limitations and Directions for Future Research**

The current study is not in a position to provide any evidence on the temporal nature of conflict states. Longitudinal studies will play a valuable role in understanding the interactions that lead to the emergence of each conflict state. Such an understanding will enable practitioners and researchers to best facilitate optimal team performance.

Although this study provided a replication of the four conflict states, additional research will be required to replicate these conflict states in organizational contexts. Future research should also endeavor to extend this line of research to additional outcome variables. Assessing the relations between conflict states, conflict management, and performance will be a critical next step.

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Items in Measures of Task Conflict, Relationship Conflict, and Process Conflict

Task Conflict ( $\alpha$  = .81, ICC[1] = .20)

- 1. To what extent are different opinions, viewpoints, and perspectives discussed while settling on your team's *problem definitions?*
- 2. To what extent are different opinions, viewpoints, and perspectives discussed while settling on your team's *design concepts?*
- 3. To what extent are different opinions, viewpoints, and perspectives discussed while settling on your team's *prototype specifics*?
- 4. To what extent are different opinions, viewpoints, and perspectives discussed while settling on your team's *team presentations?*

Relationship Conflict ( $\alpha$  = .88, ICC[1] = .41)

- 1. How much friction is there among members of your team?
- 2. How much are personality conflicts evident in your team?
- 3. How much tension is there among team members?
- 4. How much emotional conflict is there among team members?

Process Conflict ( $\alpha = .75$ , ICC[1] = .16)

- 1. How frequently do your team members disagree about the optimal amount of time to spend on different parts of teamwork?
- 2. How frequently do your team members disagree about the optimal amount of time to spend in meetings?
- 3. How often do members of your team disagree about who should do what?

*Note*. Responses were made on a five-point scale with options ranging from *a very small amount* to *a lot*.

# TEAM CONFLICT STATES AND TEAM OUTCOMES

# Table 2

Scales	Number of items (Likert Categories)	Source	Sample item(s)	Cronbach's $\alpha$	ICC(1)
Competitive conflict management	4 (7)	Alper et al. (2000)	Team members demand that others agree to their position.	.86	.23
Cooperative conflict management	5 (7)	Alper et al. (2000)	Team members seek a solution that will be good for all of us.	.83	.36
Team potency	4 (7)	Guzzo et al. (1993)	My team believes it can be very productive.	.87	.30
Team-efficacy for innovation	4 (8)	Developed for the current study	<ul><li>How confident are you that your team can develop new techniques?</li><li>How confident are you that your team can invent new things?</li><li>How confident are you that your team can be innovative?</li><li>How confident are you that your team can create new methods?</li></ul>	.89	.29

Scales, Number of Items, Sources, Sample Items, Scale Reliabilities, and ICC(1) Values

*Note*. Team-level: n = 177; individual level: n = 566.

Means, Standard Deviations, an	ed Correlations for Study	, Variables
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	М	SD	1	2	3	4	5	6	7
1. Task conflict	3.78	.47							
2. Relationship conflict	1.58	.59	42						
3. Process conflict	2.03	.54	30	.61					
4. CoopCM	5.85	.58	.61	68	42				
5. CompCM	2.77	.89	43	.59	.62	58			
6. Team potency	5.69	.73	.50	48	33	.66	40		
7. Innovation efficacy	5.64	.71	.48	40	23	.63	33	.77	

*Note*. Team-level, n = 177. CoopCM = cooperative conflict management; CompCM = competitive conflict management. All correlations are significant at p < .05.

## TEAM CONFLICT STATES AND TEAM OUTCOMES

## Table 4

## Latent Profile Analysis Results

	Log-likelihood	BIC	aBIC	p BLRT	Entropy
1-class	-415.779	862.615	843.615		
2-class	-361.150	774.062	742.394	.000	.871
3-class	-333.709	739.884	695.548	.000	.827
4-class	-314.547	722.265	665.263	.000	.879
5-class	-301.521	716.917	647.247	.000	.895
6-class	-294.838	724.256	641.919	.250	.886

*Note.* n = 177 teams. BIC = Bayesian Information Criterion; aBIC = sample-size adjusted BIC; p BLRT = p-value for bootstrap likelihood ratio test; Entropy = classification quality.

	TC dominant	RC/PC Minor	Mid-Range Conflict	Dysfunctional Conflict	Overall $\chi^2(3)$
CoopCM	6.151 <sub>a</sub>	5.568 <sub>b</sub>	5.085 <sub>c</sub>	4.600 <sub>c</sub>	114.942*
CompCM	2.339 <sub>a</sub>	3.203 <sub>b</sub>	3.885 <sub>c</sub>	4.459 <sub>c</sub>	125.610*
Potency	6.018 <sub>a</sub>	5.329 <sub>b</sub>	5.030 <sub>b</sub>	4.292 <sub>c</sub>	66.729*
Innovation	5.912 <sub>a</sub>	5.342 <sub>b</sub>	5.098 <sub>b</sub>	4.708 <sub>b</sub>	36.167*

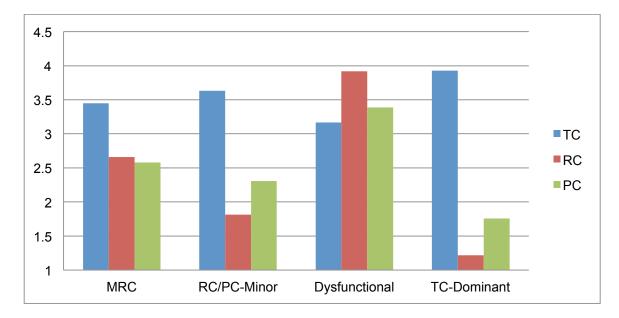
# Wald Test of Equality of Outcome Means Across Classes

*Notes.* CoopCM = cooperative conflict management; CompCM = competitive conflict management. Unshared subscripts indicate that mean estimates are significantly different by row at p < .05. \* p < .01.

Result	s of	`Med	iation	Anal	vses
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Results of mediation maryses					
Model	Conflict State Comparison	b	а	ab	с'
Potency on CoopCM pathway		.68 [.4487]			
	RPM vs. TCD		57 [7138]	39 [5827]	25 [6602]
	MRC vs. TCD		-1.03 [-1.4076]	70 [-1.1145]	23 [7221]
	DYS vs. TCD		-1.55 [-1.9484]	-1.06 [-1.7355]	64 [-1.1833]
Potency on CompCM pathway		07 [2209]			
	RPM vs. TCD		.82 [.55 - 1.06]	06 [2007]	60 [8730]
	MRC vs. TCD		1.52 [1.12 - 1.83]	10 [3513]	83 [-1.4436]
	DYS vs. TCD		2.12 [1.40 - 2.83]	14 [6314]	-1.57 [-2.1986]
Innovation on CoopCM pathway		.73 [.39 - 1.01]			
	RPM vs. TCD		57 [7139]	42 [6624]	10 [4421]
	MRC vs. TCD		-1.03 [-1.3876]	75 [-1.2037]	.00 [6547]
	DYS vs. TCD		-1.55 [-1.901.11]	-1.13 [-1.7754]	05 [8656]
Innovation on CompCM pathway		07 [2108]			
	RPM vs. TCD		.82 [.53 - 1.06]	05 [1906]	49 [7726]
	MRC vs. TCD		1.51 [1.12 - 1.82]	10 [3612]	66 [-1.2801]
	DYS vs. TCD		2.11 [1.32 - 2.83]	14 [5415]	-1.05 [-1.7818]

*Note.* CoopCM = cooperative conflict management; CompCM = competitive conflict management; MRC = Mid-Range Conflict; RPM = RC/PC Minor; DYS = Dysfunctional Conflict; TCD = TC-Dominant. Bias corrected bootstrapped 95% confidence intervals presented in brackets. Confidence Intervals that exclude zero are presented in bold. The *b* column contains the coefficients associated with the linear regression of the outcome variable on the mediating variable. The *a* column contains the coefficients associated with the mean difference reflected by the class comparison. The *ab* column contains the coefficients associated with the indirect effect, and reflects the multiplication of  $a \times b$ . The *c'* column contains the coefficients associated with the direct effect.



*Figure 1.* Team conflict states representing the task conflict (TC), relationship conflict (RC), and process conflict (PC) means across the four conflict state classes extracted by the LPA. MRC = mid-range conflict.