

Table 3. Conditional indirect effects of team leader coaching on team innovation effectiveness and team task performance through team learning (Hypotheses 3 and 4).

Independent variable	Dependent variable	Mediator	Moderator ^a	Normal theory indirect effect (SE)	95% bootstrap CI
TLC	Team innovation effectiveness	Team learning	Low, -1 SD	.11 (.08)	(-.01, .08)
			Mean	.22* (.09)	(.06, .43)
			High, +1 SD	.33** (.14)	(.06, .65)
TLC	Team task performance	Team learning	Low, -1 SD	.11 (.08)	(-.01, .29)
			Mean	.23* (.09)	(.06, .45)
			High, +1 SD	.33** (.13)	(.07, .68)

* $p < .05$, ** $p < .01$.

^aModerator = contentious communication.

CI = confidence interval; SD = standard deviation;

TLC = team leader coaching.

Supplementary analyses

Using PROCESS (Hayes, 2012), we examined the simple mediated effects of TLC on the outcome variables through TLC. The indirect effects were positive and significant for both team task performance (bootstrap coefficient = .24 (SE = .11), 95% CI = [.07, .49]) and team innovation effectiveness (bootstrap coefficient = .21 (SE = .10), 95% CI = [.06, .44]).

Although our theoretical model does not specify a role for TLC as an antecedent of contentious communication, we sought to determine if specifying such a parameter would affect the interaction between TLC and contentious communication in predicting team learning. In their description of the various models that can be tested using their MODMED program, the first model defined by Preacher et al. (2007) specifies the same variable (X) as both the antecedent of a predictor variable (M) and a moderator of its influences on a third variable (Y). In testing this model, the interaction of TLC and contentious communication in predicting team learning remained statistically significant ($p < .05$). The results also showed that the added relationship between TLC and contentious communication was significant ($b = -.38$ (SE = .15), $t = -2.61$, $p < .01$). However, using PROCESS, we tested an alternative model in which TLC is indirectly related to team learning through contentious communication. This model was not supported (bootstrap coefficient = .03 (SE = .03), 95% CI = [-.01, .12]). This is consistent with the lack of relationship between contentious communication and team learning when TLC is in the equation (Table 2). In addition, with contentious communication specified as the mediating variable, we observed no indirect effect of TLC on team task performance (bootstrap coefficient = .05 (SE = .04), 95% CI = [-.01, .17]) or team innovation effectiveness (bootstrap coefficient = -.01 (SE = .05), 95% CI = [-.10, .08]).

Discussion

In this article, we have argued that TLC has a particularly favorable influence on team outcomes when at least some team members are predisposed to engage in contentious interpersonal communications. Dysfunctional communication patterns have the potential to inhibit team learning if they are not discouraged from intruding upon team discussions. Thus, the presence of these tendencies provides greater scope for TLC to promote team learning. Our study found that whereas TLC had a generally favorable influence on team learning (Hypothesis 1), this connection was stronger among teams who had more often witnessed members engaging in contentious communication (Hypothesis 2). This produced in such teams more favorable indirect relationships between TLC and two team outcomes, namely innovation effectiveness and task performance, as compared with teams with low contentious communication (Hypotheses 3 and 4). These indirect relationships were equally strong at both high and average levels of contentious communication.

Theoretical and practical implications

Despite the benefits that develop over time from creating teams to coordinate individual effort (Ancona and Chong, 1996), all teams experience interpersonal misunderstandings and disagreements at times. A relatively stable state of contentious communication exists when interpersonal differences among certain members dispose them to a cycle of petty bickering and one-upmanship. Our study emphasizes the potential role of contentious communication in undermining team learning, team innovation effectiveness and team task performance. The primary contribution of this study concerns the moderating influence of team CC on the relationship between leader coaching behavior and team outcomes. Previous research suggests formal leaders should play a key role in diagnosing and managing conflictual dynamics in teams (De Dreu and Weingart, 2003). We argued that team leaders can play a pivotal role by ensuring that such dynamics do not undermine the discussions that are essential for team learning. Notably, the mean level of contentious communication was fairly low ($M = 2.19$, $SD = .70$), and yet the indirect effects of TLC were equally significant for both outcomes (team innovation effectiveness and team task performance) at this level and at one standard deviation above the mean. This indicates that even a small propensity for contentious communication has the potential to reduce teams' ability to learn from experience if a team lacks a leader who exhibits coaching behaviors.

Our study focused on a specific pattern of team leader behavior, TLC, which helps to prevent contentious communication from prevailing during team discussions. Thus, the study identifies a context in which TLC behaviors are most needed for teams to perform and innovate successfully. Because open and reflective discussions that involve all members are not likely to occur outside of the context of team meetings, little team learning is likely to occur in a team that lacks a leader who engages in coaching behaviors. Yet, initiating such meetings does not guarantee their success in promoting team learning. Without the leader's further engagement in team coaching by facilitating discussion in these meetings, pre-existing contentious communication propensities can surface repeatedly, ultimately undermining the potential for the team to learn how to improve its

functioning in ways that aid its performance and capacity to innovate. TLC facilitates team interaction by helping members focus on better ways to work as a team instead of on interpersonal differences and rivalries. Team leaders thus play an especially vital role in teams where open expression of task-focused and change-focused ideas and observations would be inhibited without active process facilitation.

To overcome such threats to team discussions, team leaders must use 'soft' influence in ways that permit experimentation, interpersonal feedback seeking, and deliberating about task problems and strategies as a team, and avoid assigning blame for performance miscues or for the disagreements themselves. For example, a team leader would be engaging in useful coaching when he or she initiates a team meeting to deliver feedback about member interaction processes, and then introduces the feedback in a way that de-emphasizes the role of particular individuals. If the leader were to personalize the responsibility for errors, valuable corrective information could provoke individual defensiveness or cue certain members to blame a person with whom they have previously established a contentious communication pattern. Another useful practice for team leaders is to engage in gatekeeping behaviors that encourage quieter members to elaborate about ideas they had expressed at other times, or asking such members pointed questions in an effort to draw them out.

We speculate that skilled and trusted team leaders might also contribute to resolving the underlying issues that create contentious communication so that contentious communication may no longer prevail. When team leaders are effective in facilitating team decision-making and learning, members' positive experiences of working together are likely to provide a foundation for them to resolve their interpersonal disputes (Fay et al., 2006). In addition, team leaders can make their presence felt outside of team discussions in ways that support healing of rifts between members. When noticing members engaged in contentious communication, team leaders can note ways the parties could frame their discussion in a more constructive light. This may further aid team learning, as improved communications between these parties may encourage them to engage more cooperatively in team discussions. Team leaders who exhibit supportive coaching behaviors may also be less likely to be themselves prone to contentious communication when interacting with subordinates. Moreover, a more inclusive and accessible team leader is likely to possess interpersonal skills and a temperament that may serve as a role model for other team members to engage civilly with one another.

Our supplementary analyses demonstrated that the interaction effect on team learning was still significant when TLC was specified as an antecedent of contentious communication. Yet, we believe there are limits to which TLC may be expected to reduce the overall level of contentious communication among team members. Substantial effects of the team leader on the interpersonal climate of a group would imply influences that are more potent than may be expected from the TLC construct proffered by Edmondson (1999, 2003). Nevertheless, a potential separate role of TLC in reducing the average level of contentious communication within a work unit warrants future research.

A direct practical implication of our findings is that formal team leaders must take a more active role and engage coaching behaviors when a pattern of contentious communication emerges among members in a team discussion. Team leaders can help their teams perform better by initiating team meetings that aim to promote team learning, and

then facilitating such meetings in ways that do not permit contentious communication patterns of certain members from undermining the effort. Organizations could also seek to place leaders who exhibit effective coaching behaviors into positions as leaders of teams in which contentious communication patterns already prevail. It is also important to note, however, that the behaviors associated with TLC should not be difficult to teach new or existing team leaders. Organizations can train leaders to be more effective in these coaching behaviors. Such training may be more effective for organizations that provide incentives for individuals to succeed in managing difficult teams.

Limitations and future research directions

Owing to our survey-based approach, we were unable to demonstrate causality among the variables or explore how contentious communication patterns and collaboration develop in teams. Bracketing patterns of communication in teams may reveal that episodes of collaborative communication reduce the likelihood that CC will interfere with short-term outcomes, irrespective of the average levels of contentious communication in these teams over a more substantial period. Longitudinal approaches such as latent growth modeling could also determine if recurring episodes in which team leaders are effective in promoting team learning, despite a pre-existing pattern of interpersonally contentious communication, aid in resolving the issues that precipitated these patterns.

As with nearly all studies, the generalizability of the findings is potentially subject to numerous boundary variables. One potential boundary condition is the high temporal stability and full-time nature of the teams we studied. In such teams, investment in team learning is especially important as it benefits future interactions on a broader range of team tasks than it may for short-term teams. In temporally stable teams, members develop patterns of relationship outside of the context of the team discussions that can either contribute to or impede team learning. Future research may seek to determine if these findings generalize to temporary teams, or to more permanent teams with which members are not engaged full-time.

Although team leaders who were rated high in coaching are more likely to initiate team meetings, some may be more effective than others in facilitating team meetings in ways that prevented contentious communication patterns from undermining discussion and in eliciting, guiding and synthesizing member discussion in ways that promoted team learning. Thus, it would be useful for future research to measure TLC in a more granular fashion that explicitly includes reference to affect and conflict management behaviors.

Future studies could also extend our research by examining whether there are substitutes for TLC in teams with high prevailing levels of contentious communication. For example, when teams members' roles are more structured in terms of who has power under different circumstances (i.e. high vertical specialization), contentious communication might have a weaker influence on team task performance (see Bunderson and Boumgarden, 2010). In addition, research on team innovation and creativity in project teams suggests that the stage of a team's development may influence the potential benefits of particular team leader behaviors (Farh et al., 2010). Future studies might profitably examine stages in team development in which TLC is more or less effective in promoting team learning and innovation.

As suggested by a reviewer, TLC influences may be moderated by other forms of poor interpersonal communication in teams, such as ignoring others' inputs. Ignoring a particular person may be part of many interpersonal histories of contentious communication, and a failure to listen may sustain these contentious communication cycles. Yet, marginalizing others by ignoring their input can limit learning from team discussions even among teams that tend to be less prone to contentious communication. Effective TLC ensures that members are not ignored, making them more likely to provide inputs that are useful for team learning. Futures studies may therefore also consider the roles of dismissive behaviors that undermine discussion quality and thereby deter team learning.

Conclusion

Our study suggests that TLC behaviors can be particularly effective in promoting team learning in teams with high mean levels of contentious interpersonal communication. Leaders who engage in coaching behaviors initiate team discussions and facilitate such discussions in ways that create an open atmosphere in which the inquiries and challenges that are necessary ingredients of team learning are encouraged rather than met with derision. By enabling team learning in contexts in which there is potential for some members to focus on other members' shortcomings and assign blame, such team leaders can enhance the likelihood that the team can learn to improve and adapt to change in ways that foster innovation and task performance.

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