

**Beyond Aggregation: How Voice Disparity Relates to Team Conflict, Satisfaction, and
Performance**

Abstract

In this manuscript, we conceptualize voice disparity based on the extent to which voice is (un)evenly communicated within a team and demonstrate its empirical utility beyond team aggregate voice. Specifically, we propose that voice disparity is negatively related to task conflict and positively related to relationship conflict, whereas the inverse holds for aggregate voice, and that conflict mediates the effects of team-level voice on team outcomes. Results of our study of 178 engineering-student teams generally supported this model. Overall, we demonstrate the complexities of voice as a multilevel phenomenon, which depends on how often and equally team members express voice.

Keywords: voice, voice disparity, dispersion composition, teams, conflict.

Beyond Aggregation: How Voice Disparity Relates to Team Conflict, Satisfaction, and Performance

Research on team voice has surged in recent years (e.g., Farh & Chen, 2018; Farh et al., 2019; Guzman & Espejo, 2019; Li et al., 2017; Liang et al., 2019; Sessions et al., 2019; Sherf et al., 2018). This emerging paradigm has contributed substantial knowledge on the consequences of voice for teams. At the same time, however, it has largely focused on the total amount of voice that teams express (i.e., team aggregate voice), thereby overlooking potentially important information manifested by the extent to which voice is evenly expressed by different team members (i.e., team voice disparity; Liang et al., 2019; Morrison, 2011; Sherf et al., 2018). Conceptualizing team-level voice strictly in the aggregate has limited potential to generate new knowledge because it treats voice as essentially the same construct across levels (i.e., isomorphism; Kozlowski & Klein, 2000), and thus fails to fully capture the complexities of voice as a multilevel phenomenon. In contrast, examining voice disparity enables us to address previously unanswered questions, such as whether and how the distribution, or lack thereof, of voice within teams affects team functioning (Guzman & Espejo, 2019; Morrison, 2011).

Accordingly, the primary purpose of this research is to introduce the construct team voice disparity and demonstrate its theoretical and empirical utility beyond team aggregate voice, thereby providing a more complete understanding of how voice functions in teams. Drawing from multilevel theory (Kozlowski & Klein, 2000), we argue that voice disparity offers unique, predictive information over aggregate voice, as demonstrated by its distinct effects on team conflict, performance, and satisfaction. In particular, we propose that voice disparity is negatively related to team performance and satisfaction via its negative effects on task conflict and positive effects on relationship conflict, juxtaposed to the positive effects of team aggregate

voice (see Figure 1). These arguments build from research on team diversity and information sharing, which indicate that disparity of intrateam communication, rather than its total amount, has significant ramifications for team conflict, cohesion, and performance (Behfar et al., 2011; Harrison & Klein, 2007; Woolley et al., 2010). Accounting for voice disparity thus mirrors the benefits of examining climate strength in addition to mean climate levels (e.g., Schneider et al., 2002), as both constructs provide a more complete understanding of team phenomena by assessing the substantive role of intrateam variance (Roberson et al., 2007). For example, consider two teams that engage in similar amounts of voice on average; however, in one team members speak up relatively uniformly (i.e., low voice disparity) whereas in the other team two members dominate conversations and two members are silent (i.e., high voice disparity). A strict focus on aggregate voice ignores this variance, even though it conveys potentially important information about voicing dynamics in these teams. Similar arguments have been raised for other constructs (e.g., collective self-efficacy; DeRue et al., 2010) and in multilevel theory in general (e.g., Kozlowski & Klein, 2000).

----- Insert Figure 1 about here -----

We also advance research by connecting the voice and conflict literatures, thereby generating novel insights on both the antecedents of conflict (O'Neill & McLarnon, 2018) and mediating mechanisms linking voice to team outcomes (Morrison, 2011, 2014). Despite the general consensus that voice can provoke conflict, such as by challenging deeply-held beliefs, disrupting conversational flows, creating more work, or exposing peoples' mistakes (Burris, 2012; Detert & Edmondson, 2011; Lam et al., 2018; Morrison & Milliken, 2000), we are unaware of any empirical research connecting voice with conflict (Morrison, 2014). This has led to misguided assumptions about the consequences of voice (e.g., rock the boat; Grant, 2013)

without empirical support. We argue that these prior assumptions are vague and underspecified because they have entirely neglected distinctions between different conceptualizations of voice (i.e., aggregate versus disparity) and conflict (i.e., task versus relationship), which fundamentally affect their relationship. For example, assuming that ‘voice creates conflict’ ignores the extensive body of research showing that task and relationship conflict exhibit different relationships with other constructs (De Dreu & Weingart, 2003; de Wit et al., 2012; O’Neill et al., 2013). These assumptions are also predicated on the notion that more voice leads to more opportunities for conflict, and thus fail to consider how certain voice patterns (i.e., dispersion) relate to team members’ conflict experiences.

Conceptual Foundations

Voice in Teams: Aggregate and Disparity

Voice denotes discretionary communication of information, ideas, and issues that may be challenging in nature yet motivated to improve collective conditions (Morrison, 2011; Van Dyne & LePine, 1998). Voice has been conceptualized and operationalized at the team-level using two different approaches. First, voice has been conceptualized as *voice climate*, whereby it reflects shared beliefs about whether voice is encouraged in the team (Morrison et al., 2011). Generally, voice climate is operationalized via direct-consensus or referent-shift composition models (Chan, 1998), by which it functions as a mean of individual members’ perceptions, provided that there is sufficient within-team agreement to justify aggregation. Alternatively, team-level voice has been conceptualized as an aggregate of individual members’ actual voice behaviors (i.e., aggregate team voice; e.g., MacKenzie et al., 2011). Team *aggregate voice* is commonly operationalized via additive composition (Chan, 1998), by which it reflects the average amount of voice expressed by each team member or the total amount of voice expressed in the team (e.g.,

Guzman & Espejo, 2019). Thus, these constructs are distinct because voice climate reflects a shared belief, whereas aggregate voice reflects a sum of individual members' voice behaviors.

While aggregate operationalizations of team constructs are clearly important, they are also notably limited because they obscure within-team variance, and thus fail to sufficiently capture the variability of behaviors across team members (Chan, 1998; Kozlowski & Klein, 2000; Roberson et al., 2007). Thus, drawing from multilevel theory (Kozlowski & Klein, 2000) and the team diversity paradigm (Crawford & Lepine, 2013; Harrison & Klein, 2007), we propose the construct *voice disparity*, which denotes the extent to which voice is (un)evenly communicated by different team members (Morrison, 2011). Voice disparity fits Chan's (1998) dispersion compositional model (or Kozlowski and Klein's (2000) configural approach), as its meaning is derived from within-team variance on voice behaviors. That is, high voice disparity describes teams in which voice is unevenly dispersed among team members (one or two members speak up more than others), whereas low voice disparity describes teams in which voice is evenly dispersed within the team (team members speak up relatively equally). Dispersion is based on the notion of discontinuity, which assumes that individuals make variable contributions to their team. In contrast, aggregation is based on the notion of isomorphism, which assumes that individuals make similar contributions to the team, and thus treats voice as equivalent in terms of structure and function across levels (Kozlowski & Klein, 2000).

Dispersion models are also commonly used to compose climate strength – the degree of within-team agreement on a climate – which has been shown to relate to team outcomes beyond the overall level of the shared climate (Gonzalez-Roma et al., 2002; Schneider et al., 2002). It is important to clarify, however, that despite both being composed via dispersion, voice disparity is entirely different than climate strength. Climate strength indexes sharedness of *perceptions* by

representing the extent to which team members agree about their climate, and thus is commonly measured with a team referent. In contrast, voice disparity indexes the evenness of *behaviors* by representing the extent to which voice is evenly communicated by different team members, and thus is most appropriately measured with an individual referent. These distinctions are further embedded in differences between shared (e.g., voice climate) and aggregate (e.g., team voice) constructs. Shared constructs reflect team members' perceptions of their environment, and thus require sufficient intrateam agreement to be aggregated to the team-level. In contrast, aggregate or additive constructs simply reflect the average of team members' behaviors, and thus do not need to exhibit within-team consensus because they make no assumptions about intrateam uniformity. Table 1 clarifies key distinctions between team aggregate voice and voice disparity.

Conflict: Task and Relationship

Conflict research has historically differentiated between task (cognitive) and relationship (affective) conflict types, based on the notion that they are distinct manifestations of conflict with unique relationships to other constructs (Jehn, 1995). Task conflict involves perceived incompatibilities among team members with respect to the task and potential solutions, such as when team members debate different opinions and exchange conflicting viewpoints (Behfar et al., 2011; Jehn & Mannix, 2001). It can be viewed as a form of information exchange and elaboration that improves team performance by ensuring that teams leverage members' unique knowledge and resources (O'Neill et al., 2018; Resick et al., 2014; van Knippenberg et al., 2004). Indeed, meta-analyses have found that task conflict is positively related to team performance in certain contexts (e.g., top-management teams, creativity, decision making; de Wit et al., 2012; O'Neill et al., 2013) and when other types of conflict are low (O'Neill et al., 2018). In contrast, relationship conflict is characterized by perceived interpersonal

incompatibilities among team members, which manifests in relational tension, frustration, anger, and animosity (Jehn & Mannix, 2001). Relationship conflict is generally negatively related to team performance (de Wit et al., 2012; O'Neill et al., 2013) largely because it provokes negative emotions that drain cognitive resources and produces closed-mindedness that inhibits smooth coordination (Peterson & Behfar, 2003).

Drawing from multilevel theory (Kozlowski & Klein, 2000), we position voice as an antecedent to intrateam conflict based on the notion that individual behaviors are the building blocks of shared team perceptions. That is, voice provides the bottom-up inputs that contribute to shared team conflict perceptions, such as when team members make offensive remarks or express provocative ideas that, over repeated interactions, form a shared understanding of a team's conflict experiences (Behfar et al., 2011; DeChurch et al., 2013). Nevertheless, we also recognize the potential for conflict to affect voice, as team members may be more or less likely to speak up as a result of their team's historical conflict experiences. For example, teams with high relationship conflict may also experience low psychological safety, which can motivate members to withhold voice due to relational issues (Edmondson, 1999). Thus, voice and conflict likely exhibit reciprocal relationships with each other (O'Neill & McLarnon, 2018); however, in this manuscript we restrict our propositions to the path from voice to conflict to develop preliminary theory and empirical insights on their relationship¹.

Team Aggregate Voice and Intrateam Conflict

Like kindling for a fire, we propose that voice is related to task conflict because it creates favorable team conditions needed to strike up task-related debates. Teams will be more likely to engage in task conflict when members express more voice because voice introduces fodder in the form of novel opinions and divergent information that enables teams to engage in constructive

debates and information elaboration (Farh et al., 2010; MacKenzie et al., 2011). Although voice may simply be accepted, dismissed, or fall on deaf ears, in which case it does not facilitate deeper information elaboration descriptive of task conflict, the capacity for teams to engage in productive task disagreements will nevertheless be restricted if members rarely express voice. As team voice increases, teams will not only have more information, viewpoints, and ideas to debate, but they will also be more accustomed to communicating different opinions, which further encourages task conflict. Indeed, Liang et al. (2019) and Li et al. (2017) suggested that team voice enhances team functioning largely because of its capacity to stimulate divergent thinking, novel inquiry, and information integration, all of which are core aspects of task conflict (Farh et al., 2010). Similarly, Mackenzie et al. (2011) argued that, up to a point, voice will have a positive effect on team performance because it introduces novel ideas that prompt teams to confront issues and re-evaluate strategies. Together, these arguments imply that, on the whole, teams that express more voice will engage in more task conflict because voice provokes information elaboration and potentially the integration of alternative viewpoints (Burris, 2012; Tjosvold, 1998; van Ginkel & van Knippenberg, 2008). Thus, we propose:

Hypothesis 1a: Aggregate voice is positively related to task conflict.

In contrast, we expect team voice to be negatively related to relationship conflict. Voice is focused on improving collective conditions, not criticizing peoples' ideas, personalities, or values. Teams with higher aggregate levels of voice would also be more accustomed to debating different viewpoints, thereby making them more resilient to a few harsh comments. Voice may actually immunize teams against interpersonal issues by providing opportunities to resolve personal disputes (Harvey, 1974; Morrison & Milliken, 2000) and preventing task issues from spiraling into relationship conflict (Weingart et al., 2015). In contrast, silence may increase

relationship conflict by enabling festering issues to persist, increasing miscommunication, and reducing social cohesion (de Vries et al., 2011; Perlow & Repenning, 2009). Thus, we propose:

Hypothesis 1b: Aggregate voice is negatively related to relationship conflict.

Team Voice Disparity and Intrateam Conflict

Team diversity scholars note that teams characterized by high variability of behaviors tend to experience more conflict, reduced trust, and less social integration as a consequence of unequal contributions or experiences of different team members (Harrison & Klein, 2007). It is challenging for teams to manage variance on behaviors, such as when a few team members contribute much more than others (Liden et al., 2004). Relatedly, research on turn-taking suggests that healthy team communication requires uniform exchanges of speaking turns, in which members talk and listen relatively equally (Pentland, 2012; Woolley et al., 2010). Behfar et al. (2011, p. 136) also identified “overt/dominant” and “subtle/passive” individual behaviors as core indicators of relationship conflict, which implies that teams are prone to experience relationship conflict when one or two members are especially dominant or passive. By extension, we expect that teams with high voice disparity will experience more relational issues as members who speak up a lot become frustrated by other members’ lack of input and engagement, whereas members who rarely voice will feel marginalized by loud members’ constant challenges and attempts to influence the team (Bashshur & Oc, 2015; Lam et al., 2018). Thus, we propose:

Hypothesis 2a: Voice disparity is positively related to relationship conflict.

Alternatively, we expect voice disparity to be negatively related to task conflict because a team’s capacity to debate different ideas and solutions depends on the extent to which each member actively engages in the group by contributing voice. For example, the minority dissent literature suggests that teams are more likely to engage in constructive task-related discussions as

team members increasingly share opinions because exposure to minority viewpoints helps foster divergent discussions (De Dreu et al., 2000). In contrast, research on brainstorming indicates that team creativity is impaired by the presence of one or two dominant members who restrict information sharing, idea integration, and considerations of alternative viewpoints via production blocking, evaluation apprehension, and cognitive inertia mechanisms (Gallupe, et al., 1992; Nunamaker et al., 1991). Altogether, research from related disciplines suggests that teams will achieve stronger performance when members engage in relatively equal communication patterns (Sherf et al., 2018; Woolley et al., 2015; Woolley et al., 2010), presumably because even communication exchanges help the team include various potentially competing perspectives and equal participation in decision making. Thus, we propose:

Hypothesis 2b: Voice disparity is negatively related to task conflict.

The Mediating Effects of Team Conflict on Team Performance and Satisfaction

Studies linking team voice to enhanced team effectiveness generally imply that voice is beneficial because it helps to counteract groupthink, stimulate divergent thinking, increase the repertoire of ideas, provoke thoughtful reflection, and prompt vigilance to potential issues (Ashford et al., 1998; Li et al., 2017; Liang et al., 2019). As these mechanisms are core features of task conflict, the dominant approach therefore implies that voice improves team performance *because it stimulates task conflict*. Task conflict, in turn, has been related to higher team performance, particularly for complex and highly interdependent tasks that require information sharing and extensions among members with various expertise (De Dreu & Weingart, 2003; de Wit et al., 2012; Jehn, 1995).

While task conflict is positively related to team performance in situations where information exchange is critical (e.g., creativity, decision making), it has generally produced

negative effects on team satisfaction (De Dreu & Weingart, 2003; de Wit et al., 2013). However, it is important to clarify that this negative relationship may be artifactual; specifically, Jehn's (1995) measure of task conflict included the term "conflict" in some items, which may have negative connotations for some individuals (Behfar et al., 2011; O'Neill et al., 2018). Behfar et al. (2011) developed a new measure to address this issue by emphasizing the constructive information exchange and elaboration aspects of task conflict, and thus tends to produce the theoretically-expected constructive relationships (O'Neill et al., 2018). In this respect, task conflict should actually improve team satisfaction because it signals that members are actively engaged and participating in information sharing and decision-making processes (Mesmer-Magnus & DeChurch, 2009). Altogether, we propose task conflict as a central mechanism that relates team-level voice to team performance and satisfaction. Specifically, that aggregate team voice is positively related to team performance and satisfaction because it facilitates constructive task conflict, whereas voice disparity is negatively related to these outcomes because it inhibits task-related debates and their associated benefits. In sum, we propose:

Hypothesis 3: Task conflict mediates the positive effects of aggregate voice on (a) team performance and (b) team satisfaction.

Hypothesis 4: Task conflict mediates the negative effects of voice disparity on (a) team performance and (b) team satisfaction.

By contrast, meta-analytic evidence consistently demonstrates that relationship conflict is negatively related to team performance (De Dreu & Weingart, 2003; de Wit et al., 2012; O'Neill et al., 2013) largely because it consumes valuable cognitive and emotional resources. In particular, relationship conflict inhibits information sharing and processing by increasing avoidance behaviors and creating negative emotions that distract from the task (Cronin &

Bezrukova, 2019; O'Neill et al., 2018). It also instils feelings of anger and resentment, which reduces collaborative behavior (Behfar et al., 2011; De Dreu & Weingart, 2003). Stated otherwise, relationship conflict generally harms teams because it generates negative emotions that interfere with task-related processing. Not only does relationship conflict often reduce team performance, but it also tends to decrease team satisfaction (O'Neill et al., 2013). This is not surprising given that relationship conflict involves feelings of resentment and anger among team members (Behfar et al., 2011). Consequently, we propose that relationship conflict also mediates the effects of team-level voice on team satisfaction and performance, but in an inverse pattern relative to task conflict. That is, team aggregate voice has a positive influence on team outcomes because it reduces relationship conflict, whereas voice disparity has a negative influence on team outcomes because it provokes relationship conflict. Thus, we propose:

Hypothesis 5: Relationship conflict mediates the positive effects of aggregate voice on (a) team performance and (b) team satisfaction.

Hypothesis 6: Relationship conflict mediates the negative effects of voice disparity on (a) team performance and (b) team satisfaction.

Method

Participants and Procedures

We tested our model with a sample of 686 full-time undergraduate engineering students, who were randomly divided into 178 three- or four-person teams as part of an intensive semester-long project for a Design and Communications course at a large Canadian university. This interdisciplinary course focused on applying engineering design, communications, project management, and leadership concepts through sequences of team projects. In particular, teams completed five projects over the course of the 13-week semester, which included constructing a

small ‘watercraft’ with limited materials, designing a product accessible to diverse populations (i.e., inclusive design), and designing a Rube Goldberg machine. These teams were self-managed and met every week during their lab sessions, and also coordinated outside of the designated lab time to work on projects. They were graded as a group on all five projects, which were worth 80% of their final lab grade, which permitted objective assessments of team performance.

We administered the survey at Week 7, after teams completed four of five projects, as this allowed for sufficient time and opportunities for team members to engage in task-related discussions and debates, and for interpersonal friction to develop in some teams (Anderson & West, 1998; Gersick, 1991). We assessed variables from different sources to reduce the potential for common method bias (Podsakoff et al., 2003). In particular, we collected objective ratings of team performance from course instructors, voice ratings from peers (peer-referent), and team satisfaction and conflict ratings from individuals, with a team-referent (see Brown et al., 2020).²

Measures

Team Aggregate Voice

We measured team voice by providing participants with a roster listing their teammates and asking them to provide ratings for each teammate (i.e., round-robin with peer-referent) based on three items adapted from Van Dyne and LePine (1998; see also Burris, 2012). These items were “gives suggestions about how to make the team better, even if others disagree,” “challenges the team to deal with problems,” and “speaks up with ideas to address the team’s needs and concerns.” The scale was anchored from 1 (“to no extent”) to 5 (“to a great extent”). We adopted this approach from Liang et al. (2019) because of its sensitivity to differences in individual members’ voice behavior. In particular, we composed *team aggregate voice* by summing team members scores and then dividing it by the total number of team members, which is consistent

with Chan's (1998) additive composition; thus, higher scores indicate greater levels of team voice (Podsakoff et al., 2015).

Team Voice Disparity

Consistent with recommendations for measuring team-level differences or dispersion (Roberson et al., 2007), we operationalized *voice disparity* based on the standard deviation of individual team members' voice scores. Scores ranged from 0, which suggests that each team member contributed equal amounts of voice (i.e., low voice disparity), to 1.56 ($M = .35$), which suggests disproportionate engagement in voice across team members (i.e., high voice disparity).

Task and Relationship Conflict

We measured *task and relationship conflict* with Behfar et al.'s (2011) 3-item and 4-item measures, respectively, by asking team members to report on their perceptions of intrateam conflict, which we then aggregated to the team based on an average (i.e., referent-shift, Chan, 1998). For example, we used the item "to what extent do your team members argue the pros and cons of different opinions?" to measure task conflict, and the item "how much emotional conflict is there among your team members?" to measure relationship conflict. The scales were anchored from 1 ("to no extent") to 5 ("to a great extent").

Team Satisfaction and Performance

We measured *team satisfaction* by adopting five items from Kline's (1999) six-item measure. Example items include "I like working with my team members" and "I prefer working with this team rather than by myself." The scales were anchored from 1 ("strongly disagree") to 5 ("strongly agree"). We averaged team member's ratings to compose team satisfaction at the team-level. We operationalized *team performance* as a weighted average of the final grades assigned to each team for their team assignments, all of which were graded as a team.

Controls

We also controlled for team gender composition, team size, professor, and teaching assistant, as each variable may unduly affect relationships in the model. We controlled for team gender composition because the engineering program was predominately male (74%), and research suggests that men tend to speak up more in teams (Ng et al., 2019). We also controlled for team size because of its potential to heighten process loss (e.g., production blocking), as well as the propensity for idea generation and intrateam conflict (Gallupe et al., 1992). Finally, we controlled for professor ($n = 3$) and teaching assistant ($n = 19$) because of the possibility that team strategies and grades fluctuated depending on the course administrators.

Analysis and Results

Given that we measured voice with round-robin ratings from each team member, we first assessed the appropriateness of aggregating team members' ratings of a focal individual's voice by ensuring that there was sufficient intrateam agreement. ICC and $r_{wg(J)}$ values exceeded suggested cut-offs (James et al., 1984, see Table 2), which implies high levels of within-team agreement, and thus accurate ratings on peer-rated voice. Next, we assessed the appropriateness of aggregating individual perceptions of conflict and team satisfaction to the team-level. Once again, ICC and $r_{wg(J)}$ were significant and exceeded suggested cut-offs. We did not assess aggregation statistics for team aggregate voice because we conceptualized it as an additive construct, which is not expected to converge as a shared perception (Chan, 1998; see also Liang et al., 2019; McClean et al., 2013).

Next, we assessed the model using path-analysis in MPlus 7.0 (Muthen, & Muthen, 2017), which simultaneously estimates the effects of multiple independent and dependent variables; that is, over and above the contrasted conceptualization of voice and conflict. This

approach enables fair comparisons between the countervailing pathways that connect different voice and conflict conceptualizations and operationalizations with team outcomes, which is important due to their mathematical interdependence (Bliese & Halverson, 1998; Cooper & Richardson, 1986). Sample descriptive statistics and correlations are reported in Table 3.

----- Insert Tables 2 and 3 about here -----

We first explored the direct effects of voice on intrateam conflict (Hypotheses 1 and 2). As described in Table 4, results support Hypothesis 1a, 1b, and 2a, as we found team aggregate voice was positively related to task conflict ($\beta = .40, p < .01$) and negatively related to relationship conflict ($\beta = -.15, p < .01$), while voice disparity was positively related to relationship conflict ($\beta = .23, p < .01$). However, we did not find support for Hypothesis 2b, as voice disparity was not related to task conflict ($\beta = .04, n.s.$). Figure 2 contains path coefficients of the proposed model.

Next, we proceeded with testing the mediating propositions, with the exception of Hypothesis 4 given the abovementioned non-significant finding. Results from the bias-corrected bootstrapping procedure for the indirect effect at a 95% confidence interval support Hypotheses 3, 5, and 6 as the indirect effect excluded zero for all six pathways (See Table 5). In particular, we found that task conflict mediated the effects of team aggregate voice on team performance (H3a; CIs [0.34, 0.95]) and team satisfaction (H3b; CIs [0.08, 0.15]), while relationship conflict mediated the effects of team aggregate voice on team performance (H5a; CIs [0.10, 0.38]) and team satisfaction (H5b; CIs [0.04, 0.12]), as well as voice disparity on team performance (H6a; CIs [-1.13, -0.38]) and team satisfaction (H6b; CIs [-0.33, -0.16]). Altogether, these results suggest that team aggregate voice and voice disparity influence team outcomes in distinctive ways because of their unique effects on task versus relationship conflict.

----- Insert Tables 4 and 5, and Figure 2 about here -----

Discussion

In her influential review of the voice literature, Morrison (2011, p. 401) asked “are there differences between a group where voice is evenly distributed across members (i.e., all members displaying relatively similar amounts of voice behavior) and a group with high within-group variance (i.e., a few vocal members with the remaining members not voicing very much)?” Our study addresses this question as we found that teams with high voice disparity experienced more relationship conflict and, consequently, lower performance and team satisfaction, compared to teams with low voice disparity. In contrast, we found that teams with high aggregate levels of voice experienced more task conflict and less relationship conflict and, as a result, achieved higher performance and were more satisfied than teams with low aggregate levels of voice. In sum, it appears that the extent to which voice is evenly distributed within a team is a theoretically and empirically meaningful construct, distinct from how much individual team members speak up; thus, a comprehensive understanding of voice in teams should consider both compositional and compilational forms (Kozlowski & Klein, 2000).

Theoretical Implications

This manuscript offers several important contributions to the voice, conflict, and broader teams literatures. First, we advance research by conceptualizing team voice disparity as the extent to which voice is unevenly communicated by different team members, thereby responding to several calls in the voice literature for alternative conceptualizations of team-level voice that account for intrateam differences (e.g., Guzman & Espejo, 2019; Liang et al., 2018; Morrison, 2011). According to multilevel theory (Kozlowski & Klein, 2000, p. 52), “emergence based on isomorphism may well be the exception rather than the rule”; yet, aggregate constructs still

dominate the teams literature, including the emerging paradigm on team-level voice. General calls about teams scholars fixation on composition and the omission of compilation constructs are plentiful (e.g., DeRue et al., 2010; Loignon et al., 2019; Meade & Eby, 2007). Examining voice disparity enables scholars to capture a richer range of voice experiences in teams because it reflects the potential reality that some team members invariably speak up more than others. In contrast, a strict focus on team aggregate voice, which is based on assumptions of isomorphism, has limited potential to advance our understanding of voice beyond the individual-level paradigm because it ignores differences between team members, even though such differences makes voice unique to teams (Harrison & Klein, 2007; Kozlowski & Klein, 2000; Loignon et al., 2019).

Moreover, our results demonstrate that voice disparity offers empirical utility on voice outcomes beyond aggregate voice. Not only was voice disparity only moderately correlated with aggregate voice ($r = -.31$), these constructs exhibited opposing relationships with team conflict, performance, and satisfaction, such that voice disparity was negatively related to these outcomes, whereas aggregate voice exhibited positive relationships. These findings suggest that voice can actually impair team functioning when unevenly distributed among team members. Although scholars in related disciplines have reported that healthy team communication hinges on having relatively equal distributions of team communication (Pentland, 2012; Woolley et al., 2010), and that teams in which behaviors or opinions are disproportionately dispersed are less cohesive and engage in less information exchange (Crawford & LePine, 2013; Mathieu et al., 2008), this logic had yet to be integrated within the voice literature (Bashshur & Oc, 2015; Lam et al., 2018). Overall, our results demonstrate that considering voice disparity in addition to aggregate voice enables a more complete understanding of how it functions in teams.

At the same time, it is important to note that we did not find support for our hypothesis

linking voice disparity to task conflict. Drawing from the minority dissent and brainstorming literatures, we argued that teams would engage in fewer task-related debates if voice was restricted to just one or two members (i.e., high disparity); however, our results suggest that voice disparity does not significantly affect team members' perceptions of task conflict. We wonder if the distribution of voice within teams simply does not influence a team's capacity to engage in task-related discourse, juxtaposed to aggregate voice which directly affects the number of ideas that team members can discuss and debate. By contrast, perhaps team members who voice much more than others will *perceive* more task conflict than team members who rarely speak up, which can be investigated at the individual-level of analysis. Future research is needed to confirm and theoretically account for these unexpected findings.

Finally, we contribute to research by integrating the voice and conflict literatures. Despite having clear implications for each other, voice and conflict research has thus far been siloed and distinct. This may be because voice has only recently been studied in teams whereas conflict has been discussed in the context of teamwork for a half-century (e.g., Pondy, 1967). Our results reveal that it is too simplistic to assume that voice creates conflict because their relationship varies depending on scholars chosen conceptualization. Specifically, aggregate voice relates to constructive forms of conflict that benefits teams, whereas voice disparity relates to destructive forms of conflict that harms teams. This is an especially important contribution given scant empirical evidence on the mechanisms linking voice with team performance, despite widespread assumptions that voice benefits teams by stimulating divergent discussions (e.g., Li et al., 2017; Liang et al., 2019; Mackenzie et al., 2011). It also expands conflict research by identifying voice as a potentially important antecedent, worthy of further inquiry (O'Neill & McLarnon, 2018).

Practical Implications

Our study also contributes valuable practical insights. Interestingly, it offers a caveat for the assumptions that more voice is always better in teams (cf. Liang et al., 2019), in that voice can be harmful if it comes at the cost of high intrateam disparity. That is, while high levels of aggregate team voice may be related to better team performance and innovation (e.g., Li et al., 2017; Liang et al., 2019), we find that high levels of voice disparity is related to increased interpersonal friction. Thus, our results highlight the importance for employees to develop greater voice-related self-awareness, and to adjust their behaviors to maintain balance of voice and speaking turns (Woolley et al., 2010). They also emphasize the value for managers to actively solicit equal voice opportunities on their team, otherwise some members may dominate group discussions, while others are unable to express voice, thereby limiting divergent opinions and creating conditions for relationship friction. For example, managers can initiate team discussions by asking every member for their input or provide instrumental feedback on the value of listening before talking (Surowiecki, 2005).

Limitations

Despite these contributions, we note several limitations of our research. First, given that we examined student engineering teams, it is unclear how well our findings generalize to the workforce. This sample is more similar to real work teams than typical lab-based student teams because they worked intensively on multiple, complex projects over an extended period of time with significant ramifications on their grades (Greenberg, 1987). Nevertheless, as voice and conflict dynamics may function differently for student teams, future research would benefit from testing these relationships in the field. Second, although we addressed concerns of common method bias by gathering the data from different sources as best we could, we measured team conflict and satisfaction at the same time, with the same source (see Footnote 3); thus, these

paths may be affected by common method bias (Podsakoff et al., 2003). It is important to note that correlations between relationship conflict and team satisfaction ($r = -.53$) are nearly identical to findings from several meta-analyses (e.g., $r = -.54$; De Dreu & Weingart, 2003; $r = -.54$, de Wit et al., 2011), which suggests that our results are in line with previous studies³. As well, common method bias does not explain why aggregate voice and voice disparity, which were measured with the same scale, exhibited different relationships with different types of conflict, which is a primary contribution of our research. We also note several strengths of our research design. Namely, we assessed a large sample of teams who performed similar tasks that required interdependent work and used an objective measure of team performance and round-robin ratings to accurately assess voice.

Third, it is possible that we omitted other potentially important variables, such as process conflict (Behfar et al., 2011) or status conflict (Bendersky & Hayes, 2012), which may have distinct relationships with voice, performance, and satisfaction. It would be particularly valuable to examine the links between voice and status conflict given that status conflict tends to reduce information sharing in teams (Bendersky & Hayes, 2012) and team members can acquire status by speaking up (Weiss & Morrison, 2019). For example, we suspect that voice disparity may trigger status conflict by magnifying team members' differential contributions, whereas aggregate voice can offset status conflict by focusing team members on identifying and solving issues. Finally, despite our critique of mean aggregation, we should note that it is also somewhat simplistic to operationalize voice disparity based solely on standard deviation because this approach overlooks different configurations of voice disparity, such as differences between teams with one dominant versus two semi-dominant voicers (cf. Sinha, et al., 2016). Future research would also benefit from expanding voice disparity to focus on unique patterns in teams.

Future Directions

Despite these limitations, we hope our research inspires novel inquiries on voice and conflict, and specifically more research that considers voice distributions within teams. We encourage teams scholars to continue conceptualizing and examining team-level constructs based on different compilational processes, rather than focusing strictly on mean aggregation. For example, it would be interesting to investigate whether team performance and innovation depends on having at least one strong voice in the team or, alternatively, no members that are completely silent (i.e., minimum/maximum; e.g., Raver et al., 2012). Voice is particularly well-suited for investigations into compilational emergent processes because it is an individual behavior that may be expressed considerably more, less, or equally by different team members, and is often constrained and motivated by specific team contexts (Podsakoff et al., 2015). As the literature on team-level voice matures, we urge scholars to adopt novel conceptualizations and operationalizations to offer a more complete account as to how voice truly functions in teams, thereby extending our knowledge beyond the individual-level paradigm.

Relatedly, we encourage future research to consider the conditions under which voice disparity interacts with aggregate voice to further explain team outcomes. Our research focused on comparing the relative effects of aggregate versus voice disparity because we expected each conceptualization to be distinctly related to task versus relationship conflict. However, building from research on climate strength, we wonder if the positive effects of team aggregate voice are also conditional on voice disparity for certain outcomes and in certain contexts, such that more voice is better for teams but only if it is evenly distributed amongst its members⁴.

We also urge future research to further explore the voice-conflict relationship, such as by examining whether its relationship varies depending on the extent to which teams express

promotive versus prohibitive voice (Liang et al., 2012). For example, while it may seem intuitive that promotive voice generates more constructive forms of conflict than prohibitive voice, it is equally plausible that promotive voice fails to trigger rich task debates altogether, thereby offering fewer advantages to teams. We also encourage future research to examine this relationship over time, thereby elucidating the dynamic, reciprocal relationship between voice and conflict (O'Neill & McLarnon, 2018). Relatedly, we hope to inspire more research on the antecedents of team conflict or the mediating mechanisms linking team-level voice to team outcomes, as we still know far too little about both.

Finally, future research may also benefit from extending our paradigm to the individual-level by examining the effects of individual voice asymmetry. That is, drawing from conflict research (e.g., Jehn et al., 2010; Wang et al., 2019), scholars could conceptualize *individual voice asymmetry*, based on an individual's voice contributions relative to the rest of their team, and assess its effects juxtaposed to the total amount of voice that individuals express. We expect voice asymmetry would have distinct effects on individual outcomes relative to overall voice levels, similar to the countervailing effects we found in this study. For example, while a team member who expresses a lot of voice may help their team by contributing important information, they may also upset their teammates by hogging all of the airtime.

Conclusion

In sum, there has been a surge of research on team voice over the past several years, which has connected voice to such beneficial team outcomes as enhanced performance (Frazier & Bowler, 2015), innovation (Guzman & Espejo, 2019; Liang et al., 2019), and retention (MacKenzie et al., 2011; McClean et al., 2013). At the same time, this emerging perspective has largely conceptualized voice based on an average of individual team member's contributions,

thereby neglecting potentially meaningful nuance manifested in the extent to which voice is evenly dispersed within a team. Indeed, we demonstrate that operationalizing team voice as disparity – based on the unevenness of voice contributions – yields distinct insights into the effects of team-level voice relative to aggregate voice, and that intrateam conflict explains why these distinct conceptualizations of voice have unique implications for team performance and satisfaction.

¹ We focus on the voice to conflict relationship for several reasons. First, from a multilevel perspective (Kozlowski & Klein, 2000), bottom-up processes and behaviors (e.g., voice) give rise to shared perceptions. Second, substantial new theory is needed to support the rationale for both directions and we did not have the scope in the current article, both methodologically and practically in terms of manuscript length, to theorize and test both directions. Third, we felt that the voice to conflict direction was more theoretically rich and interesting to examine, and therefore makes a stronger contribution to theory. Relatedly, a primary motive for this research was to assess a prevailing assumption in the voice literature that voice *provokes* conflict (e.g., Morrison & Milliken, 2000).

² Specifically, voice scores were based on round-robin ratings with peer-referent, conflict and team satisfaction scores were based on mean perceptions with team-referent, and performance involved instructor grades; however, a common survey method was used for the paths linking conflict to team satisfaction. Unfortunately, due to course logistics, we were unable to measure team satisfaction at a separate time point, or collect data on substantive variables that could help rule out common method variance (see Antonakis et al., 2010). Moreover, the Podsakoff et al. (2003) method has been shown to be inappropriate for estimating and controlling for common method variance (Antonakis et al., 2010). Finally, self-report is the dominant method we are aware of for measuring team satisfaction (see meta-analyses, de Wit et al., 2012; O'Neill et al., 2013). However, our correlation matrix offers identical effect sizes for conflict-satisfaction relationships as do the existing meta-analyses. On balance, it is unclear whether the relationships are substantially inflated and thus it appears more beneficial to include the team satisfaction results than to discard them, although we recommend that readers interpret these effects sizes with the common method in mind. We refer readers to the Discussion for further consideration of this.

³ Note, correlations between task conflict and team satisfaction ($r = .31$) differed from prior research (e.g., $r = -.32$; De Dreu & Weingart, 2003; $r = -.24$, de Wit et al., 2011), likely because we used Behfar and colleagues (2011) updated measure for task-conflict which focuses on constructive-oriented discussions, as described earlier in the manuscript.

⁴ Based on anonymous reviewers' feedback, we conducted supplemental analyses to investigate the potential for an interaction in our research but did not observe significant moderation for any of the dependent variables (e.g., Sessions et al., 2019).

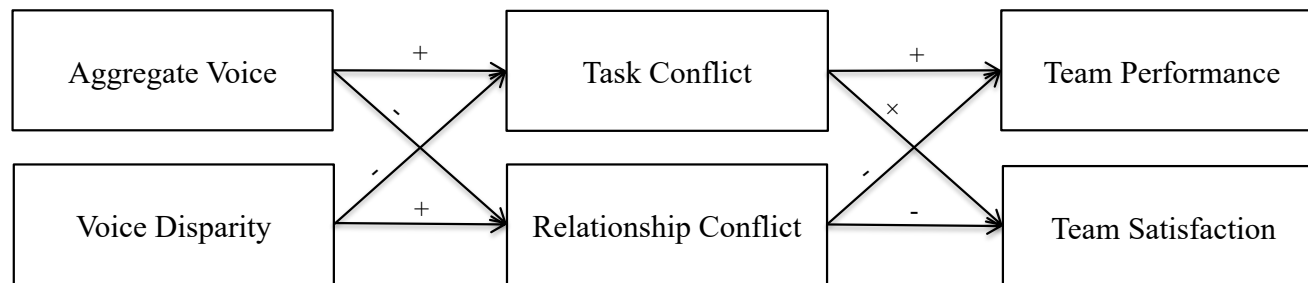
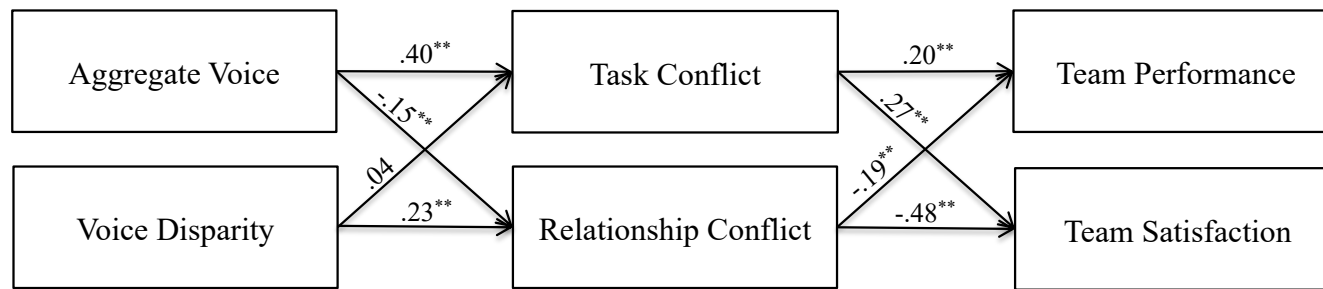
Figure 1*Proposed Mediated-Model*

Figure 2*Path Coefficients of the Proposed Model*

Note. $^{**} p < .01$.

Table 1*A Comparison of Team Aggregate Voice and Voice Disparity*

Construct	Team Aggregate Voice	Voice Disparity
Operationalization	Additive composition	Dispersion composition
Definition	The total amount of voice expressed by the team.	The extent to which voice is unevenly communicated by different team members.
Measurement	Average of each team member's "individual voice" score.	Standard deviation of "individual voice" scores within the team
Meaning at High Levels	A team that frequently expresses voice.	A team in which voice is unevenly expressed within the team (heterogeneous).
Meaning at Low Levels	A team that rarely expresses voice.	A team in which voice is evenly expressed within the team (homogenous).

Table 2*Aggregation Statistics for Team-Level Variables*

Variable	F	$r_{wg(J)}$	ICC(1)	ICC(2)
1. Individual Voice	3.10**	.89	.35	.68
2. Team Task Conflict	2.65**	.79	.30	.62
3. Team Relationship Conflict	3.20**	.79	.36	.69
4. Team Satisfaction	2.48**	.85	.28	.60

Note. $n = 685$. ** $p < .01$.

Table 3*Descriptive Statistics and Correlations*

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Gender	0.26	0.33	-									
2. Teaching Assistant	9.25	5.06	.02	-								
3. Professor	2.02	0.71	.02	.29**	-							
4. Team Size	3.85	0.38	-.03	-.10	-.22**	-						
5. Team Voice	3.89	0.46	.16*	.09	-.04	.00	(0.87)					
6. Voice Disparity	0.35	0.23	-.01	-.15*	.06	-.04	-.31**	(0.87)				
7. Task Conflict	3.78	0.40	-.07	-.18*	-.13	.16*	.36**	-.06	(0.76)			
8. Relationship Conflict	1.75	0.66	.00	-.14	.04	.10	-.22**	.29**	.08	(0.93)		
9. Team Performance	93.86	3.64	.11	-.04	.02	.04	.08	-.16*	.14	-.18*	-	
10. Team Satisfaction	4.13	0.49	.00	.13	.01	.12	.44**	-.32**	.31**	-.53**	.17*	(0.91)

Note. $n = 178$. "SD" = standard deviation. Scale reliabilities are reported on the diagonal in parentheses. * $p < .05$. ** $p < .01$.

Table 4*Direct Relationships of the Overall Countervailing Model*

	Dependent Variable			
	Task Conflict	Relationship Conflict	Team Satisfaction	Team Performance
Gender	-.12**	.03	-.02	.13**
Team Size	.11**	.10**	.14**	.03
Teaching Assistant	-.19**	-.11**	.07*	-.05
Professor	-.03	.07*	.10**	.07
Team Voice	.40**	-.15**	.19**	-.10*
Voice Disparity	.04	.23**	-.09**	-.13**
Task Conflict			.27**	.20**
Relationship Conflict			-.48**	-.19**

Note. $n = 178$. Coefficients are standardized betas. The hypothesized effects are indicated in bold

type. * $p < .05$. ** $p < .01$.

Table 5*Decomposition of Mediation Paths with Confidence Intervals (Hypotheses 3 - 6)*

	Team Performance		Team Satisfaction	
	Team Voice	Voice Disparity	Team Voice	Voice Disparity
Total Effect	.10 [-.55, .74]	-2.65** [-3.78, -1.34]	.40** [.33, .46]	-.40** [-.63, -.23]
Direct Effect	-.75* [-1.49, -.04]	-2.09** [-3.35, -.57]	.21** [.14, .26]	-.19** [-.38, -.05]
Total Indirect Effect	.85* [.54, 1.20]	-.56** [-1.03, -.17]	.19** [.14, .24]	-.21** [-.30, -.13]
Specific Indirect Effect Via:				
Task Conflict	.63** [.34, .95]	.14 [-.02, .36]	.11** [.08, .15]	.03 [-.01, .06]
Relationship Conflict	.23** [.10, .38]	-.70** [-1.13, -.38]	.08** [.04, .12]	-.24** [-.33, -.16]

Note. $n = 178$. Coefficients are unstandardized betas. The hypothesized effects are indicated in bold type. 95% confidence intervals in parentheses. * $p < .05$. ** $p < .01$.

References

- Anderson, N. R., & West, M. A. (1998). Measuring climate for work group innovation: development and validation of the team climate inventory. *Journal of Organizational Behavior*, 19(3), 235-258. [https://doi.org/10.1002/\(sici\)1099-1379\(199805\)19:3<235::aid-job837>3.3.co;2-3](https://doi.org/10.1002/(sici)1099-1379(199805)19:3<235::aid-job837>3.3.co;2-3)
- Antonakis, J., Bendahan, S., Jacquart, P., & Lalive, R. (2010). On making causal claims: A review and recommendations. *The Leadership Quarterly*, 21(6), 1086-1120. <https://doi.org/10.1016/j.leaqua.2010.10.010>
- Ashford, S. J., Rothbard, N. P., Piderit, S. K., & Dutton, J. E. (1998). Out on a limb: The role of context and impression management in selling gender-equity issues. *Administrative Science Quarterly*, 43(1), 23- 57. <https://doi.org/10.2307/2393590>
- Bashshur, M. R., & Oc, B. (2015). When voice matters: A multilevel review of the impact of voice in organizations. *Journal of Management*, 41(5), 1530-1554. <http://dx.doi.org/10.1177/0149206314558302>
- Behfar, K. J., Mannix, E. A., Peterson, R. S., & Trochim, W. M. (2011). Conflict in small groups: The meaning and consequences of process conflict. *Small Group Research*, 42(2), 127-176. <https://doi.org/10.1177/1046496410389194>
- Bendersky, C., & Hays, N. A. (2012). Status conflict in groups. *Organization Science*, 23(2), 323-340. <http://dx.doi.org/10.1287/orsc.1110.0734>
- Bliese, P. D., & Halverson, R. R. (1998). Group size and measures of group-level properties: An examination of eta-squared and ICC values. *Journal of Management*, 24(2), 157-172. <https://doi.org/10.1177/014920639802400202>

- Brown, M. I., Prewett, M.S., & Grossenbacher, M. A. (2020). Distancing ourselves from geographic dispersion: An examination of perceived virtuality in teams. *Group dynamics: theory, research, and practice. Advance online publication.*
<http://dx.doi.org/10.1037/gdn0000120>
- Burris, E. R. (2012). The risks and rewards of speaking up: Managerial responses to employee voice. *Academy of Management Journal*, 55(4), 851-875.
<http://dx.doi.org/10.5465/amj.2010.0562>
- Chan, D. (1998). Functional relations among constructs in the same content domain at different levels of analysis: A typology of composition models. *Journal of Applied Psychology*, 83, 234-246. <https://doi.org/10.1037//0021-9010.83.2.234>
- Cooper, W. H., & Richardson, A. J. (1986). Unfair comparisons. *Journal of Applied Psychology*, 71(2), 179-184. <https://doi.org/10.1037/0021-9010.71.2.179>
- Crawford, E. R., & LePine, J. A. (2013). A configural theory of team processes: Accounting for the structure of taskwork and teamwork. *Academy of Management Review*, 38(1), 32-48.
<https://doi.org/10.5465/amr.2011.0206>
- Cronin, M., & Bezrukova, K. (2019). Conflict management through the lens of system dynamics. *Academy of Management Annals*, in-press. <https://doi.org/10.5465/annals.2017.0021>
- De Dreu, C. K. W., & Weingart, L. R. (2003). Task versus relationship conflict, team effectiveness, and team member satisfaction: A meta-analysis. *Journal of Applied Psychology*, 88, 741-749. <https://doi.org/10.1037/0021-9010.88.4.741>
- De Dreu, C. K. W., Vries, N. K., Franssen, H., & Altmink, W. M. M. (2000). Minority dissent in organizations: Factors influencing willingness to dissent. *Journal of Applied Social*

- Psychology*, 30(12), 2451-2466. <https://doi.org/10.1111/j.1559-1816.2000.tb02445.x>
- DeRue, D. S., Hollenbeck, J., Ilgen, D., & Feltz, D. (2010). Efficacy dispersion in teams: Moving beyond agreement and aggregation. *Personnel Psychology*, 63(1), 1-40. <https://doi.org/10.1111/j.1744-6570.2009.01161.x>
- de Vries, G., Jehn, K. A., & Terwel, B. W. (2011). When employees stop talking and start fighting: The detrimental effects of pseudo voice in organizations. *Journal of Business Ethics*, 105(2), 221-230. <https://doi.org/10.1007/s10551-011-0960-4>
- de Wit, F. R. C., Greer, L. L., & Jehn, K. A. (2012). The paradox of intragroup conflict: A meta-analysis. *Journal of Applied Psychology*, 97(2), 360-390. <https://doi.org/10.1037/a0024844>
- DeChurch, L. A., Mesmer-Magnus, J. R., & Doty, D. (2013). Moving beyond relationship and task conflict: Toward a process-state perspective. *Journal of Applied Psychology*, 98(4), 559-578. <https://doi.org/10.1037/a0032896>
- Detert, J. R., & Edmondson, A. C. (2011). Implicit voice theories: Taken-for-granted rules of self-censorship at work. *Academy of Management Journal*, 54(3), 461-488. <http://dx.doi.org/10.5465/AMJ.2011.61967925>
- Edmondson, A. C. (1999). Psychological safety and learning behavior in work teams. *Administrative Science Quarterly*, 44(2), 350-383. <https://doi.org/10.2307/2666999>
- Farh, C. I., & Chen, G. (2018). Leadership and member voice in action teams: Test of a dynamic phase model. *Journal of Applied Psychology*, 103(1), 97-110. <http://dx.doi.org/10.1037/apl0000256>
- Farh, C. I. C., Oh, J. K., Hollenbeck, J. R., Yu, A., Lee, S. M., & King, D. D. (2019). Token

female voice enactment in traditionally male-dominated teams: Facilitating conditions and consequences for performance. *Academy of Management Journal*.

<https://doi.org/10.5465/amj.2017.0778>

Farh, J-L., Lee, C., & Farh, C. I. C. (2010). Task conflict and team creativity: A question of how much and when. *Journal of Applied Psychology*, 95(6), 1173-1180.

<https://doi.org/10.1037/a0020015>

Frazier, M. L., & Bowler, W. M. (2015). Voice climate, supervisor undermining, and work outcomes: A group-level examination. *Journal of Management*, 41(3), 841-863.

<https://doi.org/10.1177/0149206311434533>

Gallupe, R. B., Dennis, A. R., Cooper, W. H., Valacich, J. S., Bastianutti, L. M., Nunamaker, J.

F. (1992). Electronic brainstorming and group size. *Academy of Management Journal*, 35(2), 350-369. <https://doi.org/10.5465/256377>

Gersick, C. J. G. (1991). Revolutionary change theories: A multilevel exploration of the punctuated equilibrium paradigm. *Academy of Management Review*, 16(1), 10-36.

<https://doi.org/10.2307/258605>

González-Romá, V., Peiró, J. M., & Tordera, N. (2002). An examination of the antecedents and moderator influences of climate strength. *Journal of Applied Psychology*, 87(3), 465-473.

<https://doi.org/10.1037//0021-9010.87.3.465>

Grant, A. M. (2013). Rocking the boat but keeping it steady: The role of emotion regulation in employee voice. *Academy of Management Journal*, 56(6), 703-1723.

<http://dx.doi.org/10.5465/amj.2011.0035>

Greenberg, J. (1987). The college sophomore as guinea pig: Setting the record straight. *Academy*

- of Management Review*, 12(1), 157-159. <https://doi.org/10.5465/AMR.1987.4306516>
- Guzman, F. A., & Espejo, A. (2019). Introducing changes at work: How voice behavior relates to management innovation. *Journal of Organizational Behavior*, 40(1), 73-90.
<https://doi.org/10.1002/job.2319>
- Harrison, D. A., & Klein, K. J. (2007). What's the difference? diversity constructs as separation, variety, or disparity in organizations. *Academy of Management Review*, 32(4), 1199-1228.
<https://doi.org/10.5465/amr.2007.26586096>
- Harvey, J. B. (1974). The abilene paradox: The management of agreement. *Organizational Dynamics*, 3(1), 63-80. [https://doi.org/10.1016/0090-2616\(74\)90005-9](https://doi.org/10.1016/0090-2616(74)90005-9)
- James, L. R., Demaree, R. G., & Wolf, G. (1984). Estimating within group interrater reliability with and without response bias. *Journal of Applied Psychology*, 69(1), 85-98.
<http://dx.doi.org/10.1037/0021-9010.69.1.85>
- Jehn, K. A., & Mannix, E. A. (2001). The dynamic nature of conflict: A longitudinal study of Intragroup conflict and group performance. *Academy of Management Journal*, 44(2), 238-251. <https://doi.org/10.5465/3069453>
- Jehn, K. A. (1995). A multimethod examination of the benefits and detriments of intragroup conflict. *Administrative Science Quarterly*, 40, 256-282. <https://doi.org/10.2307/2393638>
- Jehn, K. A., Rispens, S., & Thatcher, S. M. B. (2010). The effects of conflict asymmetry on work group and individual outcomes. *Academy of Management Journal*, 53(3), 596-616. <https://doi.org/10.5465/amj.2010.51468978>
- Kline, T. (1999). *Remaking teams: The revolutionary research-based guide that puts theory into practice*. Jossey-Bass.

- Kozlowski, S. W. J., & Klein, K. J. (2000). A multilevel approach to theory and research in organizations: Contextual, temporal, and emergent processes. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel, theory, research, and methods in organizations: Foundations, extensions, and new directions* (pp. 3-90). Jossey-Bass.
- Lam, C-F., Rees, L., Levesque, L. L., & Ornstein, S. (2018). Shooting from the hip: A habit perspective of voice. *Academy of Management Review*, 43(3), 470-486.
<https://doi.org/10.5465/amr.2015.0366>
- Li, A. N., Liao, H., Tangirala, S., & Firth, B. M. (2017). The content of the message matters: The differential effects of promotive and prohibitive team voice on team productivity and safety performance gains. *Journal of Applied Psychology*, 102(8), 1259-1270.
<https://doi.org/10.1037/apl0000215>
- Liang, J., Farh, C., & Farh, L. (2012). Psychological antecedents of promotive and prohibitive voice: A two-wave examination. *Academy of Management Journal*, 55(1), 71-92.
<http://dx.doi.org/10.5465/amj.2010.0176>
- Liang, J., Shu, R., & Farh, C. I. C. (2019). Differential implications of team member promotive and prohibitive voice on innovation performance in research and development project teams: A dialectic perspective. *Journal of Organizational Behavior*, 40(1), 91-104. <https://doi.org/10.1002/job.2325>
- Liden, R. C., Wayne, S. J., Jaworski, R. A., & Bennett, N. (2004). Social loafing: A field investigation. *Journal of Management*, 30(2), 285-304.
<https://doi.org/10.1016/j.jm.2003.02.002>
- Loignon, A. C., Woehr, D. J., Loughry, M. L., & Ohland, M. W. (2019). Elaborating on team-

- member disagreement: Examining patterned dispersion in team-level constructs. *Group & Organization Management*, 44(1), 165-210. <https://doi.org/10.1177/1059601118776750>
- MacKenzie, S. B., Podsakoff, P. M., & Podsakoff, N. P. (2011). Challenge-oriented organizational citizenship behaviors and organizational effectiveness: Do challenge-oriented behaviors really have an impact on the organization's bottom line? *Personnel Psychology*, 64(3), 559-592. <http://dx.doi.org/10.1111/j.1744-6570.2011.01219.x>
- Mathieu, J., Maynard, M. T., Rapp, T., & Gilson, L. (2008). Team effectiveness 1997-2007: A review of recent advancements and a glimpse into the future. *Journal of Management*, 34(3), 410-476. <https://doi.org/10.1177/0149206308316061>
- Maydeu-Olivares, A., Shi, D., & Fairchild, A. J. (2019). Estimating causal effects in linear regression models with observational data: The instrumental variables regression model. *Psychological Methods*, 25(2), 243-258. <https://doi.org/10.1037/met0000226>
- McClean, E. J., Burris, E. R., & Detert, J. R. (2013). When does voice lead to exit? It depends on leadership. *Academy of Management Journal*, 56(2), 525-548. <http://dx.doi.org/10.5465/amj.2011.0041>
- Meade, A. W., & Eby, L. T. (2007). Using indices of group agreement in multilevel construct validation. *Organizational Research Methods*, 10(1), 75-96. <https://doi.org/10.1177/1094428106289390>
- Mesmer-Magnus, J. R., & DeChurch, L. A. (2009). Information sharing and team performance: A meta-analysis. *Journal of Applied Psychology*, 94(2), 535-546. <https://doi.org/10.1037/a0013773>
- Morrison, E. W., & Milliken, F. J. (2000). Organizational silence: A barrier to change and

development in a pluralistic world. *Academy of Management Review*, 25(4), 706-725.

<https://doi.org/10.5465/amr.2000.3707697>

Morrison, E. W. (2011). Employee voice behavior: Integration and directions for future research.

Academy of Management Annals, 5(1), 373-412.

<http://dx.doi.org/10.1080/19416520.2011.574506>

Morrison, E. W. (2014). Employee voice and silence. *The Annual Review of Organizational*

Psychology and Organizational Behavior, 1, 173-197. [http://dx.doi.org/10.1146/annurev-](http://dx.doi.org/10.1146/annurev-orgpsych-031413-091328)

[orgpsych-031413-091328](http://dx.doi.org/10.1146/annurev-orgpsych-031413-091328)

Muthen, L. K., & Muthen, B. O. (2017). Mplus user's guide. Eighth. *Muthén & Muthén*.

Ng, K-Y, Van Dyne, L., & Ang, S. (2019). Speaking out and speaking up in multicultural

settings: A two-study examination of cultural intelligence and voice behavior.

Organizational Behavior and Human Decision Processes, 151, 150-159.

<https://doi.org/10.1016/j.obhdp.2018.10.005>

Nunamaker, J. F., Dennis, A. R., Valacich, J. S., Vogel, D., & George, J. F. (1991). Electronic

meeting systems. *Communications of the ACM*, 34(7), 40-61.

<https://doi.org/10.1145/105783.105793>

O'Neill, T. A., Allen, N. J., & Hastings, S. E. (2013). Examining the “pros” and “cons” of team

conflict: A team-level meta-analysis of task, relationship, and process conflict. *Human*

Performance, 26(3), 236-260. <https://doi.org/10.1080/08959285.2013.795573>

O'Neill, T. A., McLarnon, M. J. W., Hoffart, G. C., Woodley, H. J. R., & Allen, N. J. (2018).

The structure and function of team conflict state profiles. *Journal of Management*, 44(2),

811-836. <https://doi.org/10.1177/0149206315581662>

- O'Neill, T. A., & McLarnon, M. J. W. (2018). Optimizing team conflict dynamics for high performance teamwork. *Human Resource Management Review*, 28(4), 378-394.
<https://doi.org/10.1016/j.hrmr.2017.06.002>
- Park, G., Spitzmuller, M., & DeShon, R. P. (2013). Advancing our understanding of team motivation: Integrating conceptual approaches and content areas. *Journal of Management*, 39(5), 1339-1379. <https://doi.org/10.1177/0149206312471389>
- Pentland, A. (2012). The new science of building great teams. *Harvard Business Review*, 90(4), 60-70.
- Perlow, L. A., & Repenning, N. P. (2009). The dynamics of silencing conflict. *Research in Organizational Behavior*, 29, 195-223. <https://doi.org/10.1016/j.riob.2009.06.007>
- Peterson, R. S., & Behfar, K. J. (2003). The dynamic relationship between performance feedback, trust, and conflict in groups: A longitudinal study. *Organizational Behavior and Human Decision Processes*, 92(1-2), 102-112. [https://doi.org/10.1016/s0749-5978\(03\)00090-6](https://doi.org/10.1016/s0749-5978(03)00090-6)
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879-903. <http://dx.doi.org/10.1037/0021-9010.88.5.879>
- Podsakoff, N. P., Maynes, T. D., Whiting, S. W., & Podsakoff, P. M. (2015). One (rating) from many (observations): Factors affecting the individual assessment of voice behavior in groups. *Journal of Applied Psychology*, 100(4), 1189-1202.
<https://doi.org/10.1037/a0038479>
- Pondy, L.R. 1967. Organizational conflict: Concepts and models. *Administrative Science*

Quarterly, 12: 296–320. <https://doi.org/10.2307/2391553>

- Raver, J. L., Ehrhart, M. G., & Chadwick, I. C. (2012). The emergence of team helping norms: Foundations within members' attributes and behavior. *Journal of Organizational Behavior*, 33(5), 616-637. <https://doi.org/10.1002/job.772>
- Resick, C. J., Murase, T., Randall, K. R., & DeChurch, L. A. (2014). Information elaboration and team performance: Examining the psychological origins and environmental contingencies. *Organizational Behavior and Human Decision Processes*, 124(2), 165-176. <https://doi.org/10.1016/j.obhdp.2014.03.005>
- Roberson, Q. M., Sturman, M. C., & Simons, T. L. (2007). Does the measure of dispersion matter in multilevel research? A comparison of the relative performance of dispersion indexes. *Organizational Research Methods*, 10(4), 564-588. <https://doi.org/10.1177/1094428106294746>
- Sherf, E. N., Sinha, R., Tangirala, S., & Awasty, N. (2018). Centralization of member voice in teams: Its effects on expertise utilization and team performance. *Journal of Applied Psychology*, 103(8), 813-827. <http://dx.doi.org/10.1037/apl0000305>
- Schneider, B., Salvaggio, A. N., & Subirats, M. (2002). Climate strength: a new direction for climate research. *Journal of Applied Psychology*, 87(2), 220–229. <https://doi.org/10.1037/0021-9010.87.2.220>
- Sessions, H., Nahrgang, J. D., Newton, D. W., & Chamberlin, M. (2019). I'm tired of listening: The effects of supervisor appraisals of group voice on supervisor emotional exhaustion and performance. *Journal of Applied Psychology*. <https://doi.org/10.1037/apl0000455>
- Sinha, R., Janardhanan, N. S., Greer, L. L., Conlon, D. E., & Edwards, J. R. (2016). Skewed task

conflicts in teams: What happens when a few members see more conflict than the rest?

Journal of Applied Psychology, 101(7), 1045-1055. <https://doi.org/10.1037/apl0000059>

Surowiecki, J. (2005). *The Wisdom of Crowds*. Doubleday publishing group.

Tjosvold, D. (1998). Cooperative and competitive goal approaches to conflict: Accomplishments and challenges. *Applied Psychology: An International Review*, 47(3), 285-342.

<https://doi.org/10.1111/j.1464-0597.1998.tb00025.x>

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

<http://dx.doi.org/10.2307/256902>

van Ginkel, W. P., & van Knippenberg, D. (2008). Group information elaboration and group decision-making: The role of shared task representations. *Organizational Behavior and Human Decision Processes*, 105, 82-97. <https://doi.org/10.1016/j.obhdp.2007.08.005>

van Knippenberg, D., De Dreu, C. K. W., & Homan, A. C. (2004). Work group diversity and group performance: An integrative model and research agenda. *Journal of Applied Psychology*, 89(6), 1008-1022. <https://doi.org/10.1037/0021-9010.89.6.1008>

Wang, S., Homan, A. C., & Jehn, K. (2019). Individual task conflict asymmetry and peer ratings of member effectiveness. *Small Group Research*.

<https://doi.org/10.1177/1046496419876343>

Weingart, L. R., Behfar, K. J., Bendersky, C., Todorova, G., & Jehn, K. A. (2015). The directness and oppositional intensity of conflict expression. *Academy of Management Review*, 40(2), 235-262. <https://doi.org/10.5465/amr.2013.0124>

Weiss, M., & Morrison, E. (2019) Speaking up and moving up: How voice can enhance

employees' social status. *Journal of Organizational Behavior*, 40, 5–19.

<https://doi.org/10.1002/job.2262>

Woolley, A. W., Aggarwal, I., & Malone, T. W. (2015). Collective intelligence and group performance. *Current Directions in Psychological Science*, 24(6) 420-424.

<https://doi.org/10.1177/0963721415599543>

Woolley, A. W., Chabris, C. F., Pentland, A., Hashmi, N., & Malone, T. W. (2010). Evidence for a collective intelligence factor in the performance of human groups. *Science*, 330(6004),

686-688. <https://doi.org/10.1126/science.1193147>