RESEARCH INSIGHTS

# Psychologically Safe for Some, but Not All?

## *The Downsides of Assuming Shared Psychological Safety among Senior Leadership Teams*

By: Andy Loignon, Ph.D. and Stephanie Wormington, Ph.D.

Center for Creative Leadership

DOI: https://doi.org/10.35613/ccl.2022.2048

CONTENTS

# Executive Summary

*Psychological safety is "a shared belief held by members of a team" (Edmonson, 1999, p. 350).*

*What happens if not every team member holds the same perceptions? How does that relate to team effectiveness?*

Psychological safety—the ability to share ideas, take risks, and solicit feedback without fear of repercussion—is a critical component of team effectiveness (Edmondson, 1999). Teams with greater psychological safety not only tend to perform better, but also engage in behaviors that contribute to greater success and innovation (e.g., information sharing, interpersonal risk-taking, soliciting feedback). Psychological safety is most often described as a shared experience among team members, including in its original definition as a "shared belief held by members of a team" (Edmondson, 1999, p. 350). Teams are characterized as either high or low in psychological safety, assuming that the average experience accurately reflects all team members.

However, teams are not monoliths. Each member brings unique skills, perspectives, and experience to their collective work that shape their interpretation of the workplace. Decades of work on topics such as Direction-Alignment-Commitment (McCauley & Fick-Cooper, 2020) highlight the importance of acknowledging diverse perspectives among team members. Why, then, would we assume that all team members view their environment as equally safe? Only considering team averages of psychological safety may mask individual experiences that might impact the opportunity for teams to reach their full potential.

This Research Insights paper challenges the assumption that team members perceive similar levels of psychological safetyand hypothesizes that different patterns of psychological safety matter for team effectiveness. Using data from 278 intact senior leadership teams, we examined patterns of team members' psychological safety. Results include three key findings:

1. **Senior leadership teams often experience different levels of psychological safety.** In fact, more than half (62%) of senior leadership teams in our sample demonstrated significant variability around their team's psychological safety.
2. **Within-team differences around psychological safety display consistent patterns.** We identified six prototypical patterns of psychological safety among teams, with only one representing a shared view of psychological safety. Other patterns represented dissenting views of greater or less psychological safety.
3. **Patterns of psychological safety matter for team effectiveness.** Teams whose members report greater agreement around psychological safety exhibit some of the highest levels of performance and lowest levels of interpersonal conflict. Conversely, teams whose members experience disproportionately high levels of psychological safety or increasingly discrepant experiences are some of the least effective teams in our sample.

Taken together, results indicate that the layperson's understanding of psychological safety may be more nuanced than usually discussed. Team leaders—particularly those who lead senior teams—may benefit from considering the following points:

- Focus on team members' patterns of psychological safety, not just the overall level
- Consistent psychological safety is not just a "nice to have;" it matters for the bottom line
- One size does not fit all; strategies to develop team psychological safety should match the team's current beliefs

# Introduction

Psychological safety, a shared belief that it is safe to take interpersonal risks in a given context (Edmondson, 1999), is increasingly recognized as a critical component of high-performing teams. Interest in psychological safety has grown exponentially over the past two decades, with Edmondson's (1999) seminal article on the topic cited over 10,000 times and corresponding TedTalk has been widely viewed on YouTube (Edmondson, 2014). Much of this interest can be attributed, at least in part, to evidence suggesting that psychological safety is associated with team effectiveness. A recent meta-analysis of over 130 studies found that psychological safety was significantly associated with team members' learning behaviors, information sharing, and task performance (Frazier, Fainschmidt, Klinger, Pezeshkan, & Vracheva, 2017). The excitement around psychological safety has also permeated into organizations; as evidence, Google concluded that psychological safety is "far and away the most important of [team] dynamics" and underpinned their teams' effectiveness based on results from a large-scale, internal self-study (Rozovsky, 2015).

Interestingly, psychological safety is most often conceptualized as a shared experience among group members. Because group members regularly interact and discuss ideas with one another, while also working within the same broader work environment (Frazier et al., 2017), it is assumed that they will have similar perceptions of how safe it is to take risks within their team. The assumption that psychological safety is consistent across team members is even explicitly stated in Edmonson's (1999) original definition of the term, where it was described as a "shared belief held by members of a team" (p. 350). By assuming that team members experience similar levels of psychological safety, there is often an emphasis on the level of psychological safety for the entire group. In other words, does a team exhibit high or low levels of psychological safety? Overall levels are then, in turn, used to characterize teams and draw conclusions about how psychological safety relates to team effectiveness.

This assumption of consistent psychological safety, however, is only one possible reality. Rather than perceiving similar levels of safety, members may hold

**1,000,000**

***The number of times Edmondson's TedTalk on psychological safety has been viewed.***

divergent views of psychological safety within their team. Team members may have encountered different workplace experiences or interactions with their team leader, which could then contribute to diverging levels of psychological safety (Afsharian, Zadow, Dollard, Dormann, & Ziaian, 2018). Likewise, teams may not have interacted long enough to cultivate a shared perspective of their team. In fact, a recent study found that team members who had worked together for less than one and a half years experienced different levels of psychological safety, which ultimately inhibited team performance (Koopmann, Lanaj, Wang, Zhou, & Shi, 2016). In the case of differing perspectives, focusing solely on the average rating of psychological safety may not accurately reflect each group members' personal experience. It may also obfuscate important differences between teams.

For example, consider one team where all members feel a moderate amount of psychological safety. Now, consider another team where half of the members feel very high levels of psychological safety and the other half feel very low levels of psychological safety. These teams would show the same average level of moderate psychological safety. However, how members of those teams operate is likely to be meaningfully different. To illustrate, consider how these two teams may participate in an after-action review for an important project. All members of the team with moderate psychological safety might be expected to engage in the conversation at similar levels, displaying some risk-taking in naming challenges with the project and modest amount of creative problem solving for what to change in future projects. Although there are likely perspectives and ideas that are not shared, the dynamic among the team is shared and equitable because everyone is participating at similar levels in the conversation. By contrast, members of the second team—who are split between high and low perceptions of psychological safety—might be expected to show disparate levels of engagement, risk-taking, and creativity in the conversation. Team members who perceive high psychological safety may freely share challenges of the project, brainstorm creative solutions for improving future projects, and ask one another for help determining next steps. Members who perceive low psychological safety, on the other hand, might appear disengaged from the conversation since they do not feel as free to take risks, think creatively, or ask for help. This bifurcation could result in disproportionate input, lost perspectives, and lower feelings of inclusion. There may even be more conflict among team members as a result of their different actions and perceptions. Finally, discrepant perceptions may even impact perceptions of the team leader, with respect to how they moderate discussions or their own level of engagement and psychological safety. In this paper, we explore four different indicators of team effectiveness expected to be related to psychological safety: performance, task conflict, relationship conflict, and respect for the team leader.

## Exploring Forms and Patterns of Difference

If psychological safety is not always a shared experience, how might we understand diverging perspectives? Researchers have proposed several distinct forms of difference to consider in understanding diverging perspectives: divergence, symmetry, and extreme scores (cf., DeRue, Hollenbeck, Ilgen, & Feltz, 2010; Gonzalez-Roma & Hernandez, 2014; Li & Liao, 2014; Loignon, Woehr, Loughry, & Ohland, 2019). Each element captures distinct ways in which team members' views of psychological safety may look different from one another.

**Divergence** (measured by standard deviation) characterizes the absolute magnitude, or spread, of team members' ratings (e.g., Koopmann et al., 2016). Teams with high divergence would have team members providing both high and low ratings, while teams with low divergence would have team members providing similar ratings to one another.

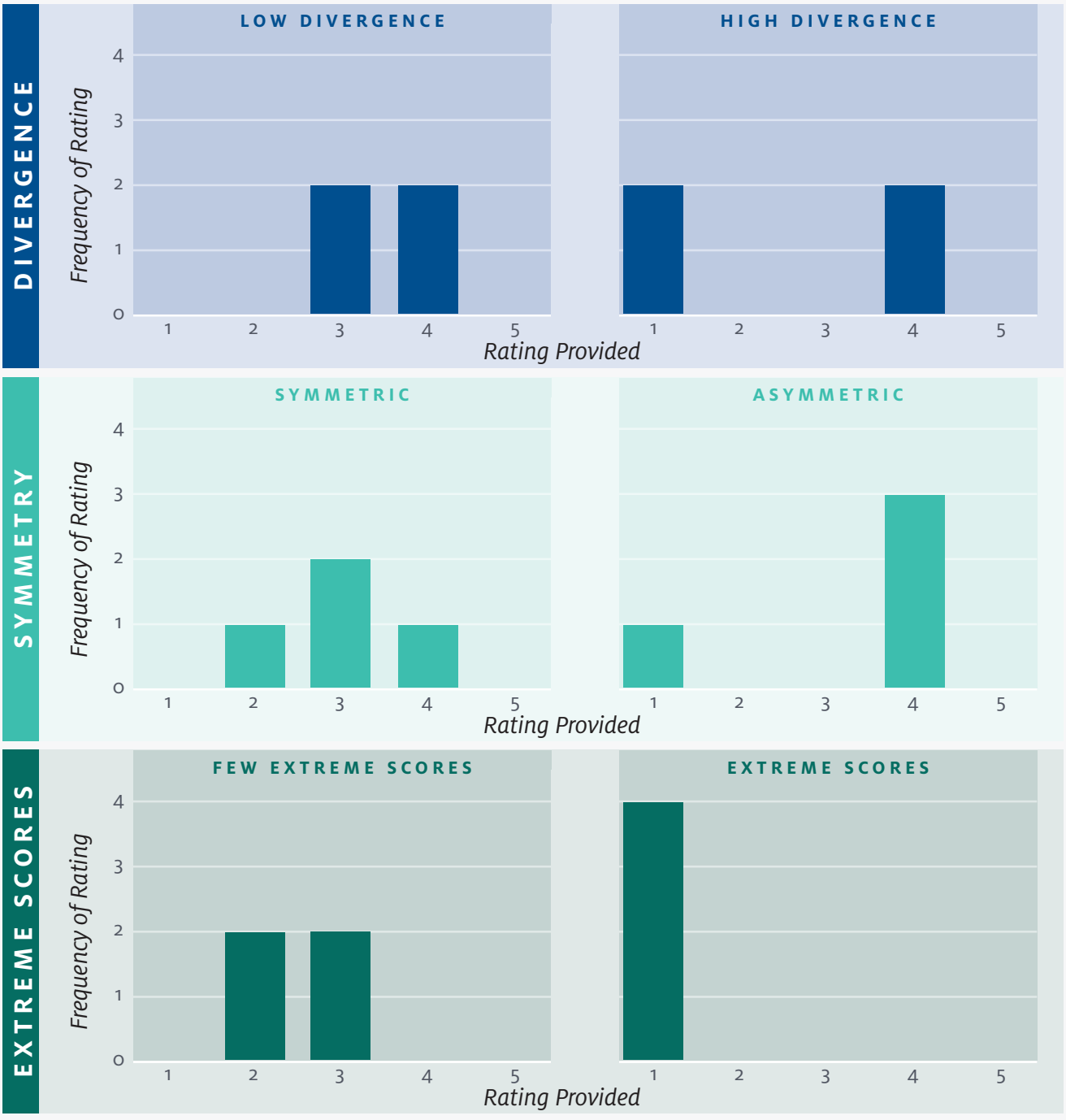
**Symmetry** (measured by skewness) examines the proportion of group members with different perspectives from the majority view (cf., Sinha, Janardhanan, Greer, Conlon, & Edwards, 2016). Teams with low symmetry would have most team members rating psychological safety similarly, with a small proportions of members providing a different rating. Teams with high symmetry would have larger proportions of team members providing dissenting views, or at the extreme no majority view at all.

**Extreme scores** (measured by kurtosis) represents the proportion of team members reporting extreme levels of psychological safety (i.e., exceptionally low or high) compared to the rest of the team. Teams with few extreme scores do not show evidence of members with extremely high or extremely low feelings of psychological safety. Teams with more extreme scores, conversely, display strongly polarized views of psychological safety among some team members.

Divergence, symmetry, and extreme scores each provide a unique angle from which to understand within-team differences in psychological safety (see Figure, following page). Rather than relying on one to the exclusion of the others, examining them in tandem can capture a more nuanced, holistic picture of difference. In other words, researchers can explore the patterns of divergence, symmetry, and kurtosis to help characterize prototypical team experiences of psychological safety.

**FIGURE 1**

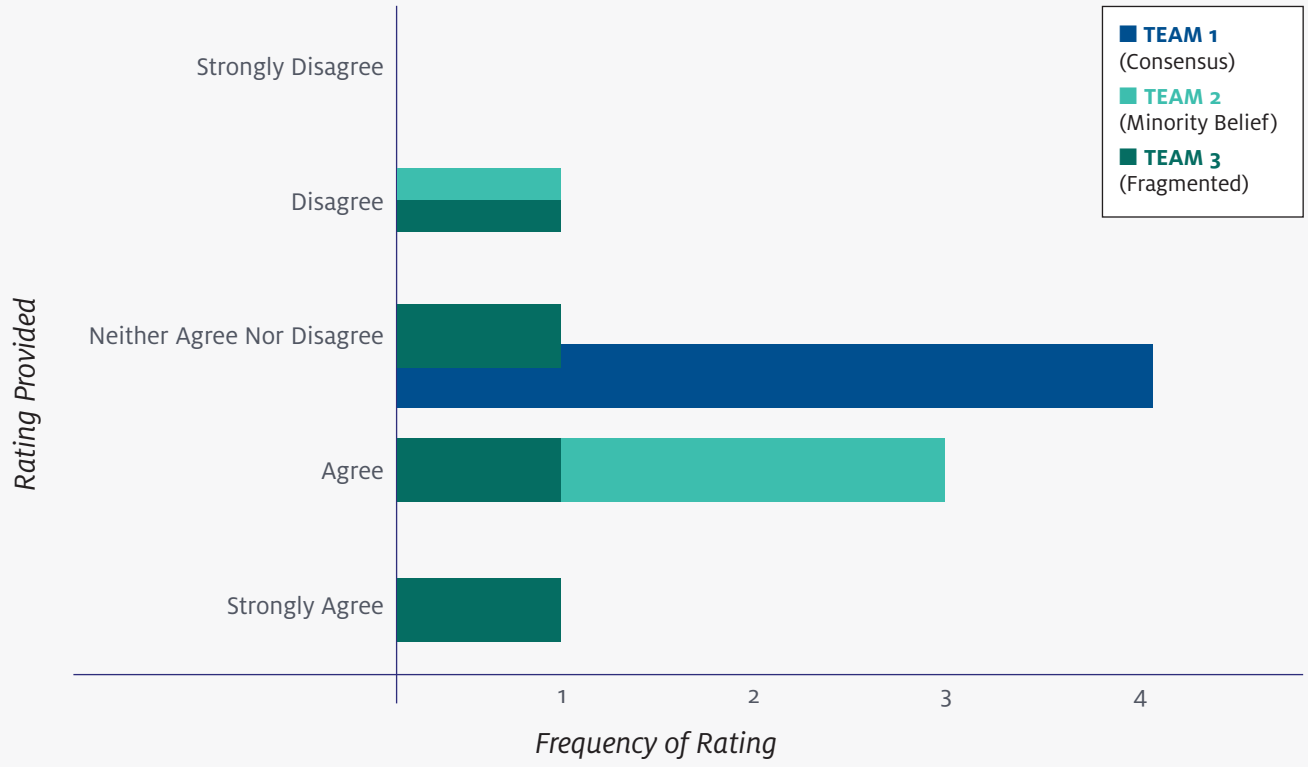
*Examples of high and low levels of divergence, symmetry, and extreme scores.*



To briefly demonstrate the benefit of identifying *patterns*, consider three hypothetical teams with 4 team members each. Each of these teams experience the same average level of psychological safety (3.25 on a 5-point scale, or Moderately Agree). However, they demonstrate different patterns of difference in divergence, symmetry, and extreme scores. Team 1 (left panel) corresponds with the prevailing view of psychological safety as a shared experience (Edmondson, 1999; Frazier et al., 2017). In this team, all four group members report slightly above average levels of psychological safety. This pattern represents general *Consensus* on the level of psychological safety. Team 2 (middle panel) shows three team members in agreement and one team member experiencing uniquely low levels of psychological safety. This pattern represents a *Minority Belief*, with symmetry and extreme scores capturing team member differences. Team 3 (right panel) represents a team with very little consensus regarding the level of psychological safety (i.e., each member provides a different value). This pattern represents a *Fragmented* view of psychological safety, with high divergence characterizing team member differences. Despite equivalent average scores, the experiences of each team as a whole and individual team members is likely to vary. One goal of this study was to identify what common patterns emerged, and how they impact team effectiveness.

**FIGURE 2**

*Examples of Different Prototypical Forms of Psychological Safety within Teams*




Note. All three prototypes feature the same level of psychological safety (within-team average = 3.25, within-team median= 3.5). Likewise, the mere strength of the psychological safety is quite comparable for the minority belief and fragmented prototypes (SD = 1.00 vs. 1.29, respectively).

## Psychological Safety Among Senior Leadership Teams

Although important at all leader levels, patterns of psychological safety take on particular significance among senior leadership teams (Hollenbeck, Beersma, & Schouten, 2012; Wildman et al., 2012). Senior leadership teams are regularly confronted with competitive, dynamic, and turbulent environments. One need only peruse the headlines within a newspaper or skim the titles in their newsfeed to quickly appreciate the challenges many senior leaders face (e.g., economic headwinds, staffing challenges and labor shortages, political turmoil, climate change). To navigate such environments, firms need their senior leadership teams to be not only performing but *thriving* (Amason, 1996; Carpenter, Geletkanycz, & Sanders, 2004; Certo, Lester, Dalton, & Dalton, 2006; Nielsen, 2010). In fact, the activities of the senior leadership team is not without consequence as what occurs among this group has direct implications for subsequent firm performance (Hambrick, 2007; Hambrick & Mason, 1984).

## The Current Study

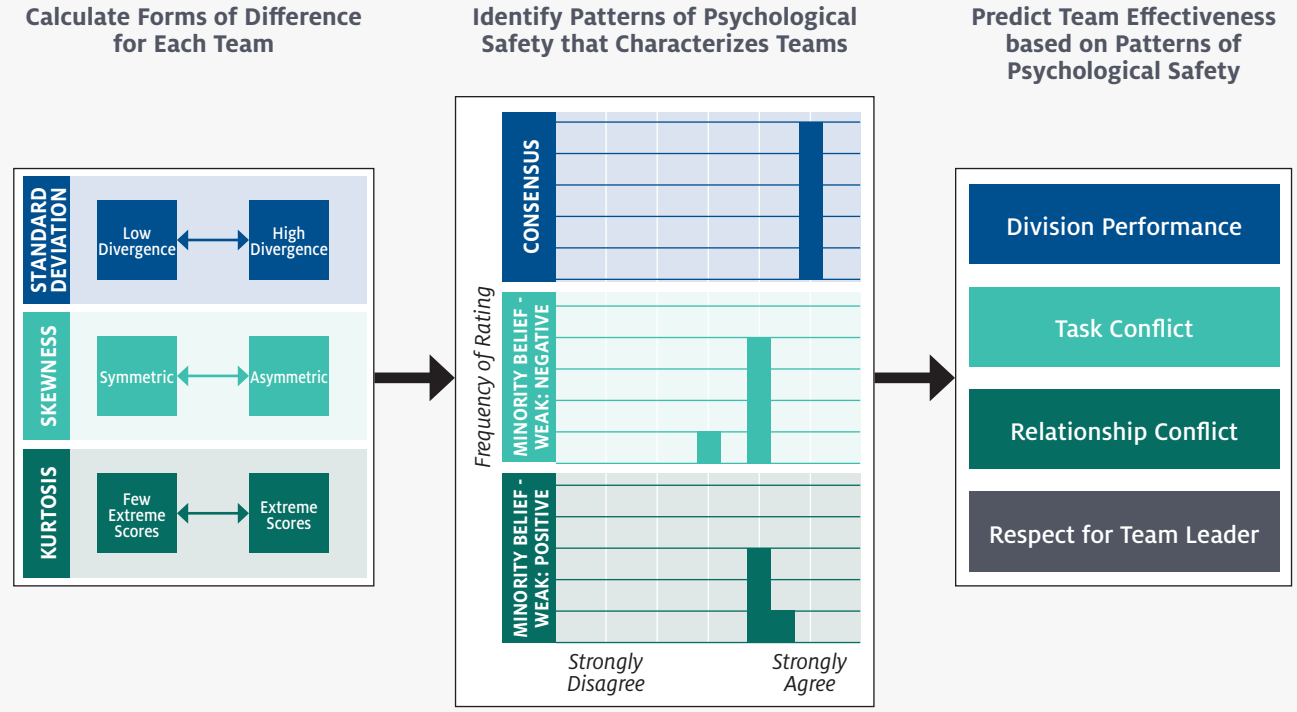
The following research questions guided this study:

1. To what extent do members of senior leadership teams perceive similar levels of psychological safety within their team?
2. If senior leadership teams perceive different levels of psychological safety, do these disagreements occur in a systematic fashion? And what are the patterns of disagreement?
3. Do patterns of psychological safety relate to team effectiveness?

An overview of our study is provided in Figure 3 below.

**FIGURE 3**

*Overview of study*



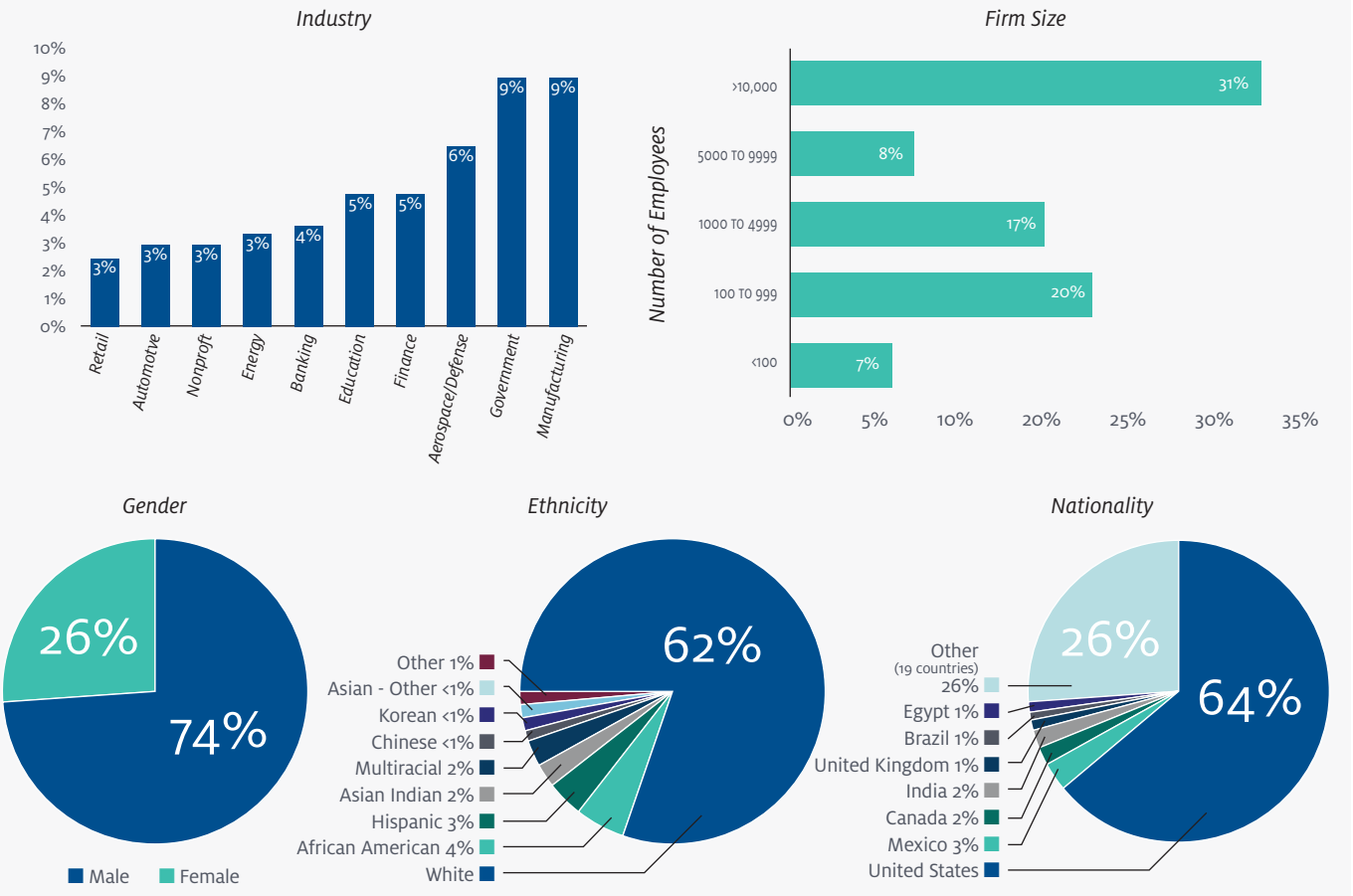
# Research Methods and Analyses

## Sample

Data were drawn from 278 senior leaders attending CCL's Leadership at the Peak (LAP) program in the United States. This five-day program is designed specifically for senior executives and features in-depth feedback, hands-on exercises, assessments, and one-on-one executive coaching. Leaders completed the program between August 2019 and February 2022. The senior leaders in this study represent a diverse set of business sectors and leadership experiences (see Figure 4 below). The organizations of these leaders are from 28 different industries – the most common being manufacturing (*n* =25), government or public sector (*n* = 25), and aerospace and defense (*n* =18). Organizations ranged in size from fewer than 100 employees to more than 10,000 employees, and the average senior leadership team consisted of 7 members (*M* = 7.23, *SD* = 2.42). Team leaders ranged from 33 to 64 years old (average age = 50.79, *SD* = 6.39), were born in 27 different countries, and had worked for their current organization for, on average,13 years (average tenure = 13.71 years, *SD* = 11.19). Most of the leaders identified as male (73%), held graduate degrees (67%), and self-identified as white (83%).

**FIGURE 4**

*Characteristics of Study Sample*



## Measures: Understanding Team Vantage

As part of their experience in Leadership at the Peak (LAP), senior leaders completed CCL's TeamVantage assessment. TeamVantage provides leaders with insight into the health and performance of their senior leadership teams (i.e., cohesive group of direct reports, with the LAP participant serving as the team leader) by capturing three distinct perspectives: the entire team, the individual members of the team, and the network connections within the team. Team leaders identified members of an intact team of direct reports that they led to participate, who were then invited to complete the instrument. Senior leaders reviewed the results of their assessment with the support of a trained facilitator and coach.

**Psychological safety.** Senior leaders and their direct reports completed Edmondson's (1999) 7-item measure of psychological safety using a 5-point scale ranging from 1 *(strongly disagree)* to 5 *(strongly agree)*. Sample items include, "Members of this team are able to bring up problems and tough issues." and "It is safe to take a risk in this team."

**Team effectiveness.** To provide a rich portrait of team effectiveness, we considered several outcomes that contribute to a team's success (Hackman, 1987): division performance, relationship conflict, and respect for team leader. Each measure was rated by all team members on a scale of 1 *(strongly disagree)* to 5 *(strongly agree)*. After ensuring that there was sufficient agreement within teams and differences between teams (see Appendix B), we averaged across each team member's evaluation to create a single score for the entire team.

> ***Division performance.*** A critical consideration for any team is whether it is meeting their objectives (Hackman, 1987). Thus, we examined division performance as one indicator of team effectiveness. Sample item items include, "Overall, the division/function is effective." And "The division/function is achieving its goals."

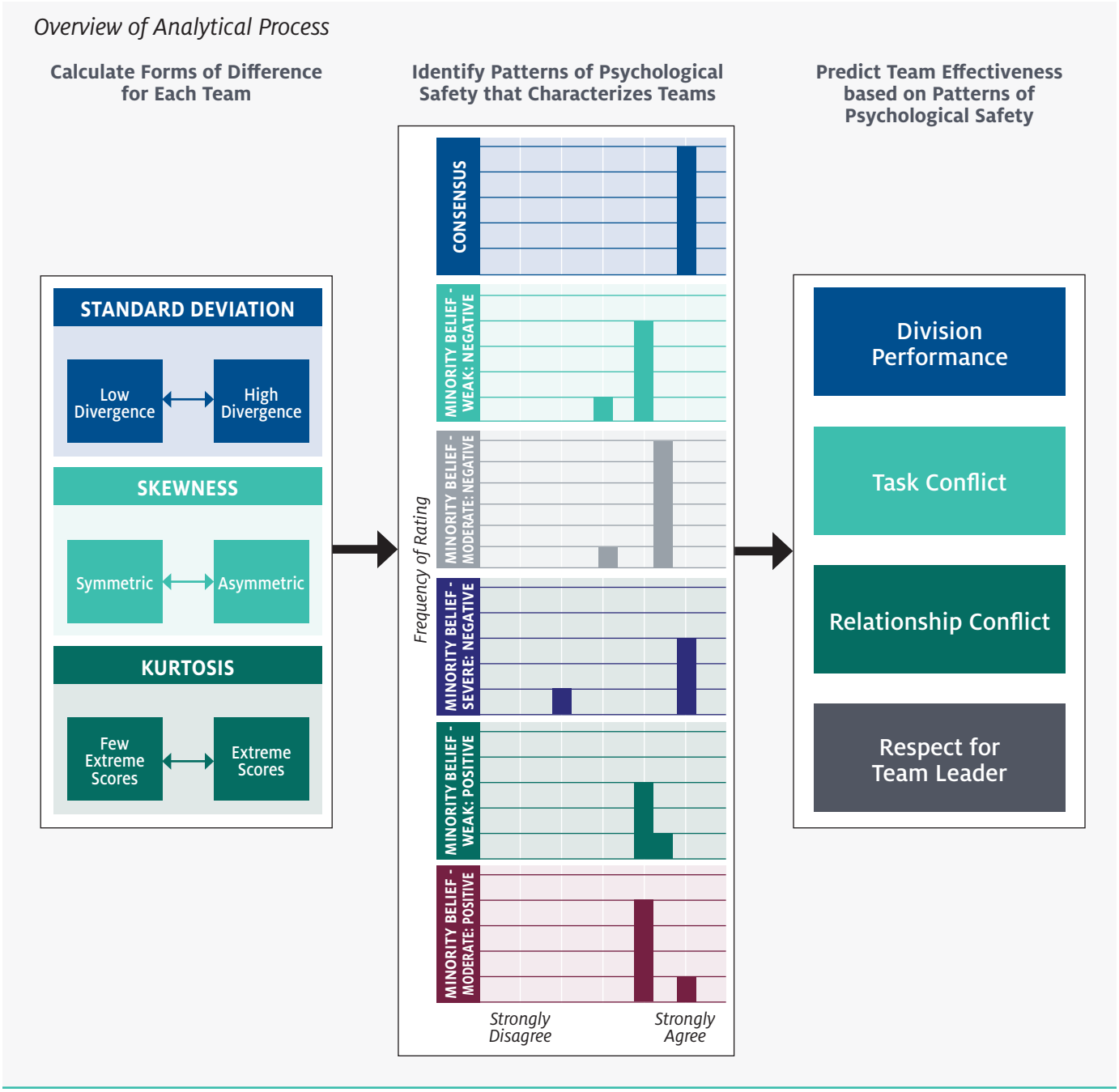
***Task and Relationship conflict.*** One critical process, especially for senior leadership teams, is conflict (de Wit, Greer, & Jehn, 2012). In particular, the capacity for senior leadership teams to debate and exchange ideas in the absence of emotionally-laden strife or personality clashes is critical for team effectiveness (De Dreu & Weingart, 2003; O'Neill, Allen, & Hastings, 2013). As such, we considered task and relationship conflict as indicators of team functioning. Example items of task conflict include, "Team members disagree about how things should be done." And "Members of this team disagree on task-related issues.". For relationship conflict sample items include, "Personality clashes are evident in this team." and "There is tension among the members of this team."

***Respect for team leader.*** Lastly, one critical outcome for any leader is the degree to which their direct reports afford them respect (Liden & Maslyn, 1998). In particular, if direct reports respect their leader, then it often signals a higher quality relationship, which then is associated with a range beneficial outcomes (Dulebohn, Bommer, Liden, Brouer, & Ferris, 2012; Martin, Guillaume, Thomas, Lee, & Epitropaki, 2016). To capture this, we asked direct reports to indicate their respect for the team leader (i.e., the LAP participant). Sample items include, "I am impressed with this leader's knowledge of their job." and "I respect this leader's knowledge of and competence on the job."

## How We Analyzed the Data

Analyses reported follow a three-step process, displayed in Figure 5 (cf. Loignon et al., 2019). First, we calculated *forms* of difference (i.e., divergence, symmetry, and extreme scores) for each team. These three forms capture the strength of psychological safety climate, the degree of symmetry, and the likelihood of extreme scores (i.e., the height of its peak), respectively. Next, we used latent profile analysis (Lanza, Tan, & Bray, 2013; Morin, Meyer, Creusier, & Bietry, 2016) to identify common *patterns* of psychological safety (Lanza, Tan, & Bray, 2013; Morin, Meyer, Creusier, & Bietry, 2016). Third, we used patterns of psychological safety to *predict* the four indicators of team effectiveness (i.e., division performance, task conflict, relationship conflict, and respect for team leader). See Appendix C for additional technical details and robustness checks.

**FIGURE 5**



# Key Findings

## Finding 1: Senior Leadership Teams Often Experience Different Levels of Psychological Safety

Some data supports the common assertion that members experience psychological safety consistently (see Appendix A; Bliese, 2000; LeBreton & Senter, 2008; Woehr, Loignon, & Schmidt, 2015). Across the sample, there was a moderate amount of consistency in team members' ratings of psychological safety (ICC(2) = .61). The average team in this study also consisted of members who agreed about their team's level of psychological safety ($r_{wg}$ (M) = .85, $r_{wg}$ (SD) = .12). Finally, over one-third (38%) of teams displayed a consensus pattern of psychological safety. That is, 103 teams were classified as exhibiting low forms of difference across team members. The defining features of this pattern is that it is symmetrical, not dispersed, and featured few extreme scores. This pattern is consistent with predominant literature around psychological safety.

However, our results also suggest meaningful differences for some teams. More than half (62%) of the teams in our sample were *not* classified as exhibiting consistent patterns of psychological safety, described in further detail in Finding 2. Instead, our analyses identified five distinct patterns of psychological safety that characterize disparate perceptions of psychological safety. Taken together, our findings complexify the assertion that psychological safety is a team-level phenomenon shared by all team members.

## Finding 2: Within-Team Differences in Psychological Safety Reflect Consistent Patterns

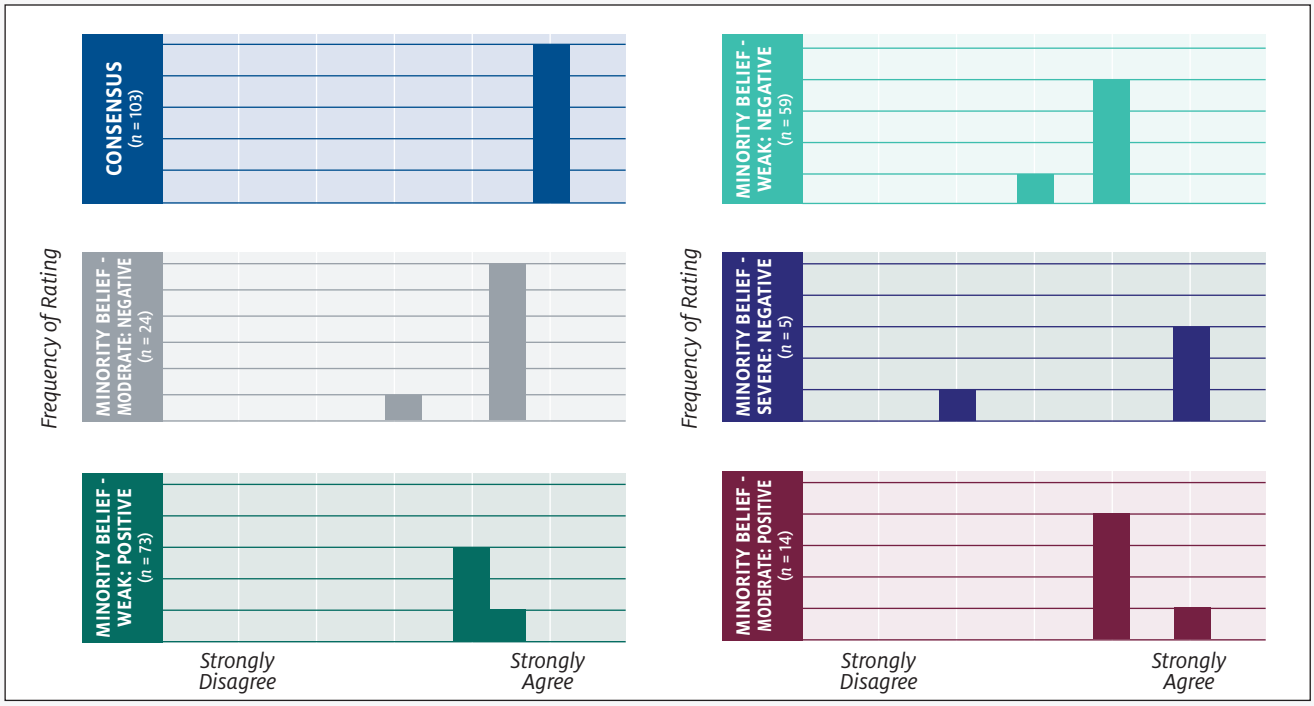
Along with a consensus pattern, we identified five distinct patterns of psychological safety across teams in our sample, displayed in Figure 6 (see Appendix B for fit indices). These additional patterns can be characterized as:

- **Minority Belief – Positive (Weak and Moderate):** Fourteen teams (5% of our sample) and 73 teams (26% of our sample) were classified as exhibiting a minority-belief form of psychological safety, where the dissenting perspective felt more psychologically safe than the rest of the group to varying degrees (i.e., weak vs. moderate). The defining features of these patterns are that they are asymmetrical (skewness = 0.29 to 0.80) and there are extreme scores (kurtosis = 1.89 to 2.61).
- **Minority Belief – Negative (Weak, Moderate, and Severe):** We also observed teams who could be classified as exhibiting a minority-belief form where the dissenting perspective expresses less psychological safety than the rest of the team. Interestingly, within this sample, there were three levels of this form: weak (*n* = 59, 21%), moderate (*n* = 24, 9%) and severe (*n* = 5, 2%). Each of these patterns were increasingly asymmetrical (skewness = -.79, -1.19, -1.67, respectively) and featured more extreme scores (kurtosis = 2.58, 3.63, 5.03).

Together, these findings suggest that not only is it common for members of senior leadership teams to feel psychologically safe within the group to varying degrees, but that these divergent experiences are consistent across teams and can be reliably classified into meaningful categories. Importantly, several of these patterns correspond with prototypes discussed in the literature (e.g., DeRue et al., 2010; Loignon et al., 2019).

**FIGURE 6**

*Histograms and Frequencies of Different Patterns of Psychological Safety*




Note. Appendix D includes specific details on differences in divergence, symmetry, and extreme scores for these patterns.

## Finding 3: Patterns of Psychological Safety Matter for Team Effectiveness

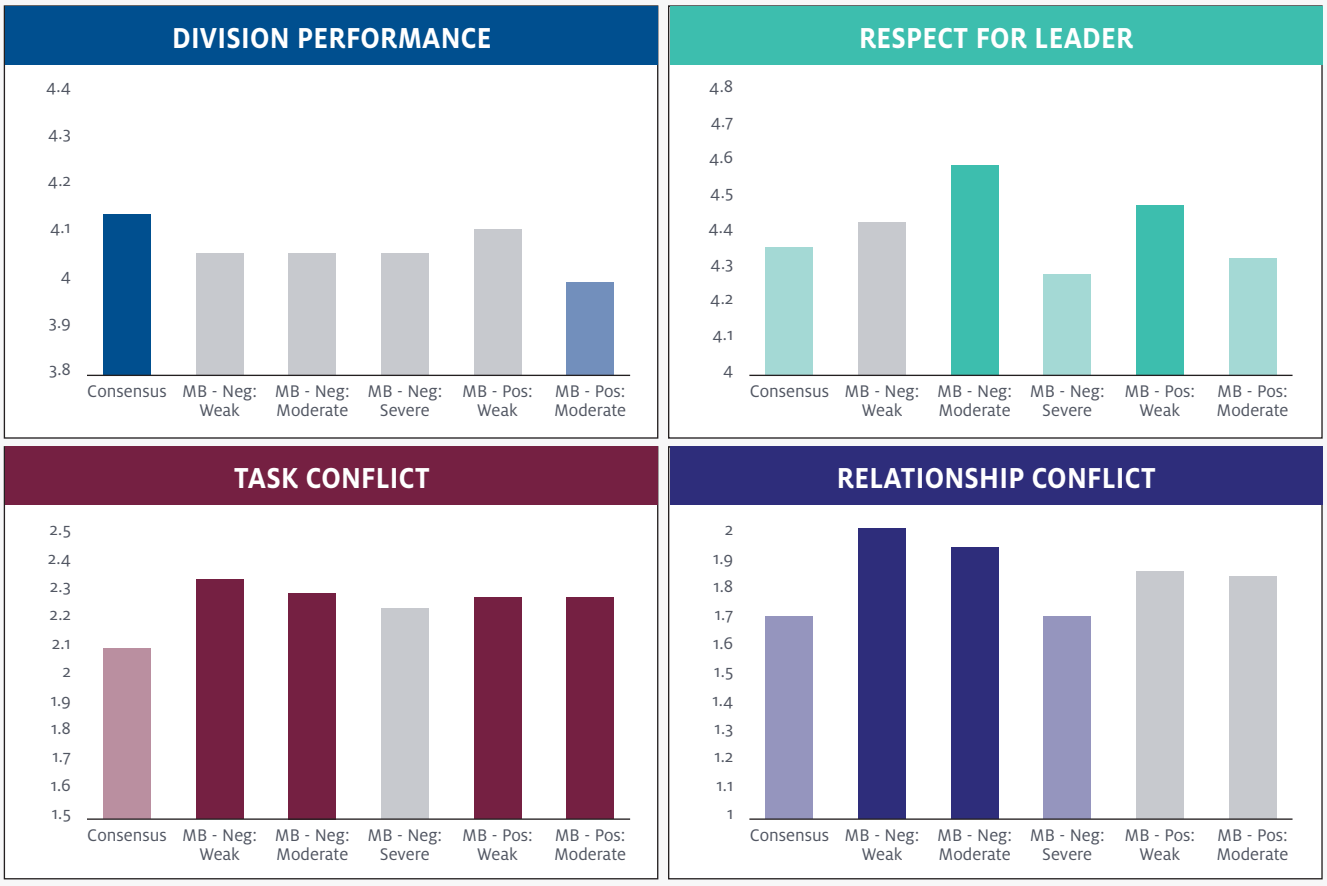
We also examined the degree to which a senior leadership team's level of effectiveness varied based on the form of psychological safety they were experiencing (see Figure 7). These analyses set the team's average psychological safety to the overall mean in the current sample (i.e., mean rating of 4 on a scale of 1-5). This means that the results discussed below assume that the level of psychological safety in the different teams is held constant; any differences are attributed solely to the patterns of psychological safety within the group.

Interestingly, the teams with shared psychological safety were often the most effective. Specifically, these teams had the highest performance and lowest levels of conflict. At the same time, the consensus teams were also least likely to report respecting their leaders.

Also, consistent with our emphasis on forms of psychological safety, we found that the direction and of the minority belief pattern mattered. Teams with members who expressed slightly higher than average psychological safety (Minority Belief – Positive Weak) also performed quite well across the various measures of effectiveness. That is, these teams reported the second highest level of performance, high levels of respect for their leader, while maintaining moderate levels of task and relationship conflict.

**FIGURE 7**

*Differences in Team Effectiveness across Forms of Psychological Safety*

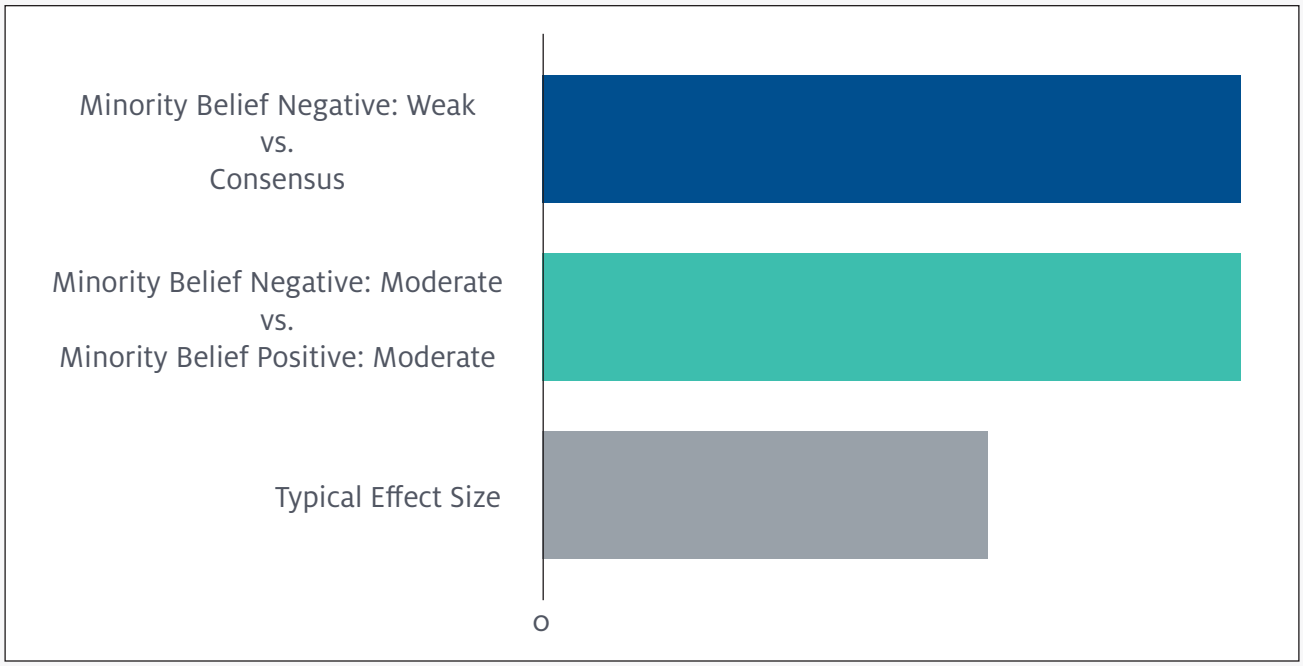



Note. MB = minority belief. Different color bars represent statistically significant differences with darker colors representing higher values. Minimum and maximum values along the y-axes correspond to those observed for 65% of teams in the sample (- 1SD/+1 SD).

Considering the practical significance of findings, the average difference between patterns correspond to what would be considered a moderate effect size (average Cohen's *d* = .44). Furthermore, some differences are quite large. For example, regarding relationship conflict, the differences between the consensus form and Minority Belief – Negative: Weak form of psychological safety (Cohen's *d* = .50) is greater than 66% of all the relationships usually found within the literature (Bosco et al., 2015). Put differently, senior leadership teams with weak and negatively skewed pattern of psychological safety typically reported levels of relationship conflict that were greater than 80% of the teams in our study. Similarly, the difference in respect for the team's leader between groups experiencing negative and positive forms of moderate minority belief (*d* = 0.53) is also greater than 66% of the relationships typically seen in similar research. Differences of this magnitude likely have practical consequences for how a team functions, in that the impacts can be felt on a day-to-day basis.

**FIGURE 8**

*Effect Sizes for Forms of Psychological Safety Compared to Prior Research.*




Note. Average effect size is based on a recent systematic review of the literature that obtained over 147,000 effect sizes where the median sample was 225 (Bosco et al., 2015). A helpful primer on Cohen's *d* can be accessed at the following link.

# Discussion

Often, psychological safety is considered a team phenomenon (Edmonson, 1999). Teams are considered either high or low in psychological safetyand understanding that average level adequately captures the general consensus within a team. But what happens when team members' perceptions do not all align, and does this misalignment have implications for team effectiveness? Our findings indicate a need to complexify conversations around psychological safety by acknowledging individual differences and exploring patterns of disagreement. Rather than reflecting a "shared belief" among group members, we found that more than half of our sample exhibited different patterns of psychological safety where teammates' psychological safety meaningfully diverged. These different patterns were consistently associated with indicators of team effectiveness. These findings were robust (see Appendix C) and meaningful, with effect sizes comparable to, or exceeding that of more than 60%, of effects reported in the literature. As a result, the need to acknowledge nuances in team psychological safety appears both relevant and timely.

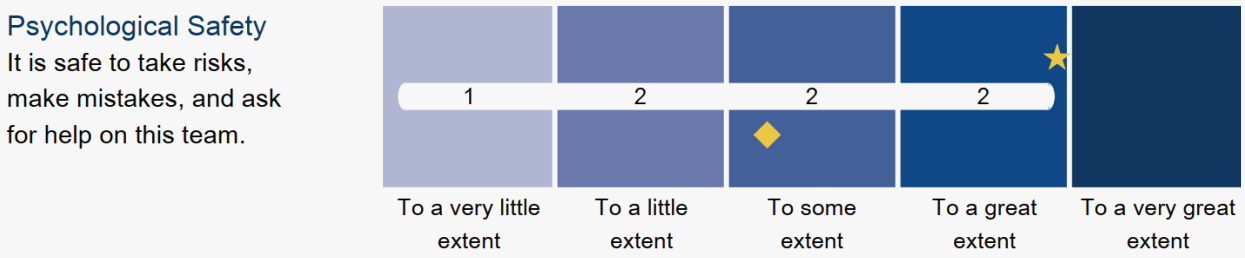
## Implications for Practice

*What is measured is what counts.* A well-known adage from the improvement science literature is that "you can't change what you don't measure." Given findings from this paper, we urge leaders to challenge their assumption that all team members perceive the same levels of psychological safety as themselves, or one another. A leader may be tempted to try to simply help group members feel more psychologically safe, on average, and miss the ways in which psychological safety is diverging in the group. Instead, there is great benefit in recognizing, acknowledging, and addressing that all team members bring their own thoughts, perceptions, and experiences to teamwork. Based on their personal perceptions, team members may require different steps to bolster, rebuild, or reinforce psychological safety within their team.

We also encourage team leaders to recognize their own positional power in eliciting information on team members' psychological safety. Formal leaders often hold decision-making and relational power, both of which can influence their team member's psychological safety. As such, it may be difficult to elicit candid feedback from individuals within the group. As an alternative, collecting information through an anonymous reporting mechanism (e.g., confidential survey) provides opportunities for team members to share their perceptions without fear of repercussion—a cornerstone of psychological safety. CCL's TeamVantage was designed with this intent in mind. While team leaders know who was invited to participate and the percentage of invited team members who responded, they are not informed who did (or did not) participate or individuals' unique responses. Rather, team leaders are provided information about the average levels and differences in response from team members to targeted questions. In the figure below, which comes directly from the feedback provided to senior leaders in this study, results are provided for the individual leader (i.e., the yellow star), the team's average (the yellow diamond), and the responses of each group member (i.e., the values for each response option).

**FIGURE 9**

*Example of Feedback for Identifying Forms of Psychological Safety*




This figure illustrates that the hypothetical leader reported higher levels of psychological safety than the team average, which suggests there may be a disconnect between his or her experience and the rest of the senior team. Furthermore, there is a substantial amount of divergence across the entire team, which corresponds with the moderate or severe minority belief form of psychological safety identified in this study. The findings suggest that there is value in determining what accounts for these differing experiences. This insight is still useful and continues to protect the confidentiality of individual team members.

**Understanding what causes a team to fray at its (psychological safety) seams.** Our findings suggest that patterns of psychological safety matter for team performance. In light of this fact, a natural next step might be to isolate what beliefs, actions, or circumstances could give rise to those different patterns. That is, what factors are associated with some team members experiencing high psychological safety while others feel psychologically unsafe? Although this represents a nascent area of research, there are some initial findings that could be informative. For example, some evidence suggests that team tenure—the length of time that members of a team have worked together—may affect perceptions of psychological safety. In general, the longer team members work together, the more their levels of psychological safety converge (Koopmann et al., 2016). The degree to which a leader exhibits consistent relationships with each member of the team, also promotes converging perceptions of psychological safety (Harrell, 2019). Other potential predictors—from prior team member experiences to individual social identities—merit future consideration and exploration.

**Existing recommendations for supporting psychological safety may still hold, but require additional nuance.** Findings from senior leadership teams in this study challenge how psychological safety is conceptualized, proposing that acknowledging patterns of responses may be important above and beyond average levels of psychological safety. This distinction might also raise questions about whether existing recommendations for enhancing overall levels of psychological safety still apply when team members' experiences diverge (i.e., in teams characterized by the Minority Belief patterns). This topic merits further consideration in future teams-based and intervention work. However, a general consideration may be to consider existing recommendations and adjust as needed depending on expressed patterns of difference within a team.

As an illustrative example, in her TEDx talk, Edmondson offers three simple actions individuals can take to foster psychological safety within their teams (Edmondson, 2014). One recommendation is framing the team's tasks as a learning focus rather than an execution problem. However, this emphasis on framing presumes some level of shared experience within the group. It is possible that teams with members who feel exceptionally (un) safe relative to the rest of the group (i.e., Minority Belief) may be less able to agree upon a consistent frame for the work being performed. Likewise, people are encouraged to model curiosity and ask lots of questions to help engender psychologically safe groups. However, if one is working in a team with a severe or moderate Minority Belief form of psychological safety, then there may be differences in who is most inclined to ask questions and assume a prominent speaking role in the group (i.e., those who are experiencing great psychological safety). Taken together, the kernel of Edmonson's (2014) recommendation may hold, but its application should depend on patterns of psychological safety present.

## Informing Future Research

Apart from practical applications, our findings point to several promising avenues for teams research. First, our results suggest that the various forms of psychological safety may be hiding in plain sight. If we were to consider common rules for aggregation indices (rwg > .70, ICC(1) >.10 or statistically significant) (e.g., Bliese, 2000; Lance, Butts, & Michels, 2006), we would have been justified in treating any variability within teams as random error, assuming that team members shared perceptions of psychological safety, and proceeding with focusing on the team average alone. However, such an approach would have overlooked different patterns that characterize teams and have real-world associations with performance, relationship conflict, and respect. The approach we adopted in this study—exploring forms of difference as meaningful rather than random—corresponds with other calls to move beyond a potential over-emphasis on consensus and consider ways in which teams can exhibit critical constructs (Kozlowski, 2015; Mathieu & Luciano, 2019). Just as individual employees bring important differences and unique perspectives, so too do groups of employees working together in teams.

Our findings also raise questions about how critical components of team effectiveness, like psychological safety, may emerge within teams. Specifically, do teams progress through more divergent forms of psychological safety (e.g., severe or moderate minority belief) on way to a more unified experience (e.g., consensus) (e.g., Kozlowski, 2015; Mathieu & Luciano, 2019)? Because our study is cross-sectional (i.e., measured at a single time point) in nature, it remains unclear whether patterns of psychological safety remain static or evolve in meaningful ways over time. Future work might capture psychological safety and team effectiveness measures over time and, using a similar approach as in this study, look for meaningful patterns in teams' responses.

# Conclusion

Although discussions of psychological safety permeate both research and practice, its common conceptualization may oversimplify the forms, patterns, and impact of how it occurs within teams. Our findings highlight the importance of psychological safety for team effectiveness, and bring necessary nuance to how it can be measured and discussed. Rather than assuming a shared perspective of psychological safety, leaders may benefit from treating their team's psychological safety as personal and nuanced. Results inform concrete recommendations for team leaders to consider (1) not only the level of psychological safety in their team (i.e., high vs. low), but also the pattern; (2) what factors, actions, or experiences might cause members' perceptions of psychological safety to diverge; and (3) whether existing recommendations for building team psychological safety may be appropriate for some—but not all—teams.

# References


Afsharian, A., Zadow, A., Dollard, M. F., Dormann, C., & Ziaian, T. (2018). Should psychosocial safety climate theory be extended to include climate strength? *Journal of Occupational Health Psychology,* 23(4), 496-507.

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

Bliese, P. D. (2000). Within group agreement, non-independence and reliability: Implications for data and analysis. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions.* (pp. 349-381). San Francisco: Jossey-Bass.

Bosco, F. A., Aguinis, H., Singh, K., Field, J. G., & Pierce, C. A. (2015). Correlational effect size benchmarks. *Journal of Applied Psychology*, 100(2), 431-449.

Carpenter, M. A., Geletkanycz, M. A., & Sanders, W. G. (2004). Upper echelons research revisited: Antecedents, elements, and consequences of top management team composition. *Journal of Management,* 30(6), 749-778.

Certo, S. T., Lester, R. H., Dalton, C. M., & Dalton, D. R. (2006). Top management teams, strategy and financial performance: A meta-analytic examination. *Journal of Management Studies,* 43(4), 813-839.

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

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.

DeRue, D. S., Hollenbeck, J. R., Ilgen, D. R., & Feltz, D. L. (2010). Efficacy dispersion in teams: Moving beyond agreement and aggregation. *Personnel Psychology*, 63, 1-40.

Dulebohn, J. H., Bommer, W. H., Liden, R. C., Brouer, R. L., & Ferris, G. R. (2012). A meta-analysis of antecedents and consequences of leader-member exchange: Integrating the past with an eye toward the future. *Journal of Management,* 38(6), 1715-1759.

Edmondson, A. (1999). Psychological safety and learning behavior in work teams. *Administrative Science Quarterly,* 44, 350-383.

Edmondson, A. (2014). Building a psychologically safe workplace. *YouTube.* Retrieved from https://www.youtube.com/watch?v=LhoLuuigqX8

Frazier, M. L., Fainschmidt, S., Klinger, R. L., Pezeshkan, A., & Vracheva, V. (2017). Psychological safety: A meta-analytic review and extension. *Personnel Psychology,* 70, 113-165.

Gonzalez-Roma, V., & Hernandez, A. (2014). Climate uniformity: Its influence on team communication quality, task conflict, and team performance. *Journal of Applied Psychology,* 99(6), 1042-1058.

Hackman, J. R. (1987). The design of work teams. In J. W. Lorsch (Ed.), *Handbook of organizational behavior.* (pp. 315-342). Englewood Cliffs, NJ: Prentice Hall.

Hambrick, D. C. (2007). Upper echelons theory: An update. *Academy of Management Review*, 32(2), 334-343.

Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review*, 9(2), 193-206.

Harrell, T. (2019). *Do we all agree? A mixed-methods exploration of the impact of climate strength on psychological safety, team learning behavior, and team performance*. (Doctor of Philosophy), University of San Diego.

Hollenbeck, J. R., Beersma, B., & Schouten, M. E. (2012). Beyond team types and taxonomies: A dimensional scaling conceptualization for team description. *Academy of Management Review,* 37(1), 82-106.

Koopmann, J., Lanaj, K., Wang, M., Zhou, L., & Shi, J. (2016). Nonlinear effects of team tenure on team psychological safety climate and climate strength: Implications for average team member performance. *Journal of Applied Psychology*, 101(7), 940-957.

Kozlowski, S. W. J. (2015). Advancing research on team process dynamics: Theoretical, methodological, and measurement considerations. *Organizational Psychology Review*, 5(4), 270-299.

Lance, C. E., Butts, M. M., & Michels, L. C. (2006). The sources of four commonly reported cutoff criteria: What did they really say? *Organizational Research Methods,* 9(2), 202-220.

Lanza, S. T., Tan, X., & Bray, B. C. (2013). Latent class analysis with distal outcomes: A flexible model-based approach. *Structural Equation Modeling*, 20(1), 1-26.

LeBreton, J. M., & Senter, J. L. (2008). Answers to 20 questions about interrater reliability and interrater agreement. *Organizational Research Methods,* 11(4), 815-852.

Li, A. N., & Liao, H. (2014). How do leader-member exchange quality and differentiation affect performance in teams? An integrated multilevel dual process model. *Journal of Applied Psychology,* 99(5), 847-866.

Liden, R. C., & Maslyn, J. M. (1998). Multidimensionality of leader-member exchange: An empirical assessment through scale development. *Journal of Management,* 24(1), 43-72.

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.

Martin, R., Guillaume, Y., Thomas, G., Lee, A., & Epitropaki, O. (2016). Leader-member exchange (LMX) and performance: A meta-analytic review. *Personnel Psychology,* 69, 67-121.

Mathieu, J., & Luciano, M. M. (2019). Multilevel emergence in work collectives. In S. E. Humphrey & J. M. Lebreton (Eds.), *The handbook of multilevel theory, measurement, and analysis* (pp. 163-186). Washington, DC: American Psychological Association.

Morin, A. J. S., Meyer, J. P., Creusier, J., & Bietry, F. (2016). Multiple-group analysis of similarity in latent profile solutions. *Organizational Research Methods*, 19(2), 231-254.

Muthen, L. K., & Muthen, B. O. (1998-2021). *Mplus - Statistical analysis with latent variables: User's guide.* (8th ed.). Los Angeles, CA: Authors.

Nielsen, S. (2010). Top management team diversity: A review of theories and methodologies. *International Journal of Management Review*, 12(3), 301-316.

Nylund, K. L., Asparouhov, T., & Muthen, B. O. (2007). Deciding on the number of classes in latent class analysis and growth mixture modeling: A monte carlo simulation study. *Structural Equation Modeling,* 14(4), 535-569.

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, 236-260.

R Development Core Team. (2010). R: A language and environment for statistical computing. Vienna, Austria: R Foundation for Statistical Computing.

Revelle, W. (2015). psych: Procedures for Personality and Psychological Research (Version 1.5.8). Northwestern University, Evanston, Illinois. Retrieved from http://CRAN.R-project.org/package=psych

Rosenberg, J. M., Beymer, P. N., Anderson, D., Van Lissa, C. J., & Schmidt, J. A. (2018). tidyLPA: An R package to easily carry out latent profile analysis (LPA) using open-source commercial software. *Journal of Open Source Software*, 3(30), 978.

Rozovsky, J. (2015). The five keys to a successful Google team. *re:Work.* Retrieved from https://rework.withgoogle.com/blog/five-keys-to-a-successful-google-team/

Sinha, R., Janardhanan, N. S., Greer, L. L., Conlon, D. E., & Edwards, J. R. (2016). Skewed task conflict in teams: What happens when a few members see more conflict than the rest? *Journal of Applied Psychology,* 101(7), 1045-1055.

Smith-Crowe, K., Burke, M. J., Kouchaki, M., & Signal, S. M. (2013). Assessing interrater agreement via the average deviation index given a variety of theoretical and methodological problems. *Organizational Research Methods*, 16(1), 127-151.

Wildman, J. L., Thayer, A. L., Rosen, M. A., Salas, E., Mathieu, J. E., & Rayne, S. R. (2012). Task types and team-level attributes: Synthesis of team classification literature. *Human Resource Development Review,* 11(1), 97-129.

Woehr, D. J., Loignon, A. C., Schmidt, P., Loughry, M. L., & Ohland, M. W. (2015). Justifying aggregation with consensus-based constructs: A review and examination of cutoff values for common aggregation indices. *Organizational Research Methods,* 18(4), 704-737.

Woehr, D. J., Loignon, A. C., & Schmidt, P. J. (2015). Aggregation aggravation: The fallacy of the wrong level revisited. In C. E. Lance & R. J. Vandenberg (Eds.), *More statistical and methodological myths and urban legends.* (pp. 311-326). New York, NY: Routledge.

# Appendix A

## Descriptives, Correlations, Reliability Estimates, and Aggregation Indices

| Variable | M | SD | *a* | $r_{wg}$ (M) | $r_{wg}$ (SD) | ICC(1) | ICC(2) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Psychological Safety (M) | 4.12 | 0.34 | 0.85 | 0.85 | 0.12 | 0.18 | 0.61 | | | | | | | |
| 2. Psychological Safety (SD) | 0.51 | 0.21 | | | | | | -0.55 | | | | | | |
| 3. Psychological Safety (Skew) | -0.28 | 0.60 | | | | | | -0.08 | -0.25 | | | | | |
| 4. Psychological Safety (Kurt) | 2.23 | 0.78 | | | | | | -0.13 | 0.18 | -0.55 | | | | |
| 5. Division Performance | 4.13 | 0.35 | 0.93 | 0.86 | 0.12 | 0.21 | 0.66 | 0.63 | -0.20 | -0.13 | -0.05 | | | |
| 6. Task Conflict | 2.13 | 0.42 | 0.85 | 0.78 | 0.14 | 0.19 | 0.62 | -0.64 | 0.33 | 0.14 | 0.07 | -0.60 | | |
| 7. Relationship Conflict | 1.65 | 0.49 | 0.87 | 0.77 | 0.21 | 0.26 | 0.72 | -0.71 | 0.44 | 0.05 | 0.16 | -0.46 | 0.72 | |
| 8. Respect for Leader | 4.44 | 0.40 | 0.89 | 0.82 | 0.18 | 0.21 | 0.62 | 0.56 | -0.26 | -0.10 | 0.05 | 0.54 | -0.42 | -0.37 |

Note. $n$ = 278 senior leaders and their teams. $|r| > .09$ is significant a $p < .05$. α reflects the internal consistency of scale, $r_{wg}$ pertains to the level of inter-rater agreement, ICC(1) and ICC(2) is the amount of inter-rater reliability (Woehr, Loignon, Schmidt, Loughry, & Ohland, 2015).

# Appendix B

## Fit Indices for Different Latent Profile Solutions

| Class enumeration | LL | #fp | AIC | BIC | SABIC | Entropy | LMR | BLRT |
|---|---|---|---|---|---|---|---|---|
| One profile | -529.11 | 6 | 1070.23 | 1091.99 | 1072.969 | | | |
| Two profiles | -437.11 | 10 | 894.23 | 930.51 | 898.801 | 0.896 | 0.001 | 0 |
| Three profiles | -413.12 | 14 | 854.24 | 905.04 | 860.644 | 0.914 | 0.009 | 0 |
| Four profiles | -393.39 | 18 | 822.79 | 888.09 | 831.019 | 0.807 | 0.652 | 0 |
| Five profiles | -384.48 | 22 | 797.51 | 877.32 | 807.563 | 0.830 | 0.131 | 0 |
| Six profiles | -376.75 | 26 | 780.28 | 874.60 | 792.164 | 0.839 | 0.045 | 0 |
| Seven profiles | -365.11 | 30 | 768.36 | 877.19 | 782.069 | 0.841 | 0.178 | 0 |
| Eight profiles | Failed to converge | | | | | | | |

Note. Identifying the number of profiles obtained from a latent profile analysis requires one to simultaneously consider several model fit indices (e.g., Morin et al., 2016; Nylund, Asparouhov, & Muthen, 2007). The best-supported solution is generally considered to be the one that is most parsimonious (i.e., fewest free parameters, significant LMR and BLRT), while also fitting the data most closely (i.e., lowest LL, AIC, BIC, SABIC) and affording reasonable classification accuracy (entropy). Based on these criteria, we chose to proceed with a six profile solution. LL = model log likelihood; fp = number of free parameters; AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion; SABIC = sample-size adjusted BIC; LMR = Lo, Mendell, and Rubin likelihood ratio test; BLRT = bootstrap likelihood ratio.

# Appendix C

## Additional Information on Analytic Approach

We conducted the analyses in the R environment (R Development Core Team, 2010) and using Mplus statistical software (Muthen & Muthen, 1998-2021).

The analyses reported here are based on a three-step process (see Figure 5 for an overview), which we have applied in prior research on teams and work groups (Loignon et al., 2019). First, we calculated the latter moments of the distribution for each team's ratings of psychological safety (i.e., within-team standard deviation, skewness, and kurtosis). These three moments capture the strength of psychological safety climate, the degree of symmetry, and the likelihood of extreme scores (i.e., the height of its peak), respectively. Next, we used latent profile analysis to identify how many forms of psychological safety existed and could be reliably distinguished within the current sample of senior leadership teams (Lanza, Tan, & Bray, 2013; Morin, Meyer, Creusier, & Bietry, 2016). Third, we used the team's profile assignment to predict the three measures of team effectiveness (i.e., division performance, relationship conflict , and respect for the leader).

**Robustness checks.** We also conducted several additional analyses to verify that our findings were robust to alternative explanations. First, we verified that members of the senior leadership teams in our study could meaningfully distinguish among the different constructs we are examining. Specifically, we examined the fit of a five-factor confirmatory factor analysis that represented psychological safety, division performance, task conflict, relationship conflict, and respect for the team leader as distinct constructs. We found that this model fit the data well (02 (179) = 463.34, CFI = .95, TLI = .94, RMSEA = .08, SRMR = .05). All of the factor loadings for this model were greater than .71 and statistically significant and the latent factor correlations were less than or equal to .77. These findings suggest that when the senior leaders and their team members were evaluating the various constructs, they were able to treat these as sufficiently distinct.

Second, we further interrogated the distinction between the level of psychological safety in a team and the form of psychological safety (see Appendix C). The forms did not differ significantly in the average level of psychological safety a group member experienced ($F$ (5, 272) = 0.859, $p$ = .509). Furthermore, as we noted previously, our model testing the association between forms of psychological safety and team effectiveness used the average level of psychological safety within the team as a control variable. Thus, the differences we observed between forms of psychological safety occur while also assuming that the "level" or "amount" of psychological safety within the team is the same.

Third, we also verified that the forms of psychological safety we identified are not an artifact of some type of response bias within certain teams. Specifically, we replicated our analyses to identify forms of team constructs (e.g., relationship conflict). When we compared the forms that were identified in these analyses with those discussed here, the correspondence was quite low (i.e., teams experiencing one form of psychological safety were not, necessarily, experiencing a particular form of relationship conflict) ($x^2$ = 35.76, $p$ = .22).

# Appendix D

## Moments of Distribution Across Profiles

| Form | Psychological Safety | | | |
|---|---|---|---|---|
| | Mean | Standard Dev. | Skewness | Kurtosis |
| Consensus | 4.17 | 0.51 | -0.28 | 1.75 |
| Minority Belief (Negative - Weak) | 4.10 | 0.58 | -0.79 | 2.58 |
| Minority Belief (Negative - Moderate) | 4.11 | 0.58 | -1.19 | 3.63 |
| Minority Belief (Negative - Severe) | 3.97 | 0.68 | -1.67 | 5.03 |
| Minority Belief (Positive - Weak) | 4.11 | 0.45 | 0.29 | 1.89 |
| Minority Belief (Positive - Moderate) | 4.06 | 0.41 | 0.80 | 2.61 |

Note. Minority belief profiles refer to the direction of the minority perspective (high = higher than the mean, low = lower than the mean) and the degree to which this perspective diverges from the mean (i.e., weak, moderate, severe). The team's average was *not* used to identify latent profiles and was used as a control variable when examining the association with measures of team effectiveness. Thus, these results treat the teams in this sample as if they were experiencing the same *level* of psychological safety (i.e., high vs. moderate vs. low) and any differences in team effectiveness reflect associations with the *form* of psychological safety (e.g., consensus vs. minority belief).

# About The Authors

## Andy Loignon

As a Research Scientist at CCL, Andy Loignon is currently working on projects related to work teams and emerging leaders. For work teams, he is exploring how groups engage in different actions and processes in unique ways to reach their objectives as well as how these processes intersect with informal networks in the teams. For emerging leaders, his research is focused, in part, on how young people can overcome socioeconomic barriers and thrive as effective leaders. You can find some of his other research by visiting his Google Scholar's page.

## Stephanie Wormington

Stephanie Wormington is the Director of Global Strategic Research at CCL, where she oversees the Leadership Analytic and Strategic Research team. A developmental and educational psychologist by training, much of Stephanie's current work focuses on helping individuals, groups, organizations, and communities foster relationships and critically develop equitable, diverse, and inclusive cultures. She is also committed to listening to young and emerging leaders as they navigate key transitions and overcome contextual barriers on their personal and professional trajectories. Other articles authored by Stephanie can be found on her Google Scholar's page.

# CCL LOCATIONS

## Americas

+1 336 545 2810
ccl.org

## Europe, Middle East, Africa

+32 (0) 2 679 09 10
ccl.org/emea

## Asia Pacific

+65 6854 6000
ccl.org/apac

## Greater China

+86 21 6881 6683
ccl.org/china

Center for Creative Leadership

The Center for Creative Leadership (CCL)® is a top-ranked, global, nonprofit provider of leadership development. Over the past 50 years, we've worked with organizations of all sizes from around the world, including more than 2/3 of the Fortune 1000. Our cutting-edge solutions are steeped in extensive research and our work with hundreds of thousands of leaders at all levels.