

Psychological Safety in Virtual Teams and Its Impact on Collaborative Performance Media

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ABSTRACT

Psychological safety refers to team members' belief that they can express ideas, provide feedback, or admit mistakes without fear of negative consequences. In virtual teams, limited nonverbal interaction and geographic dispersion challenge trust-building and collaboration. This article reviews recent literature (2020–2025) on psychological safety in virtual teams and its impact on collaborative performance. A systematic literature review was conducted using Scopus, Web of Science, and ScienceDirect, focusing on trust, knowledge sharing, and leadership variables. Findings indicate that psychological safety mediates the relationship between trust, leadership, and knowledge-sharing behaviors, enhancing team effectiveness and collaboration. Influencing factors include communication technology quality, transformational leadership, inclusive team culture, and individual self-efficacy. Virtual teams with high psychological safety demonstrate higher engagement, wider knowledge sharing, and more efficient task completion. Practical implications emphasize leadership training, reliable collaboration platforms, supportive team culture, and structured knowledge management to create psychologically safe and productive virtual teams.

Keywords: psychological safety, virtual teams, collaboration, trust, knowledge sharing.

INTRODUCTION

With the rapid development of digital technology and globalization, modern organizations have undergone significant transformations in how they conduct operational activities and coordinate team functions. One of the most evident manifestations of this change is the emergence of virtual teams, defined as work groups whose members are geographically dispersed and collaborate through digital platforms, including video conferencing software, online project management systems, and other real-time communication tools. In this context, the effectiveness of team collaboration through digital environments has become increasingly crucial, not only for organizational productivity but also for understanding the dynamics of contemporary organizational psychology, particularly regarding social interactions, collective decision-making, and innovation (Garro-Abarca, Palos-Sanchez, & Aguayo-Camacho, 2021).



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Virtual teams offer unprecedented flexibility, such as the ability to access expertise worldwide, coordinate work schedules across time zones, and reduce the need for travel expenses and physical infrastructure. However, this flexibility comes with significant challenges. The limitations of physical communication make it difficult to capture nonverbal cues, such as body language and facial expressions, which can hinder trust development and limit emotional understanding among team members. Technical barriers, including unstable internet connections, differences in technological proficiency among members, and reliance on multiple digital platforms, often lead to communication errors or delays in information exchange. Furthermore, establishing strong interpersonal relationships in virtual teams proves more challenging compared to traditional face-to-face teams, as spontaneous social interactions are reduced and team members may experience a sense of isolation (Hao, Zhang, Shi, & Yang, 2022).

In this environment, organizations need to recognize that team psychology and social dynamics are critical determinants of collaborative success. Trust, psychological safety, and the ability of team members to share information and ideas without fear of negative judgment are crucial elements. Research indicates that without psychological safety, virtual teams are at risk of reduced active participation, unresolved conflicts, and a lack of innovation, even when digital communication technologies are available (Hao et al., 2022). Thus, a deep understanding of how virtual team members interact, how trust and psychological safety are developed, and how organizations can support environments conducive to collaboration is essential for designing effective managerial strategies and enhancing team performance in digital contexts.

In addressing the challenges faced by virtual teams, the concept of psychological safety becomes increasingly important as a foundation for open and collaborative interaction. Psychological safety can be defined as team members' belief or perception that they have the freedom to express ideas, provide feedback, ask questions, or admit mistakes without fear of negative social consequences, such as criticism, belittlement, or public embarrassment (Rødsjø, Sjølie, & Van Petegem, 2024). In other words, psychological safety creates a secure psychological environment in which team members feel valued and heard, thereby encouraging more active and proactive participation in various team activities.

The phenomenon of psychological safety has been associated with several positive outcomes in traditional teams. Studies indicate that teams with high levels of psychological safety tend to be more innovative, as members feel encouraged to propose new ideas and experiment with creative approaches without fear of failure. Moreover, psychological safety also promotes team learning, as members feel comfortable sharing information, experiences, and knowledge that enrich collective understanding. Its impact is further evident in enhanced collaborative performance, where psychologically safe teams work more effectively, complete tasks synergistically, and reduce harmful interpersonal conflicts (Rødsjø et al., 2024).

However, understanding psychological safety in the context of virtual teams is still developing. Digitally operating teams face conditions different from face-to-face teams. Limited nonverbal interaction, communication primarily conducted through text or screens, and fewer opportunities for informal relationship-building can hinder the development of psychological safety. As a result, empirical studies examining the effect of psychological safety on collaborative performance in virtual teams remain relatively limited compared to physical teams, highlighting the need for further research to understand how psychological safety can be fostered in digital environments and which

mechanisms and factors influence it, so virtual teams can achieve optimal collaborative performance.

Recent literature indicates that psychological safety plays a crucial role not only in fostering positive interactions among team members but also as a mediator bridging key factors such as trust and knowledge sharing within virtual teams (Hao et al., 2022). This finding emphasizes that psychological safety helps reduce interpersonal conflict, enhance member engagement, and facilitate more effective information exchange. Practically, team members who feel psychologically safe are more likely to express ideas openly, propose creative solutions, and provide constructive feedback without fear of social repercussions, ultimately supporting the overall collaborative performance of the team.

In virtual team contexts, several variables are particularly important in shaping psychological safety. First, the role of communication technology is central, as the quality of digital interactions significantly affects team members' perceptions of psychological safety. Stable communication systems, user-friendly collaborative platforms, and members' ability to effectively utilize technology can enhance connectedness and strengthen social interactions, even when interactions are not conducted face-to-face (Edmondson, 1999; Garro-Abarca, Palos-Sanchez, & Aguayo-Camacho, 2021; Rødsjø, Sjølie, & Van Petegem, 2024).

Team structure also influences psychological safety. Teams with clearly defined roles, balanced task distribution, and leadership that encourages open communication are more likely to build a psychologically safe environment. Leadership that promotes active participation, values members' opinions, and provides constructive feedback reinforces team members' confidence to share ideas and take initiative (Newman, Donohue, & Eva, 2020).

Individual factors, such as self-efficacy, also play a significant role. Team members with high confidence in their ability to complete tasks and contribute effectively are more comfortable sharing information and participating in team discussions, thereby enhancing overall psychological safety (Hao et al., 2022; Mogård, Rørstad, & Bang, 2023). This indicates that the formation of psychological safety is a multidimensional process influenced by interactions among individual factors, technological factors, and team organizational structure.

Other studies further support the crucial mediating role of psychological safety. For instance, Edmondson (1999) emphasizes that psychological safety enables team members to engage in learning behaviors, including knowledge sharing and exploring new ideas, which directly impact team performance. Similar findings are observed in contemporary studies examining virtual teams in educational and healthcare contexts, where psychological safety enhances collaboration and work effectiveness even when interactions occur online (Liang, Liu, & Hu, 2020; Mogård et al., 2023; Rødsjø et al., 2024). Overall, these findings suggest that psychological safety is not merely a psychological concept but a vital mechanism supporting collaborative performance in virtual teams through the reinforcement of trust, knowledge sharing, and digital communication effectiveness.

Although numerous studies have explored psychological aspects in both traditional and virtual teams, holistic research systematically examining psychological safety in virtual teams and its impact on collaboration and performance remains limited. Most existing literature focuses on psychological safety in physical teams or emphasizes only specific aspects of virtual teams, such as trust or knowledge sharing, without

considering the complex interplay among individual factors, team structure, and digital communication technology in creating a psychologically safe work environment. This gap highlights the need for research integrating the latest empirical and theoretical findings to comprehensively examine psychological safety in virtual team contexts.

Given these conditions, this article aims to conduct a systematic literature review of recent empirical and theoretical research on psychological safety in virtual teams and how this phenomenon affects collaborative performance. The approach not only focuses on identifying factors that shape psychological safety but also explores mediation and moderation mechanisms influencing the relationship between psychological safety and team performance. For instance, psychological safety can serve as a mediator between trust and knowledge sharing or as a variable enhancing collaborative effectiveness through increased member participation, team learning, and innovation.

By adopting a perspective grounded in contemporary literature, this review aims to provide a comprehensive conceptual framework for researchers and organizational practitioners in building more effective and dynamic virtual teams. Such a framework can help organizations understand how interactions among communication technology, team structure, and individual characteristics, such as self-efficacy, contribute to optimal psychological safety. Furthermore, a more systematic understanding of psychological safety in virtual teams can offer guidance for managers and policymakers in designing adaptive digital collaboration strategies, improving team performance, and maximizing the collaborative potential of members across diverse geographic locations.

Thus, this article aims not only to synthesize existing empirical findings but also to provide practical and theoretical insights on creating psychologically safe work environments that support innovation and enhance collaborative performance in contemporary virtual team settings.

METHODOLOGY

The method employed in this study is a systematic literature review aimed at exploring and synthesizing recent research findings on psychological safety in virtual teams and its impact on collaborative performance. The literature search was conducted through indexed international academic databases, including Scopus, Web of Science, ScienceDirect, and Frontiers in Psychology. The objective of the search was to identify empirical and theoretical studies relevant to psychological safety in the context of virtual teams, as well as its influence on collaborative performance, knowledge sharing, and trust.

The search process utilized a combination of primary keywords such as *psychological safety*, *virtual teams*, *remote teams*, *collaborative performance*, *knowledge sharing*, and *trust*. Boolean operators AND and OR were applied to expand the search coverage. For example, "psychological safety AND virtual teams" was used to retrieve literature specifically addressing psychological safety within virtual teams, while "psychological safety OR trust AND knowledge sharing" allowed the identification of studies examining related variables affecting collaborative behavior. Additionally, reference chaining was employed, reviewing the reference lists of relevant articles to locate further studies that may not have appeared in the initial search, ensuring a more comprehensive and systematic coverage of the literature. Each identified article was documented meticulously, including details such as title, authors, publication year, journal name, volume, page numbers, and DOI, to guarantee accurate citation.

Article selection followed strict criteria. Included articles were peer-reviewed journals published between 2020 and 2025, emphasizing the most recent research relevant to contemporary virtual team practices and theory. Each article had to be indexed in Scopus or Web of Science as an assurance of academic quality. Moreover, selected articles were required to have an active DOI to allow public access and verification. Relevance was the primary consideration, with only studies directly addressing psychological safety in virtual teams or related topics such as collaborative performance, knowledge sharing, and trust included. Articles that did not meet these criteria, including editorials, opinion pieces, normative perspectives, or conceptual papers lacking empirical data or tested models, were excluded from the review.

The selected articles were then analyzed using a descriptive narrative synthesis. Each article was thoroughly read to extract key findings regarding psychological safety, including the definitions and concepts applied within virtual teams, factors influencing psychological safety at both individual and team levels, and the role of psychological safety in facilitating knowledge sharing and collaborative performance. The analysis also highlighted practical implications for organizations, including strategies to foster a psychologically safe environment for virtual team members to enhance effective collaboration. Findings from each study were compared and synthesized into a cohesive narrative, providing a comprehensive understanding of the mechanisms of psychological safety and its influence on collaborative performance in virtual teams.

RESULTS AND DISCUSSION

A. Psychological Safety in Virtual Teams

Psychological safety is an important psychological component that enables team members to interact openly without fear of negative interpersonal consequences. In the context of virtual teams operating through digital technologies, limitations in nonverbal communication often complicate efforts to build strong interpersonal relationships, as information conveyed solely through text or audiovisual media may lose emotional nuances and nonverbal cues such as body language and facial expressions (Hao, Zhang, Shi, & Yang, 2022). These barriers can create emotional uncertainty among team members, thereby increasing the need for a psychologically safe environment to ensure open conversations and productive discussions.

Research by Hao et al. (2022) found that trust among team members has a positive effect on knowledge-sharing behaviors through psychological safety as a mediator in virtual team contexts. These findings indicate that psychological safety functions not only as an individual variable but also as a critical psychological mechanism that bridges trust and collaborative behaviors in virtual teams, subsequently supporting overall team performance (Hao et al., 2022). In the domain of organizational psychology, this aligns with Edmondson's (1999) observation that psychological safety allows team members to engage in learning behaviors, such as sharing knowledge and exploring new ideas, which in turn contribute to improved team performance.

Empirical studies by Rødsjø, Sjølie, and Van Petegem (2024) demonstrate that the measurement of psychological safety can be validated in student virtual teams, confirming that the concept of psychological safety is applicable in non-physical contexts and contributes to team dynamics in fully online learning environments. This research reinforces the finding that psychological safety remains relevant even when face-to-face interaction is replaced by a virtual environment, indicating that a

psychologically safe environment is a prerequisite for effective collaboration in digital scenarios.

Other studies also highlight that psychological safety is closely related to team learning behaviors that support collaboration and problem-solving. For instance, Liang, Liu, and Hu (2020) show that psychological safety contributes to team learning and effectiveness by enhancing team efficacy and collective learning behaviors, which significantly improve team performance in remote work settings. Several contemporary studies have explored factors that can enhance psychological safety through structural interventions or work process design. For example, research examining daily stand-up meetings found that regular communication practices are positively associated with team psychological safety, which in turn relates to better work perceptions and more positive team outcomes. Although some of these studies have not explicitly examined virtual teams in professional organizational contexts, these findings indicate that the frequency, format, and structure of communication can influence psychological safety even in online settings (Rietze & Zacher, 2024). Furthermore, Ali, Soomro, and Khoso (2025) emphasize the role of virtual team-building activities in creating psychological safety within digital work environments. Activities such as recognition rituals, informal virtual sessions, and gamified interactive challenges have been shown to effectively reduce feelings of isolation and enhance trust and cohesion among team members, forming a foundation for psychological safety and effective collaboration. Recent research by Robinson and Held (2024) describes psychological safety in student virtual teams from an instructional design perspective. This study indicates that in the context of online interdisciplinary student teams, elements such as providing sufficient collaboration time, designing tasks that encourage diverse contributions, and normalizing failure as part of the learning process can support the development of psychological safety, knowledge sharing, and effective problem-solving in virtual environments.

B. Factors Influencing Psychological Safety in Virtual Teams

a. Leadership

Team leaders play a pivotal role in fostering a psychologically safe environment, as they set the tone for interaction norms, communication openness, and mutual respect within the team. Lechner & Mortlock (2021), in a comprehensive meta-analysis, found that leadership styles characterized by openness, effective communication, and supportive behaviors significantly enhance psychological safety among team members, particularly in remote work contexts. Leaders who actively encourage participation, acknowledge contributions, and provide constructive feedback help reduce fear of negative evaluation, which in turn promotes greater engagement, collaboration, and knowledge sharing.

Similarly, Paulus. (2023) demonstrate that transformational leadership is positively correlated with psychological safety because it motivates team members to share ideas, propose solutions, and take interpersonal risks without fear of rejection or criticism. Transformational leaders cultivate an environment where innovation and creative problem-solving are encouraged, and where mistakes are treated as learning opportunities rather than grounds for punishment. By modeling openness and inclusivity, leaders not only enhance the psychological comfort of their team members but also reinforce a culture of trust and collaboration that is

particularly critical in virtual and geographically dispersed teams, where direct interpersonal cues are limited.

Overall, these findings underscore that leadership behavior is a key determinant of psychological safety. Leaders who demonstrate empathy, clarity, and proactive support serve as catalysts for team members' willingness to communicate candidly, engage in collaborative problem-solving, and contribute to the collective success of the team. In virtual settings, where physical cues and informal interactions are minimal, the role of leadership becomes even more central, as it directly shapes the perceived safety and cohesion of the team..

b. Technology and Communication Quality

The quality of communication platforms significantly influences team members' perceptions of openness, transparency, and overall psychological safety. Kim & Connerton (2020) found that the use of stable, user-friendly collaborative technologies facilitates smoother communication experiences, which in turn supports the development of psychological safety within teams. When digital platforms allow for seamless sharing of information, real-time feedback, and reliable interaction, team members feel more confident in expressing ideas, asking questions, and providing constructive feedback without fear of misunderstanding or negative evaluation.

High-quality communication tools also help mitigate the inherent challenges of virtual work, such as reduced nonverbal cues and asynchronous interactions. For instance, platforms that integrate features like video conferencing, instant messaging, shared document collaboration, and notification systems enable more contextualized and responsive exchanges among team members. This technological support not only reduces communication friction but also fosters trust and predictability, essential components of a psychologically safe environment.

Moreover, the perceived reliability and accessibility of communication platforms can impact team cohesion and participation. When members are confident that their messages are delivered and received effectively, and that technical barriers are minimal, they are more likely to engage actively in discussions, share sensitive or innovative ideas, and collaborate effectively. Therefore, organizations seeking to enhance psychological safety in virtual teams must consider the role of digital infrastructure as a strategic factor in creating an environment where members feel secure to communicate openly and engage fully in collaborative processes.

c. Team Culture and Orientation

A team culture that promotes collective learning and openness plays a crucial role in shaping psychological safety. Alami, Zahedi, & Krancher (2023) emphasize the importance of cultivating a collaborative and respectful team orientation, particularly within global virtual teams where members are dispersed across different cultural, geographic, and organizational contexts. In such environments, a culture that encourages sharing knowledge, asking questions, and offering feedback without fear of judgment or retribution fosters trust and mutual respect, which are foundational to psychological safety.

Team members in psychologically safe environments perceive that their contributions are valued and that mistakes are treated as opportunities for learning rather than as failures. This perception encourages active participation, information

sharing, and engagement in problem-solving activities, which are critical for maintaining team effectiveness in virtual settings. In addition, a culture that prioritizes transparency and mutual support mitigates the isolation and communication challenges inherent in remote work, enabling members to build stronger interpersonal connections despite physical distance.

Grailey, Murray, Reader, & Brett. (2021) also note that in global virtual teams, cultural diversity can both enrich team perspectives and pose challenges to collaboration. Teams that explicitly cultivate norms of respect, inclusivity, and collaborative problem-solving can leverage diverse viewpoints while reducing the risk of misunderstandings or conflict. Such a culture strengthens psychological safety by signaling that all members are equally valued, creating an environment in which individuals feel empowered to express ideas, experiment with new approaches, and contribute to collective learning and innovation.

d. Individual factors and diversity

Grailey et al, (2021) highlight that cultural diversity and the varied backgrounds of team members can enrich team perspectives and contribute to more innovative problem-solving. However, these differences can also introduce communication challenges, including misunderstandings, conflicting assumptions, and varying expectations regarding interaction norms. In this context, psychological safety plays a critical role by mitigating tensions arising from such differences and creating a secure environment for open discussion. When team members feel psychologically safe, they are more likely to voice differing opinions, ask clarifying questions, and engage in constructive debate without fear of social penalties or marginalization.

Psychological safety allows culturally diverse teams to harness their diversity effectively, transforming potential conflicts into opportunities for learning and creative collaboration. It provides a framework in which members perceive that their contributions, perspectives, and concerns are respected, which encourages more inclusive participation and the integration of multiple viewpoints. By fostering trust and reducing interpersonal anxiety, psychological safety helps bridge gaps in understanding that often emerge from cultural or experiential differences, enhancing both team cohesion and decision-making quality.

C. Psychological Safety and Knowledge Sharing

Knowledge sharing is a critical process in virtual teams, particularly when task-related knowledge is distributed among members who are geographically dispersed. The effective exchange of information, expertise, and insights ensures that all team members are aligned, enables problem-solving, and enhances overall team performance. Hao et al. (2022) found that psychological safety acts as a moderator in the relationship between trust and team members' willingness to share knowledge. When team members perceive a psychologically safe environment, they are more likely to contribute their knowledge openly, without fear of criticism, rejection, or negative evaluation.

Similarly, Rødsjø, Sjølie, and Van Petegem (2024) demonstrated that psychological safety in virtual teams is positively correlated with knowledge-sharing behaviors, which in turn facilitate collective learning and collaborative problem-solving. In a psychologically safe environment, members not only feel comfortable reporting mistakes but also feel empowered to propose innovative solutions and share

creative ideas that could benefit the team. This environment reduces barriers to communication that are often intensified in virtual settings, such as the absence of informal interactions and limited nonverbal cues, allowing knowledge to flow more freely and efficiently across the team.

Moreover, the presence of psychological safety helps maintain a culture of continuous learning and experimentation. Team members are more willing to ask questions, clarify uncertainties, and seek input from others, knowing that their contributions will be valued rather than judged. By supporting both the exchange of explicit knowledge (e.g., data, procedures) and tacit knowledge (e.g., insights, personal expertise), psychological safety strengthens collaborative capacity, enhances problem-solving efficiency, and ultimately contributes to superior team performance in virtual environments (Hao et al., 2022; Rødsjø et al., 2024).

D. Psychological Safety and Collaborative Performance

Collaborative performance refers to a team's ability to integrate individual contributions effectively to achieve shared goals through coordinated effort and synergy. In virtual teams, where members are dispersed across locations and rely heavily on digital communication tools, achieving high levels of collaborative performance requires not only technical competence but also a supportive psychological environment. Dzandu, Theophilus, & Issa (2023) observed that virtual teams exhibiting high levels of psychological safety demonstrate greater engagement among members in project discussions and decision-making processes. When team members feel safe to express opinions, provide feedback, and challenge ideas without fear of negative consequences, they contribute more actively to joint problem-solving and task execution, leading to enhanced overall team performance. Similarly, Patil, Raheja, Nair, & Mittal (2023) found that psychological safety positively influences team engagement and effectiveness through its relationship with team cohesion. Teams with strong psychological safety are more likely to develop mutual trust, maintain open lines of communication, and coordinate their efforts efficiently. This cohesion fosters collective accountability, encourages members to support one another, and reduces the risk of interpersonal conflict, all of which are essential for sustaining high levels of collaborative performance in virtual contexts. Dzandu et al., (2023) further underscores that psychological safety serves as a critical predictor of collaborative performance because it encourages transparent, open communication. In environments where members feel secure sharing ideas and raising concerns, teams can leverage diverse perspectives, generate innovative solutions, and respond adaptively to challenges. Particularly in virtual teams, psychological safety compensates for the limitations of reduced nonverbal cues and physical interactions by establishing norms of inclusivity, respect, and constructive dialogue.

Taken together, these findings illustrate that psychological safety is not merely a desirable attribute but a strategic driver of collaborative performance. By fostering an environment where members are confident to participate, experiment, and share knowledge without fear of reprisal, organizations can enhance synergy, optimize decision-making, and achieve superior team outcomes in virtual and distributed work settings.

E. Practical Implications for Organizations

Based on the reviewed literature, organizations managing virtual teams need to

consider several practical strategies to foster psychological safety and enhance collaborative performance. First, leadership training is crucial. Team leaders should be equipped with skills to promote open communication, provide constructive feedback, and support active participation among team members. Such training should emphasize the leader's ability to create an environment where members feel safe to voice ideas, ask questions, or admit mistakes without fear of negative consequences, thereby strengthening engagement and team effectiveness.

Second, the implementation of supportive communication technology is a strategic factor. Organizations need to select collaboration platforms that are stable, user-friendly, and capable of facilitating smooth interaction among team members. The quality of digital communication systems not only affects the efficiency of information exchange but also shapes team members' perceptions of openness and transparency, which in turn enhances psychological safety as well as the willingness to share knowledge and actively collaborate (Hao et al., 2022).

Third, the development of an inclusive and supportive organizational culture is critical. Organizations should instill values of collaboration, mutual respect, and openness, ensuring that team members feel comfortable participating actively, providing input, and proposing creative ideas. Teams that emphasize collective learning and recognize individual contributions not only strengthen psychological safety but also improve collaborative effectiveness and overall team performance.

Fourth, organizations must focus on enhancing knowledge management practices supported by psychological safety. Knowledge-sharing processes, both explicit and tacit, should be embedded in team routines, where members feel safe to report mistakes, discuss challenges, and propose innovative solutions. Such practices not only improve the team's collective learning capacity but also reinforce collaborative performance and the ability to complete tasks synergistically in virtual contexts (Rødsjø, Sjølie, & Van Petegem, 2024; Hao et al., 2022).

Overall, implementing these strategies can help organizations create a psychologically safe digital work environment, support open communication, facilitate effective collaboration, and optimize individual contributions toward achieving shared goals. The integration of supportive leadership, adequate technology, inclusive culture, and structured knowledge management forms the foundation for developing adaptive, high-performing virtual teams in the era of remote work.

CONCLUSION

This review highlights psychological safety as a critical driver of collaborative performance in virtual teams. It enables members to communicate openly, share knowledge, and engage in problem-solving without fear of negative consequences, which is essential in digital environments where nonverbal cues are limited (Hao, Zhang, Shi, & Yang, 2022; Rødsjø, Sjølie, & Van Petegem, 2024). Psychological safety functions as a mediator linking trust, leadership, and knowledge-sharing behaviors to improved team outcomes, enhancing collective learning and overall effectiveness (Hao et al., 2022; Liang, Liu, & Hu, 2020).

Leadership that is open, supportive, and transformational fosters psychological safety by modeling inclusive and risk-tolerant behaviors. High-quality communication technologies and collaborative platforms further reinforce safety perceptions by enabling

seamless interaction and reducing misunderstandings. Team culture emphasizing inclusivity, respect, and collective learning strengthens cohesion, helping diverse members collaborate effectively despite geographic and cultural differences.

Teams with higher psychological safety are more likely to share knowledge, integrate individual contributions, and achieve shared goals efficiently, demonstrating that psychological safety is a strategic enabler of virtual team performance. Practically, organizations should invest in leadership development, supportive technology, inclusive culture, and structured knowledge management to build psychologically safe, high-performing virtual teams.

In sum, psychological safety is not merely beneficial but essential for effective virtual collaboration, fostering innovation, engagement, and sustainable team performance in the digital era. Future research should continue examining its interaction with digital tools and team diversity to optimize virtual teamwork.

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