



ENHANCING TEAM PERFORMANCE IN THE DIGITAL AGE: IMPACT OF TECHNOLOGICALLY MODERATED COMMUNICATION IN THE INTERPLAY OF E-LEADERSHIP & TRUST

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Abstract

As the COVID-19 pandemic concluded, anticipating future health crises underscores the urgency of effective management and adaptable organizations. This paper draws from existing literature on e-leadership, virtual teams, and organizations, and conceptualizes a foundation to explore e-leadership challenges in virtual contexts. Emphasizing the pivotal role of e-leadership competencies in bridging technology-mediated interactions and effective leadership, the study addresses communication, trust, and coordination issues within virtual teams. It illuminates the impact of technology and assesses how diversity shapes the link between employee engagement and performance. The paper contributes to theoretical knowledge in the field, highlighting the importance of trust-building, relationship cultivation, and clear communication. Moreover, its practical implications offer insights into organizational practices and guide leaders in navigating challenges and opportunities posed by virtual teams and organizations.

Keywords

E-leadership, Virtual Team, Trust, Communication, Diversity, Technology, COVID-19

1. Introduction

As the COVID-19 pandemic draws to a close with the declaration of the World Health Organization, it is crucial that we seize this moment to prepare ourselves for future diseases and pandemics that may have an even greater impact than COVID-19. We must not forget the valuable lessons learned during this global crisis. This calls for establishing a new generation of organizations, employees, and leaders who can navigate the challenges posed by potential quarantines and isolations. Therefore, organizations need to invest in robust contingency plans that include flexible work arrangements, adaptability, remote collaboration, and efficient communication systems. This will enable them to transition to remote operations if necessary, ensuring business continuity and maintaining employees' well-being.

Significant steps in communication, technology, and data analytics have empowered organizations to harness the potential of virtual work teams, allowing for 24/7 productivity. These teams transcend geographical boundaries, allowing members to collaborate seamlessly across different time zones worldwide (Wang et al., 2020). Therefore, the concept of the virtual team has evolved into the preferred choice as organizations venture into new global markets and territories (Han and Hazard, 2022; Trivedi and Desai, 2012).

With the surge in remote work and the rapid rise of virtual teams, it becomes imperative to equip leaders with guidelines for optimal management practices for these dynamic environments (Chamakiotis et al., 2021; Madlock, 2013). Such transitions in work roles typically entail mastering new tasks, responsibilities, protocols, and regulations (Ashforth and Saks, 1995). Consequently, the scope of leadership extends beyond the conventional direct interaction between leaders and organizational members. Instead, leaders must exercise their leadership expertise within virtual domains (Torre and Sarti, 2020; Purvanova and Bono, 2009). This unique organizational

structure is known as a virtual organization, and the evolving leadership model associated with it is termed e-leadership (Avolio et al., 2000). According to Avolio, Kahai, and Dodge (2000), e-leadership is defined as "a social influence process facilitated by advanced information technology, aimed at inducing changes in attitudes, emotions, thoughts, behaviors, and/or performance within individuals, groups, and/or organizations." p. (617).

According to this definition, e-leaders no longer possess the opportunity and ability to provide direct assistance in tasks and often lead their virtual teams without physical interactions with their followers (Swart et al., 2022; Trivedi and Desai, 2012). However, the lack of face-to-face meetings between leaders and team members may restrict their influence on the team (Liao, 2017; Avolio and Kahai, 2003). In the meantime, the importance of technology in e-leadership and communication styles is widely recognized (Wang et al., 2023). Technology is pivotal for facilitating crucial team functions like communication, collaboration, knowledge management, and decision-making in virtual teams (Pinjani and Palvia, 2013). Moreover, communication serves as a crucial enabler for establishing connections and fostering relationships in a virtual environment (Verburg et al., 2013).

Technology includes tools and techniques that enable multiple participants to engage in organizational and inter-organizational activities through the complex processing, collecting, transmission, and display of data and knowledge (DeSanctis and Poole, 1994). Technology includes but is not limited to, e-mail systems, message boards (ex. WhatsApp, skype...), Group Support Systems (GSS), knowledge management systems, executive information systems, and emerging technologies such as artificial intelligence or blockchain and can help e-leaders to communicate, disseminate, and control information. Digital communication tools enable leaders to engage in real-time interactions with employees, facilitating the exchange of information, offering feedback, and fostering collaboration. This facilitates effective collaboration throughout the enterprise, strengthens team synergy, and decreases communication barriers (Turyadi et al., 2023). Digital communication, which in this paper is referred to as communication, is defined as the process of sharing information, messages, and ideas through digital devices and channels across different times and locations (Olúbòdé-Sàwè, 2010).

The unique circumstances surrounding e-leadership present significant challenges and complexities. The challenges of leading remote workers/teams necessitate innovative approaches to bridge the gaps of distance and trust. This entails adapting communication styles and carefully selecting communication mediums (Elyousfi et al., 2021; Smith and Beretta, 2021). Trust must be established by e-leaders via communication, integrity, honesty, accessibility, and transparency. They must establish trust among personnel because it facilitates an environment in which workers feel comfortable voicing their concerns. Trust guarantees employee performance and allegiance since workers are more likely to follow a leader with whom they have confidence (Ahuja et al., 2023).

While research on traditional leadership is extensive and factual, the study of the impact of communication, and technology on leadership in virtual teams is relatively new (Bouziri et al., 2020; Lambert et al., 2020). Unsurprisingly, e-leadership and virtual teams have garnered increasing attention from researchers and practitioners, given their growing prevalence in organizations (Contreras et al., 2020; Eissa et al., 2012). The initial exploration of e-leadership literature by Avolio et al. (2000) laid the foundation for scholars' grasp of the conceptual landscape within organizational contexts. However, Wang et al., (2023) identified critical gaps in research concerning remote work and e-leadership styles, proposing more attention to illuminate this arena. Consequently, a pressing need arises for research endeavors aimed at unraveling the intricate nuances inherent in the domain of e-leadership and remote teams and how their leaders behave and interact with team members to ensure organizational success.

In this paper, we employ the Leader-Member Exchange (LMX) theory (Dansereau et al., 1975) to explore the influence of leader-member relationships on key dimensions like communication, trust-building, and performance within virtual organizations and aim to contribute to the existing body of knowledge by conducting a comprehensive literature review on the subject of e-leadership, investigating the moderating effect of technology on communication, which mediates the establishment of trust in their respective leader within virtual teams. This relationship subsequently impacts work engagement and performance within the organization. Furthermore, the study examines the moderating effect of diversity in the interplay of employee performance and engagement (see Figure 1). By addressing these aspects in a thorough and systematic manner, this paper provides valuable insights into the complex dynamics of e-leadership, virtual teams, technology, communication, trust, diversity, work engagement, and performance and contributes to the theoretical knowledge in the field, enhancing the understanding of the complexities involved in leading and managing virtual teams. Moreover, the practical implications of this research can inform organizational practices and guide leaders in navigating the challenges and opportunities presented by virtual teams and organizations.

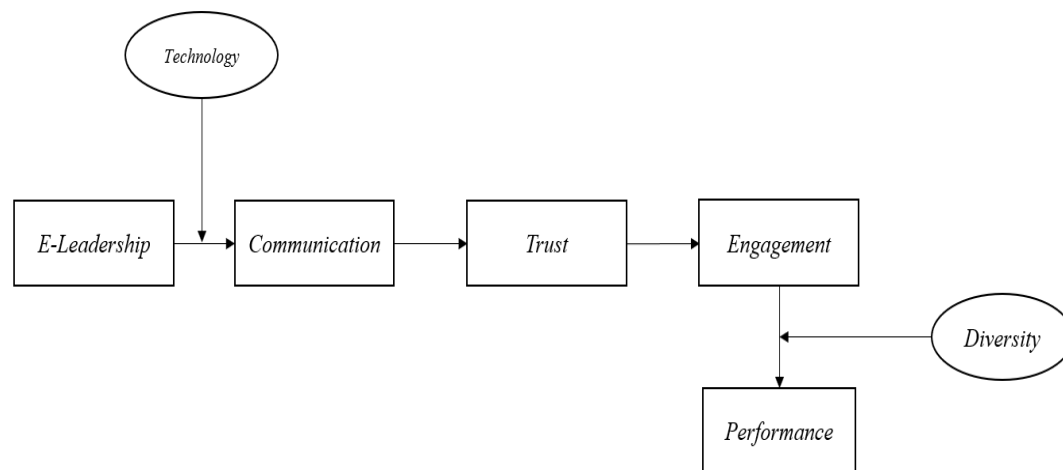


Figure 1 Conceptual Framework

2. Literature Review and Conceptual Framework

2.1. Leader-member Exchange Theory

Within the academic exploration of workplace leadership, a prevalent avenue of inquiry involves the evaluation of the quality of relationships between leaders and their followers (Yammarino et al., 2005). Dansereau and colleagues (1975) are widely recognized as pioneers in the development of LMX theory during the 1970s. According to the Leader-Member Exchange (LMX) theory, the quality of these relationships is shaped by reciprocal social exchanges and mutual role-making processes. In exchange for their loyalty and dedication, subordinates typically receive preferential treatment such as access to privileged information, support, and opportunities for expanded roles (Liden et al., 1997). LMX theory often intersects with other theoretical frameworks of exchange. For example, Yang et al. (2020) argue that within dyadic exchanges, both leaders and employees harbor expectations regarding the benefits and costs associated with the relationship. Furthermore, economic transactions can transition into social exchanges when there is a meaningful interpersonal connection between the leader and the employee (Peng, 2020). It is posited that high-quality Leader-Member Exchanges can inherently motivate employees, thereby fostering increased engagement and commitment in the workplace (Breevart et al., 2015).

Prior research suggests that remote work arrangements may compromise employees' sense of connection to their workplace and colleagues, potentially leading to professional isolation. Consequently, there is a pressing need to consider e-leadership, which encompasses leadership and relationship management activities in an online context. This concept intersects with LMX theory and addresses concerns surrounding professional isolation. Therefore, we aim to leverage LMX theory to explore the interplay between e-leadership style, communication patterns, trust dynamics, and how leader-member exchanges can bolster overall engagement and performance.

2.2. E-Leadership

The rapid shift toward the information age and virtual tasks has brought about profound transformations in organizational structures and the dynamics between leaders and their followers. This transformative change has given birth to a fresh paradigm of leadership known as e-leadership (Van Wart et al., 2017). E-leadership was coined to capture the essence of this new work landscape. This innovative paradigm encompasses scenarios where human interactions are facilitated through information and communication technology, enabling leaders to manage and control entire projects/works from a remote vantage point (Avolio and Kahai, 2003; Lee, 2010).

Gurr (2004) argued that e-leadership represents a novel concept characterized by various ambiguities and uncertainties, as leading a traditional organization differs significantly from leading one in a technology-mediated environment. Consequently, e-leaders are tasked with harmonizing conventional leadership competencies with technological aptitude (Bresciani et al., 2021), encompassing facets such as communication, trust, change, interaction, team building, and training, each of which assumes distinct dynamics (Van Wart et al., 2019). It is not limited to a particular hierarchical level within an organization, it encompasses both individual and group-level interactions conducted through electronic media (Avolio et al., 2000). From this perspective, e-leadership embodies a bilateral dynamic between a leader and a follower, primarily geared toward achieving common organizational objectives. These dynamics yield a spectrum of relationships, spanning from low LMX quality, where interactions center on task-related exchanges stipulated by the employment agreement, to high LMX quality, characterized by substantial levels of trust, interaction, support, and rewards. In high-quality LMX relationships,

both employees and supervisors demonstrate loyalty towards each other, fostering mutual feelings of liking and respect (Graen and Uhl-Bien, 1995).

On the other hand, Bass (1990) observed that leader effectiveness exhibited a positive correlation with physical proximity, emphasizing that physical closeness played a pivotal role. This proximity directly influences the perceived quality and quantity of communication initiated by the leader. Returning to the definition of e-leadership, it entails that leaders can't provide direct task assistance and often guide their virtual teams without physical interactions with their followers. Therefore, remote work induces a transformation in the dynamics between leaders and their followers.

Aligning with LMX theory, which underscores the influence of dyadic role-making and reciprocal social exchanges on leader-follower dynamics, numerous studies underscore the importance of remote workers engaging in distinct forms of communication with their superiors (Busch et al., 2011, Trivedi and Desai, 2012). Therefore, e-leadership's core objective is to bridge the gap between human resources and society, utilizing technological advances to facilitate their connection and maximize their impact. It emphasizes the synergy between human potential and technology, prioritizing the integration of both for optimal outcomes (Gurr, 2004). E-leaders are compelled to embrace this shift and must possess the adaptability to evolve. This entails a comprehension that they are physically, temporally, and perhaps culturally separated (Erskine, 2009).

E-leaders confront a novel set of challenges, including the task of instilling enthusiasm and motivation and maintaining high-quality leader-member exchanges within remote workers, and cultivating trust with individuals they may never meet in person (Liao, 2017). Geographical separation can potentially hinder leaders from forging substantial relationships, subsequently affecting their influence over their followers' performance and outcomes. To foster collaboration and address the ambiguities and uncertainties among team members, by leveraging the principles of LMX theory, leaders must communicate transparently, positively, and constructively (Savolainen, 2014). Lilian (2014) underscored the pivotal role of leaders' comprehension regarding the impact of information and communication on teamwork, which is integral for steering organizational success among the challenges of virtual context. However, communication technologies and the absence of non-verbal cues make this process more complex in virtual teams (Lovelace and Dantu, 2019). E-leaders bear the responsibility of cultivating an environment where team members are well-informed, where each member perceives equitable access to the e-leader's guidance, and where inclusivity prevails, ensuring every individual feels valued (Neeley, 2020). These actions need the acquisition of new skills. Researchers have identified six essential e-skills, including electronic communication, electronic social skills, electronic team building, electronic change management, electronic technology skills, and trust building (Van Wart et al., 2019). For the purposes of this paper, the focus will be specifically on communication and trust-building.

2.3. E-leadership and Communication-Moderation of Technology

While remote-working employees may be located in different places and have individual motivations and interests, they are still part of a team and need to interact and communicate. Poor and inadequate communication among them can lead to different conflicts (Nikbakhsh, 2022; Gigol and Sypniewska, 2019). Conflicts resulting from poor communication can adversely impact the performance of remote-working employees and the overall effectiveness of organizational operations (Zoonen et al., 2021). Therefore, a team leader's communication quality plays a critical role in determining the team's success (Nixon et al., 2012; Kozlowski et al., 2008). In addition, communication style, specifically frequency, quality, and quantity of communication, has been hypothesized to be more important for leadership in virtual teams (Rennie et al., 2023). Several studies have indicated that leaders who neglect communication challenges or misuse available communication tools and techniques are more likely to experience reduced success in managing virtual teams (Daim et al., 2012; Kahai et al., 2012). Therefore, e-Leaders must recognize that fostering open communication, which includes active listening and scheduling one-on-one time with their followers, is essential for promoting a positive organizational culture. This approach significantly impacts the workplace by enhancing the quality of LMX relationships (Brown et al., 2019; Dahlstrom, 2013).

Within virtual teams, higher frequencies of comments from both leaders and members demonstrating individualized consideration, inspirational motivation, and intellectual stimulation are linked to more positive team outcomes (Avolio and Kahai, 2003). The communication style and information sharing of e-leaders play a vital role in fostering positive outcomes such as improved leader-member relationships, trust, employee engagement, and organizational commitment (Kashive and Powale, 2022; Ramserran and Haddud, 2018). Effective leaders possess the core competency of providing clear, concise, and timely communication and direction, which has a positive effect on team performance (Marlow et al., 2017; Henderson et al., 2016). Research consistently highlights that e-leaders who effectively utilize communication and technology are more likely to achieve higher levels of success in managing virtual teams (Hambley et al., 2007; Powell et al., 2004). Therefore, our conclusion suggests that leaders should undergo training to enhance their listening and communication skills, thereby improving leader-member interactions and fostering stronger relationships. Consequently, we propose:

Proposition 1: There is a positive relationship between effective e-leadership and communication.

In the realm of virtual organizations, technology plays a vital role in upholding connectivity. Avolio and colleagues (2000) described technology as a set of tools and methods that enable multiple parties to participate through an advanced system for managing information and knowledge. They believe that the absence of well-modified communication plans can hinder effective information exchange among remote workers, which results in a lack of cohesion and task accomplishment (Malhotra et al., 2007). Olson and Olson (2000) posit that careful consideration of technological factors is essential, as virtual teams rely heavily on technology for their communication and information exchange (Cortellazzo et al., 2019). It's important to acknowledge that virtual workers are more susceptible to receiving negative messages electronically than through face-to-face interactions (Berry, 2006). However, effective e-leaders recognize the pivotal importance of technology in maintaining connectivity and fostering remote interactions with both employees and clients (Huang et al., 2010).

Gurr (2004) emphasized the significance of establishing a suitable social environment where e-leaders can effectively utilize technology to communicate and convey their skills. Recent empirical studies have indicated that digital tools play a significant role in improving problem-solving and monitoring processes (Cortellazzo et al., 2019). According to Marlow et al. (2017), overcoming the challenges of leading virtual teams requires the use of specific communication tools and techniques, these include communication frequency, predictability, responsiveness, clarity, and mode. E-leaders should carefully choose the appropriate communication tools (ex. Zoom, Skype, WebEx, etc.) based on the nature of the message and the characteristics of the team members. Selecting the most suitable technological medium will facilitate prompt feedback and minimize delays within organizations. This proactive approach aligns with the principles of LMX theory, emphasizing the importance of reciprocal social exchanges in shaping positive leader-follower relationships. Leveraging appropriate technological tools bolsters the quality of leader-member exchanges, enabling e-leaders to establish regular and meaningful interactions with their team members. Consequently, this can contribute to the cultivation of high-quality LMX, leading to enhanced employee engagement, satisfaction, and performance.

Proposition 2: Appropriate technology moderates the positive relationship between effective e-leadership and communication.**2.4. E-Leadership, Communication, and Trust (in leader)**

Leadership is inherently and fundamentally a form of human communication (Dahlstrom, 2013). Leaders should not neglect the pivotal role of communication (Tian et al., 2020). Effective and frequent communication is a prerequisite and vital element for social interactions, and building relationships and trust in remote work arrangements (Grant et al., 2019).

In this study, we adopt the conceptual framework as proposed by Mayer et al. (1995), wherein trust is defined as the willingness of a party to embrace vulnerability to the actions of another party, predicated on the expectation that the latter will execute a particular action of significance to the trustor. This expectation persists irrespective of the trustor's ability to exercise oversight or control over the actions of the other party.

Regarding this definition, trust building is particularly challenging in virtual teams due to the lack of in-person interactions, requiring different leadership skills and the effective use of communication tools and techniques (Lilian, 2014; Daim et al., 2012). However, relationships forged using LMX strategies readily transition to virtual settings through AIT (Hoch and Kozlowski, 2014).

Trust is rooted in relationships and fosters a robust leader-follower dynamic (Lovelace and Dantu, 2019). It is the e-leader's duty to foster and cultivate trust among team members. Avolio and Kahai (2003) also noted that the richness of communication is a significant factor that influences the perception of trust, particularly in terms of ability, benevolence, and integrity.

Trust development is a gradual process that evolves over time through communication and feedback between the trustor and trustee (Mayer et al., 1995; Dahlstrom, 2013). Trust is fostered through ongoing effort and nurturing (Savolainen, 2014). Trust within a team emerges as a catalyst, amplifies members' readiness to take risks, optimizes group coordination, fostering collaboration, and cultivates a positive team performance outlook (Newman et al., 2020). Perceived trust in e-leaders enables remote workers to feel valued, informed, equal, and engaged in remote work situations, and it relates positively to increased job performance and job satisfaction (Turesky et al., 2020). It should be noted that trust cannot be established without communication, also poor communication quality can undermine trust and potentially result in breaches of trust among employees and e-leaders (Savolainen et al., 2014). Thus, high-quality LMX encompasses recurring themes of e-leadership, including relationships, trust, and communication (Avolio et al., 2000; Breevaart et al., 2015).

Proposition 3: Effective Communication mediates the relationship between e-leadership and employees' trust.

2.5. Trust and Engagement

Scholars have emphasized the importance of communication in team trust, particularly in achieving positive team outcomes (Dirks, 1999; Jarvenpaa and Tanriverdi, 2003; Chang and Wong, 2010). Trust develops through effective communication and responsive feedback (Grant et al., 2013; Lillian, 2014). Establishing trust needs a gradual process necessitating both time and effort (Pullan, 2016). Notably, Duarte and Snyder (2006) assert that virtual team leaders often underestimate the significance of trust building, failing to acknowledge its vital role in cultivating and upholding organizational outcomes among team members. Teams characterized by high trust levels in their leaders exhibit more engagement, task orientation, optimism, frequency of interactions, and the provision of meaningful, constructive feedback (Ford et al., 2020).

Trust stands as a vital factor in the virtual team context. These teams rely on the mutual understanding that each member will honor their commitments, foster deeper engagement with the organization, and invest diligent effort for the collective benefit. De Vries, Tummers, and Bekkers (2019) assert that social exchange and reciprocity are effective mechanisms for cultivating trust between leaders and followers, whereas low-quality exchanges remain transactional. This observation aligns with Breevart et al. (2015), who emphasize that bonds are often forged on trust and mutual obligations, thus underscoring the importance of reciprocity. Mutual trust serves as a motivational catalyst that helps virtual teams function more effectively (Zaccaro and Bader, 2003). E-leaders need to ensure that virtual team members are connected and engaged in the organization. Engagement is a degree of enthusiasm, dedication, and active participation exhibited by an employee in their tasks and within the organization as a whole (Kahn, 1990). Establishing positive interpersonal bonds holds the key to unlocking higher levels of work engagement, and this effective teamwork necessitates a foundational level of trust in the organizational structure (Kahn, 1990). Furthermore, Jabeen and Rahim (2021) shed light on the positive impact of trust not only on employee job performance but also on the depth of engagement demonstrated by employees. Asserted that trust emerges as a dynamic force that orchestrates enhanced job performance, deeper work engagement, and ultimately, the triumphant synergy of virtual teams.

Fostering trusting relationships among team members and their leader is instrumental in channeling the team's focus towards assigned tasks, consequently improving the team's collective value to the organization. Nabilla et al. (2023) discovered that trust has a favorable impact on employee trust in job performance through engagement. Remote workers who feel empathy and care from their leader may feel trust and safe which encourages them to express new ideas and creative thinking (Lovelace and Dantu, 2019; De Vries et al., 2019). Employees empowered with the autonomy to navigate their career tasks will show more engagement in their workplace (Wojcak et al., 2016). Panteli et al. (2019) underscore the vital role of supportive behaviors exhibited by e-leaders in cultivating employee engagement within virtual teams. Their research illuminates the importance of psychological support, motivation, trust, and constructive feedback, in employee engagement in virtual teams.

Proposition 4: Trust in e-leader is positively related to remote workers' engagement

2.6. Engagement and Performance Moderation of Diversity

Performance includes different activities that help the organization in various ways (Campbell, 1990). Employee performance plays a crucial role within any organization, the effectiveness and efficiency demonstrated by the workforce are instrumental in shaping the organization's performance significantly influencing the overall success of the company (Janza, 2020). In the remote work context, the notion of effective employee performance has evolved as organizations increasingly embrace this flexible work model. Remote work introduces novel dimensions to this concept, highlighting the importance of getting results rather than just counting the hours worked. Therefore, Remote Organizations now focus more on what employees achieve (Turesky et al., 2020).

In the realm of remote work, the concept of work engagement has become increasingly important. As previously stated, work engagement is characterized by the dedication and proactive involvement of an employee in their specific tasks and the organization. Engaged employees prioritize delivering high-quality results over rigidly adhering to strict time constraints. They are more likely to proactively manage their time, explore innovative solutions, and collaborate effectively with colleagues, even when faced with geographical barriers (Verburg et al., 2013). This is in line with the results-oriented approach that is naturally encouraged by remote work.

It is imperative for organizations to cultivate a culture that actively supports and ensures the work engagement of their team members. The absence of engagement and interactions between employees can hinder problem-solving and result in decreased performance (Wojcak et al., 2016). Furthermore, building high-quality relationships within the organization has been consistently linked to elevated levels of engagement, organizational commitment, and job satisfaction, ultimately contributing to enhanced employee and organizational performance (Grant et al., 2019; Lovelace and Dantu, 2019). Moreover, virtual teams have the potential to boost employee engagement and retention, primarily because of the increased flexibility that virtual work arrangements offer to employees who require or prefer such flexibility (Hunsaker and Hunsaker, 2008). According to the literature on Virtual Teams, two critical factors for achieving successful work performance are the development of employee engagement and trust (Powell et al., 2004; Panteli et al., 2019).

Proposition 5: Employees' work engagement positively relates to employees' increased performance in virtual teams.

Remote work also presents an opportunity for organizations to embrace greater employee diversity. Team diversity typically encompasses various dimensions of differences and varieties. This diversity can include race, nationality, age, ethnicity, disability, health status, educational background, professional expertise, sexual orientation, family and immigration status, English proficiency, spoken languages, and generational distinctions (Pullan, 2016). While traditional discussions on diversity frequently delve into visible and demographic factors, the central focus of this paper lies in understanding and embracing diversity in its multifaceted dimensions, with particular attention to the influences of time zones and culture.

Diversity in the organization serves as a catalyst for distinct perspectives and fresh insights, influencing the behavior and work practices of members. However, it can also introduce complexities in communication, identification processes, and task execution (Fernández-Temprano and Tejerina-Gaite, 2020). but strong LMX relationships can mitigate the impact of diversity, particularly when direct contact between the leader and the follower is limited. This effect is amplified when teams are dispersed across different geographic locations and time zones. Daily et al. (1996) support the value of diversity in earlier findings by revealing that computer-mediated groups outperformed face-to-face groups. Culturally diverse groups operating in virtual settings generated a significantly greater number of ideas and exhibited superior work performance. Diversifying ensures that a multitude of voices is heard, leading to a broader range of ideas, thoughts, knowledge, and experiences. in turn, diversity can foster increased problem-solving capabilities, creativity, and innovation, and ultimately contribute to improved overall performance (Even, 2021). Conversely, a lack of proper diversity can lead to different issues such as isolation, frustration, misunderstandings, and miscommunication among the team members (Van Wart et al., 2019). Furthermore, Lillian (2014) and Even (2021) suggest that effective diversity management can help bridge differences between employees and reduce conflicts, which results in better performance in the organization.

Proposition 6: Diversity in virtual teams moderates the positive relationship between work engagement and employee performance. Such that virtual teams with more diversity may exhibit higher performance.

3. Discussion

In this paper, based on the propositions presented, we provided a structural approach and highlighted the critical elements influencing virtual team dynamics, emphasizing the relationships between different factors such as e-leadership, communication, trust, and engagement in fostering team performance by considering technology and diversity as moderator variables using the LMX theory.

This study underscores the important role of e-leadership in the success of virtual environments. The first proposition shows a positive relationship between effective e-leadership and communication. It implies that e-leaders operating in a virtual environment must recognize the significant impact of their communication styles and technology utilization. The conceptual findings of this paper align with previous research highlighting the significance of effective e-leadership, which involves not only clear communication but also strategic use of technology tools (Wang et al., 2023).

Effective communication emerges as the cornerstone of virtual team effectiveness. This study emphasizes that poor communication among remote-working employees and e-leaders can lead to conflicts, potentially reducing the overall team and organizational performance. The identified communication challenges highlight the need for e-leaders to not only be proficient in utilizing various communication tools but also to tailor their approaches to the unique nature of virtual interactions.

The second proposition introduces the moderating role of appropriate technology, recognizing the importance of leveraging suitable technological tools to enhance communication effectiveness under e-leadership guidance. This proposition underscores the need for organizations to invest in and optimize technology infrastructure to support remote collaboration and communication.

The study also digs into the complexity of trust development within virtual teams, acknowledging the challenges posed by the absence of in-person (face-to-face) interactions. Trust, as a foundation of robust leader-follower dynamics, is essential for fostering positive outcomes. The third proposition of this paper underscores the need for e-leaders to actively cultivate trust through ongoing, rich communication that encompasses dimensions of ability, benevolence, and integrity. Drawing on the study's propositions, we highlight the interconnected nature of trust, engagement, and performance within virtual teams and the gradual process of trust-building and its positive relationship with remote workers' engagement. We align our findings with existing literature, such as the work of Magoola et al. (2023) and Maslikha (2022), which highlight the significant relationship between trust, engagement, and performance.

In the two final propositions, this study examines the impact of employee engagement on performance, emphasizing the role of motivated and engaged employees in driving organizational success. The study encourages

organizations to embrace and leverage diversity to foster increased problem-solving capabilities, creativity, and overall performance.

Diversity within virtual teams is explored as a double-edged sword – a source of innovation and varied perspectives (Even, 2021) and a potential cause for communication complexities. This paper identified effective diversity management as a critical aspect for harnessing the benefits of diverse teams while mitigating challenges. This study aligns with the findings of Jerónimo et al. (2022), who examined the relationship between diversity practices and employee engagement within a telecommunications company. Their research highlighted the critical nature of employees' perceptions regarding diversity and inclusion as strategic priorities within organizations. They emphasized the necessity for these values to be deeply embedded in organizational culture and daily practices. Furthermore, they underscored the influential role of inclusive leadership in shaping employees' perceptions, noting its significant implications for both engagement and performance outcomes.

This paper offers valuable insights, practical implications, and recommendations for organizations navigating the complexities of virtual team management. These include investing in leadership development programs that address the unique challenges of e-leadership by training in communication skills, technology utilization, trust-building, and team motivation in virtual environments; promoting effective communication strategies utilizing the latest and most advanced technology based on the conditions and circumstances; building trust through consistent communication, reliability, transparency, and empathy; enhancing workers engagement by creating opportunities to contribute, collaborate, and participate in decision-making processes; and evaluating performance by defining clear performance metrics to help identify strengths, areas for developments, and chances for skill improvement among virtual team members. Furthermore, organizations need to integrate diversity into employee recruitment, which boosts team and organizational performance through providing creativity, and innovation. So, we can consider the existence of a culture of belonging where all team members feel valued, respected, and empowered to contribute their unique perspectives and ideas.

4. Future Directions

As we highlighted the dynamic landscape of remote work, several avenues emerged for future exploration.

Firstly, further research is required to explore the changing role and various forms of technology that support communication in virtual teams. It is crucial to understand how emerging technologies like artificial intelligence and virtual reality can enhance essential communication and collaboration for staying ahead in remote work dynamics. Secondly, exploring different kinds of leadership types to find the best fit for the unique challenges of remote work environments. It's important to both investigate leadership strategies that foster connection and shared purpose among virtual teams to achieve sustained success while navigating communication challenges and preparing training and development programs to prepare leaders for the unique challenges of managing virtual teams. Additionally, future research should focus on developing quantitative strategies that can optimize the benefits of diversity in remote organizations. This research must also address potential challenges related to communication, collaboration, and cultural issues. Given the multicultural composition of these virtual teams, further investigation is warranted to examine the distinct obstacles and prospects linked to cross-cultural virtual team management. Such inquiries should encompass approaches to foster cultural sensitivity and inclusivity, overcome communication barriers, and address cultural disparities. Furthermore, it is crucial to examine the long-term effects of remote work on employee well-being, mental health, and work-life balance. This research will help mitigate potential challenges associated with remote work due to social isolation.

To enhance the future research direction further, we could consider suggesting specific methodological approaches or research designs that researchers could employ to investigate the identified areas effectively. For instance, proposing the use of longitudinal studies, experimental designs, case studies, or mixed-method approaches could offer researchers valuable guidance on how to delve into the complexities of remote work dynamics comprehensively. Additionally, providing insights into potential practical implications or actionable recommendations arising from future research findings could underscore the real-world significance of the proposed research directions. Moreover, considering the potential impact of external factors, such as global events or technological advancements, on remote work dynamics could offer valuable insights for researchers to incorporate into their investigations. By incorporating these elements, we can enrich the future research direction section and provide researchers with valuable guidance for exploring the identified areas further.

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