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Virtual Leadership: Key Factors for Its Analysis and Management**

Abstract

The development of information and communication technology (ICT), as well as the situation caused by the COVID-19 pandemic, have encouraged the adoption of nonconventional schemes of work based on virtuality. In this context, leadership becomes one of the main challenges to organizations and teams. The purpose of this paper is to identify the key factors related to virtual leadership and to propose a scheme for analysing and managing teams in virtuality. After a systematic literature review, the main results suggest that leadership in virtual environments should be considered as a shared phenomenon and that the key factors with the greatest impact on virtual leadership are communication, trust, and team cohesion. The paper highlights and characterises these factors, as well as the actions that should be taken to manage them. As a major contribution, a four-phase scheme is proposed for the analysis and management of leadership in virtuality. Finally, three future lines of research are suggested.

Keywords: leadership, virtual work, communication, trust, team cohesion
(JEL: D83, J54, M12, M54,)

Introduction

Virtual work environments, among which telework stands out, represent an alternative of work flexibility with a history of more than half a century. The oil crisis of 1970 was a turning point for the conception of work and gave rise to remote work. Thus, a problem that affected the mobility of US citizens made the engineer Nilles (1975) think of work as an activity—and not only as a place to go—in order to take work to the houses and avoid commuting to the workplace. Fifty years later, the crisis caused by the COVID-19 pandemic also affected mobility, but this time in the entire world and, especially, revealed that there is still much to do in terms of virtual work. According to Bartsch et al. (2020), the pandemic took many organizations and employees by surprise, which forced them to abruptly transform themselves to provide their services in a virtual way.

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This form of work has evolved over time. What started as an activity anchored to homes, using fixed devices and connectivity, has changed to the hyper flexibility derived from the emergence of new ICT, especially cloud storage and smartphones (Messenger & Gschwind, 2016). In addition, this way of work will be increasingly common in the future, first because technological developments continue increasing exponentially (Friedman, 2016), leading to multiple forms of presence, such as telepresence; and second, this type of work offers positive possibilities for society and it has the potential to contribute to the solution of social issues such as pollution, traffic, and social exclusion, as well as to meet the collaborators' preferences (Gentilin, 2021). For example, by using virtuality or telework, organizations might get prepared to either face their challenges sustainably (Bhargava, 2020), or achieve positive impacts on carbon dioxide emission in cities (Martínez-Jaramillo et al. 2017).

However, these modern work environments, characterised by virtuality, pose great challenges to organizations; the main one, following Pradhan (2019), is leadership. Leaders have to face multiple challenges (Cortellazzo et al., 2019), such as the management of teams and the relationship between leaders and subordinates, who see the need for new work environments (Gibson et al., 2002; Gil et al., 2011).

Dinh et al. (2014) point out that leadership is an evolutionary process, understood as a complete, dynamic, and multilevel system, in which each member can influence the direction and performance of a team; however, the studies in this regard only take into account a small portion of the entire system. Likewise, virtual environments lead to think about other leadership styles (Carte et al., 2006), which have been widely analysed in traditional teams, but not in virtual teams (Hoch & Dulebohnb, 2017). This creates an opportunity to analyse leadership in virtual schemes given that, according to several authors, the prevailing literature on this field, derived from face-to-face environments, cannot be directly translated to virtual contexts (Mehtab et al., 2017); research on virtual leadership has been limited (Bell et al., 2017); little attention has been paid to how virtual team leadership can be strengthened (Angelo & McCarthy, 2020); and the literature has scarcely addressed the subject about whether virtuality can change leadership as such (Purvanova & Kenda, 2018).

In addition, there are some organizational factors that are directly related to leadership and that, in virtuality, become an important challenge. For example, Avolio and Kahai (2003) highlight that trust is essential for leadership, and according to Blomquist et al. (2005), distance and communication influence the team formation stage, which is when everyone tries to get to know each other and build trust. Eisenberg and Krishnan (2018) accentuate that in virtuality some important elements are trust and relationships, communication and exchange of knowledge, perceptions and decision-making, leadership and diversity. Concerning this, Purvanova and Bono (2009) state that ICT-mediated communication has a negative effect on

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the exercise of leadership and on the subordinates' perception; Bergiel et al. (2008), Berry (2011), and Shwarts-Asher (2012) emphasize that virtuality delays the build trust, communication and coordination; finally, Baughman (2019) conclude that some challenges to lead virtual teams are relationship development, trust-building, and effective communication.

Consequently, and following Munn et al. (2018), the purpose of this paper is to carry out a literature review to identify the key factors related to leadership in virtual work environments and based on them, propose a scheme for analysis and management. To that end, a systematic review was conducted in the Scopus database and 89 papers corresponding to a 19-year period (2002–2020) were analysed. An analytical process of preliminary and emerging categories sought to make a significant contribution to the study of leadership in virtual environments, by analysing and presenting the most relevant characteristics and factors.

As a contribution of this research work, it has been established that virtual leadership should be understood as a shared phenomenon based on the creation of a culture of joint and self-managed work in which the leader should fundamentally learn to delegate tasks, distribute roles, and consolidate a role as a team facilitator. With this in mind, a four-phase scheme is proposed as a tool for the analysis or diagnosis of each of the key factors, which will serve as a guide to exercise leadership in virtual work environments.

Leadership: Some Conceptual Background

According to Bass (1985), leaders are important because they help inspire ideas and behaviours necessary for the good performance of a team. Leadership can be understood as 'the ability to decide what should be done and then make others want to do it' (Eisenhower, cited in Bass, 1985, p. 16) and leader, as 'a person who has the ability to make other people do what they do not want and that they like it' (Truman, cited in Bass, 1985, p. 16).

Dinh et al. (2014) define two types of leadership theories: established theories and emerging theories. The former includes the trait, behavioural, situational, and neo-charismatic theories. Complexity leadership and distributed, participatory, or shared leadership stand out within the latter.

The trait theory, following Bass (1990), establishes that leaders are born, not made, and, therefore, intelligence, motivation, and social skills are innate to them. Behavioural theories express that the success of leadership depends on the behaviour and the activities developed, recognizing within these McGregor's (1960) Theory X and Theory Y and Mintzberg's (1973) managerial roles. And situational theories postulate that leadership effectiveness depends on the adjustment between the characteristics of the leader and the situations presented; among these, the path-goal

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theory (House & Mitchell, 1975) and situational leadership (Hersey & Blanchard, 1977) are noteworthy.

Neocharismatic theories have received the most attention in recent times (Dinh et al., 2014), among which transactional leadership and transformational leadership promoted by Bass (1985) stand out. The first focuses on rewarding or punishing depending on the fulfilment of the agreement or failure to fulfil it. In the second, leaders are role models, who should have the skills to transcend processes and focus on the interest proper to each person to achieve the well-being of the group or organization. Leaders seek to motivate their collaborators and encourage them to become creative, build trust, and develop self-management skills.

In the emerging theories, the complexity leadership suggests that leaders should be able to exercise different roles depending on the complex organizational circumstances that arise (Denison et al., 1995); success will depend on achieving the result, meeting the individual needs, and maintaining the cohesion of the group. As for distributed, participatory, or shared leadership, it defines leadership as a collective social process that emerges from interactions between multiple actors and not from the action of a single actor (Uhl-Bien & Barker, cited in Bolden, 2011), which is based on the establishment of shared responsibilities (Gronn, 2000).

Methodology

In this work, systematic research was conducted to retrieve, assess, and summarize literature documents by means of a defined strategy and a purpose within a specific period (Lozano, 2005). Following Post et al. (2020, p. 352), a review article is 'a study that analyses and synthesizes an existing body of literature by identifying, challenging, and advancing the building blocks of a theory through an examination of a body (or several bodies) of prior work'. Review articles can help other researchers understand research topics and discern important fields and, according to Munn et al. (2018), they can help identify types of evidence in a particular field, clarify key concepts or definitions, or determine relevant characteristics or factors related to a concept. It is a methodology that enables rigorous and critical analysis of information, according to the subjective criteria of the reviewer (Beltrán, 2005).

The process to retrieve the articles was as follows: first, a preliminary analysis of concepts related to virtual work and leadership in the literature was conducted; then, thesauri were consulted to find synonyms; and, finally, the following keywords were selected: telecommuting, telework, virtual work, remote work, virtual leader, virtual leadership, a virtual workforce, and virtual teams.

The query was performed in the Scopus database with the following formula: (TITLE-ABS-KEY (telecommuting) OR TITLE-ABS-KEY ("virtual work") OR TITLE-ABS-KEY (telework) OR TITLE-ABS-KEY ("remote work") OR TITLE-ABS-KEY ("virtual leader") OR TITLE-ABS-KEY ("virtual leadership") OR TI-

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TLE-ABS-KEY ("remote leadership") AND TITLE-ABS-KEY ("virtual workforce") OR TITLE-ABS-KEY ("virtual teams")). As a result, 168 papers were retrieved, which, after a selection process, were reduced to 89 documents published within a 19-year period (2002–2020).

The selection and analysis process consisted of three stages: first, the 168 documents retrieved using the search formula based on the title, abstract, and keywords underwent a preliminary analysis and were classified into three main categories: papers that had a strong emphasis on virtual leadership, papers whose contribution were related to the topic of leadership and/or virtual work, and papers that clearly did not contribute to the main topic addressed, such as those focused on teaching methods, use of technology, and communication tools.

Second, the papers that would eventually integrate the final corpus were compared and discussed and a preliminary analysis was conducted to identify general topics, such as problem addressed, objective, unit of analysis, and theoretical and methodological approaches. Finally, the resulting papers were analysed in-depth with the purpose of finding emerging categories. Two questions guided the process: What are the key factors that critically impact leadership in virtual work environments? What are the actions that leaders should take into account to manage their virtual teams?

Findings

In general terms, 56 % of the analysed studies correspond to empirical research and 44 %, to theoretical reflections and literature reviews. Of the total empirical studies, research in organizations (64 %) and simulations in universities (36 %) stand out. Regarding the objective of the empirical studies, they emphasize the analysis of advantages and disadvantages; risks associated with virtual work environments; and motivation, trust, relationship, and commitment in virtual teams. In relation to theoretical reflections, the most addressed topics are the evolution of telework, barriers or limitations to the effectiveness of work in virtual environments, the role of technology in these environments, and guides to good practices of leadership, communication, team identification, and trust-building.

Broadly, the main topics addressed in the analysed papers are related to the ideal type of leadership for virtual contexts (38 %); communication (23 %); trust (21 %); and relationship building and cohesion in virtual teams (18 %). The papers also address technology, goal setting, protocols and roles, performance, motivation and commitment, among others.

Leadership in Virtual Environments: A Trend Towards Shared Leadership

As in face-to-face situations, leaders have transcendental value in virtual work environments. Hunsaker and Hunsaker (2008) and Hambley et al. (2007b) state that

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leadership should be strong to ensure the best results in the performance of virtual teams. The role of leaders and their ability to influence, as evidenced in various studies, are crucial for the success of a team (Shuffler et al., 2016; Shwarts-Asher, 2012). In fact, according to Wakefield et al. (2008), team members believe that their virtual team performs at a higher level when they have a strong sense that their leader is an effective manager.

For Ziek and Smulowitz (2014), leadership can occur in two ways: predisposed, when a person is appointed to assume the leadership or emergent. The virtual work modality and the abilities and skills that are required of leaders demand a new definition of leadership and new work structures. Avolio and Kahai (2003), states that if the visual component is integrated with communications, there should be no differences between virtual and face-to-face environments, but Hambley et al. (2007a) warn that face-to-face teams and virtual teams may have the same challenges, but the virtual aspect magnifies them.

In this sense, for Shwarts-Asher (2012), virtual work environments lead to redefining, both conceptually and in practice, what has been understood as leadership so far. E-leadership appears now on the scene as an ICT-mediated process of social influence and whose purpose is to produce changes in the attitudes, behaviours, and performance of individuals, groups, and organizations (Hambley et al., 2007a). For their part, Purvanova and Kenda (2018) suggest that virtual leadership differs from traditional leadership: not in what leadership means, but in how leaders play their roles and behaviours to face the specific challenges of their virtual environments.

Virtual leadership is more complex (Berry, 2011) and requires greater skills than those for a face-to-face team (Malhotra et al., 2007). Virtual leaders usually have to address challenges that are magnified in virtuality, such as multiculturalism, that in virtuality could be a factor of success or failure (Carte et al., 2010), the decisive use of technology, and device-mediated communication (Slattery et al., 2008), and place a strong emphasis on the management of tasks and relationships (Mehtab et al., 2017).

Virtual leaders should stand out for soft skills to build cohesion and trust, greater aggressiveness in the creation of communication routines and structures, mediation, and management. Soft skills, according to Kozusznik (2008), are those related to social and human interactions, such as the ability to work as a team, creativity, and proactive communication, influencing communication times and progress (Gupta & Pathak, 2018; Kayworth & Leidner, 2002; Ziek & Smulowitz, 2014). These leaders, because they cannot physically observe the members, should be creative in identifying ways to build cohesion, as they should encourage interaction, the accomplishment of goals (Kerber & Buono, 2004; Mehtab et al., 2017), and also enable self-management (Hoch & Dulebohnb, 2017).

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There are different points of view on the leadership style appropriate for the virtual context, although the shared and distributed styles stand out. On the one hand, Purvanova and Bono (2009) point out transformational leadership because it would allow subordinates to increase the sense of recognition and, by building identity, cohesion, and a common purpose, overcome the barriers that physical distance entails. But Maduka et al. (2018) analysed transformational leadership and they affirm that this style did not get a good performance because it lacks certain characteristics required for virtual environments.

On the other hand, some authors claim situational leadership for virtual contexts. The argument is that e-leaders should adopt different leadership styles according to the particular situations (Bell and Kozlowski, 2002) or the life cycle of the team (Horwitz et al., 2006). Similarly, Cascio and Shurygailo (2003) lean towards circumstantial complexity leadership because leaders should be able to recognize the particular circumstances that they have to face at every time.

Finally, several authors lean towards shared leadership. Zigurs (2003) indicates that in virtual teams, the leadership is not under the control of one person, but it is expressed through the interaction of team members and technology. Pullan (2016) expresses that today's leadership, especially in virtual contexts, should be understood as a shared phenomenon and not as a hierarchical position. Leaders should encourage their teams to be autonomous and their role transcends from supervision to two-way communication support and facilitation.

Liao (2017), Anoye and Kouamé (2018), Gilson et al. (2015), and Angelo and McCarthy (2020), suggest an emergent leadership, such as shared leadership, because it enables better team performance. In virtual teams, there is great task interdependence and, therefore, leaders should focus on trust-building, relationships among members, and team development. This enables members to influence and guide each other, share responsibilities, and make decisions in a collaborative manner. Shuffler et al. (2016) complement this position by stating that those who perform the task are best placed to improve it and get the most out of it. Consequently, according to Anoye and Kouamé (2018), team leaders need more training, particularly in task assignments, given that leadership responsibilities should be shared by team members.

The ultimate goal of shared leadership should be to promote the creativity and innovation that collaborative networks can generate, in order to quickly adapt to constant change and organizational complexity (Da Silva et al., 2014). Therefore, e-leaders should create and establish a recognition system that motivates members of virtual teams to create an identity, build trust, and share knowledge (Rasmussen & Wangel, 2006). To this end, the starting point should be collective goal-setting (Berry, 2011; Kozusznik, 2008; Weems-Landingham, 2009), meaning that team members should share leadership responsibilities and be trained to do so (Anoye & Kouamé, 2018).

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Shared leadership also implies that supervision and monitoring are carried out through different management structures. Virtual teams, based on self-management criteria, should be able to regulate and assess their own performance (Hunsaker & Hunsaker, 2008). In face-to-face modalities, it is possible to have direct supervision (Kozusznik, 2008), but in virtual teams, the assessment of performance and the implementation of solutions to the problems are highly restricted due to the lack of face-to-face interaction (Hunsaker & Hunsaker, 2008). Similarly, it would be complex to provide adequate support to all team members through ICT-mediated communication (Mihhailova et al., 2011). In consequence, those leaders who need to have strict control of people and processes could not be successful virtual leaders (Horwitz et al., 2006).

Additionally, collaborative problem-solving and decision-making skills should be foster. If members of virtual teams are not empowered for decision-making, leaders lose the opportunity to leverage the advantage of a rapid reaction to the existing needs (Horwitz et al., 2006; Rasmussen & Wangel, 2006). For that, is essential that virtual leaders identify the necessary key knowledge, skills, and abilities at the right time to achieve the results expected (Katzy et al., 2011).

Communication in Virtual Environments: The Key Factor for Team Coordination

According to Hart (2016), communication is one of the main challenges of leaders and subordinates because it is the basis for teamwork, and it is one of the most important supports provided by the top management (Drouin et al., 2010). But the changes that took place in the context have caused a greater dependency on technology-mediated communication, which represents an additional challenge for leaders (Bell et al., 2017). A virtual leader should have excellent communication skills (Dennis et al., 2013), and he/she should be able to communicate clearly and provide the means to objectively convey the vision, direction, and purpose of each of the actions taken in the team (Da Silva et al., 2014; Roy, 2012).

Organizational communication implies that, besides the interaction, there is good understanding and proper use of information (Watanuki & De Oliveira, 2016). Leadership in virtual work environments presents a much greater communication challenge due to the use and intermediation of ICT, which could lead to increasing levels of ambiguity (Workman et al., 2003) and more time to understand (Wojcak et al., 2016). Berry (2011), for example, states that due to the physical distance and the limitations of ICT, the communication challenge is magnified in virtual work structures, where the potential for misunderstanding and miscommunication is extraordinary; especially if there is no adequate appropriation of technology (Iorio & Taylor, 2014). Anoye and Kouamé (2018) explain that people who communicate online often seem to be or are more abrupt and even ruder than they would be in a face-to-face conversation, and according to Brodsky (2020), this occurs because

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virtual media do not allow emotions to be properly expressed. The most important is to do the work while generating a sense of informality and a non-virtual reality of collaboration among team members (Darics, 2020).

A critical element in terms of communication in virtual environments is technology. Morris (2008) stresses that in virtuality leaders should help their teams develop specific skills. First, they should feel comfortable using ICT to work independently and contribute to team interactions. As Curşeu et al. (2008) state, 'better agreement between task and technology leads to better team-level results' (p. 14). For Shuffler et al. (2016), social influence is indeed important for leadership; however, without the appropriate technology that enables it, the impact can be negative or null. To this end, good training in the use of technology is key (Basharat et al., 2013), as well as protocols and agreements for proper communication (Mitchell, 2012).

Kozusznik (2008) highlights four difficulties of communication in virtual environments: lower quality resulting from the detriment of nonverbal components such as gestures, movements, tone of voice, among others; problems of context and of shared understanding, which can cause confusion; discomfort in the team as a result of having to get used to a different scheme of interaction and of having to learn to use ICT; and impersonality in communications, which reduces informal relationships.

The problems derived from inadequate communication are diverse. They include inefficiencies and inability to achieve goals (Berry, 2011); lack of collaboration among members (Corrales, 2013); longer times and lower quality in decision making (Watanuki & De Oliveira, 2016); less trust and commitment from the team members (Weimann et al., 2013; Panteli et al., 2019); and lack of visibility of the project or the tasks being executed by the team (Hunsaker & Hunsaker, 2008).

In contrast, when communication is properly managed, the benefits are numerous. First, the team will be motivated and, in consequence, more collaborative (Hart, 2016; Liu & Burn, 2007), more satisfied (Piccoli et al., 2004), and willing to share and create knowledge (Montoya et al., 2011). In addition, the leader will be able to influence the development of cohesion and commitment (Curşeu et al., 2008; O'Leary et al., 2014) and, most importantly, to build trust among the members and become a better leader (Bergiel et al., 2008). Finally, it will be possible to reduce ambiguity, uncertainty and misinterpretation (Roy, 2012) and, therefore, prevent conflicts (Nataatmadja & Dyson, 2006; Watanuki & De Oliveira, 2016), which will undoubtedly have a positive impact on identity construction, performance, and achievement of results (Basharat et al., 2013; Klitmøller & Lauring, 2016).

Finally, Montoya et al. (2011) suggest that, in virtual environments, communication should be managed based on three aspects: frequency, planning, and structure. Frequency should be higher to compensate technology limitations, such as the absence of gestures and nonverbal communication; planning should be motivated

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by leaders in a way that it be opportune and free of constant interruptions; and, depending on the size of the team, the structure could be required to a greater or lesser degree, which would imply a mediated communication through intermediaries to make it more agile.

Trust in Virtual Environments: The Key Factor for Members' Autonomy

Same as communication, trust is a key factor for the virtual work environment. It is an essential component of any team building but becomes even more necessary for those who work in virtual environments (Flavian et al., 2019; Roy, 2012; Turesky et al., 2020). According to Weems-Landingham (2009), virtual leaders should lay special emphasis on using and building trust-based relationships.

Naturally, trust in teams is much more complex than in relationships between two people because of the diversity of actors and interests, however, Cummings and Bromiley 1996 (cited in Olson & Olson, 2012) refer to *collective trust.* It is defined from *good-faith efforts* to behave in accordance with any commitments, *honesty* for any negotiation related to such commitments, and *fair behaviour* to prevent from taking excessive advantage of others, even when the opportunity arises.

Those elements are the basis of trust in face-to-face environments, but they are not sufficient for virtual structures (Jarvenpaa & Leidner 1999, cited in Hirschy, 2011). In virtual contexts, it is necessary to make trust tangible through actions that can be observed by other members. According to Weimann et al. (2013), there are two signs that leaders should identify, harmonize, and even capitalize on inside a team to facilitate trust-building: the identification or association, and the personal projection. The first one, according to Rasmussen and Wangel (2006), is more simple because virtual teams tend to assume that a person is trustworthy per se, just for being part of the group (which is also affirmed by Nandhakumar & Baskerville, 2006) or because of the trust placed in the leader, who brings the new member to the team. Here, the trust gained and promoted by the leader is fundamental, given that people trust each other because they share the same identity, values, and goals.

The second one is projected by the own person and is directly related to the trust derived from what each one infers from the other. Flavian et al. (2019), warm that in virtuality, the challenge of projecting the physical and behavioural characteristics that influence the generation of trust is greater. Some characteristics that the members could project are integrity and justice (Kim & Lee, 2013); the personal ability to admit errors and apologize (Peters & Manz, 2007); the willingness to support and guide others (Hart, 2016; Morita & Burns, 2014); the past and present experiences and lessons learnt (Brahm & Kunze, 2012; Liao, 2017); the skills, knowledge, consistency, and even timeliness in the ICT-mediated responses (Malhotra et al, 2007); the cultural characteristics and values (Mukherjee et al., 2012); until the capacity to perform tasks opportunely (Zhang et al., 2010).

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In addition, in virtual contexts, special attention should be paid to the first impression because, it is very difficult to change that initial image over time when members interact at a distance (Meyerson et al., cited in Peters & Manz, 2007). Furthermore, Jenster and Steiler (2011) state that when the teams are newly formed and still unsure about the level of trust, members are reticent to give the leader bad news or negative comments.

Finally, there are some important topics to build trust: the prevention of individuals' isolation and the promotion of social communication due to the impact of physical and cultural distancing (Liao, 2017; Mukherjee et al., 2012); the effective resolution of conflicts, prioritizing mutual support and construction of shared understandings and knowledge (Denton, 2006); the establishment of a substitute for control (Peters & Manz, 2007), promoting autonomy and self-management, given that virtual leaders should be moderators and facilitators rather than bosses (Kozusznik, 2008); encourage the construction of strong ties, identification and commitment with the organization (Nandhakumar & Baskerville, 2006) and with the team (Pauleen, 2003); and, finally, guarantee the successful execution and performance of the team (Horwitz et al., 2006; Morita & Burns, 2014; Nataatmadja & Dyson, 2006).

Team Cohesion in Virtual Environments: The Key Factor for Closeness Among Members

Leaders should promote unity and cohesion inside teams since the effectiveness of a group depends on the relationships of its members (Brahm & Kunze, 2012; Watanuki & De Oliveira, 2016), but in virtuality, leaders should invest more effort and time in building relationships and facilitating internal team processes (Liao, 2017). This is supported by the results of the work by Bartsch et al. (2020), who emphasize that task- and relationship-oriented leadership is necessary to maintain job performance in a virtual environment. And the most common way that an effective virtual leader can impact a team's interactions is by building a cohesive team (Hambley et al., 2007b).

In a virtual environment, according to Beugré (2010), ICT and physical distance may result in less cohesion among team members. Relationships are likely to be superficial and weaker than in face-to-face modalities because interactions are less frequent and nourished (Picot et al., 2009). Even though strong social ties can be developed through ICT, it takes longer than in face-to-face situations (Shwarts-Asher, 2012; Raghuram et al., 2010). The size of the team can also have a negative impact, given that a greater number of members makes the protagonism of each one less and this can have an impact on a reduction of their efforts (Watanuki & De Oliveira, 2016).

Anoye and Kouamé (2018), for their part, point out that, in order to build cohesion, three types of relationships should be fostered: intellectual, emotional and

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managerial. The first one sets the tone and allows each member to know exactly where the team is heading; the second one motivates and prevents any member from isolating themselves, and the third one makes possible alignment relationship that channels efforts and makes it possible to monitor and integrate the work of each member.

Finally, there are other important topics for team cohesion. Dahlstrom (2013) and Perry et al. (2016) emphasize cooperation to ensure productivity and harmony, and Berry (2011) transparency and share responsibility for processes, protocols, benefits, and sanctions. Dennis et al. (2013) highlight the informal interactions intentionally promoted to reinforce socialization and spontaneity, and Peters and Manz (2007) the initial interactions of the team members to make them more fluid. Malhotra et al. (2007), promote the development of a shared culture, and Kozusznik (2008) in interrelated tasks. Finally, Liao (2017), stand out support or mentor between team members.

Final Considerations

The situation brought about by the COVID-19 pandemic led, or even forced, organizations to adopt virtual working. Although much has already been written on the subject, several authors suggest that research on virtual leadership is still in its infancy. In fact, Bartsch et al. (2020) point out that, when the pandemic began, organizations and teams were unprepared to deal with the implications and challenges of leading people virtually.

Therefore, and according to the results, shared leadership is the style that best suits the needs of virtual work. Angelo and McCarthy (2020) state that this type of leadership has a positive effect on the performance of virtual teams. Virtual environments, given the geographical dispersion and the mediation of ICT, require leaders and collaborators to maintain the responsiveness and harmony of a team despite distances. This implies that they are aware of the objectives to be achieved as a group; that they have clear communication processes and interaction protocols that enable self-managed and coordinated work; that they know and trust each other to decide who, when, and how to contact in case of need; that they are close enough to avoid isolation; and that they have the discretion to make decisions in a timely manner and without the presence of the leader.

These implications reinforce team communication, trust, and cohesion as key factors to the virtual context and the shared leadership style, which is characterised by the pursuit of an interactive, collective social process of shared responsibilities.

Remotely and with the mediation of technology, virtual teams need to work as if they were present at the same place. Aiming for direct supervision or a predefined type of leadership to follow up on each individual would be very difficult. Conversely, the authors emphasise leadership as a shared phenomenon, detached from a

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hierarchical position (Pullan, 2016) or from the control of a single person (Zigurs, 2003). To this end, leaders should grant autonomy, and their role should be one of support, mediation, and promotion of trust, relationships among members, and team development.

Communication, an element of great relevance to teamwork, is negatively affected by the intermediation of ICT; therefore, it is necessary for leaders to provide the means and develop the skills so that relationships are richer and more fluid (Brodsky, 2020). A critical factor here is the use and appropriation of technology because it is the vehicle that enables team interactions.

Likewise, communication helps build trust, which should be focused on two aspects: recognition and personal fulfilment. By means of frequent and quality communication, each member can realise that their work is valuable and taken into account (recognition) and that they are capable of rising to the challenges (self-fulfilment), as they are clear about what is expected of them and receive constant feedback on their progress (Hart, 2016; Morita and Burns, 2014). Working on the basis of trust is paramount because, in a virtual context, leaders are not there to control everything and this implies adopting a different system of governance, which entails giving up pre-established policies and processes and focusing more on mentoring the team (Horwitz et al., 2006).

Moreover, trust helps overcome communication and cultural barriers, leading to collaboration, knowledge sharing, and team cohesion. The latter, in turn, is essential for the team to have close interactions, both formal and informal, in order to foster—following Darics (2000)—a virtual environment similar to the face-to-face environment. Cohesion helps reinforce trust within the team and interactions among team members and is enriched by communication.

In conclusion, it is shown that leadership in virtual work environments should be oriented to developing a culture of joint and self-managed work, where leaders should essentially learn to assign tasks, distribute roles, and consolidate their roles as team facilitators. Clearly, the aim of leadership is to ensure the operation and development of teams; however, in a virtual context, as we have observed, this should not be in the hands of only one person: it is a responsibility shared by the team. Based on this, and considering that both leadership and communication, trust, and cohesion should be envisioned jointly and as part of a whole (Anoye & Kouamé, 2018), the scheme below presents four phases for leadership in virtual work environments (see Scheme 1). This proposal serves for the analysis and for team management and, therefore, the practice of leadership in virtual work environments.

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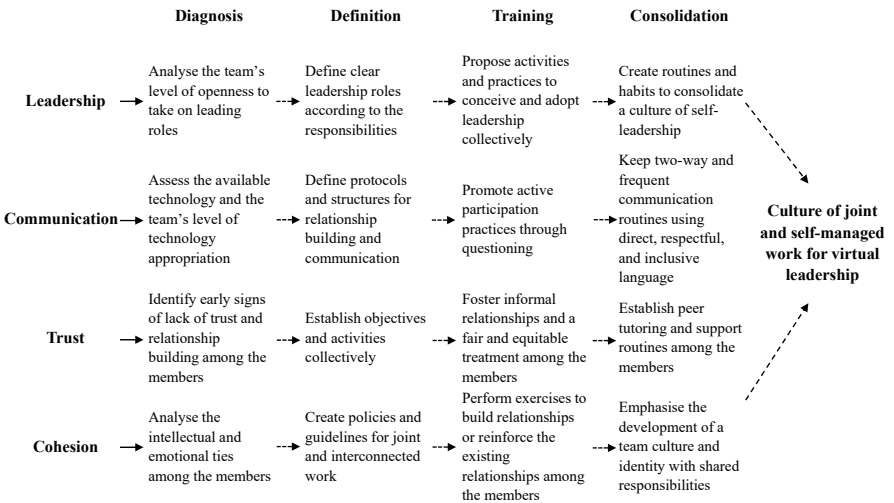
Figure: Key Factors and Actions for Leadership in Virtual Work Environments



Source: compiled by the authors based on results.

The previous scheme shows the key factors for virtual leadership in four phases: diagnosis, definition, training, and consolidation. The first phase seeks to learn the status of the team's needs. To this end, the team members should identify their level of openness to take on leadership roles and, as a result, detect skills or knowledge that need to be developed. They should also assess the available technology and their level of technology use and appropriation, the degree of trust and connection existing among them, and their intellectual and emotional ties. For that purpose, group sessions could be held, and questionnaires or group and individual interviews could be conducted. It is paramount to analyse how technology is being used to address the needs in each situation, considering that it is indispensable for interactions.

The purpose of the second phase is to establish key guidelines for the behaviour of the team. Additionally, it aims to define the leadership roles that should be assumed according to the responsibilities that will be delegated, as well as the protocols and structures of relationship building and communication that enable more harmonic and organized interactions. Moreover, the objectives and activities for the team in general and the policies and guidelines for teamwork should be established clearly, collectively, and participatively. At this point, it is essential to reach agreements among all, regarding the use of technology, synchronous or asynchronous sessions, times, languages, among others.

The third phase aims to perform exercises to transform the habits of the team and start materializing the previous phase. At this moment, activities and practices

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should be proposed to think and adopt leadership collectively, in such a way that they change the pyramidal or hierarchical styles of conceiving leadership and suggest leadership as a shared phenomenon. Furthermore, active participation practices should be promoted through questioning to foster dialogue and participation in all members, as well as to reinforce relationship building and favour informal meetings and equitable treatment among all. It is key that these activities be carried out on a planned, regular, and systematic basis, given that, as it has been evidenced, building close and strong relationships takes more time in virtual contexts, but it is possible if they are sustained over time.

The last stage seeks to cement the new practices and the development of team culture. For this purpose, team members should establish routines and acquire habits proper of a culture of self-leadership by promoting, for instance, proactivity values, critical thinking, or collaborative work. They should also keep two-way and frequent communication routines using straightforward, respectful, and inclusive language and define peer tutoring and support systems among them, where each member is a leader of a specific topic or responsibility and, simultaneously, is a subleader of other two or three topics. Furthermore, it is essential to emphasize the development of team culture and identity with shared responsibilities. To this end, the members can hold working committees to introduce issues or new situations that were tackled and, thus, show collective resolution actions to the other members.

Finally, it is worth stressing that, according to Dinh et al. (2014), leadership should be devised as an evolutionary process and as part of a complete, dynamic, and multilevel system. In this regard and based on the active and hermeneutic condition of people within organizations, it is critical to consider that each member can influence the direction and performance of a team. In addition, virtual work environments have, besides all the above-mentioned challenges, the potential to release leaders from a predetermined, task-oriented hierarchical system and introduce them into a more flexible, joint, and relationship-focused system. That is why virtual leadership should be thought of as a shared phenomenon centred on the creation of a culture of joint and self-managed work.

Limitations and Future Lines of Research

This study provides a framework for the identification of the factors that have critical relevance in virtual leadership, and, in consequence, it seeks to make a significant contribution to the field of study. However, two limitations should be considered: the first one is the fact that this work was carried out from a literature review and, therefore, it lacks empirical contrast to verify the information in the practice of virtual teams or virtual work. The second limitation comes from the methodological process followed to conduct the review. Although a specific methodology was implemented and the process was rigorous, the subjectivity of the

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authors will always be present in the decisions made during each of the stages of the work.

Three future lines of research are suggested. First, conduct an empirical study to contrast what has been discussed in this work with scientific research inside virtual teams or organizations, considering the key variables as a whole. In this sense, and according to what is stated in this work, it would be appropriate to start from some scale that makes it possible to analyse the effectiveness of the shared leadership style for virtual environments and associate it with communication, trust and cohesion.

Second, analyse the impact of different leadership styles on the management of virtual work environments. Although some research works address these topics, there are no comparisons that make it possible to determine the preponderance of one style over another. To do this, a comparative study is suggested from scales to measure different types of leadership in relation to the performance of teams.

Third, undertake virtual leadership studies related to interculturality because, although these results can be very helpful, they are not universally applicable and, therefore, key aspects may vary from one context to another. In this case, it is important to analyse leadership in virtual situations in relation to the mediation of factors such as diversity of beliefs, values, customs, among others.

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