

Cultural intelligence of the leaders and team cohesion in virtual multicultural environments: an exploratory study.

Inteligência cultural dos líderes e coesão da equipe em ambientes virtuais multiculturais: um estudo exploratório.

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Abstract

In an era where organizations operate in increasingly culturally diverse and digital environments, the effective management of virtual multicultural teams has become a critical competency for the competitiveness of international companies. This exploratory article examines the impact of leaders' cultural intelligence on team cohesion in virtual multicultural settings.

To explore these potential links, a quantitative study was conducted with 146 professionals from different nationalities and sectors, who have experience of working in virtual multicultural teams. The data were treated using IBM SPSS Statistics, through descriptive statistics and regression analysis.

The results of the research reinforce the importance of cultural intelligence in managing virtual multicultural teams, offering valuable contributions in both organizational and academic contexts. The implications highlight the need to adopt more effective leadership skills, such as cultural awareness, inclusive practices and communication abilities, to foster team cohesion in virtual multicultural environments. Additionally, the study contributes to filling gaps in the literature by exploring the potential causal links between leaders' cultural intelligence skills and team cohesion in virtual multicultural environments.

KEYWORDS: Intercultural Leadership, Cultural Intelligence, Cohesion, Virtual Multicultural Teams.

Received on: 2026.02.26

Approved on: 2026.09.16

Evaluated by a double blind review system

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1. INTRODUCTION

The growth of multinational companies, along with technological advances and changes in the way some activities are performed around the world, has led to the creation of multicultural teams that collaborate and work virtually or in a hybrid manner. This new organisational paradigm has significantly changed leadership and collaboration dynamics between professionals from different cultural backgrounds, demanding new skills from leaders and teams.

In this context, cultural intelligence gradually becomes perceived as an essential skill for leaders to effectively cope with environments characterised by high cultural diversity. According to Earley and Ang (2003), cultural intelligence relates to an individual's capacity to interpret and respond appropriately in situations involving cultural differences. Research has demonstrated that cultural intelligence directly impacts an individual's capacity to adapt, communicate effectively, resolve conflicts, and succeed in globally dispersed teams (Ang et al., 2007; Bratianu et al., 2024; Mahmoud et al., 2024).

The increased adoption of virtual and hybrid teams in organisations, which was strongly accelerated by the COVID-19 pandemic, has raised awareness of the advantages and disadvantages of these working models. Although multicultural teams are advantageous in terms of innovation and creativity, they face additional difficulties due to language barriers, different communication styles, variations in hierarchical structures and cultural differences (Santos et al., 2022; Sunarso et al., 2024; Yousef, 2024b). Under these circumstances, intercultural leadership supported by cultural intelligence plays a pivotal role in managing virtual multicultural teams (Dostanić, 2024a; Huang, 2023).

The main objective of this exploratory study is to identify the characteristics that professionals value most in leaders and the specific perceived challenges, as well as to analyse the influence of leaders' cultural intelligence on the cohesion of virtual multicultural teams. The results of the study are important at organisational and academic levels. In an organisational context, the results offer practical contributions to the growing number of global organisations that operate with multicultural teams in virtual and hybrid environments, for whom human resources are seen as source of sustainable competitive

advantages. By identifying the main challenges and valued skills in multicultural contexts, this research can inform the development of more inclusive training and integration policies adapted to the digital landscape. At an academic level, this study contributes to filling gaps in the literature on intercultural leadership, cultural intelligence and virtual multicultural teams. Despite the growing interest in these topics, there is still a paucity of empirical studies that coherently integrate the effects of cultural intelligence on leadership and team cohesion in virtual multicultural environments.

The article begins with a review of relevant literature exploring the main concepts and studies on virtual multicultural teams, cultural intelligence, and intercultural leadership. Section 3 describes the methodology of the study, including the questionnaire design, characterisation of the sample, as well as the data collection and statistical analysis procedures. The following section analyses and discusses the results. Finally, the conclusions are presented, summarising the main results obtained, the theoretical and practical contributions of the research, its limitations, and proposing directions for future research in the field of intercultural leadership and multicultural teams in virtual contexts.

2. Review of literature

2.1 Virtual, hybrid and multicultural teams

Virtual teams are becoming increasingly common due to the growth of multinational companies and foreign direct investment (Alkoud & Qatamin, 2023), as well as advances in information and communication technologies (Frost & Duan, 2020). The COVID-19 pandemic has accelerated remote working and marked a shift in the use of multicultural virtual teams by multinational companies, a practice which has continued after the end of the pandemic.

According to Powell et al. (2005), virtual teams can be defined as groups of workers who are geographically, organisationally, or temporally distributed and connected through information and communication technologies to perform one or more organisational tasks. Distinctive characteristics of virtual teams include their dependence on technology for communication, flexible composition and the ability to transcend traditional organisational boundaries and time constraints when necessary (Powell et al., 2004).

The main advantages offered by virtual teams include cost reduction for organisations and employees (due to reduced space rental, accommodation, transport and recruitment costs), increased productivity (due to the ability to attract talent from different countries and create a continuous work cycle), significant contributions to innovative solutions to complex problems due to team members' different perspectives, expansion into global markets through internationalization, and the ability to quickly respond to changes in the business environment (Alkoud & Qatamin, 2023). Other advantages include the ability to create global teams to capitalise on opportunities in different markets (Madhusudan et al., 2024), the flexibility and responsiveness of these teams (Powell et al., 2004) and enhanced innovation, creativity and market adaptability driven by the diverse perspectives and knowledge provided by different members who are not geographically restricted (Kaggwa, 2024; Xie, 2024).

Regarding the challenges faced by multicultural virtual teams, Kaggwa (2024) highlights difficulties in communication and understanding, which can hinder decision-making processes and reduce productivity. Xie (2024) noted communication barriers and cultural conflicts that can arise from differences in native languages, communication methods, expression habits and decision-making processes. Bergiel et al. (2008) refer to a variety of factors, including differing time zones, multiple languages, and varied methods of conflict resolution and cultural adaptation.

Hybrid teams, in contrast, are characterised by allowing team members to work in a shared office space, but also to perform their duties remotely (Handke et al., 2024). These teams distinguish themselves through two main characteristics: dynamic configuration and dependence on technology. Firstly, the adoption of individual hybrid working practices, such as working in different locations and at different times, means that the geographical configuration of the team is constantly changing. Consequently, co-located subgroups or isolated members can emerge, with combinations that vary from week to week, day to day, or even over the course of a single day. Secondly, these changes directly influence communication within the team, increasing dependence on digital technologies when face-to-face interactions are limited (Handke et al., 2024).

Hybrid teams face specific challenges related to the impact of asymmetries in the co-location of their members, because when part of the team works in the office and others work remotely, subgroups tend to be formed based on physical proximity (Handke et al., 2025). When poorly managed, this division compromises the quality of communication and the perceived effectiveness of the team, potentially accentuating internal inequalities and impairing collaboration between the members. The study by Handke et al. (2025) also reveals that disparity in physical presence can be more harmful to team cohesion than total virtuality, due to the constant contrast between members physically present and remote members.

When analysing work performed in the context of virtual and hybrid teams compared with on-site ones, Yousef (2024a) highlights several distinctive characteristics. These include the fact that virtual teamwork communication requires different skills and techniques to those used in face-to-face interactions since elements such as body language and tone of voice are practically eliminated. Hearn et al. (2017) discuss differences in perceptions of meeting participation, highlighting that physical presence in face-to-face meetings is typically understood as a sign of involvement in itself, while in virtual meetings members must actively participate to express any kind of commitment. According to Frost and Duan (2020), virtual teams also present an additional level of complexity in terms of technology use within the team structure compared to face-to-face teams.

When analysing successful multicultural virtual teams, Kaggwa (2024) identifies the team's ability to use cultural diversity to solve complex problems and identify errors more accurately as one of the factors for success. Furthermore, Yousef (2024b) states that individual skills are fundamental to success since team members vary in terms of culture and geography. In this context, intercultural communication is presented as an essential tool. According to Bergiel et al. (2008), key success factors include high levels of trust, clear communication, strong leadership and adequate technology. Ünal's (2023) study concludes that trust and knowledge sharing are essential for the effectiveness of virtual teams. Cultural differences have a moderately positive impact on collaboration, whereas language and time zone differences have a negative impact. Conversely, according to the study, physical distance has not been shown to significantly impact team effectiveness.

To enhance virtual team effectiveness, the author recommends establishing regular meetings to reinforce communication and trust, selecting leaders with intercultural and communication skills, clearly defining project objectives, roles, and responsibilities from the very beginning, implementing knowledge management systems accessible to all team members, and introducing training programmes and structured processes for conflict mediation. Additionally, more efficient project management is required, involving the alignment of goals, sharing of agendas, continuous monitoring of progress, and regular feedback to ensure greater transparency and collaboration in the virtual environment.

2.2 Cultural Intelligence

Cultural intelligence is a core competency for effectiveness in culturally diverse contexts (Ang et al., 2007). According to Earley and Ang (2003), cultural intelligence is defined as an individual's ability to deal with cultural diversity. For the authors, cultural intelligence is a multidimensional concept comprising four distinct dimensions: metacognitive, cognitive, motivational and behavioural. These dimensions together form an individual's ability to deal with cultural diversity, which is an essential skill for adaptation and effectiveness in multinational work contexts. The metacognitive dimension involves being aware of and critically reflecting on the individual's own cultural knowledge when interacting with people from different backgrounds. The cognitive dimension refers to the knowledge acquired through experience and learning about the norms, practices, values and social, economic and legal systems of different cultures. The motivational dimension reflects personal interest and predisposition to engage in intercultural situations, resulting in self-efficacy and internal motivation. Finally, the behavioural dimension corresponds to the ability to adapt verbal and non-verbal communication appropriately to the cultural requirements of the interaction context.

These four dimensions (metacognitive, cognitive, motivational, and behavioural) together provide the basis for the cultural intelligence scale developed by Ang et al. (2007) to measure cultural intelligence. Ng et al. (2009) later proposed a theoretical reconceptualisation of cultural intelligence, positioning it as both a performance competence and an essential learning ability for developing global leaders. According to

the authors, the four dimensions of cultural intelligence facilitate intercultural learning throughout the experience, interpretation, and internalisation stages, which correspond to moments of direct contact with other cultures, subsequent reflection on these experiences, and the application of acquired knowledge in new contexts.

Recent literature on the topic highlights the practical importance of exploring cultural intelligence. Bratianu et al. (2024) emphasise the importance of understanding how individuals from different cultures think and behave, describing it as a critical form of meta-intelligence in multicultural social contexts. The authors also highlight the positive influence of cultural intelligence on intercultural leadership, which contributes to the effectiveness of leaders in culturally diverse environments. Damirchi (2024) also emphasises the importance of cultural intelligence in assessing organisational adaptability. Sunarso et al. (2024), in turn, add that leaders with high levels of cultural intelligence are better prepared to adjust their leadership styles and achieve positive results. Madhusudan et al. (2024) also emphasise the strategic importance of cultural intelligence, arguing that organisations that invest in its development among their employees are more likely to succeed in global markets. Nahar et al. (2025) argue that cultural intelligence significantly impacts the effectiveness of collaboration in multicultural information technology teams, particularly when combined with inclusive leadership. Teams with high levels of cultural intelligence demonstrate greater adaptability and cultural integration. Similarly, culturally intelligent leaders create a psychologically safe environment in which team members feel valuable and encouraged to share ideas and participate actively (Nahar et al., 2025). Similarly, Priyono and Simanjuntak (2025) argue that cultural intelligence is a determining factor in the effectiveness of leadership in global contexts, particularly when combined with the strategic use of digital technologies. The authors highlight that leaders with high levels of cultural intelligence, particularly in motivational and behavioural dimensions, demonstrate a greater capacity for team adaptability, inclusion, and multicultural team development. Furthermore, Priyono and Simanjuntak (2025) emphasise that digital tools such as artificial intelligence and virtual collaboration platforms can enhance the effectiveness of these leaders by facilitating communication, cultural alignment and training for new leaders in increasingly virtual and interconnected work environments.

To sum up, effective intercultural leadership depends on cultural intelligence, which enables leaders to adapt to different contexts, resolve conflicts, communicate empathetically and with cultural awareness, and promote an inclusive, collaborative environment. This fosters cohesion and collective performance among team members (Dostanić, 2024a; Huang, 2023; Mahmoud et al., 2024).

2.3 Intercultural Leadership

Intercultural leadership explores the relationship between leadership and cultural dimensions, exploring how these dimensions influence various leadership styles. Dostanić (2024b) defines intercultural leadership as the ability to lead a team or organisation composed of individuals from different cultural backgrounds where differences in values, principles and behaviours can lead to potential misunderstandings, particularly in groups with high levels of cultural and religious diversity. Huang (2023) argues that intercultural leadership is essential in the context of globalisation, where strategies such as developing cultural awareness, establishing effective communication, adopting incentives appropriate to different cultures, and investing in continuous learning enable business leaders to minimise cultural conflicts, promote cohesion and innovation in teams, and achieve sustainable success in multicultural environments. According to Dostanić (2024a), intercultural leaders have a responsibility to understand the complexity of culture and use this knowledge to influence organisational structures, thereby promoting diversity and creating an environment in which employees feel empowered to contribute meaningfully to organisational outcomes.

Intercultural leadership has become particularly critical in the context of remote working, as the growing adoption of geographically dispersed teams and the advancement of digital working require leaders to more actively maintain effective relationships, build trust, coordinate organisational networks and manage conflicts (Tahirkheli, 2022). Avolio and Kahai (2003) emphasise the importance of communication and information dissemination between leaders and their team members in the context of e-leadership, as this enables leaders to build trust and establish relationships even more quickly than in face-to-face interactions.

Mahmoud et al. (2024) outline the main competencies required for intercultural leadership, emphasising the importance of managing cultural diversity within a team to ensure cohesion, efficiency, and positive outcomes. Effective intercultural leadership requires vital skills such as cultural intelligence, adaptability, and effective communication. In their study, the authors conclude that high levels of cultural intelligence, particularly in motivational and behavioural dimensions, are key determinants of leadership success. They are also associated with greater emotional intelligence, adaptability, communication skills, and the promotion of inclusion. According to Dostanić (2024b), the essential competencies of intercultural leaders consist of understanding and respecting different cultures, the ability to communicate effectively in different languages, flexibility to adapt to different cultural contexts, the ability to resolve conflicts in a culturally sensitive manner, and openness to continuous learning. Furthermore, Dostanić (2024a) emphasises that effective leaders should continuously enhance their intercultural competence and cultural intelligence to formulate assertive strategies, adapt their leadership styles to various contexts, recognise existing cultural barriers and find solutions to linguistic challenges.

Regarding the main challenges for intercultural leadership, Sunarso et al. (2024) emphasise that cultural differences can lead to misunderstandings and communication problems, making it essential for leaders to know how to manage linguistic and non-verbal communication differences to ensure effective team collaboration. Similarly, differences in expectations regarding hierarchy and authority can lead to conflict if they are not properly addressed.

With regard to adaptability, Mahmoud et al. (2024) argue that leaders who recognise cultural nuances and embrace inclusive practices are more likely to foster cohesive and productive teams. Huang (2023) highlights that aligning motivations and rewards with employees' cultural values enhances engagement and fosters innovation within the organisational environment. The results of Mahmoud et al.'s (2024) study indicate that investing in ongoing cultural intelligence development programmes can significantly improve leadership performance in a variety of contexts. The same study also suggests incorporating cultural intelligence assessments into selection processes and performance

evaluations to enhance companies' ability to identify and nurture leaders with robust intercultural competencies.

With regard to the main challenges faced by leaders of virtual multicultural teams, Santos et al. (2022) had identified a number of aspects, such as communication, cultural, institutional and individual concerns, team management and technology problems. Furthermore, Tahirkheli's (2022) study highlights the importance of overcoming language barriers and addressing cultural expectations related to reward systems, as well as differences in work-related attitudes, goal orientation, participation levels, and mechanisms for managing complaints.

3. Methodology

Given the research objective, a quantitative approach was adopted, with a structured questionnaire being used as a data collection tool. The questionnaire was developed based on a review of the literature on intercultural leadership, cultural intelligence, and virtual teams. Data was collected online from professionals working remotely or in a hybrid model in multicultural organisations located in different countries. For the purposes of data collection, organisations operating in Portugal with headquarters or branches in different countries were considered. Accordingly, the study was not confined to a particular geographical area, focusing instead on professional contexts in virtual environments. The inclusion criterion was that professionals were part of a multicultural team, with at least two different nationalities among its members, through non-probabilistic convenience sampling.

Taking into account the research objectives and literature review, the questionnaire was constructed and organised into three main sections. The first section aimed to characterise the socio-demographic and professional profile of the respondents in order to describe the sample and contextualise the results. The second section explored intercultural leadership and the challenges experienced in multicultural teams. The third section focused on cultural cohesion and leaders' cultural intelligence, using the four dimensions proposed by Earley and Ang (2003) as a reference (metacognitive, cognitive, motivational and behavioural). Five-point Likert scales were used for their ability to capture variations in perception in a simple, objective, and statistically robust manner. Measures adopting a 5-

point scale aimed to ensure a balance between differentiating responses and making the questionnaire easy for respondents to understand.

The questionnaire was made available in English via Google Forms and distributed using the multiple strategies to target professionals who work in multicultural environments, such as direct mailing based on previous desk research, LinkedIn, groups pm social media (Facebook) directed to digital nomads and academic research support communities.

The collection took place between 21 April and 9 May 2025, allowing for the collection of 146 responses. Participation was voluntary, and all respondents were informed in advance about the study's objectives and guaranteed anonymity and confidentiality in accordance with the ethical principles of scientific research.

Univariate and multivariate data analysis was conducted using IBM SPSS Statistics software (version 29).

The sample included professionals with a variety of sociodemographic profiles, as shown in Table 1. The majority of participants were aged between 30 and 39 (52.7%), followed by 28.8% in the 18–29 age group and 17.8% aged between 40 and 54. In terms of educational level, the most common qualification was a master's degree (51.4%), followed by a bachelor's degree or equivalent (39%), indicating a high academic profile among respondents. In terms of nationality, Portuguese and Brazilian participants were the most common (28.1% and 26.7%, respectively), followed by professionals from Asian countries (14.4%) and other European Union countries (13%). The predominance of Portuguese-speaking respondents reflects the employment landscape context closer to companies working in Portugal and the data collection strategy used. Nevertheless, the composition of the sample ensures cultural diversity compatible with the objectives of the study.

Table 1 – Characteristics of the sample

Characteristics	N	%
<i>Age</i>		
18-29 years	42	28.8
30-39	77	52.7
40-54	26	17.8
More than 54	1	0.7
<i>Education</i>		
Higher Education (Incomplete)	10	6.8
Bachelor	57	39.0
Master	75	51.4
PhD	4	2.7
<i>Nationality</i>		
Portuguese	41	28.1
Brazilian	39	26.7
European	29	19.9
Asian	21	14.4
Latin America	7	4.8
North America	5	3.4
African	3	2.1
Other	1	0,7

Source: Own elaboration.

As shown in Table 2, in terms of professional positions, the most common job roles for respondents are product management and design (22.6%), technical and operational leadership (21.2%) and software engineering (17.8%). The sample also includes data analysis specialists (13%) and executives (8.9%). This highlights the diversity of roles and the high level of technical expertise within the teams included in the study. When analysing team size, a relatively even distribution across the different categories in the questionnaire is also observed: 34.9% of respondents work in teams of 7–10 people, 34.2% belong to teams of more than 10 people and 28.8% participate in groups of 3–6 people. This distribution indicates the diversity of formats and operating scales of the multicultural teams under analysis.

Table 2 – Professional features of the sample

Professional features	N	%
Job		
Product & design	33	22,6
Technical and operational leadership	31	21,2
Software engineer	26	17,8
Data & analysis	19	13,0
Executive	13	8,9
Human resources manager	7	4,8
Marketing	4	2,7
Customer Support	4	2,7
Consulting	4	2,7
Sales	3	2,1
Other	2	1,4
Team size		
Less than 3 persons	3	2,1
3 – 6 persons	42	28,8
7 – 10 persons	51	34,9
More than 10 persons	50	34,2
Nationality Diversity		
2 – 3 nationalities	52	35,6
4 – 5 nationalities	48	32,9
More than 5 nationalities	46	31,5
Work Model		0,0
Hybrid	94	64,4
Remote	52	35,6

Sector of Activity		
Information technology	86	58,9
Finance & banking	44	30,1
Retail & services	2	1,4
Manufacturing	2	1,4
Tourism	1	0,7
Other	11	7,5

Source: Own elaboration.

Regarding the diversity of nationalities within the teams, there is also significant variation: 35.6% of respondents reported being part of teams including 2–3 nationalities, 32.9% mentioned teams comprising 4–5 nationalities, and 31.5% referred to teams containing more than 5 nationalities. Relating to the working model, the hybrid regime was reported by 64.4% of participants as being predominant, while the fully remote model is also significant (35.6%). Finally, concerning the sector of activity, the sample primarily consists of respondents from the information technology sector (58.9%), with a significant proportion (30.1%) also from the finance, banking and insurance sectors, which are commonly recognised for their adoption of global and diverse teams.

4. Results

4.1 The challenges of working in a virtual multicultural team

Table 3 presents the challenges perceived as most relevant by respondents for the development of work in multicultural virtual team contexts.

The analysis revealed that the most prevalent challenges were unequal participation among team members (51%), followed by intercultural communication barriers (45.5%) and variations in the execution of objectives (36.4%). The coordination of different time zones (30.8%) and differing perceptions of hierarchy and authority (21.7%) were also noted as difficulties. Challenges related to rewards and incentives, as well as familiarity with technological tools, are less frequently reported, with these concerns being identified by only 11.9% of respondents.

Table 3 –Challenges of the work in virtual multicultural teams

Challenges	N	%
Unequal participation of the team members	73	51
Barriers to intercultural communication	65	45.5
Differences in the execution of objectives	52	36.4
Coordination of time zones	44	30.8
Differences in the perception of hierarchy and authority	31	21.7
Cultural differences in the management of conflicts	29	20.3
Differences in the expectations of rewards and incentives	17	11.9
Technological difficulties (familiarity with virtual tools)	17	11.9

Source: Own elaboration. Note: Multiple answers were permitted, to a maximum of 3 options.

The findings of this study corroborate existing literature (Bergiel et al., 2008; Xie, 2024; Kaggwa, 2024), which emphasises communication, participation, and coordination as critical dimensions for the effective functioning of distributed multicultural teams. The presence of divergent leadership styles, differing perceptions of authority, and time constraints associated with time zones are also cited by the same literature as factors that hinder collaboration in global virtual teams.

4.2 Leadership in an intercultural context

Table 4 summarise the skills considered most important by respondents for an intercultural leader in virtual contexts. The skill most valued by respondents was effective verbal and non-verbal communication adapted to the cultural context (75.5%), followed by adaptability of leadership style to the cultural context (58%) and awareness and respect

for cultural diversity (44.1%). Openness to continuous learning and the development of intercultural skills were mentioned less frequently (39.2%), as were sensitivity in resolving intercultural conflicts (32.9%) and the ability to motivate in different cultural contexts (25.9%).

These results are consistent with the assumptions of cultural intelligence theory, which underline the importance of cognitive, behavioural and motivational skills for effective performance in culturally diverse environments (Ang et al., 2007; Earley & Ang, 2003). The importance attached to adapted communication and behavioural flexibility is indicative of the requirements imposed on leadership in global teams. In such contexts, the presence of diversity in values, norms and interpersonal styles calls for a sensitive and adjustable approach. In this sense, continuous learning and interpersonal development play a central role, reinforcing the need for culturally intelligent leaders who are committed to constantly improving their skills.

Table 4 – Most valued characteristics in an intercultural leader

Characteristics	N	%
Effective communication (verbal or non-verbal) adapted to cultural context	108	75.5
Adaptability of the leadership style to cultural context	83	58
Awareness and cultural respect for cultural diversity	63	44.1
Open to continuous learning and development of intercultural competencies	56	39.2
Sensibility in the management of intercultural conflicts	47	32.9
Capacity to motivate in different cultural contexts	37	25.9

Source: Own elaboration. Note: Multiple responses were allowed, multiple answers were permitted, to a maximum of 3 options.

4.3 Perception on the leader's cultural intelligence

The respondents' perception of the cultural intelligence of their leaders was assessed based on the four dimensions proposed by Ang et al. (2007). To summarise the data and

enhance the comprehensibility of the results, Exploratory Factor Analysis was employed, a method that proved to be adequate (Kaiser-Meyer-Olkin = 0.796; Bartlett's Sphericity Test = 175.694; $p < 0.001$). Table 5 synthesises the descriptive analysis indicators for the different principal components.

Table 5– Dimensions of leader's cultural intelligence

Variables	Mean	Stand Dev
Cultural awareness (metacognitive)	3.55	1.004
Cultural expectations (cognitive)	2.73	1.085
Interest for other cultures (motivational)	3.49	1.045
Adaptation of communication style (behavioral)	3.22	1.117

Source: Own elaboration.

The highest mean score was observed in the metacognitive dimension ($M = 3.55$), suggesting that leaders are perceived as being cognizant of cultural variations in team interactions. This was followed by the motivational dimension ($M = 3.49$), which is indicative of a sincere interest in diverse cultural backgrounds. The behavioural dimension, related to communication adaptation, demonstrated a comparatively moderate average ($M = 3.22$). Conversely, the lowest mean score was observed in the cognitive dimension ($M = 2.73$), indicating a diminished perception among respondents concerning leaders' capacity to articulate cultural expectations.

The findings of this study indicate that, despite the acknowledgement of cultural interests and awareness, considerable challenges persist in the practical implementation of intercultural leadership, particularly in the domain of communication and the explicit alignment of cultural expectations. The findings attained are consistent with the results of recent studies, which stress the significance of the motivational and behavioural components of cultural intelligence for effective leadership in multicultural environments (Dostanić, 2024; Mahmoud et al., 2024). Furthermore, a moderate dispersion is found in the responses, with standard deviations ranging from 1.00 to 1.12. The behavioural dimension demonstrates the highest degree of variability, indicating divergent perceptions concerning the leaders' capacity to adapt their communication to diverse

cultural contexts. In contrast to the findings observed in the previous dimension, the metacognitive domain exhibited reduced variability, suggesting a higher degree of consistency among participants in their evaluation of their leaders' cultural awareness. Despite the observed range, the standard deviation values remain within statistically acceptable limits, thus ensuring the reliability of the interpretation of the means and the validity of the analyses performed.

4.4 Team cohesion in virtual multicultural teams

The analysis of the different variables used to assess team cohesion in virtual multicultural teams is presented in table 6.

Table 6 – Perceptions on team cohesion in virtual multicultural teams

Variables	Mean	Stand Dev
Leader's cultural awareness	3.47	0.991
Leader's inclusive practices	3.67	1.083
Leader's communication abilities	3.66	1.033
Leader's promotes collaboration	4.04	0.886

Source: Own elaboration.

The variable cohesion despite hierarchical differences ($M = 4.04$) is the one that achieves the highest value, indicating that the majority of respondents recognise their teams' ability to collaborate effectively, even in the face of different cultural expectations related to authority.

This is followed by the variables inclusive practices of the leader promote cohesion ($M = 3.67$) and leader communication contributes to cohesion ($M = 3.66$), which have positive and very similar mean scores, indicating a favourable perception by respondents in this area. Conversely, the variables that received the lowest ratings from respondents are associated with the leader's cultural awareness in cohesion ($M = 3.47$) and the adaptation of the leader's communication style on cohesion ($M = 3.22$). These findings may signal the necessity for leaders to cultivate greater cultural sensitivity and efficacy in both verbal and non-verbal communication, in order to foster more cohesive teams. Notwithstanding

these observations, the overall results indicate a favourable evaluation of team cohesion within multicultural contexts.

4.5 Regression analysis

To explore the potential causal links between leader's cultural awareness and team cohesion in a virtual multicultural context, a linear multiple regression was performed. All regressions show an overall statistical significance (F) and there were no problems of multicollinearity (Durbin Watson indicator around the value of 2).

The analysis of table 5 shows that the leader's cultural awareness contributes to team cohesion in a virtual multicultural environment on the metacognitive, motivational and behavioral dimensions. Regarding leader's inclusive practices, only metacognitive and motivational dimensions of team cohesion are affected. In respect to leader's communication abilities, it was observed that the dimensions metacognitive and behavioral impacts team cohesion. These results are in line with the results of the study by Mahmoud et al. (2024), which associates cultural intelligence with team cohesion. Finally, the results showed that leader's collaboration dynamics had no influence on any of the variables related to team cohesion.

Table 5 – Regression between the leader's cultural intelligence (dependent variable) and team cohesion in virtual multicultural teams (independent variables)

Independent Variables	1	2	3	4
Intercept	0,744	0,990	0,277	0,292
Cognitive	0.021	0.039	-0,04	-0,089
Metacognitive	0.253***	0.328***	0.355***	0.183
Motivational	0.199***	0.265***	0.128	0.144
Behavioral	0.384***	0.114	0.300***	0.176
Rsquared	0,513	0,380	0,452	0,238
Durbin Watson	2,027	2,130	2,019	1,855
F	37,147***	21,641***	24,587***	4,199***

Source: Own elaboration. N = 146. Notes: (***) Significant at 1% level; Dependent Variables: 1 - Leader's cultural awareness, 2 - Leader's inclusive practices, 3 - Leader's communication abilities, 4 – Leader's promotes collaboration.

Conclusions

This exploratory study examined the role of cultural intelligence in leadership within virtual multicultural teams, focusing particularly on its impact on team cohesion. The study also aimed to identify the most valued leadership attributes and the main challenges faced by professionals in the management of multicultural virtual teams.

The findings of the study confirmed that leaders who are perceived as more culturally intelligent tend to promote higher levels of team cohesion. There was a particular impact of leader's ability to adopt inclusive practices, demonstrate intercultural awareness and communicate assertively that directly affects the degree of integration among team members.

The most valued skills of multicultural leaders are effective communication, adaptable leadership styles and cultural awareness. Among the challenges faced by virtual multicultural teams the more frequently noted are unequal participation, difficulties in intercultural communication and a lack of alignment in objectives of all the members of the team.

From a practical perspective, the results provide tangible evidence of the significance of cultural intelligence in fostering effective leadership within culturally diverse settings. It is recommended that organisations incorporate these insights into the development of multicultural leadership programmes focusing on competencies such as adapted communication, intercultural awareness and inclusive practices. Three of the four dimensions of cultural intelligence (metacognitive, motivational and behavioural) proved to be particularly relevant for promoting cohesion and effective communication in virtual teams and could form the basis of structured training and evaluation models for leaders.

Furthermore, an analysis of the results enables the recognition of recurrent operational obstacles. The identification of these obstacles provides valuable contributions to the design of mitigation strategies. Such strategies might include the strengthening of collaborative practices, clarity in the definition of roles and expectations, and promoting actively the inclusion in remote contexts. The analysis of the most valued skills for intercultural leadership, which include effective communication, adaptability, and

cultural sensitivity, reinforces the need to integrate these dimensions into the recruitment, evaluation, and continuous development of leaders. These results can directly contribute to the development of human resource policies in global companies operating with virtual teams distributed worldwide.

One limitation of the study is the non-probability convenience sampling method used, which was based on contacts established through professional networks, LinkedIn and specific interest groups. Although this approach was useful for identifying suitable profiles for the research objectives, it does not completely guarantee the statistical representativeness of the target population, which limits the potential generalisability of the findings.

Future research may include longitudinal studies to facilitate observation of team evolution over an extended period. This methodological approach would provide a deeper understanding of the influence of leaders' cultural intelligence on communication strategies and team effectiveness at different stages in the life cycle of virtual multicultural teams. Another pertinent proposal is the adoption of a mixed methodology combining quantitative and qualitative techniques. The utilisation of semi-structured interviews, focus groups or case studies would allow capturing specific dimensions and details that are not fully accessible through questionnaires, thereby deepening the understanding of leaders' culturally intelligent practices and the challenges faced by virtual teams on a daily basis. Finally, it would be pertinent to extend the analysis to a wider range of sectors, beyond technology and finance, to test whether the results can be generalised to organisational contexts with different dynamics.

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How to cite this article:

Reche, M., Antunes, I., Bernardino, S., & Santos, J.F. (2026). Cultural intelligence of the leaders and team cohesion in virtual multicultural environments: an exploratory study. *Portuguese Journal of Finance, Management and Accounting*, 12 (24), 1 - 25. Disponível em <http://u3isjournal.isvouga.pt/index.php/PJFMA>. DOI: <https://doi.org/10.54663/2183-3826.2026.v12.n24.1-25>