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## From Cultural Clashes to Creative Solutions: The Impact of Leaders Cultural Intelligence on Employees Problem-Solving Skills

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### Abstract

This study empirically examines how Leader Cultural Intelligence (LCI) affects problem-solving (PS) of employees and it also investigates psychological safety as mediator between LCI and employee PS. It also investigates cognitive diversity's moderating role on this mediated pathway. Using survey data collected from 400 employees operating in telecommunication contact centers in Pakistan, the results confirm a positive relationship between LCI and employees' problem-solving while psychological safety mediates this relationship. In addition, the study unveils cognitive diversity as a moderator that adjusts the relationship between psychological safety and problem-solving skills. These contributions enhance theoretical discussion as well as managerial practice, especially in multicultural organizational environments where different national teams need to work closely together.

**Keywords:** Leaders cultural intelligence, Psychological Safety, Cognitive diversity, Problem-Solving, Pakistan

### Introduction

Managing problems is a crucial yet challenging aspect of a leader's role. Effective resolution necessitates choosing the best approach for each situation. In the global economy, businesses must collaborate with employees from diverse cultural backgrounds, which increases the time spent on problem-solving. As cross-cultural interactions rise, the ability to relate to and resolve issues across cultural boundaries has become essential. Cultural intelligence is widely recognized as a crucial skill for effectively managing and leveraging cultural diversity (Early & Gardner, 2005). Cultural intelligence is a form of cultural competence that entails the ability to function effectively in diverse cultural environments by fostering understanding, adaptation, communication, and coordination (Adair, Hideg, & Spence, 2013). Cultural intelligence consists of four key components: metacognitive intelligence, cognitive intelligence, behavioral intelligence, and motivational intelligence (Ang, Dyne, & Koh, 2006). Team members with strong motivational CQ are better equipped to access and process the vast information and knowledge within a diverse team, leading to innovative problem-solving and increased creativity (Richter, Martin, Hansen, Taras, & Alon, 2021). The growing diversity in today's workplaces has underscored the importance of cultural intelligence, a relatively new field of study. Leaders with high cultural intelligence can more effectively adjust their behavior and work strategies to meet the unique demands of various cultural and social contexts (Van Dyne, Ang, & Koh, 2015). Cosain, Solutan, and Sarno's (2022) analysis reveals that the motivational and behavioral aspects of cultural intelligence significantly and positively

influence conflict management practices in culturally diverse organizations. Leaders with high levels of cultural intelligence can overcome their natural tendencies towards routine responses, exhibiting flexibility in their behavior across various situations. This adaptability may involve adjusting communication approaches and negotiating strategies, which can enhance problem resolution (Molinsky, 2007). Stallter (2009) proposed that tackling challenges in unfamiliar contexts frequently requires resources beyond our conventional expertise. As we engage with cognitive, volitional, and behavioral dimensions, our goal is to achieve culturally relevant solutions that resonate with the host culture. Engle and Delohery (2016) found a significant positive correlation between motivational cultural intelligence and behavioral cultural intelligence, and successful cross-cultural problem-solving. Similarly, Engle, Elahee, and Tatoglu (2013) confirmed a positive relationship between cultural intelligence and effective problem-solving strategies in international business negotiations. While extensive research has been conducted on the relationship between leaders' cultural intelligence and problem-solving in multinational and globally diverse settings, there has been insufficient attention given to how leaders' cultural intelligence impacts intra-nationally diverse workforce in telecommunication contact centers in Pakistan. Our study also aims to investigate how psychological safety affects the link between a leader's cultural intelligence and employees' problem-solving behaviors within a diverse intra-national workforce. Psychological safety involves how individuals perceive the outcomes of taking interpersonal risks in a given setting (Edmondson, 1999). In rapidly evolving environments, psychological safety enhances employees' confidence and sense of security, thereby facilitating more effective contributions at work (Edmondson & Lei, 2014). A psychologically safe environment drives employees to invest more in their performance (Obrenovic et al., 2020) and enhances their learning behavior and performance (Wang et al., 2021). Employees who feel secure are more likely to engage in creative work (Newman et al., 2017). Leaders play a key role in maintaining this safety, especially during post-acquisition integration (Nicholson et al., 2016). Frazier et al. (2017) highlighted the need for more research on how cultural factors impact psychological safety. While psychological safety's mediating role has been studied with various variables, its effect on the relationship between leader cultural intelligence and problem-solving remains underexplored. Our study examines how psychological safety mediates this relationship within intra-nationally diverse contexts.

## **Theoretical Development**

### **Leader Cultural Intelligence and Problem-Solving**

Cultural intelligence is defined as the ability to recognize, interpret, and respond effectively to unfamiliar or ambiguous social and cultural cues, especially in diverse and novel situations (Ang & Inkpen, 2008). According to Fang, Schei, and Selart (2018), cultural intelligence is crucial for expatriates, managers, and others involved in cross-cultural interactions to succeed in a globalized environment. Enhancing cultural competence improves the ability to communicate, understand, and engage with individuals from various cultural backgrounds (Heath, Martin, & Shahisaman, 2017). This concept encompasses four key elements: awareness of one's own cultural perspective, attitudes towards cultural differences, knowledge of diverse cultural practices and worldviews, and cross-cultural skills. According to Cosain, Solutan, and Sarno (2022), the motivational and behavioral components of cultural intelligence significantly and positively influence conflict management practices in culturally diverse organizations. Organizations aiming for multicultural effectiveness should prioritize the development of leaders' cross-cultural competencies, such as cultural intelligence (Rockstuhl et al., 2011). Cultural intelligence is crucial for building trust and cohesion within multinational teams, which are necessary for effective group coordination, efficacy, and innovative problem-solving (Moynihan, Peterson, & Earley, 2006). It is aligned with broader intelligence theories, such as practical and multiple intelligences (Hasanuddin et al., 2022; Sternberg & Grigorenko, 2000), and is distinct from other forms of intelligence like emotional intelligence (EQ) and social intelligence (SI) (Ang & Inkpen, 2008; Elenkov & Manev, 2009; Kim, Kirkman, & Chen, 2008). Cultural

intelligence (CQ) comprises a range of skills and traits essential for adapting and succeeding in diverse social environments. Eken, Ozturgut, and Craven (2014) highlighted that leaders in today's globalized world increasingly operate within multicultural organizations, underscoring the significance of mutual respect and understanding. The cultural intelligence framework provides individuals with competencies that enhance innovation (Leung, Maddux, Galinsky, & Chiu, 2008), team coordination (Janssens & Brett, 2006), and leadership (Ng, Van Dyne, & Ang, 2009). Additionally, it facilitates conflict resolution processes (Chen et al., 2014) and enables individuals to effectively address professional challenges in both domestic and multicultural settings. Leaders with high levels of cultural intelligence can move beyond their natural tendencies toward routine responses, exhibiting flexibility in their behavior across various situations. This adaptability may involve adjusting communication strategies and adapting to different negotiation contexts, thereby facilitating effective problem resolution (Molinsky, 2007).

International human resource managers should emphasize the development of individuals' cognitive, motivational, and behavioral competencies in cultural intelligence (Andresen & Bergdolt, 2017). Carmeli et al. (2013) found that leader supportive behaviors are directly and indirectly linked, through both internal and external knowledge sharing, to employees' ability to engage in creative problem-solving. Cross-cultural and international experiences can be utilized to develop cognitive components such as cross-cultural knowledge, as well as the motivational and behavioral aspects of cultural intelligence that are crucial for problem-solving. It has been proposed that organizational cultural patterns, established by leadership, foster a common set of fundamental assumptions (Schein, 2010). This shared understanding is developed by groups through processes of problem-solving, external adaptation, and internal integration, which may guide new members in how they perceive, think about, and address these issues.

### **Hypothesis 1: Leader cultural intelligence has a positive influence on problem solving.**

#### **Psychological Safety as a Mediator**

Psychological safety refers to employees' perception of being safe when engaging in tasks that involve risk in the workplace (Edmondson & Lei, 2014). The development and implementation of innovative or unconventional ideas involve inherent risks and require a supportive environment (Edmondson, 1999). A work environment that is supportive and fosters relationship-building is essential for cultivating a more innovative workforce (Binyamin, Friedman, & Carmeli, 2018). Kessel et al. (2012) assert that fostering an environment conducive to creative problem-solving and continuous operational improvement requires ensuring interpersonal risk-taking, including activities such as raising questions, voicing concerns, sharing ideas, and experimenting with new methods. Similarly, Carmeli et al. (2013) argue that establishing a psychologically safe atmosphere, characterized by open deliberation, constructive feedback exchange, critical evaluation, and expression of dissatisfaction, is vital for leaders as it promotes innovative problem-solving and enhances organizational competitiveness. Moreover, Erez et al. (2013) highlight the importance of psychological safety in multicultural teams, noting its role in reducing conflicts and misunderstandings. In environments where psychological safety and trust prevail, employees feel empowered to take risks, share ideas, and participate fully without fear of criticism or negative consequences (Almahri & Wahab, 2023). Leaders who recognize their responsibility to cultivate psychological safety foster trust, facilitate information exchange, and promote collaborative problem-solving within their teams (O'Donovan & McAuliffe, 2020). This, in turn, enhances open communication, collaboration, and innovation, thereby improving creativity and problem-solving capabilities. Such an environment, shaped by psychological safety, encourages individuals to express their ideas freely, take ownership of decision-making, and empowers them to independently initiate, adapt, or discuss solutions to problems (Singh & Sarkar, 2019). Leaders committed to encouraging active employee involvement in problem-solving and innovation must evaluate their leadership approaches and be prepared to adopt paradoxical strategies tailored to specific needs, thereby fostering trust and psychological safety within their workforce (Oh et al., 2023).

In the digital age, cultural intelligence (CQ) is essential for effective planning, communication, understanding, and leadership in diverse cultural environments (Ruth & Netzer, 2020). Studies on the psychological effects of cultural intelligence (CQ) suggest that it significantly reduces tension and stress for individuals working in multicultural contexts (Van Dyne, Ang, & Tan, 2016). When employees operate within a psychologically supportive environment, they are able to enhance their knowledge, refine their skills, and optimize work processes (Burrell & Brauner, 2021). Leaders foster trust and openness within teams by actively listening, promoting open communication, and offering support, creating a culture where employees feel safe to share ideas, voice concerns, and take risks without fear of negative consequences (Munawar, Yousaf, Ahmed, & Rehman, 2024). A strong leader-employee relationship enhances psychological safety, encouraging the generation, support, and execution of innovative ideas (Carmeli, Reiter-Palmon, & Ziv, 2010). Leaders play a crucial role in creating an environment that balances performance expectations with psychological safety, as this balance helps teams enter a "learning zone" that maximizes performance (Kim, Lee, & Connerton, 2020). Based on this understanding, we propose the following:

**Hypothesis 2: Psychological Safety mediates the relationship between leader's cultural intelligence**

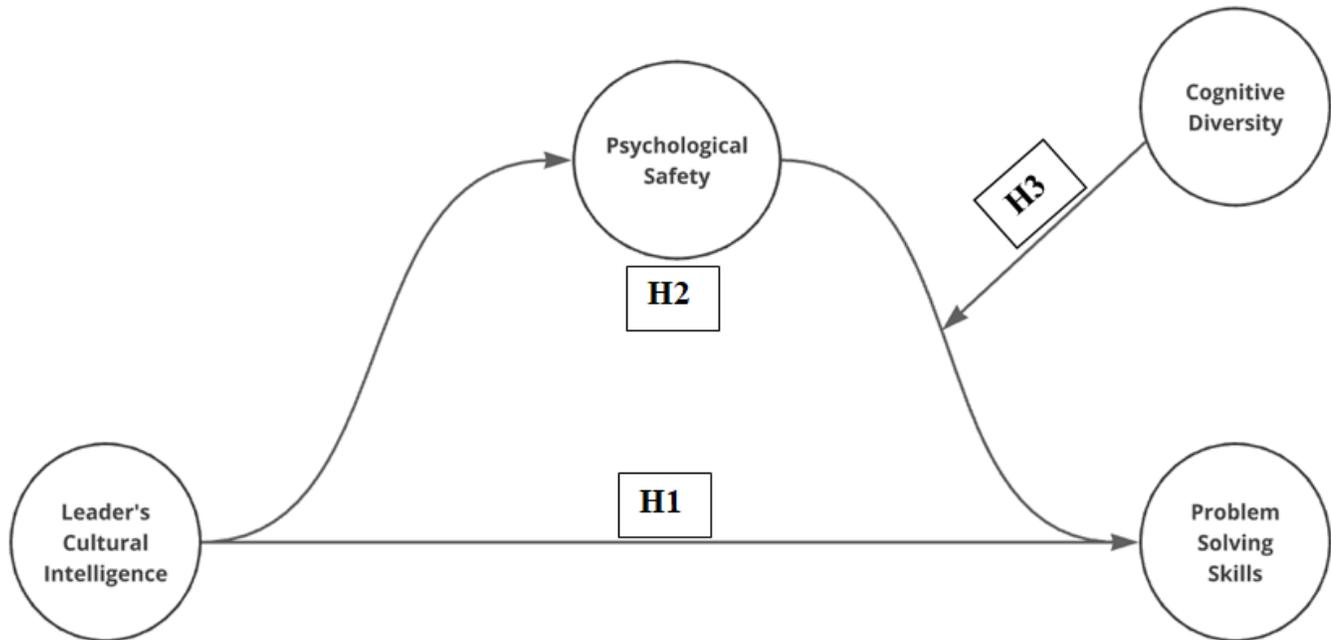
**Competencies and employee's problem solving.**

**Moderating Role of Cognitive Diversity**

Cognitive diversity refers to the degree to which team members vary in their perspectives and ways of thinking about a given situation (Nguyen et al., 2022). The diversity of perspectives and knowledge within a team highlights the critical role of cognitive diversity (Shin et al., 2012). The value-in-diversity approach suggests that teams with varied knowledge and viewpoints have access to a wider pool of relevant expertise than homogeneous teams. Cognitive diversity is an intangible asset that plays a crucial role in how managers and employees leverage the collective knowledge and experiences within a diverse group (Younis, 2019). The diversity of workforce knowledge and experiences has been shown to positively influence team creativity and innovation (Wang, Kim, & Lee, 2016; Shin, Kim, Lee, & Bian, 2012). Expanding the range of social connections among individuals in the workplace facilitates the exchange of a broader spectrum of knowledge, thereby enriching the creative resources essential for maintaining an organization's competitive advantage (Huang & Liu, 2015; Makkonen, 2022). Cognitive diversity, which includes differences in beliefs, values, thinking styles, skills, knowledge, experience, and expertise among group members (Chow, 2018), emphasizes the significance of demographic diversity in the workforce. Cognitive diversity is essential in organizations as it introduces fresh perspectives, enhances decision-making, improves problem-solving, and fosters innovation and creativity, ultimately driving superior performance and adaptability in a complex global environment, giving them a competitive edge (Dongery & Rokade, 2020). Reynolds and Lewis (2017) stressed the importance of cognitive diversity in navigating complex and uncertain situations, emphasizing the need for individuals to utilize diverse thinking styles to tackle intricate problems. Lamm et al. (2012) suggested that individuals with cognitive diversity contribute unique perspectives, ideas, and suggestions, offering greater resources for solving complex problems. Social Cognitive Learning Theory, as proposed by Bandura (1986), provides insight into the dynamic interaction between individuals and their environment, highlighting how leaders' behaviors significantly influence employee's problem-solving skills. Leaders serve as role models, shaping employee actions and attitudes through observed behaviors and decision-making approaches. In culturally diverse settings, such as telecommunication contact centers, employees are inclined to mirror the inclusive and innovative behaviors of leaders who demonstrate high Cultural Intelligence (CQ). This emulation fosters a work environment that encourages decision making and enhances psychological safety. Based on this understanding, we propose the following hypotheses:

**Hypothesis 3: Cognitive diversity moderates the relationship between leader's cultural intelligence competencies and employee's problem solving.**

## Theoretical Framework



## Methods

### Sample and Procedure

The research participants were employees working in telecommunication contact centers based in Islamabad and Rawalpindi Pakistan. Access to these participants was ensured through personal and professional networks.

Table 1 presents the frequency distribution of sample statistics for the respondents in this study. Surveys were administered to employees working in team-based settings within telecommunication contact centers. Each survey included a cover letter detailing the study's purpose and scope, emphasizing the confidentiality and anonymity of responses, and highlighting the voluntary nature of participation. Of the 700 surveys distributed, 400 completed responses were received, yielding a response rate of 57.14 percent. Among the respondents, 87.5 percent were between the ages of 24 and 30, with males comprising 67 percent of this group. Educational qualifications ranged from bachelor's to master's degrees, with most participants having 2 to 5 years of work experience. Additionally, the sample encompassed a diverse mix of occupational roles, ages, ethnicities, and educational backgrounds, all engaged in collaborative team environments within their organizations.

**Table 1 Demographic Information**

Particular	Description	Frequency	Percentage
Gender	Male	268	67.0
	Female	132	33.0
	Total	400	100.0
Age (in years)	24y to 30y	350	87.5
	31y to 36y	50	12.5

	37y to 43y	0	0
	44y to 50y	0	0
	50+	0	0
	Total	400	100
Qualification	Bachelor	328	82.0
	Master	62	15.5
	M.Phil/MS	9	2.3
	Doctoral	1	.3
	Total	400	100
Experience (in years)	2y to 5y	292	73.0
	6y to 9y	108	27.0
	10y to 13y	0	0
	14y to 17y	0	0
	18y+	0	0
	Total	400	100
Ethnicity	Punjabis	200	50.0
	Pashtuns	116	29.0
	Sindhis	67	16.8
	Gilgit- Baltistan	17	4.3
	Total	400	100

### Measure

Data for the study were collected using a self-report questionnaire. Specifically, participants rated their cultural intelligence on a 7-point Likert scale, from 1 (“strongly disagree”) to 7 (“strongly agree”). Problem-solving was evaluated based on a 5-point scale from 1 (Strongly Disagree) to 5 (Strongly Agree). Psychological safety was measured using a 5-point Likert scale in which 1 mean strongly disagree and 5 means strongly agree. Additionally, moderating variable cognitive diversity was measured using a 7-points scale from 1 (To an Extremely Small Extant) to 7 (To an Extremely Large Extant). For all the scales used, higher scores indicated greater levels of the trait or characteristic measured. English is a compulsory and foundational subject taught from grade school onward in Pakistan and the main language of instruction in all universities. Except for entry-level jobs with low educational qualifications, it is fair to assume the employed have reading comprehension of English in Pakistan. Thus, considering the features of the sample population, translation of the questionnaire and writing it in the native language were not necessary.

**Cultural Intelligence of the Leader:** Cultural intelligence (independent variable) was assessed with a 20-item questionnaire adopted from Dyne et al. (2015). The tool consists of four subscales: metacognitive (four items), cognitive (six items), motivational (five items), and behavioral (five items). Participants rated their agreement with each item on a 7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). (Example items for each of the subscales include: Metacognitive: "This person is conscious of the cultural knowledge he/she uses when interacting with people from different cultural backgrounds".

Cognitive: "This person knows the legal and economic systems of other cultures". Motivational: "This person enjoys interacting with people from different cultures". Behavioral: "This person alters his/her facial expressions when a cross-cultural situation requires it". A higher score of each of the subscale indicate higher level of cultural intelligence on the same submission dimension.

**Problem-Solving:** A scale developed by Lohman (2004), containing 28 items, was used to assess the problem-solving abilities of employees, which had a reliability coefficient above 0.70. Sample items of the scale: "I promptly prioritize important problems at work" and "I proficiently implement solutions in an effective manner". This measure was chosen based on literature that supports its validity in measuring problem solving skills and meets the needs of the study.

**Psychological Safety:** Psychological safety as a mediating factor was also assessed using a self-reported scale consisting of seven items (Edmondson, 1999). Using a 5-point Likert scale, the instrument scored from 1 (Strongly Disagree) through 5 (Strongly Agree) Sample items included: as "I felt it was safe to take risks within this team", ".No one on this team would have intentionally acted in a manner that hindered my contributions", and "While collaborating with members of this team, my unique skills and talents were acknowledged and utilized". This instrument was chosen based on the focus of the current study and the established validity and reliability.

**Cognitive Diversity:** The moderating variable was assessed on the basis of a questionnaire created by Van der Vegt and Janssen (2003). Previous studies reported internal reliability of the instrument as 0.81 for four items. Cognitive group diversity was measured by asking employees to report their workgroup attributes. Each item was scored on seven-point Likert-type scale ranging from "to a very small extent" (1) to "to a very large extent" (7). Example items included statements such as, "To what degree do members of the workgroup vary in their modes of thinking?" and "To what extent do members of the workgroup differ in their perspectives on what is morally right or wrong?". This scale was chosen based on its previously demonstrated reliability as well as its relevance to the research aims in measuring cognitive diversity.

### **Measurement Model**

The study used the PLS-SEM method including the PLS algorithm when applying bootstrapped and blindfolded processes using the well-known software SmartPLS (Hair et al., 2019; Qalati et al., 2021). We chose this method because it provides comprehensive analysis of performance variability (Fan et al., 2021), is appropriate for small sample sizes (Hair et al., 2019), is easy to use, and has been strongly recommended as an analytic method capable of handling complex models (Fan et al., 2021; Qalati et al., 2021). Moreover, descriptive statistics were calculated and some data cleansing procedures were performed using statistical software, such as Harman's single-factor test to test for common method bias.

### **Common Method Bias**

To test for data bias, we used two established techniques: Harman's single-factor test, and full collinearity. The results of Harman's one-factor test showed that the extracted variance was only 47.99%, lower than the recommended 50% threshold by Podsakoff et al. (2003), indicating that common method bias was no problem. We also evaluated collinearity using the full collinearity approach, specifically the inner variance inflation factor (VIF), within the PLS-SEM framework through SmartPLS. The resultant inner VIF values fell between 1.00 and 3.30, which were all acceptable and below the ideal threshold of 3.33 (Qalati et al., 2021; Hair et al., 2019) (Table 2). The dataset was considered suitable for further analysis since these findings.

### **Convergent Validity and Reliability**

The reliability and validity of study variables are shown in Table 2. The Partial Least Squares (PLS) algorithm technique was utilized in SmartPLS to evaluate the measurement model. The factor loadings for each of the study variables were assessed whereby all values satisfying the thresholds of  $> 0.7$  (Alghazi

et al., 2021). Convergent validity was evaluated by a number of indicators on reliability and validity including Cronbach's alpha, rho\_A, average variance extracted (AVE), composite reliability (CR) and confirmatory factor analysis (CFA). The outcomes were more than meeting or exceeding the thresholds, confirming the adequacy of the measurement model. In particular, according to Henseler et al. (2016) the indicators of convergent validity were the following:  $\rho_A \geq 0.7$ ,  $CR \geq 0.80$ ,  $AVE \geq 0.50$ , and cronbach's alpha (CA)  $\geq 0.80$ .

<b>Table 2 Convergent Validity</b>						
<b>Variable and Constructs</b>	<b>Loading</b>	<b>CA</b>	<b>rho-A</b>	<b>CR</b>	<b>AVE</b>	<b>Inner VIF</b>
<b>Leader cultural Intelligence</b>		<b>.963</b>	<b>.975</b>	<b>.966</b>	<b>.593</b>	<b>3.259</b>
CIMC1	.841					
CIMC2	.836					
CIMC3	.853					
CIMC4	.858					
CIC1	.841					
CIC2	.676					
CIC3	.468					
CIC4	.602					
CIC5	.859					
CIC6	.634					
CIM1	.763					
CIM2	.583					
CIM3	.874					
CIM4	.823					
CIM5	.556					
CIB1	.882					
CIB2	.902					
CIB3	.817					
CIB4	.803					
CIB5	.761					
<b>Problem-Solving</b>		<b>.976</b>	<b>.978</b>	<b>.978</b>	<b>.619</b>	
PSADM1	.801					
PSADM2	.860					
PSADM3	.837					
PSADM4	.882					
PSCC1	.831					
PSCC2	.805					
PSCC3	.612					
PSCC4	.808					
PSES1	.784					
PSES2	.888					
PSES3	.830					
PSES4	.799					

PSGAS1	.735					
PSGAS2	.697					
PSGAS3	.864					
PSGAS4	.799					
PSGS1	.814					
PSGS2	.796					
PSGS3	.819					
PSGS4	.703					
PSIM1	.824					
PSIM2	.849					
PSIM3	.896					
PSIM4	.831					
PSPI1	.609					
PSPI2	.501					
PSPI3	.682					
PSPI4	.727					
<b>Psychological Safety</b>		<b>.869</b>	<b>.881</b>	<b>.899</b>	<b>.564</b>	<b>3.193</b>
PSS1	.565					
PSS2	.773					
PSS3	.839					
PSS4	.829					
PSS5	.773					
PSS6	.746					
PSS7	.698					
<b>Cognitive Diversity</b>		<b>.923</b>	<b>.937</b>	<b>.945</b>	<b>.812</b>	<b>1.085</b>
CD1	.879					
CD2	.941					
CD3	.867					
CD4	.916					

### Discriminant Validity

Discriminant validity was evaluated using the Fornell-Larcker criterion (Fornell & Larcker, 1981) and examining the cross-loadings of latent variables. As illustrated in Table 3, the results provide evidence for the cornerstones of this type of analysis in terms of establishing the discriminant validity between variables that were used in the study.

**Table 3 Fornell-Larcker Criteria**

Constructs	CD	LCI	PS	PSS
CD	<b>0.901</b>			
LCI	0.280	<b>0.770</b>		
PS	0.230	0.767	<b>0.787</b>	
PSS	0.224	0.827	0.767	<b>0.751</b>

Bold values are the square root of AVE

Also, discriminant validity was assessed as a second criterion by the Heterotrait-Monotrait ratio (HTMT). As suggested by Henseler et al. (2016), HTMT values should be below 1. Table 4 shows the HTMT values of each construct, which fall between tuned acceptable thresholds, thus validating the measurement model discriminant validity.

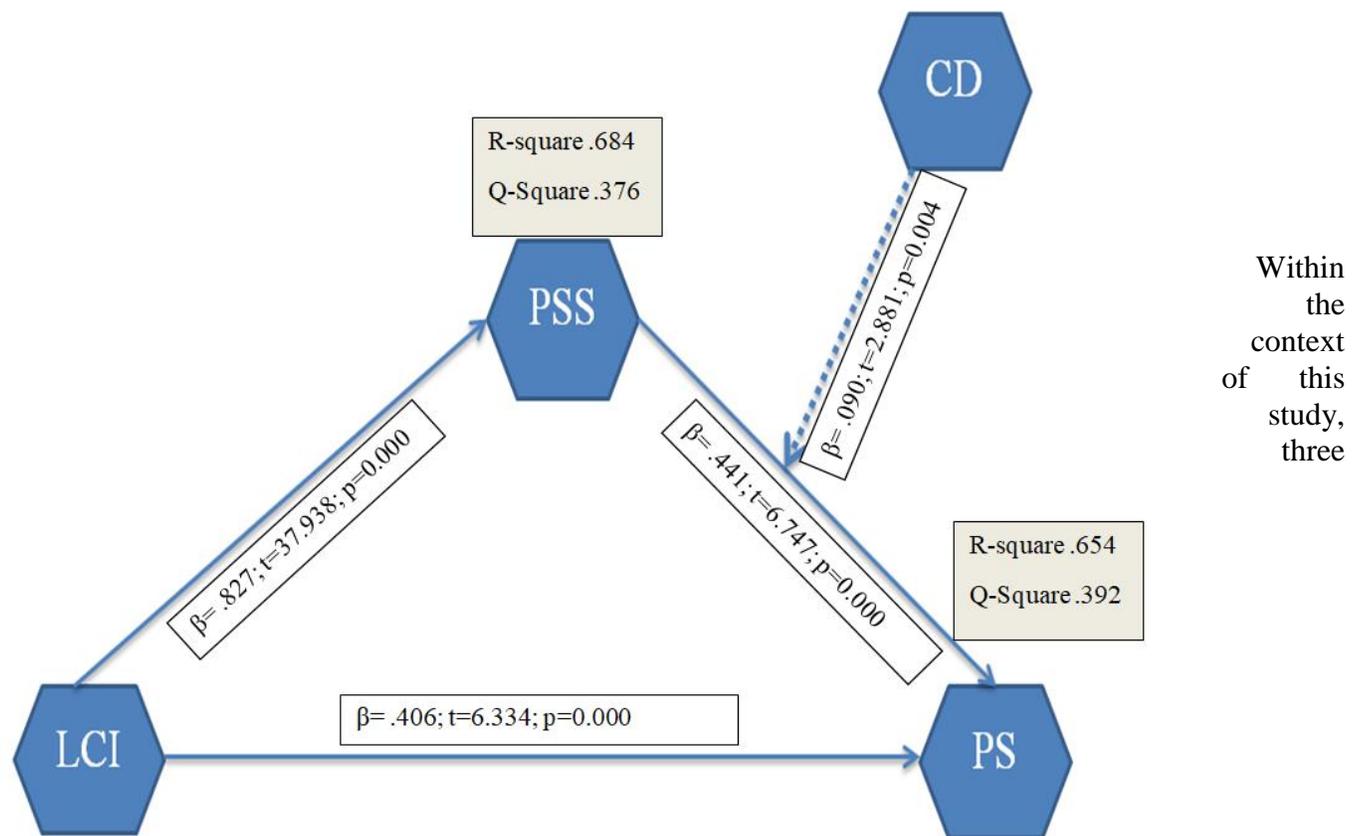
**Table 4 Heterotrait-Monotrait (HTMT) ratios**

Constructs	CD	LCI	PS	PSS
CD				
LCI	0.338			
PS	0.251	0.734		
PSS	0.261	0.864	0.819	

**Structural Model**

We implemented the bootstrapping method in hypothesis testing, which, according to Chin (2010) has a significant advantage over parametric testing, using Smart PLS. Bootstrapping for PLS-SEM analysis is strongly supported, Henseler et al. found it reliable enough to use in their 2009 study. In the framework of this research, three hypotheses were investigated, including one direct hypothesis, one meditational hypothesis, and one moderation hypothesis.

**Figure 2 Result of PLS-SEM**



hypotheses are proposed. We employed SmartPLS version 4 for analysis of these hypotheses using

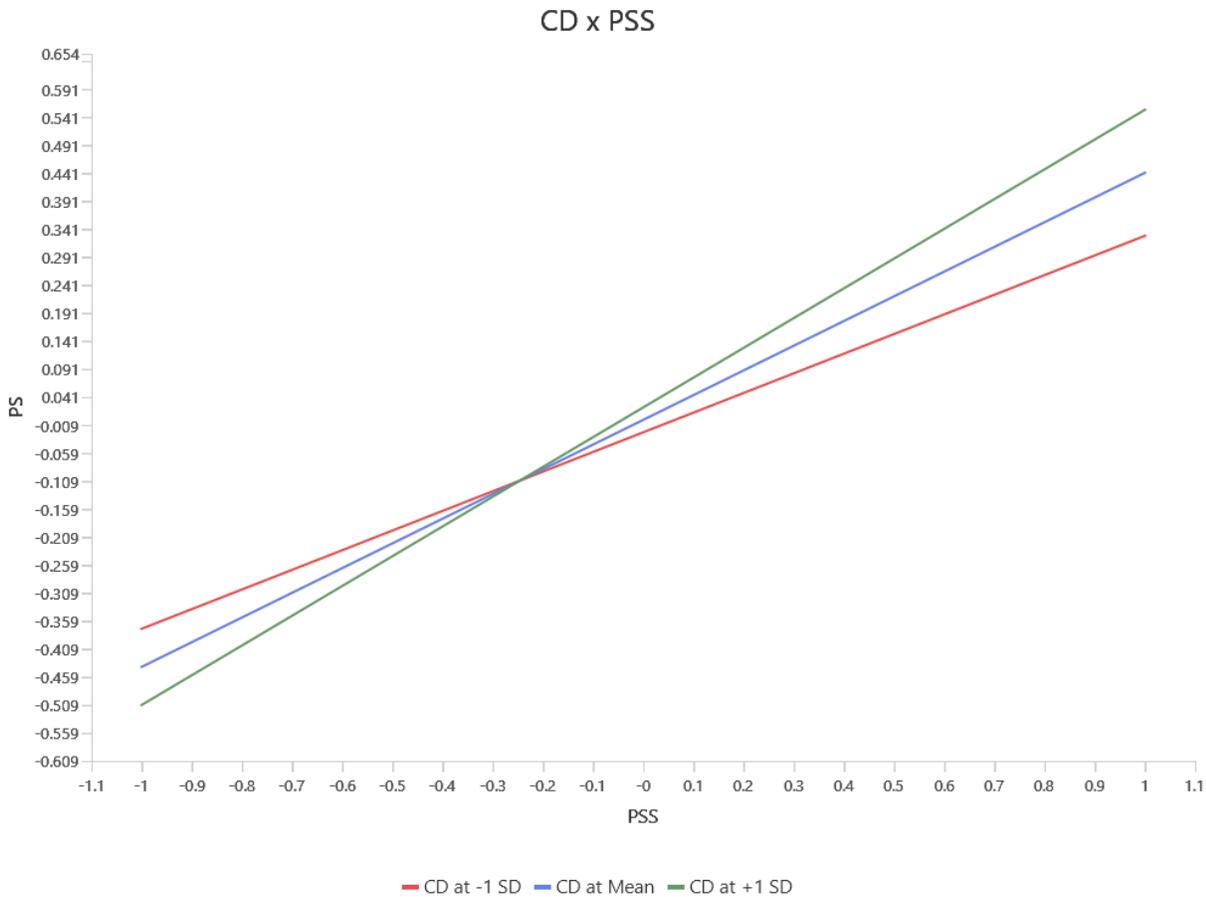
bootstrapping with 5,000 subsets for robust statistical evaluation. The findings show a strong and positive relationship between LCI and PS ( $\beta = .406$ ;  $t = 6.334$ ;  $p = 0.000$ ), therefore further accept the Hypothesis 1. Table 6 shows the indirect effect of LCI on PS through PSS as a mediator, and the moderating role of CD on PSS and PS relationship. The results for Hypothesis 2 confirm that PSS mediates the relationship between LCI and PS ( $\beta = 0.827$ ;  $t = 37.938$ ;  $p < 0.000$ ). In addition, this research investigates the moderating role of cognitive diversity (CD) on the relationship between PSS and PS. H3 is proven to be a significant positive moderation effect, ( $\beta = -0.090$ ;  $t = 2.881$ ;  $p < 0.004$ ).

**TABLE 5 Hypotheses Testing and Strength of The Model.**

Hypothesis	Proposed Relationship	Path Coefficient	SD	t-value	p-value	Decision
H1	LCI → PS	.406	.064	6.334**	.000	Supported
	Indirect Effect					
H2	LCI→PSS→PS	.827	.022	37.938**	.000	Supported
	Moderating Interaction					
H3	CD x PSS→ PS	.090	.031	2.881*	.004	Supported

Figure 3 shows the moderating role of cognitive diversity (CD) in the connection between Leader Cultural Intelligence (LCI) and Problem Solving (PS). Two different key performance indicators were used to measure how much this moderation really matters. The results depicted by Figure 3 show a positive moderating effect of CD on PSS - PS relationship. These findings provide empirical evidence for Hypothesis H3, which postulated that the link between PSS and PS is moderated by CD.

### Figure 3 Moderating effect of CD between LCI and PS



**TABLE 6 R2 and Q2.**

	R2	Q2
Psychological Safety	.684	.376
Problem Solving	.654	.392

**The Predictive Power of the Model**

R<sup>2</sup> is the proportion of variance explained by exogenous variables. As illustrated by Table 5, the findings are in a way that the exogenous variables explain 68.40% of Psychological Safety (PSS) variance and 65.40% of Problem Solving (PS) variance. R<sup>2</sup> values are classified into three groups: weak (0.02–0.13), moderate (0.13–0.26), and strong (above 0.26) (according to Cohen, 1988). The R<sup>2</sup> value for PSS and PS was substantial on these benchmarks. In addition, SmartPLS utilizes the blindfolding technique to calculate the Q<sup>2</sup> statistic, indicating the predictive relevance of the model via cross-validated redundancy (Hair et al., 2017). As per Chin et al. (2020), Q<sup>2</sup> values greater than zero indicate predictive relevance of the model. Indeed, PSS as well as PS have Q<sup>2</sup> values greater than zero, emphasizing the predictive relevance of the model as highlighted in Table 6.

**Discussion**

This study's results confirmed that the mediating variable of psychological safety is able to strengthen the indirect influence of cultural intelligence on problem solving within employees in telecommunication contact centers. Likewise, this research examines the moderating effect of cognitive diversity on the association of psychological safety with problem solving. The study first used PLS-SEM analysis to

determine leaders' cultural intelligence direct effects on problem solving. The implications of the research findings reveal that, given the correct structural context, leaders who possess an informative knowledge stance on workplace culture can communicate more effectively with members to reinforce preferable constructs of team productivity grounded on employee innovation. The results provide evidence that a leader's cultural intelligence positively affects employees' problem-solving ability in cognitively diverse environments. These findings are consistent with prior research and highlight the important role of cultural intelligence in improving problem-solving skills, which allows them to more effectively interpret and identify challenges so that effective social solutions may be created (Engle & Delohery, 2016; Thomas & Inkson, 2004). This shows that cultural intelligence is not just the ability to identify differences but it applies the understanding of difference to the process of problem-solving. A study conducted by Engle, Elahee, and Tatoglu (2013) also suggests that cultural intelligence is positively related to how international negotiating professionals analyze and solve their problems. Leaders with high levels of cultural intelligence, the researchers explain, are aligned with challenges that might stem from the cross-culture interactions present in the global business environment.

Similarly, Stallter (2009) noted that cultural intelligence means adapting to local problem-solving styles, rather than imposing one style. Flexible leaders might be able to critically consider the positives and negatives of different contexts with these things in mind, thinking outside the box to meet local needs and sensitivities, and avoiding literalism (of thinking, transfer of actions, etc.). All of these studies together emphasize the importance of cultural intelligence in leadership. Culturally literate leaders are well-prepared to operate within different cultures, promote creativity and collaboration, and improve solutions to problems. Yet they also know effective solutions depend on context, and that flexibility is a paramount virtue of any leader. The essence of diversity and inclusion is that it serves as a tool not only for moral righteousness, but also for institutional sustenance through innovation and effective decision-making. With Respect to mediation hypothesis and research aim, our study analyzed a strong evidence of positive significant mediation effect of psychological safety on the relationship between leader's cultural intelligence and problem-solving. Employees who believe they work in a psychologically safe environment are more likely to offer suggestions for new ideas, spearhead new initiatives or creative solutions, and become directly involved with the task at hand. Psychological safety helps create a safe place for employees to take risks and test new ideas without fear of being punished. It also encourages a culture of discovery and ongoing education. This is consistent with a significant body of previous work (Burrell & Brauner, 2021; Ahmad, Ullah, AlDhaen, Han, & Scholz, 2022; Safdar et al., 2017; Miao, Lu, Cao, & Du, 2020; Frazier et al., 2017; Javed et al., 2019; O'Donovan & McAuliffe, 2020). Such psychologically safe workplaces, which encourage creativity and innovation, ultimately happen because of leaders with high cultural intelligence. Which results to improves problem-solving ability, increases competitive advantage and enables a healthy future.

Finally, in relation to the last moderation hypothesis and the overreaching objective, our quantitative analysis revealed a modest but statistically significant positive interaction effect of cognitive diversity on the relationship between psychological safety and problem-solving ( $\beta = 0.090$ ,  $t = 2.881$ ,  $p = 0.004 < 0.05$ ). Hypothesis 3 is empirically supported by these findings. It suggests that when cognitive diversity is high, the effects of LCI on problem-solving are become stronger to some extent. This finding is aligns the conclusion from Kearney, Gebert, and Voelpel, (2009) which state that cognitive diversity is creating an important role for team performance.

### **Theoretical Implication**

Our study has major theoretical contributions to the literature. This study contributes to the recently emerging body of literature on CQ, extending previous work by Sharma and Hussain (2017) and Ott and Michailova (2018). The previous study of Korzilius, Bucker and Beerlage (2017), suggested that Cultural Intelligence (CQ) can enhance the individual capabilities of cross-cultural communication competencies

and bring innovative outcomes. Hence, this current study contributes to knowledge of CQ, a vital competency in cross-cultural context. This study also provides several valuable theoretical contributions to the leadership, cultural intelligence, and organizational behavior literature. Importantly, the study fulfills a critical need in the current literature by synthesizing and building on the tenets of Cultural Intelligence (CQ) Theory, Leader-Member Exchange (LMX) Theory, and Social Cognitive Learning Theory as a framework for exploring the direct effects of leader cultural intelligence on employee problem-solving skills. More specifically, the results highlight the importance of CQ in culturally diverse settings, indicating that leaders with high CQ are more successful than low CQ leaders in creating environment that include and drive innovation in workplaces.

Our study emphasizes the importance psychological safety as a mediating variable in this case. This indicates that leaders and supervisors can take a pivotal role in motivating and facilitating psychological safe environment between employees to offer innovative ideas for solving problems. Moreover, efficient managers who practice relational leadership can significantly influence their employees' cultural intelligence as well as their joint innovativeness. Overall, our study provides evidence that leader cultural intelligence not only influences employees' problem-solving directly but also indirectly through psychological safety as a mediator.

In addition, this study went a step further than the existing literature by considering the moderating effect of Cognitive Diversity (CD) on the relationship between psychological safety and problem-solving. Results indicated that CD moderates the relationship between Psychological safety and Problem Solving. More importantly, the findings show that CD has a significant positive moderation on the relationship between psychological safety and problem-solving. This insight expands on understanding team dynamics, revealing that cognitive diversity helps to explain the conditions under which leadership behaviors are positively or negatively related to employee outcomes. This research study fills a gap in existing literature by identifying the specific role of cultural intelligence, psychological safety, and cognitive diversity as mechanisms through which hybrid leaders can manipulate to drive innovative achievement in cultural diversity.

### **Managerial Implication**

This paper provides some beneficial practical implications and highlights the importance of Leader Cultural Intelligence (LCI) in promoting employees' problem-solving skills, directly and indirectly. Therefore, organizations need to adopt strategic actions for managing their workforce effectively. First, companies are strongly recommended to include Cultural Intelligence (CQ) as a main determinant in the evaluation of future leaders within the recruitment process so as to favor candidates with higher CQ scores. For example, organizations can assess candidates for leadership roles using CQ assessments and choose those who show a high degree of cultural adaptability. Finally, the research provides valuable insights into developing an organizational environment that encourages psychological safety. Considering that leaders' Cultural Intelligence can add significant value to organizations, it is important that organizations focus on investing on the initiatives that foster and maintain a climate of psychological safety. Understanding of both facilitators and constraints of cognitive diversity is imperative for organizations working in a multi-ethnic country like Pakistan. In fact, diversity can lead to positive and negative spillover effects, which means that it needs to be managed well in order to leverage the problem-solving capabilities of diverse teams. In addition, promoting a culture of psychological safety that empowers people to share what they have learned irrespective of religion, ethnicity, and culture helps leaders create positive and problem-solving skills of employees.

### **Limitations and Future Research**

This study had its limitations which should be recognized before mentioning indications of further research directions. One of the limitations of the study is that establishing causal relationships between

variables is difficult, due to its cross-sectional approach, which was only capable of demonstrating association. Thus, future research should adopt longitudinal or multilevel research designs to provide a more comprehensive understanding of such associations. Second, although the quantitative data used in this study show the relationships between the examined variables, they do not give insights into the motivations behind these correlations. Thus, future researchers should consider qualitative data collection and analysis to further interpret the mechanisms generating these associations. Using the mixed-methods approach, combining qualitative and quantitative data, can provide a more comprehensive understanding of the association between cultures intelligence in leaders and problem-solving skills of employees. Finally, this step examined CQ at a more general, aggregated level. But, as Korzilius et al. Indeed, according to (2017), the metacognitive, cognitive, motivational and behavioral dimensions of CQ are key factors guiding individuals in crafting their cognitive complexity towards inter culturally-directed communities. These sub dimensions could further be explored in future research to gain a deeper understanding of the full impact of CQ on problem-solving.

### **Conclusion**

The present study employs a cross-sectional research design to substantiate the positive relationship between LCI and employees' problem-solving skills. In other words, LCI, through psychological safety as a mediation variable, indirectly impacts employees' problem-solving skills. Moreover, the results indicate a mediated moderation model wherein cognitive diversity (CD) moderates the link between psychological safety and employees' problem-solving. Hence, it specifies that psychological safety and cognitive diversity significantly affect the relationship between leader cultural intelligence and employees' problem-solving skills.

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