

# Radboud Universiteit



## Master Thesis

*"The Innovation Symphony: Orchestrating Team Cultural Intelligence, Reciprocity, Collective Efficacy, and Knowledge Sharing"*

Radboud University Nijmegen  
Priya Limboo  
S1008682

Supervisor: Dr. Joost J.L.E. Bucker  
Second examiner: Dr. Marjolein M.H.J. Dennissen  
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## **Abstract**

This study investigates the combined influence of team cultural intelligence, reciprocity, collective efficacy, and knowledge sharing on innovation capability in diverse organizational teams. Survey data were collected from 31 multicultural teams spanning various countries. The research employed multiple regression modeling, and structural equation modeling to explore the relationships among these variables. The results revealed that collective efficacy and reciprocity positively predicted innovation capability, highlighting their significant roles in enhancing innovative outcomes within diverse teams. While team cultural intelligence did not demonstrate direct effects, its potential nuanced impact warrants further investigation. Knowledge sharing did not emerge as a mediator in this context. Notably, the collective set of predictors accounted for 49% of the variance in innovation capability. In conclusion, fostering collective efficacy and reciprocity norms within teams emerges as a highly beneficial strategy for bolstering innovation outcomes. The role of team cultural intelligence in this context merits continued exploration, and future research should delve into additional mediators and moderators, utilizing larger and longitudinal samples for a comprehensive understanding of how these team-level factors synergize to facilitate innovation.

*Keywords:* team cultural intelligence, reciprocity, collective efficacy, knowledge sharing, innovation capability

## 1. Introduction

In an era of globalization and fierce market competition, organizations are compelled to expand their operations worldwide. To thrive in this dynamic landscape, innovation has become a vital catalyst for growth, performance, and market relevance (Kafetzopoulos & Psomas, 2015; Ratasuk & Charoensukmongkol, 2020). By nurturing a culture of innovation and fostering robust innovation capabilities, organizations can unlock new opportunities, adapt to evolving market trends, and outpace their competitors (Lisboa, Skarmeas & Lages, 2011). Understanding the critical factors that contribute to effective teamwork and innovation capability is paramount for organizations seeking to excel in the global arena (Calantone, Cavusgil & Zhao, 2002; Taherparvar, Esmaeilpour & Dostar, 2014). By harnessing these interconnected elements, organizations can establish themselves as drivers of innovation, paving the way for sustained success and competitive advantage.

At the heart of successful teamwork and innovation is the concept of collective efficacy (Kim & Shin, 2015; Liu, Chen, & Tao, 2015). Collective efficacy refers to a team's shared belief in its ability to accomplish tasks and achieve desired outcomes (Bandura, 1997). Teams with a strong collective efficacy exhibit a sense of confidence, motivation, and resilience, enabling them to overcome challenges and pursue ambitious goals (Riggs et al. 1994; Zaccaro et al., 1995; Goddard, 2001). This shared belief empowers team members to think innovatively, take calculated risks, and explore new possibilities, thereby driving innovation within the team (Liu, Chen, & Tao, 2015; Miyao et al., 2022). By cultivating collective efficacy, organizations create a team dynamic that encourages collaboration, creativity, and a proactive approach to problem solving (Zhang, Tsui, & Wang, 2011; Xi & Xianyin, 2023).

Reciprocity within teams plays a pivotal role in facilitating innovation (Wasko & Faraj, 2005; Torche and Valenzuela, 2011). Reciprocity refers to the mutual exchange of resources, support, and information among team members (Masterson et al., 2000). When team members engage in reciprocal relationships, trust, cooperation, and positive social exchange are fostered (Masterson et al., 2000). This creates an environment conducive to knowledge sharing, collaboration, and innovation (Molm, Schaefer & Collett, 2007; Tamjidyamcholo et al., 2013). By cultivating a culture of reciprocity, teams create a sense of psychological safety and a willingness to share expertise, experiences, and ideas (Ganguly, Talukdar & Chatterjee, 2019). This collective knowledge contributes to enhanced creativity, collective learning, and innovative problem solving (Wasko & Faraj, 2005; Torche and Valenzuela, 2011). Furthermore, reciprocity nurtures a sense of camaraderie and cooperation within teams, fostering a collaborative spirit and promoting a sense of unity and shared purpose (Burgess, 2005; Molm et al., 2007).

In the context of internationalization, teams must navigate cultural diversity to drive innovation. Team cultural intelligence, the collective capability to understand, appreciate, and adapt to different cultures, becomes essential (Moon, 2013). Culturally intelligent teams draw on diverse perspectives, knowledge, and experiences to fuel innovation (Chen & Lin, 2013; Hu et al., 2017). They actively integrate cultural insights into their problem-solving and decision-making processes, enabling them to approach challenges from multiple angles and generate innovative and inclusive solutions (Janssens & Brett, 2006; Bücken & Korzilius, 2021). By leveraging the diverse viewpoints and approaches of team members from different cultural backgrounds, these teams tap into a wealth of creativity and ingenuity (Crotty & Brett, 2012). A key component of team cultural intelligence is promoting inclusive communication within the team. Culturally intelligent teams create an environment where every team member feels heard, valued, and encouraged to contribute their unique insights (Chen & Lin, 2013). This open and inclusive communication fosters collaboration, trust, and creativity, serving as a catalyst

for the generation of innovative ideas (Lauring & Selmer, 2013). By embracing a culture of inclusivity, these teams leverage the diverse perspectives and strengths that cultural diversity brings to fuel their innovation capabilities (Rockstuhl & Ng, 2008; Moon, 2013). By integrating cultural insights and promoting inclusive communication, these teams create an environment rich in collaboration, creativity, and the generation of innovative solutions (Bogilovic, Cerne and Skerlavaj, 2017). Cultural intelligence enables teams to leverage the diversity of their members, incorporating various viewpoints and approaches that can lead to more innovative and inclusive outcomes (Charoensukmongkol, 2019). It allows teams to navigate cultural nuances, overcome communication barriers, and capitalize on the strengths that cultural diversity brings to the innovation process (Ratasuk & Charoensukmongkol, 2020).

Furthermore, cultural intelligence equips teams with the skills and understanding needed to navigate cultural nuances and effectively collaborate across cultural boundaries (Lauring and Selmer, 2013). It enables teams to overcome potential communication barriers that may arise due to cultural differences, facilitating effective knowledge sharing and creating an environment of mutual respect (Janssens & Brett, 2006). By capitalizing on the strengths inherent in cultural diversity, culturally intelligent teams gain access to a broader range of perspectives, insights, and innovative approaches (Iskhakova & Ott, 2020). This, in turn, enhances their creativity, problem-solving abilities, and ultimately drives the development of groundbreaking solutions (Ratasuk & Charoensukmongkol, 2020).

Knowledge sharing is a critical element that enhances innovation capability within teams (Akhavan & Mahdi Hosseini, 2016; Hussein, Singh, Farouk & Sohal, 2016). When teams establish effective knowledge sharing practices, they tap into the collective intelligence and expertise of their members (Lin, 2007). This facilitates the exchange of ideas, information, best practices, and experiences, leading to the exploration of new approaches and the acceleration of innovation (Hsu & Lin, 2008; Nguyen et al., 2021). By leveraging the diverse expertise within the team, organizations can enhance their innovation capability, improve problem solving, adapt to changing market demands, and drive continuous improvement (Su et al., 2021; Gui et al., 2022). One of the primary advantages of knowledge sharing is the exploration of new approaches. By sharing their unique perspectives and insights, team members can challenge existing assumptions, generate fresh ideas, and explore innovative solutions to problems (Yeh et al., 2006). The exchange of knowledge allows teams to leverage diverse expertise, enabling them to tackle complex challenges from multiple angles and uncover novel possibilities (Terry Kim et al., 2013). This diversity of thought enhances the team's innovation capability by broadening the range of potential solutions and fostering a culture of continuous improvement (Alsharo et al., 2017). Moreover, effective knowledge sharing improves problem solving within teams. By pooling their collective knowledge and experiences, team members can draw upon a wealth of insights and lessons learned, enabling them to address challenges more effectively (Saenz, Aramburu, & Blanco, 2012). Knowledge sharing promotes a collaborative mindset, where individuals feel empowered to contribute their expertise and provide valuable input (Hussein et al., 2016). This collaborative problem-solving approach increases the team's capacity to overcome obstacles, adapt to changing market demands, and develop innovative solutions that meet the evolving needs of customers and stakeholders (Lin, 2007; Yang et al., 2018). In addition, knowledge sharing fosters a culture of learning and collaboration within teams. When individuals feel encouraged and supported in sharing their knowledge and experiences, it creates an environment where continuous learning becomes a norm (Vandavasi, McConville, Uen, & Yepuru, 2020). Team members become motivated to seek out new information, learn from each other's expertise, and contribute to the collective knowledge of the team (Saenz, Aramburu, & Blanco, 2012). This culture of learning not only enhances the team's innovation capability but also strengthens its cohesion, trust, and camaraderie, creating a positive and supportive atmosphere conducive to innovation (Alsharo, et al., 2017; Yang, Nguyen & Le, 2018).

The interconnected factors of collective efficacy, reciprocity, team cultural intelligence, and knowledge sharing create a synergistic environment for fostering innovation within teams. By cultivating a strong sense of collective efficacy, organizations empower teams to embrace challenges, take risks, and think creatively. Encouraging reciprocal relationships fosters trust, cooperation, and collaboration among team members, laying the foundation for effective knowledge sharing and the exchange of diverse perspectives. In addition, developing team cultural intelligence enables teams to leverage the strengths of cultural diversity, facilitating innovative thinking and inclusive decision-making. Finally, establishing effective knowledge sharing practices harnesses the collective intelligence of team members and promotes a culture of continuous learning and improvement. By understanding and leveraging these interconnected factors, organizations can create high-performing teams that drive innovation and gain a competitive edge in the global business landscape. Emphasizing collective efficacy, fostering reciprocal relationships, developing team cultural intelligence, and promoting knowledge sharing practices will enable organizations to cultivate a culture of innovation, adapt to evolving market dynamics, and generate novel solutions to meet customer needs. As organizations navigate the challenges of multiculturalism and intense market competition, the ability to harness these factors will be instrumental in fostering a culture of innovation, propelling organizations toward sustained success and growth.

### **1.1 Research problem**

Previous research has examined the relationship between cultural intelligence (CQ) and innovative performance in cross-cultural teams, but the results have not yielded significant support for this claim at a collective level. This gap in the literature underscores the need for further investigation to explore the potential contribution of CQ in various occupational situations and contexts. While CQ is a relatively new concept, its importance has been recognized, yet empirical evidence to substantiate its benefits in different contexts remains limited (Ratasuk & Charoensukmongkol, 2020).

While previous studies have primarily focused on individual-level outcomes, there is limited research that explores CQ within the context of teams (Chen & Lin, 2013; Korzilius et al., 2017; Presbitero & Attar, 2018). It is important to acknowledge that team-level CQ extends beyond simply aggregating individual CQ scores (Kadam, Rao, Abdul, & Jabeen, 2020; Ratasuk, & Charoensukmongkol, 2020), as it encompasses the dynamics and interactions within the team that shape CQ development and its impact on knowledge sharing and innovation. By gaining insights into the team-level implications of CQ, we can uncover how it influences knowledge sharing and fosters innovative performance in multicultural teams, there is a need to expand research on the higher-order aspects of CQ beyond the individual level (Ng & Earley, 2006; Adair, Hideg, & Spence, 2013; Ang, Rockstuhl, & Tan, 2015). This involves examining the ways in which teamwork, knowledge transfer, and information sharing shape CQ (Fang, Schei & Selart, 2018). By investigating the situational considerations that influence individuals' behavior in different relationships, researchers can gain a more comprehensive understanding of the antecedents and mechanisms that foster CQ and promote effective knowledge sharing.

Although there is a general recognition that team cultural intelligence (TCQ) has the potential to enhance group performance in culturally diverse settings, empirical research supporting this claim remains limited (Fang, Schei, & Selart, 2018; Ratasuk & Charoensukmongkol, 2020). There is a significant gap in our understanding of how team-level CQ specifically affects the functions of intercultural effectiveness within multicultural teams (Moon, 2013). Understanding how CQ operates within teams and its influence on intercultural effectiveness is crucial for organizations operating in diverse environments. Addressing this gap requires comprehensive research to explore how team CQ contributes to improved group performance and intercultural effectiveness within multicultural teams.

By investigating the interplay between team CQ, cultural diversity, and team processes, we can gain a deeper understanding of how CQ influences team dynamics and outcomes in multicultural settings.

Zooming in further, the literature reveals a lack of understanding regarding the factors that motivate employees to share their valuable knowledge and expertise, thereby hindering effective knowledge sharing practices (Wang & Noe, 2010; Choi et al., 2016; Le & Lei, 2018a, b). Employees often exhibit hesitance due to concerns about losing their intellectual power (Yang et al., 2018). Consequently, there is a pressing need for thorough research that investigates the antecedents and mechanisms, which can encourage and enhance knowledge sharing behaviors (Wang and Noe, 2010; Choi et al., 2016; Le and Lei, 2019). Such research will provide valuable insights for organizations to develop strategies and interventions that promote a culture of knowledge sharing and drive innovation.

By conducting comprehensive empirical studies, a better understanding of the team-level implications of CQ can be advanced, the higher-order dimensions of CQ research can be uncovered, and strategies to foster a culture of effective knowledge sharing can be identified. This knowledge will enable organizations to create environments that facilitate collaboration, innovation, and knowledge exchange, leading to enhanced performance and competitiveness in today's multicultural business landscape.

The interplay between team cultural intelligence, reciprocity, collective efficacy, and knowledge sharing is assumed to have a significant impact on innovation capability within organizations. These team-level attributes have shown to influence team dynamics and foster innovation. Building upon these assumptions, the following research question can be formulated:

*To what extent does the combined influence of team cultural intelligence, reciprocity, collective efficacy, and knowledge sharing shape the innovation capability of teams in organizations?*

This research question aims to explore the complex relationship between these key factors and their collective impact on innovation capability. By investigating how team cultural intelligence, reciprocity, collective efficacy, and knowledge sharing interact and contribute to innovation capability, we can gain valuable insights into the mechanisms that drive innovation within teams. This research will provide a deeper understanding of the factors that organizations need to cultivate and leverage to enhance their innovation capacity.

## **1.2 Contribution**

This study has the potential to make several significant contributions to the existing body of knowledge. Firstly, by examining the combined impact of team cultural intelligence, reciprocity, collective efficacy, and knowledge sharing on innovation capability, it will provide a holistic understanding of the underlying mechanisms that drive innovation within teams. This comprehensive approach allows for a more nuanced examination of the interrelationships between these factors and their collective contribution to innovation outcomes.

Secondly, this study will shed light on the role of team cultural intelligence in fostering reciprocity and collective efficacy, highlighting its significance in creating an environment conducive to knowledge sharing and innovation. By uncovering how team cultural intelligence influences these critical team dynamics, organizations can better understand the importance of fostering cultural intelligence within teams and its impact on innovation capability.

Additionally, this research will contribute to the understanding of the mediating role of knowledge sharing in the relationship between team cultural intelligence, reciprocity, collective efficacy, and innovation capability. By examining how knowledge sharing acts as a mechanism through which these

factors influence innovation, organizations can gain insights into the specific processes and practices that facilitate effective knowledge sharing and drive innovation.

Furthermore, the findings of this study will provide practical implications for organizations seeking to enhance their innovation capability. By identifying the key drivers of innovation and the role of team-level factors, organizations can develop targeted interventions and strategies to foster a culture of innovation, promote knowledge sharing, and enhance collective efficacy within teams.

Moreover, this study addresses the limited research on team cultural intelligence in multicultural teams, filling a crucial research gap in understanding team CQ in diverse team contexts. By focusing on team CQ at the team level, this research can provide valuable insights into the dynamics, development, and impact of team CQ in multicultural team settings. This contributes to the broader body of literature on team CQ and extends our understanding of its implications in diverse organizational contexts.

Overall, the knowledge generated from this study will enable organizations to develop evidence-based strategies for leveraging team cultural intelligence, reciprocity, collective efficacy, and knowledge sharing to drive innovation and enhance organizational performance. By creating environments that foster effective teamwork, knowledge exchange, and collaboration, organizations can gain a competitive edge in today's multicultural business landscape.

### **1.3 Outline**

This study is structured into several chapters. Chapter 2 provides a comprehensive review of the existing literature, establishing the theoretical foundation for the study, and developing a conceptual model that outlines the presumed relationships between different concepts. This section also forms the basis for hypothesis development. Chapter 3 details the research methodology, explains the research design, including data collection procedures and data analysis techniques. It also addresses considerations related to reliability, validity, and ethical considerations. Chapter 4 presents the results and analysis section which provides the findings obtained from the data collected, employing statistical analysis and providing interpretations of the results. The discussion section provides an in-depth interpretation of the results, relating them to the existing literature. Finally, the conclusion summarizes the main findings of the study, emphasizes its contributions to the field, and highlighting the theoretical and practical implications of the study. It also acknowledges any limitations encountered during the research process and suggests areas for further investigation and offers recommendations for future research. Together, these chapters form a cohesive framework for the study, allowing for a thorough exploration of the research topic and contributing to the existing body of knowledge.

## **2. Literature Review**

### **2.1. Collective Efficacy**

In today's fast-paced and interconnected world, the ability to work effectively in teams is essential for organizations to thrive and achieve their goals. One critical factor that has emerged as a key driver of team performance is collective efficacy (Zaccaro, Blair & Zazanis, 1995; Goddard, 2001; Bray, 2004). According to Bandura (1997), collective efficacy refers to the shared belief within a group that they have the collective ability to organize and effectively carry out the necessary actions to achieve specific levels of success or accomplishments. Nearly half a century ago, Albert Bandura introduced the concept of self-efficacy, which relates to individuals' belief in effectively achieving goals (Bandura, 1997). Over the years, extensive and consistent research has consonantly emphasized the significant role and impact of efficacy judgments on a wide range of areas such as knowledge acquisition, performance, and motivation in various fields (Watson, Chemers, & Preiser, 2001; Goddard, Hoy & Hoy, 2004; Chou,

Lin, Chang, & Chuang, 2013). Bandura (1997) discovered that efficacy beliefs have a strong connection with various outcomes, including but not limited to successful quitting of smoking, compliance with exercise and diet plans, improved sports performance, increased engagement in political activities, and higher academic accomplishments.

Bandura (1982, 1997) builds upon his earlier concept of self-efficacy and extends this idea to the group level, in the form of collective efficacy based upon social cognitive theory. This perspective transcends the individual abilities of group members and instead emphasizes the collaborative strength and coordination that arise when working together. The concept of social cognitive theory outlines four methods that can bolster collective efficacy namely, mastery experience, social modeling (vicarious experience), emotional states, and verbal persuasion (Bandura, 1997). In other words, people can become more confident in their abilities by accumulating experiences, learning from others' successes, maintaining positive well-being, and receiving encouragement. Mastery experience has been found to exert a significant impact on collective efficacy (Goddard, 2001). Additionally, contextual factors such as task complexity, resource availability, and external support (Gibson, Randel, & Earley, 2000) along with failure, negative feedback, and lack of success experiences can undermine collective efficacy (Goddard, 2001; Chen, Zhou, & Klyver, 2019).

Team efficacy and collective efficacy has been used interchangeably in research. For the purpose of this thesis, collective efficacy will comprise both group efficacy and team efficacy. In addition, since the objective was to measure general group outcomes a general measure of collective efficacy was used rather than a specific measure of collective efficacy (Gibson et al., 2000).

Bandura (1982) argued that the notion of collective efficacy is fundamentally grounded in an individual's self-efficacy. In simpler terms, collective efficacy draws upon an individual's belief in their own capabilities. However, the findings on this are conflicting. While Baker (2001) found that self-efficacy initially influences collective efficacy, but as teamwork develops, individual significance diminishes whereas (Goddard et al., 2004) established that a strong collective efficacy enhances self-efficacy, while weak collective efficacy undermines it. While these studies shows that both the concepts are related, studies like (Parker, 1994; Porter, Itir & Yu, 2011) determined that collective efficacy and self-efficacy are distinct in their effects on individual and team performance. In addition to this collective efficacy has been shown to promote more success, as success boosts self-efficacy and collective efficacy, fostering confidence and competence, which stimulates further success (Riggs et al. 1994; Zaccaro et al., 1995; Goddard, 2001; Bray, 2004) and group performance (Watson et al. , 2001; Chou et al. 2013). With regards to studies on the relationship between commitment and satisfaction, the research is not straightforward. As Riggs & Knight (1994), showed that the influence of collective efficacy on organizational commitment and satisfaction is weak but Chen, Zhou, & Klyver (2019), showed that when there is high level of collective efficacy it enhances commitment with the help of team cohesion. Collective efficacy and empowerment share a reciprocal and reinforcing relationship. A strong belief in collective efficacy empowers groups to take charge, make informed choices, and drive positive transformations. This empowerment nurtures a collaborative and supportive atmosphere that values individuals and their ability to make significant contributions (Goddard, 2001). In turn, when individuals feel empowered, they are inclined to demonstrate initiative, have confidence in their abilities, and experience favorable outcomes. This empowering dynamic serves as a vital catalyst for cultivating both self-efficacy and collective efficacy, reinforcing their interconnectedness (Jung & Sosik, 2002; Goddard, et al., 2004).

Research has shown that leaders significantly shape collective efficacy within teams through their perceptions and attitudes (Watson et al., 2001). Transformative leaders, by fostering empowerment,

have a profound influence on collective efficacy (Jung & Sosik, 2002), with cognitive trust serving as a key mechanism (Chou et al. 2013). Ethical leadership also plays a critical role by promoting a belief in the group's capabilities and ethical behavior (Chen et al., 2019). Additionally, ethical leaders contribute to team resilience, instilling confidence in collective abilities and maintaining cohesion even in challenging circumstances (Martin, Emich, Mc Clean, & Woodruff, 2022). Collective efficacy, as explored by (Watson et al. 2001; Baker, 2001; Porter et al., 2011), exhibits both stability and adaptability. It remains a consistent predictor of high team performance while being subject to evolution and variation across different groups. To enhance collective efficacy and optimize team performance, it is crucial to foster a supportive and collaborative environment that encourages continuous learning and growth. Another factor that influences collective efficacy is social comparisons, which shape group perceptions and abilities (Baker, 2001) and this in turn fosters positive culture, driving collaboration and confidence, while weak beliefs hinder achievement and collaboration (Goddard et al., 2004). This is possible as high collective efficacy teams engage in supportive behavior and back each other up resulting in teamwork, knowledge sharing, and improvement in overall team performance (Porter et al., 2011). Collective efficacy has been examined in the literature as both a mediating and moderating variable in order to develop a sophisticated understanding of its nature and role within groups. As a mediator, collective efficacy serves as the mechanism by which predictor variables are able to influence specific outcomes. It explains how certain factors influence outcomes directly. For example, studies have found that collective efficacy mediates the relationship between leadership behaviors and group creativity (Zhang, Tsui, & Wang, 2011), team creativity (Kim & Shin, 2015), moral leadership and organizational commitment (Chen et al., 2019), facilitating employees' knowledge exploration and creativity (Miyao, Ozaki, Tobia, Messeni & Frattini, 2022), task-related knowledge and cooperation (Xi & Xianyin, 2023). When collective efficacy operates as a moderator, it alters the nature of the relationship between the predictor and outcome. For instance, studies have shown that collective efficacy moderates the relationship between behavioral integration and innovation performance (Liu, Chen, & Tao, 2015), subjective well-being and task performance (Salanova, et al., 2003) individual dispositions and teamwork behavior (Tasa, Sears, & Schat, 2011). By investigating collective efficacy through the lens of both mediation and moderation, researchers have developed a sophisticated understanding of its role within groups. Studying collective efficacy through these dual conceptual frameworks enables scholars to explore its complex and multifaceted nature. It illuminates collective efficacy as a variable that does not function in isolation but rather interacts with and is influenced by various factors at the individual, group and organizational levels. In summary, collective efficacy acts as an intermediary, which shapes group dynamics and outcomes in diverse ways. It can directly influence outcomes through mediation, or interact with other variables in a moderating role to determine the strength and direction of relationships. By examining collective efficacy through both mediating and moderating lenses, researchers gain a rich, multidimensional understanding of its role within the complex social systems of groups and organizations. This approach helps capture the variegated mechanisms through which collective efficacy operates to impact group psychology and performance.

### **2.1(a) Collective Efficacy and Innovation Capability**

Research findings have consistently demonstrated that higher levels of collective efficacy within teams are associated with increased group creativity (Zhang, Tsui, & Wang, 2011; Kim & Shin, 2015). Collective efficacy also acts as a mediator, helping to explain the connections between cooperative group norms, positive group affect, and team creativity (Kim & Shin, 2015). Furthermore, strong collective efficacy fosters innovation by promoting effective collaboration and decision-making (Liu, Chen, & Tao, 2015; Miyao, et al., 2022) and this applies for collective creative self-efficacy as well

(Ghosh, Sengupta, Narayanamurthy & Ishizaka, 2023). In the context of open innovation projects, perceived collective efficacy plays a crucial role in shaping employees' beliefs about their collective ability to engage in innovative behaviors (Miyao et al., 2022). Additionally, collective (teacher) efficacy has been shown to have a significant positive impact on (teaching) innovation (Xi & Xianyin, 2023). This indicates that when employees (teachers) collectively believe in their abilities to overcome challenges and achieve goals, they are more likely to adopt innovative (teaching) practices (Xi & Xianyin, 2023). In summary, collective efficacy plays a crucial role in driving group creativity, supporting innovation, and creating a positive environment for collaboration and innovation within teams and organizations (Zhang, Tsui, & Wang, 2011; Kim & Shin, 2015; Liu, Chen, & Tao, 2015; Miyao, et al., 2022; Xi & Xianyin, 2023). Since creativity is the foundation for innovation capability and innovation, we can say that collective efficacy relates to innovation capability. In addition, Yeh, & Ku (2019) demonstrated that collective efficacy, had a greater impact on process innovation capability of collaborative design teams. Thus, the following hypotheses is proposed:

H1. Collective efficacy has a positive relation with innovation capability (indirect)

### **2.1(b) Collective Efficacy and Knowledge Sharing**

The relationship between efficacy and knowledge sharing has been extensively studied, with a focus on self-efficacy rather than collective efficacy. Limited research has been conducted on the relationship between collective efficacy and knowledge sharing (Xi & Xianyin, 2023). Knowledge sharing has been found to positively impact collective efficacy, which in turn promotes innovation and effective practices among colleagues (Jackson, Yi, & Liu, 2013; Xi & Xianyin, 2023). When teachers share knowledge effectively, it fosters a sense of confidence and belief in the collective capabilities of the team. This directly contributes to the development and enhancement of collective efficacy within the team. While the relationship between collective efficacy and knowledge sharing may be indirect in some studies (Reynolds & Blickensderfer, 2014), higher levels of collective efficacy foster cooperation and confidence within the team, potentially facilitating knowledge sharing among team members. In conclusion, the available research indicates a positive relationship between knowledge sharing and collective efficacy. Engaging in knowledge sharing practices enhances individuals' confidence in their abilities, fosters cooperation, and promotes innovative thinking. Based on the preceding discussion, the following hypothesis have been proposed.

H2. Collective efficacy has a positive relation with knowledge sharing

### **2.2. Team Cultural Intelligence**

In today's globalized and interconnected world, organizations face the challenge of operating in culturally diverse environments and leveraging the strengths of multicultural teams for innovation and performance. The ability to effectively navigate cultural differences and capitalize on the collective intelligence of diverse teams has become a crucial factor for organizational success. Cultural intelligence (CQ) has emerged as a valuable concept in this context. CQ refers to a set of capabilities that enable individuals to comprehend, process, and effectively act in culturally diverse contexts (Earley, 2002; Earley & Ang, 2003). The concept of CQ gained prominence in the early 2000s and has since been the subject of extensive research and development. The foundations of cultural intelligence can be traced back to Sternberg and Detterman's multiple-loci theory of intelligence proposed in 1986. This theory challenged the traditional view of intelligence as solely cognitive and emphasized the importance of multiple forms of intelligence, including emotional, practical and social intelligences (Thorndike & Stein, 1937; Sternberg et al., 2000; Mayer, Caruso, & Salovey, 2000). Building upon this framework,

Earley and Ang (2003) introduced the concept of cultural intelligence as a multifaceted construct encompassing : metacognitive CQ, or the ability to reflect on cross-cultural interactions; cognitive CQ, or knowledge of cultural values and norms; motivational CQ, or the motivation to engage in cross-cultural situations; and behavioral CQ, or the ability to exhibit suitable behaviors for different cultures (Earley, 2002; Earley & Ang, 2003). In short, the notion of CQ rests upon a vision of intelligence as multidimensional rather than confined to cognition alone. Thomas et al. (2015) presented an alternative conceptualization of Cultural Intelligence (CQ). In the work of Thomas (2006), Cultural Intelligence (CQ) is described as the aptitude to successfully engage in interactions with individuals who possess diverse cultural backgrounds. They focus on three dimensions: cultural knowledge, cultural skills, and cultural metacognition. In their view, motivation was excluded from the CQ construct, as they considered it to be separate from the ability to interact effectively with different cultures. The development of the short-form measure of cultural intelligence (SFCQ) by Thomas et al. (2015) provides a concise assessment tool consisting of 10 items that assess the three dimensions of cultural knowledge, cultural skills, and cultural metacognition.

Individuals with high cultural intelligence (CQ) have been the subject of numerous studies, consistently showing positive outcomes in terms of attitudes and behaviors. For instance, researchers have found that high CQ individuals display favorable work attitudes like increased work engagement and trust, along with demonstrating innovative work behavior (Korzilius, Bücken & Beerlage, 2017; Afsar, Al-Ghazali, Cheema, & Javed, 2020; Li, Wu & Xiong, 2021). Within multicultural teams, their ability to foster a shared identity contributes to improved communication, cooperation, job performance, satisfaction, and engagement (Earley, 2002; Thomas et al., 2015; Shan, Konishi, Pullin, & Lupina-Wegener, 2021). Moreover, high CQ individuals contribute to knowledge sharing and team performance, facilitating the development of shared values, cohesiveness, and a sense of common identity among team members in multicultural contexts (Ang et al., 2011; Adair et al., 2013; Chen & Lin, 2013). However, it is important to note that not all studies have consistently demonstrated the positive effects of individual CQ. In the study conducted by Collins, Duyar, and Pearson (2016), the potential of cultural intelligence as a predictor of Latino student achievement did not yield promising results. Although the cultural intelligence of principals showed a significant influence on the academic performance of Latino students in specific subjects such as math and language arts, this effect was observed only among 8th-grade students. Additionally, no significant impact of teachers' cultural intelligence on student achievement was found.

While individual cultural intelligence has received considerable attention in the literature, recognizing its impact on personal effectiveness and cross-cultural interactions, several research have highlighted the importance of team cultural intelligence (Ng & Earley, 2006; Adair, Hideg, & Spence, 2013; Ang, Rockstuhl, & Tan, 2015; Fang, Schei, & Selart, 2018; Ratasuk & Charoensukmongkol, 2020; Bücken & Korzilius, 2021) and the limited study done on it. The investigation of Cultural Intelligence (CQ) at the team level holds significant value, particularly driven by the growing reliance of organizations on teams to navigate the complexities of cultural dynamics and accomplish tasks in diverse contexts (Janssens & Brett, 2006). Multinational corporations, in particular, are increasingly forming multinational, virtual, and global work teams comprising members from diverse cultural backgrounds (Adair, Hideg & Spence, 2013; Chen & Lin, 2013; Andresen & Bergdolt, 2017). This integration of cultural diversity reflects organizations' recognition of its inherent value. These teams face the complex task of working together effectively and constructively across various contexts, as their performance directly affects organizational operations on a global scale (Iskhakova & Ott, 2020). By capitalizing on the collective knowledge and expertise of team members with diverse cultural perspectives and experiences, these teams have demonstrated superior performance, creativity, and innovation compared to teams with

homogeneous composition (Ratasuk & Charoensukmongkol, 2020; Bücken & Korzilius, 2021). The ability to leverage the unique insights and viewpoints of culturally diverse team members fosters a broader range of ideas and approaches, resulting in enhanced outcomes and a competitive edge for organizations in the global marketplace (Janssens & Brett, 2006; Stahl, Maznevski, Voigt & Jonsen, 2010; Korzilius, Bücken & Beerlage, 2017). According to Bücken & Korzilius (2021), team cultural intelligence (CQ) can be described as the team's aptitude to process information and demonstrate adaptive behavior in a cross-cultural environment. It is a multidimensional construct encompassing cultural metacognition, fusion teamwork, and openness to diversity as distinct dimensions, as proposed by Bücken and Korzilius (2021). The subsequent paragraphs will provide a more detailed explanation and exploration of these dimensions. Team cultural intelligence (TCQ) extends beyond the summation of individual CQ scores and instead emphasizes the collective behavior and functioning of the team in culturally diverse contexts. Unlike other studies on team CQ which still employ the aggregation of the individual construct for team constructs (Kadam, Rao, Abdul, & Jabeen, 2020; Ratasuk, & Charoensukmongkol, 2020). Bücken and Korzilius (2021) feels that the content of CQ at an individual level and at a team level should be different. Recognizing these differences, allows for a deeper understanding of how teams effectively navigate cultural diversity and fosters the development of targeted strategies to enhance Team CQ.

### **Team cultural metacognition**

Team metacognitive CQ relates to how team members think and reflect on their shared cultural knowledge during interactions (Bücken and Korzilius (2021). It encompasses the identification and adaptation to members' distinct values, leading to the development of shared values and norms (Adair et al., 2013). Crotty and Brett (2012) propose that teams with high cultural metacognition are more likely to develop fusion teamwork, promoting coexistence and acceptance of diverse approaches. This allows for the preservation of creativity while respecting different perspectives and practices leading to innovation in a high cultural intelligent team whereas in a low cultural intelligent team it can lead to more chaos and conflict. High metacognitive CQ has also been shown to facilitate knowledge sharing especially in a culturally diverse teams (Chen, & Lin, 2013)

### **Team fusion: co-existence and meaningful participation**

Team fusion, as discussed by Janssens and Brett (2006), is a collaborative approach that emphasizes the inclusion of diverse perspectives, ideas, and practices within a team. It encourages the recognition and appreciation of cultural differences and the integration of these differences to achieve better outcomes (Bücken & Korzilius, 2021). The fusion model promotes open communication, mutual respect, and the synthesis of diverse viewpoints to generate innovative solutions (Janssens and Brett, 2006). Within team fusion, two important aspects are co-existence and meaningful participation (Bücken & Korzilius, 2021). Co-existence involves acknowledging and respecting the individual differences among team members while finding ways to effectively integrate these differences (Janssens and Brett, 2006; Bücken & Korzilius, 2021). Meaningful participation refers to actively engaging in open discussions and sharing diverse opinions during decision-making processes (Janssens and Brett, 2006), which leads to unlocking the creative potential of team members (Crotty & Brett, 2012). This inclusive approach allows everyone to contribute their unique insights, leading to more effective decision-making.

### **Openness to diversity**

Openness to diversity, as described by Luring and Selmer (2013), is the ability and willingness to embrace and appreciate differences among individuals or teams. It creates an inclusive environment

where individuals from various cultural, ethnic, and social backgrounds feel respected and appreciated. This openness involves accepting linguistic variations, rejecting discriminatory attitudes based on appearance, appreciating different opinions and cultural behaviors, and recognizing the benefits of diverse knowledge and perspectives. By fostering this openness, teams can cultivate collaboration, empathy, and understanding among their members, leading to greater creativity, innovation, and overall team effectiveness (Lauring and Selmer, 2013; Bücken & Korzilius, 2021).

## **2.2 (a) Team CQ & Knowledge Sharing**

Teams with high cultural intelligence (CQ) exhibit the remarkable ability to overcome cultural barriers, thereby fostering improved interactions and relationships among team members (Lauring and Selmer, 2013; Suthatorn & Charoensukmongkol, 2018). This creates an inclusive environment where individuals feel at ease sharing information and knowledge, emphasizing the value and appreciation of diversity within the team (Chen & Lin, 2013; Hu et al., 2017). Furthermore, the cultivation of CQ is essential for effectively integrating the knowledge and ideas contributed by team members from diverse cultural backgrounds (Korzilius et al., 2017). Through active knowledge sharing, teams can harness the wealth of diverse knowledge and expertise available within their members, leading to the potential generation of innovative ideas and solutions (Suthatorn & Charoensukmongkol, 2018). This inclusive approach to decision-making, drawing on diverse perspectives, enhances the team's overall effectiveness (Janssens and Brett, 2006). These findings collectively underscore the crucial role of Team CQ in fostering knowledge sharing, thereby contributing to team performance and innovation. Therefore, the following hypotheses was proposed:

H3: Team cultural intelligence is positively associated with Knowledge Sharing

## **2.2 (b) Team CQ & Innovation Capability**

In the rapidly changing and interconnected business landscape of today, organizations have come to recognize the immense value of harnessing shared cultural knowledge among their team members (Bücken & Korzilius, 2021) as a means to enhance their innovation capability. This entails understanding and adapting to the diverse values within the team, leading to the establishment of shared values and norms (Adair et al., 2013). Teams that exhibit high cultural intelligence (CQ) are more inclined to embrace diverse approaches while preserving creativity and respecting differing perspectives and practices (Crotty & Brett, 2012). Consequently, such teams foster an environment of open communication, mutual respect, and the synthesis of viewpoints, which serves as a catalyst for generating innovative solutions (Janssens & Brett, 2006; Bücken & Korzilius, 2021). By embracing diversity and cultivating an inclusive environment that appreciates differences, teams unlock the untapped creative potential of their members and nurture a culture of collaboration (Lauring & Selmer, 2013). By actively developing cultural intelligence (CQ) as a core competency, team members gain the necessary skills to effectively navigate cross-cultural interactions, promote understanding, and foster a collaborative and inclusive team environment, ultimately strengthening the organization's innovation capability (Rockstuhl & Ng, 2008; Moon, 2013; Bogilovic, Cerne and Skerlavaj, 2017; Charoensukmongkol, 2019; Ratasuk & Charoensukmongkol, 2020). Therefore, the following hypotheses was proposed:

H4: Team cultural intelligence is positively associated with Innovation capability

### 2.3. Reciprocity

Reciprocity as a concept is innate in all human beings. It is a subject that attracts considerable interest and scholarly exploration in multiple academic domains, including sociology, psychology, and organizational behaviour (Gouldner, 1960; Cropanzano & Mitchell, 2005; Happ, Melzer & Steffgen, 2016). It serves as a fundamental concept for unraveling the intricacies of social interactions and understanding the dynamics of give-and-take relationships among individuals. According to Wasko & Faraj (2005) reciprocity implies the shared sense of obligation among community members to repay the favors or advantages they have been granted by others. Gouldner (1960) and Cialdini (2001) felt that reciprocity was the universal, widely observed and deeply rooted human tendency important in all cultures but its function varies. According to research, reciprocity has been shown to promote fairness and cooperation in social interactions, fostering trust and positive relationships (Gouldner, 1960; Molm, Schaefer & Collett, 2007; Lin, 2007). It instills in individuals the motivation to reciprocate the actions of others, generating a sense of duty to repay acts of kindness or favors received. In addition to this, research have shown reciprocity to influence knowledge sharing offline (Davenport and Prusak, 1998; Bock et al., 2005; Kankanhalli et al., 2005; Chiu, Hsu, & Wang, 2006; Lin, 2007; Endres & Chowdhury, 2013; Akhavan & Mahdi, 2016 ; Abdelwhab, Panneer, Paris & Gunasekaran, 2019; Nguyen, Nham, Froese, & Malik, 2019) and in online communities Chang & Chuang, 2011; Nguyen, Ngo, & Gregory, 2022), examined the role of reciprocity in ICT security, particularly in terms of promoting compliance and the acquisition of personal information (Steffgen & Melzer 2008; Happ, Melzer & Steffgen, 2016), positive work outcomes (Su, Lin, Wu, Zheng, Chen, & Jiang, 2021) and innovation capability (Torche and Valenzuela, 2011; Ganguly, Talukdar, & Chatterjee, 2019). However, there has been studies, which showed the opposite effect as well where the relation between reciprocity and knowledge sharing shows either low relation or not at all.

Reciprocity serves as a vital aspect of social relations, encompassing the concept of social capital within personal relationships. It goes beyond mere economic exchange and instead fosters deep connections that are characterized by trust, co-presence, and mutual exchanges (Torche & Valenzuela, 2011). The norm of reciprocity plays a significant role in this form of social capital, establishing a sense of mutual indebtedness and an obligation to reciprocate the benefits received from others (Wasko & Faraj, 2005). This reciprocal exchange of resources and actions is crucial for pro-social behaviors like knowledge sharing, contributing to the growth and sustainability of innovation capability within communities (Ganguly, et al., 2019). Moreover, reciprocity helps build social capital by fostering trust, positive evaluations, positive feelings, and a perception of shared interests, thereby strengthening relationships (Molm et al., 2007). By recognizing the importance of reciprocity and nurturing it within social networks, individuals and communities can enhance their social capital and create stronger bonds.

The influence of reciprocity on knowledge sharing has been the subject of various research studies, yielding diverse outcomes. Chen and Hung (2010) discovered that expected reciprocity had a negative impact on individual knowledge collection and did not predict knowledge sharing behavior. In contrast, Lin (2007) found a positive association between expected reciprocity and attitudes towards knowledge sharing. On the other hand, Wasko and Faraj (2005) revealed that expected reciprocity had a negative effect on knowledge sharing within online communities. Additionally, several offline studies (Davenport and Prusak, 1998; Bock et al., 2005; Kankanhalli et al., 2005; Chiu, Hsu, & Wang, 2006; Lin, 2007; Endres & Chowdhury, 2013; Akhavan & Mahdi, 2016; Abdelwhab, et al., 2019; Nguyen, Nham, Froese, & Malik, 2019) and studies in online communities (Chang & Chuang, 2011; Nguyen, Ngo, & Gregory, 2022) have highlighted the impact of reciprocity on knowledge sharing. These findings

underscore the complexity of reciprocity's role in knowledge sharing, emphasizing the need to consider various contextual factors to gain a comprehensive understanding of its dynamics in different contexts.

Gender plays a significant role in shaping reciprocity and knowledge sharing behavior, as evidenced by several studies. Endres and Chowdhury (2013) found that team gender diversity did not significantly moderate the relationship between expected reciprocity and sharing intent. However, Sun et al. (2014) discovered gender differences in the internalization mechanisms, with males placing more emphasis on reciprocal benefits and females focusing more on reciprocal relationships when deciding whether to share knowledge. Moreover, Happ et al. (2016) highlighted that factors such as gender and age can moderate the influence of reciprocity, affecting individuals' responses to social engineering tactics. In terms of gender-specific knowledge sharing behavior, Nguyen et al. (2019) observed that women are more likely to share knowledge when they have a sense of self-efficacy, while men tend to be more active in sharing knowledge if they find the act of knowledge sharing enjoyable. These findings underscore the importance of considering gender-related factors when examining reciprocity and knowledge sharing dynamics.

### **2.3 (a) Reciprocity and Knowledge sharing**

Reciprocity has garnered widespread recognition as a significant factor influencing knowledge sharing behaviors in various contexts, including both face-to-face and online teams (Bock et al., 2005; Kankanhalli et al., 2005). Extensive research has consistently identified reciprocity as a robust predictor of knowledge sharing behavior, with its conceptualization ranging from a norm to a relationship and a benefit (Wasko & Faraj, 2005; Bock et al., 2005; Kankanhalli et al., 2005). Ethical leadership behaviors have emerged as crucial catalysts in fostering a sense of reciprocity among employees, ultimately leading to positive work outcomes. When leaders exhibit fairness, care, and trust, they inspire employees to reciprocate by engaging in knowledge sharing, demonstrating dedication, and actively participating in extra-role behaviors (Su et al., 2021). This reciprocal exchange of support and positive treatment creates an empowering work environment where employees are intrinsically motivated to reciprocate the favorable treatment they receive. Moreover, reciprocity serves as a motivational mechanism, driving individuals to contribute their knowledge to repositories and nurturing essential elements such as trust, affective regard, and relational solidarity in relationships (Burgess, 2005; Molm et al., 2007). By observing others' reciprocation of knowledge sharing, employees gain confidence and are further encouraged to actively participate in knowledge sharing themselves. Furthermore, the presence of reciprocity instills a moral obligation among employees to actively contribute to the ongoing exchange of knowledge (Nguyen, et al., 2022). In summary, reciprocity plays a pivotal role in shaping knowledge sharing behaviors, while ethical leadership behaviors provide a fertile ground for cultivating a reciprocal environment that drives positive outcomes in the workplace.

H5: Reciprocity is positively associated with Knowledge sharing in a team

### **2.3 (b) Reciprocity and Innovation capability**

Reciprocity, characterized by the exchange of resources, support, and knowledge among individuals (Tamjidyamcholo et al., 2013), creates an environment that fosters collaboration, trust, and the sharing of diverse perspectives (Molm, Schaefer & Collett, 2007; Lin, 2007). This reciprocal exchange enhances social capital, strengthens social networks, and facilitates the flow of innovative ideas and knowledge (Wasko & Faraj, 2005; Torche and Valenzuela, 2011). When individuals feel valued and supported by their colleagues, they are more likely to engage in knowledge sharing, take risks, and contribute their

unique insights to the innovation process (Wu and Leung, 2005; Andersen, 2011). Furthermore, the sharing of tacit knowledge has been identified as a crucial factor in improving innovation capability, aligning with previous research findings (Leonard and Sensiper, 1998; Cavusgil et al., 2003). These findings highlight the importance of reciprocity in fostering innovation within organizations. Thus, we hypothesize that:

H6: Reciprocity is positively associated with innovative capability within organizations.

## **2.4. Knowledge Sharing**

In the modern era of business, knowledge sharing has taken centre stage as a vital ingredient for organizations aspiring to thrive and excel. It has become a pivotal factor in driving success and growth. According to Lin (2007), knowledge sharing cultivates a culture of social interaction within an organization, where employees actively participate in exchanging their knowledge, experiences, and skills, fostering a collaborative atmosphere that spans across departments and permeates the entire organizational fabric. This collaborative process serves as a powerful mechanism for harnessing the combined wisdom and diverse experiences of employees, which in turn leads to tangible improvements in organizational performance, heightened levels of innovation, and the ability to make well-informed decisions with precision and agility (Alsharo, Gregg & Ramirez, 2017; Su, Lin, Wu, Zheng, Chen, & Jiang, 2021). Knowledge sharing is rooted in the understanding that knowledge is a valuable asset that, when shared and distributed effectively, can yield significant benefits (Akhavan & Mahdi, 2016). By sharing their knowledge and insights, employees can make better-informed decisions, solve complex problems more efficiently, and generate innovative ideas and solutions (Alsharo, et al., 2017). This collaborative exchange of knowledge not only enhances individual learning but also contributes to the collective intelligence and learning capacity of the entire organization (Hussein, et al., 2016; Vandavasi, McConville, Uen, & Yepuru, 2020; Li, Wu & Xiong, 2021).

According to research, commitment to the organization (Van Den Hooff & De Ridder, 2004), positive climate (Bock, Zmud, Kim & Lee, 2005; Wu & Zhu, 2012), digital tools (Yeh, Lai, & Ho, 2006; Lin, 2007; Alsharo, et al., 2017), Leadership commitment (Yeh, et al., 2006; Wang & Noe, 2010 ; Gui, Lei & Le, 2022; Nguyen, Ngo, & Gregory, 2022), enjoyment and self-efficacy (Yeh, et al., 2006; Wang & Noe, 2010; Hussein et al.,2016; Nguyen, et al., 2022; Al Hawamdeh & AL-edenat, 2022), reciprocity (Bock et al., 2005; Wu & Zhu, 2012; Akhavan & Mahdi, 2016 ; Nguyen, et al., 2022), social capital (Terry Kim, Lee, Paek, & Lee, 2013; Akhavan & Mahdi Hosseini, 2016, collaboration and trust (Akhavan, et al., 2016; Alsharo, et al., 2017 ; Yang, Nguyen & Le, 2018 has been shown to facilitate knowledge sharing. Effective knowledge sharing has a profound impact on organizational success, influencing decision-making, problem solving, and innovation (Wang, Wang & Liang, 2014; Akhavan & Mahdi Hosseini, 2016; Alsharo et al., 2017). By leveraging knowledge sharing mechanisms such as communities of practice, coaching and mentoring, and employee rotation, high-tech firms can enhance their innovation capability (Saenz, Aramburu, & Blanco, 2012). These mechanisms promote domain-specific knowledge sharing, transfer valuable insights, and encourage cross-functional learning, contributing to improved innovation capability (Saenz, Aramburu, & Blanco, 2012). Furthermore, knowledge sharing enables the transfer of expertise, abilities, and valuable perspectives among employees, resulting in enhanced learning and performance across the organization (Hussein, et al., 2016; Alsharo, et al., 2017; Yang, et al., 2018; Al Hawamdeh & AL-edenat, 2022). This collaborative atmosphere nurtures creativity and innovation, as employees are empowered to contribute their unique perspectives and collectively address challenges (Hussein et al., 2016). In summary, knowledge sharing

plays a pivotal role in driving organizational success by harnessing collective intelligence and empowering employees to thrive in a dynamic business environment.

However, despite the numerous advantages of knowledge sharing, there are certain challenges and barriers that organizations need to address. Some individuals may be reluctant to share their knowledge due to concerns about losing personal status, power, or competitive advantage (Hussein et al., 2016; Alsharo et al., 2017; Su et al., 2021). Organizational culture, leadership support, and incentives play a crucial role in fostering a culture of knowledge sharing (Yeh, et al., 2006; Wang & Noe, 2010). Trust and open communication are also vital elements for effective knowledge sharing, particularly in virtual or distributed team settings (Terry Kim et al., 2013; Akhavan & Mahdi Hosseini, 2016). Organizations must strive to overcome these barriers and create an inclusive and supportive environment that inspires and empowers employees to share their knowledge freely (Van Den Hooff, & De Ridder, 2004; Gui, et al., 2022). By implementing strategies such as creating a supportive culture, providing incentives and recognition for sharing knowledge, implementing knowledge-sharing platforms and technologies, and encouraging open communication and collaboration among employees, organizations can foster a collaborative knowledge culture that drives innovation, learning, and ultimately, organizational success (Yeh, et al., 2006; Hussein, et al., 2016).

#### **2.4 (a) Knowledge Sharing and Innovation capability**

Effective knowledge sharing within organizations plays a pivotal role in enhancing their innovation capability and driving successful innovation outcomes (Akhavan & Mahdi Hosseini, 2016; Hussein et al., 2016). Through knowledge sharing, individuals and teams gain access to a diverse range of ideas, perspectives, and expertise, fueling creativity and generating fresh insights for innovation (Lin, 2007; Terry Kim et al., 2013; Alsharo et al., 2017). The transfer and integration of knowledge facilitated by knowledge sharing enable the development of new products, services, and processes (Akhavan & Mahdi Hosseini, 2016). Successful management of knowledge resources has been found to significantly contribute to an organization's ability to transform into a more innovative firm (Darroch, 2005). Pooling knowledge through effective knowledge sharing creates a solid foundation for generating innovative solutions and initiatives (Yeh et al., 2006; Yang et al., 2018). The collaborative environment fostered by knowledge sharing encourages open discussion and the exchange of diverse ideas, which are crucial for driving innovation (Hsu & Lin, 2008; Nguyen et al., 2021). Additionally, knowledge sharing minimizes redundant work and allows teams to leverage existing knowledge, leading to more streamlined and productive innovation processes (Calantone, Cavusgil & Zhao, 2002). By harnessing shared knowledge and insights, organizations can better identify emerging trends, anticipate market shifts, and capitalize on new business prospects (Lin, 2007; Yang et al., 2018). This ultimately enhances their innovation capability (Su et al., 2021; Gui et al., 2022).

Thus, it can be hypothesise that:

H7: Knowledge sharing and innovation capability are positively associated with each other.

#### **2.5 Innovation Capability**

In the ever-changing landscape of modern businesses, the concept of innovation capability takes centre stage, exerting significant influence on the success and longevity of businesses as organizations must possess the capacity to generate and implement innovative ideas to stay ahead of the competition. According to Lawson & Samson (2001), innovation capability is the aptitude to effectively convert knowledge and innovative ideas consistently into advantageous outcomes through the creation of new products, processes, and systems that benefit both the firm and its stakeholders. Therefore, innovation

capability encompasses a range of interconnected elements, including organizational culture, strategic vision, knowledge management, resource allocation, and collaborative practices (Darroch, 2005; Lin, 2007; Lisboa, Skarmeas & Lages, 2011; Quintane, et al., 2011; Podrug, Filipović & Kovač, 2017; Mendoza-Silva, 2021). It represents an organization's ability to effectively leverage these components, fostering an environment conducive to creativity, experimentation, and continuous improvement (Lisboa, Skarmeas & Lages, 2011; Taherparvar, Esmacilpour, & Dostar, 2014). By cultivating and harnessing innovation capability, organizations can unlock new opportunities, drive sustainable growth, and navigate the complexities of the ever-changing business landscape (Lisboa, Skarmeas & Lages, 2011).

Scholars have consistently emphasized the pivotal role of innovation capability in driving firm success (Calantone, Cavusgil & Zhao, 2002; Lisboa, Skarmeas & Lages, 2011; Taherparvar, Esmacilpour & Dostar, 2014; Kafetzopoulos & Psomas, 2015). This capability serves as a linchpin for creating value, establishing a sustainable competitive advantage, and elevating overall business performance. Multiple factors contribute to the development of innovation capability. These factors encompass cultivating a culture that prioritizes learning (Calantone et al., 2002; Lisboa et al., 2011), allocating resources to research and development while assembling proficient teams (Romijn & Albaladejo, 2002; Kafetzopoulos & Psomas, 2015), fostering collaborations (Romijn & Albaladejo, 2002; Lisboa et al., 2011), effective knowledge management and sharing (Darroch, 2005; Gressgård, 2011; Quintane et al., 2011), possessing absorptive capacity (Liao, Fei, & Chen, 2007; Quintane et al., 2011), harnessing digital tools (Gressgård, 2011), and cultivating a supportive leadership culture (Saunila & Ukko, 2014; Le & Lei, 2019). By embracing and nurturing these factors, organizations can bolster their innovation capability and position themselves for enduring success. By embracing these factors and integrating them into their organizational fabric, businesses can enhance their innovation capability and position themselves for sustainable growth and success. The understanding and implementation of innovation capability principles provide organizations with a competitive advantage and position themselves for long-term growth and success.

## **2.6. Mediating Relation**

Collective efficacy (CE), the shared belief within a team or organization in its ability to accomplish tasks and goals, is a potent driver of team performance. It is hypothesized to have a direct positive impact on innovation capability (IC) (H1), as teams with a strong sense of collective efficacy are more likely to tackle complex challenges and innovate effectively. Numerous studies, such as the work by Bandura (1997), have established the significance of collective efficacy in motivating teams to take on ambitious goals and persist in the face of challenges. This collective motivation often leads to innovative problem solving and decision-making. However, knowledge sharing (KS) emerges as a key mediator in this relationship. As teams with high collective efficacy engage in knowledge sharing (KS) (Jackson, Yi, & Liu, 2013), they extend their belief in their collective abilities to the realm of knowledge exchange. This exchange of ideas and insights nurtures a culture of learning and creativity. Research by Xi & Xianyin (2023) supports the idea that knowledge sharing is essential for translating collective efficacy into innovation. Their study found that teams with high collective efficacy that actively shared knowledge were more successful in developing innovative solutions.

Knowledge sharing (KS) thus plays a crucial role in channeling the positive effects of collective efficacy (CE) into tangible innovation outcomes. Organizations that promote both collective efficacy and knowledge sharing (KS) among their teams can create a conducive environment for innovation, capitalizing on the synergy between belief in collective capabilities and shared knowledge.

Thus, it can be hypothesise that:

H8a. Knowledge sharing mediates the relationship between collective efficacy and innovative capability

Reciprocity, the practice of exchanging favors, assistance, or information within a team or organization, is known to foster a sense of trust and collaboration among team members. Reciprocity (Reci) is expected to have a direct positive impact on innovation capability (IC) (H6), as it creates an environment conducive to open communication and the exchange of ideas, both essential elements of innovation.

Empirical studies, such as the research by Wasko & Faraj (2005) and Bock et al. (2005), have shown that reciprocity within teams leads to higher levels of knowledge exchange and cooperation. This knowledge exchange, rooted in reciprocity, enhances team creativity and the development of innovative solutions. However, knowledge sharing (KS) plays a vital mediating role in this relationship. As team members engage in reciprocal exchanges of knowledge and insights (KS), they not only reinforce trust but also facilitate the dissemination of valuable information across the team (Su et al., 2021). This exchange nurtures a culture of collective learning and innovation, which, in turn, contributes to enhance innovation capability (Wu and Leung, 2005; Andersen, 2011). Studies by Akhavan & Mahdi Hosseini (2016) and Hussein et al. (2016) emphasize the importance of knowledge sharing in promoting innovation within teams. They found that teams with a culture of knowledge sharing were more successful in generating innovative ideas and implementing them effectively. Knowledge sharing (KS), therefore, acts as a mediator that amplifies the positive impact of reciprocity (Reci) on innovation capability (IC). Organizations that recognize and encourage both reciprocity and knowledge sharing (KS) among their teams can create a fertile ground for innovation to flourish, leveraging the power of shared knowledge and trust.

Thus, it can be hypothesise that:

H8b. Knowledge sharing mediates the relationship between reciprocity and innovative capability

Team cultural intelligence (TCQ), the collective ability of a team to effectively navigate and adapt to diverse cultural contexts, is increasingly recognized as a valuable asset in today's globalized world. It enhances a team's capacity to engage with different cultures, solve complex problems, and foster innovation. Team cultural intelligence (TCQ) is expected to have a direct positive impact on innovation capability (IC) (H4). When a team possesses cultural intelligence, it can better understand the needs and preferences of diverse markets and customers, which can lead to the development of innovative solutions tailored to those specific contexts. However, the influence of team cultural intelligence (TCQ) on innovation capability (IC) is not solely direct. Knowledge sharing (KS) plays a pivotal mediating role in this relationship. When culturally intelligent teams actively share their insights, experiences, and cultural knowledge (KS), they create an environment where diversity is celebrated, and cross-cultural learning becomes an integral part of the team's identity (Chen & Lin, 2013; Hu et al., 2017).

Knowledge sharing (KS) serves as a conduit through which team cultural intelligence (TCQ) translates into tangible innovation outcomes. Culturally intelligent teams that embrace knowledge sharing foster a culture of continuous learning and cross-cultural collaboration (Suthatorn & Charoensukmongkol, 2018). This, in turn, supports innovative thinking, creative problem solving, and the development of culturally relevant products and services (Rockstuhl & Ng, 2008; Moon, 2013; Bogilovic, Cerne and Skerlavaj, 2017).

In summary, knowledge sharing (KS) acts as a mediator between team cultural intelligence (TCQ) and innovation capability (IC). It underscores the idea that the positive influence of cultural intelligence on

innovation is, in part, realized through the mechanism of shared knowledge. Organizations that recognize and promote this mediating role of knowledge sharing (KS) can harness the full potential of culturally intelligent teams to drive innovation, enrich their offerings, and thrive in diverse global markets.

Thus, it can be hypothesised that:

H8c. Knowledge sharing mediates the relationship between TCQ and innovative capability

## 2.6. Conceptual Model

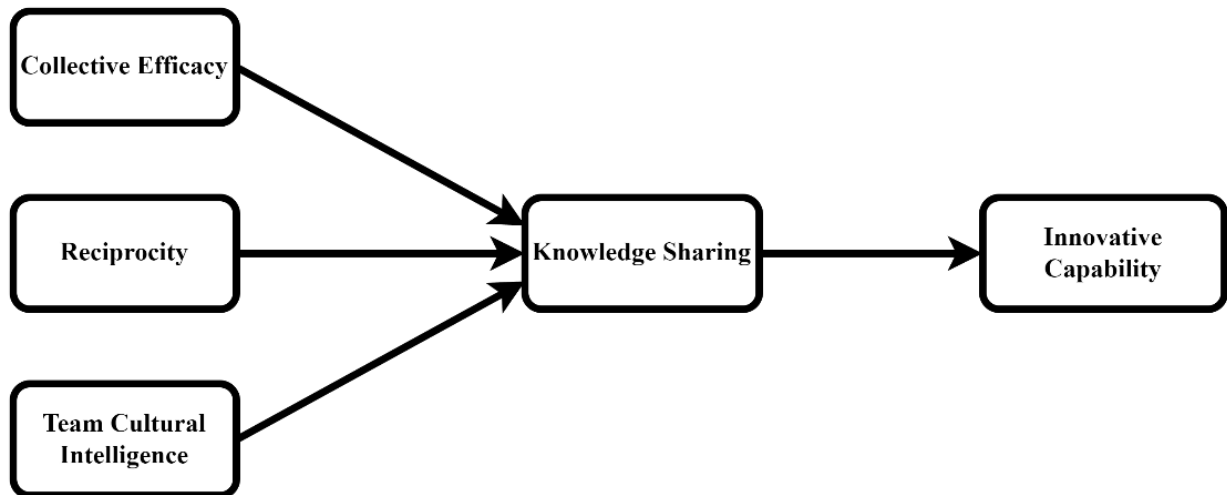


Figure 1. Conceptual model.

## 3. Methodology

### 3.1 Research approach, methods and design

The primary aim of this study is to investigate the association between collective efficacy, team cultural intelligence, reciprocity, and innovative capability mediated by knowledge sharing in a multi-cultural team. To achieve this objective, the study adopts a quantitative research approach, focusing on numerical data analysis and statistical techniques to explore the relationships between these variables (Creswell & Creswell, 2017). The research methodology aligns with a positivist perspective, emphasizing objectivity and neutrality in data collection and analysis. It adheres to a positivistic epistemology, which seeks to derive objective knowledge about reality, and a realism ontology, considering the world as objectively composed of observable entities (Duberley, Johnson & Cassell, 2012; Ritchie, Lewis, Nicholls & Ormston, 2013).

By maintaining this alignment, the methodology ensures a rigorous and systematic investigation. Positivist research aims to identify causal relationships (Mertens, 2015). In this study, collective efficacy, team cultural intelligence, reciprocity, innovative capability along with knowledge sharing are treated as objectively existing concepts, and theory-based hypotheses are tested using a hypothetico-deductive approach (Duberley et al., 2012). This deductive research approach involves deriving hypotheses from existing theories and testing them empirically to verify their validity (Guba & Lincoln, 1994; Ritchie et al., 2013). Given the nature of the research questions and objectives, a quantitative research method is appropriate. Quantitative research facilitates the testing and confirmation or rejection of hypotheses through statistical analysis of numerical data (Newman & Benz, 1998).

This methodological choice aligns with the positivist epistemology, realism ontology, and the deductive research approach employed in this study. The ultimate goal of the quantitative research conducted here is to generate findings that can be generalized beyond the specific context of the study (Justesen & Mik-Meyer, 2012; Creswell & Creswell, 2017). This allows for broader insights into the relationship between collective efficacy, team cultural intelligence, reciprocity, and innovative capability mediated by knowledge sharing in a multi-cultural team setting, and generalize the results to the multicultural teams employed at an organization.

The research methodology chosen for this study involves the utilization of a survey as the primary data collection instrument. A survey is deemed suitable for examining relationships and correlations between variables (Healy & Perry, 2000). Surveys offer several advantageous features as a research method. Firstly, they provide a high degree of flexibility, allowing researchers to explore numerous research questions through the convenience of online platforms (Muijs, 2010). Secondly, surveys are highly efficient in terms of data collection, enabling the gathering of large amounts of information at a relatively low cost and effort. This efficiency is particularly beneficial when studying a diverse sample or a large population (Bryman & Cramer, 2002). Additionally, surveys are time-efficient and can reach a wider range of participants, enhancing the generalizability of the findings and increasing the validity of the results (Wright, 2005). Furthermore, the use of standardized questions in surveys facilitates comparability and allows for meaningful comparisons across different respondents or respondent groups (Muijs, 2010). This standardized approach enhances the reliability and consistency of the data collected. Lastly, online surveys offer access to individuals and groups who may be difficult to reach through other research methods, expanding the reach of the study and providing valuable insights from diverse perspectives (Bryman & Cramer, 2002). However, it is important to acknowledge that surveys have certain limitations as a measurement instrument. One limitation is the potential constraint on the depth of data and insights obtained compared to more in-depth qualitative methods (Wright, 2005). Surveys typically rely on predetermined questions and response options, which may restrict the richness and nuance of the data collected (Muijs, 2010).

In order to ensure the reliability and validity of the data collected, this study will utilize validated and reliable measures for key constructs. Previous research studies have provided established measures for collective efficacy (Jung & Sosik, 2002), innovative capability (Calantone, Cavusgil & Zhao, 2002), knowledge sharing (Lin, 2007), and reciprocity (Kwahk & Park, 2016). These measures have been widely used and have demonstrated their effectiveness in capturing the intended concepts accurately. When measuring team cultural intelligence, a scale developed by Bücken and Korzilius (2021) will be adopted. This scale takes into consideration the unique characteristics of team-level cultural intelligence, distinguishing it from individual-level cultural intelligence. Bücken and Korzilius (2021) argue that the content and nature of cultural intelligence differ when applied at the team level.

Therefore, the use of this specific scale allows for a more comprehensive and accurate assessment of team cultural intelligence. By employing validated measures for the constructs under investigation, including team cultural intelligence, this study aims to ensure the reliability and validity of the collected data. These measures have been tested and proven effective in previous research, providing a strong foundation for capturing the intended concepts accurately.

The survey will adopt a cross-sectional design, where data will be collected from respondents at a single point in time. This design allows for the simultaneous examination of different groups with varying levels of the key constructs (Spector, 2019). By combining a positivist perspective, quantitative research methodology, and the survey instrument, this study is well-positioned to investigate the relationship

between the key constructs across diverse target groups and to generalize the findings to the multicultural teams employed within an organization.

To summarize, the survey instrument, with its focus on examining relationships and correlations, along with the cross-sectional design, will provide valuable insights into the association between the key constructs. Adhering to a positivist approach and employing quantitative methods, this study aims to generate findings that can be applied to a broader population.

### **3.2. Sample and procedure**

In order to examine the hypotheses, a questionnaire was meticulously designed and subjected to pilot testing. The questionnaire was constructed by thoroughly reviewing pertinent literature and subsequently refining it to suit the specific context of the study. To maintain consistency, the original wording were retained, while each scale was introduced briefly to aid participants in transitioning their focus to the relevant topic. The survey was distributed among several multinationals, to increase the diversity of the sample. The employees that filled out the survey had to be part of a multicultural team. Multicultural teams, as defined by Snell et al. (1998), are characterized by their composition of individuals from various cultures who come together to work on projects or activities that transcend national borders. The online platform Qualtrics was utilized to distribute the survey to participants through anonymous web links shared on personal social network and messaging sites such as facebook, linkedIn, and whatsApp. In addition to the distribution of the survey through online platforms, the potential respondents were directly contacted via phone or email and, personally requested for their participation in filling out the survey. A comprehensive statement outlining the research objectives, instructions for survey completion, a confidentiality agreement, and a direct link to access the questionnaire were included. The designated contacts within each company played a crucial role in explaining the survey's purpose and ensuring respondent confidentiality. To improve the response rate, follow-up messages were sent to non-responsive participants through the designated contacts after a one-week interval.

Data for this study was collected from multicultural teams located in several countries, including Germany, Netherlands, USA, New Zealand, Australia, Sweden and Canada. The data collection period spanned from February 2023 to May 2023. The sampling strategy aimed to include employees from diverse organizations and industries within multicultural and multinational teams. Convenience sampling, a type of non-probability sampling, was initially employed to select participants. This was followed by snowball sampling, where participants were encouraged to share the survey with their networks. Convenience sampling was chosen for its time and cost efficiency, making it a suitable approach for this research (Etikan, Musa & Alkassim, 2016). Snowball sampling allowed for the inclusion of respondents beyond the initial network and helped increase the sample size (Heckathorn, 2011; Parker, Scott & Geddes, 2019). By meticulously implementing the chosen methodology, encompassing questionnaire development, target population selection, data collection approach, and sampling methods, the study strived to ensure the reliability and validity of its findings.

The final sample consists of 176 respondents. Due to the distribution of the survey through social media channels, it is not possible to calculate the precise response rate, as there is no reliable data on the number of individuals who viewed the survey and ultimately decided to complete it. It is important to acknowledge that not all respondents in the sample fully completed the survey. After excluding incomplete responses, a total of 133 participants remained, which accounts for approximately 75% of the initial sample. With regards to demographics the utilized sample consisted mainly of males (72.9 %), highly educated people (Masters or higher, 54.1 %), with a mean age of 36.57 years. Regarding

work-related factors, most respondents worked permanently (93 %), in the Information technology sector (74 %) with majority having work experience between 0-5 years as an Individual contributor/team member (71.4 %) and were based out of Berlin, Germany with an average team size of 8 members.

### **3.3. Measurement Instruments**

#### ***Innovation capability***

The measurement of innovation capability in this research will utilize a scale developed by Calantone, Cavusgil, and Zhao (2002). This scale comprises six items that will be rated by participants on a 6-point Likert scale, ranging from "Strongly Disagree" to "Agree." The items included in the scale reflect statements such as "Our company frequently tries out new ideas" and "Innovation in our company is perceived as too risky and is resisted." The reliability of the scale is established by the Cronbach's Alpha coefficient, which in this case is reported to be 0.89. This high value indicates a strong internal consistency of the items within the scale, suggesting that the items reliably measure the concept of innovation capability. By employing this established scale, the research aims to assess the participants' perceptions and attitudes towards innovation within their respective companies.

#### ***Team cultural intelligence***

To assess team cultural intelligence, Bücken and Korzilius (2021) developed a scale consisting of 21 items. This scale aims to capture participants' perceptions, attitudes, and beliefs regarding cultural intelligence within their team. Each item is rated on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). The scale comprises three dimensions: Team Cultural Metacognition, Fusion Teamwork, and Openness to Diversity. Examples of items in the scale include: "The team adjusts its cultural knowledge as it interacts with people from a culture that is unfamiliar to the team," "The team uses a combination of norms or practices from different members' cultures," and "In my team, members make an extra effort to listen to people from different professional backgrounds and/or work experiences". The reliability of the scale is indicated by the Cronbach's Alpha coefficient, which in this case is reported to be 0.91. This high value suggests a strong internal consistency of the items within the scale, indicating that the items reliably measure the concept of team cultural intelligence. By utilizing this validated scale, the research aims to evaluate participants' perceptions of their team's cultural intelligence, encompassing aspects such as metacognition, fusion teamwork, and openness to diversity.

#### ***Reciprocity***

To evaluate reciprocity, the scale developed by Kwahk and Park (2016) will be employed. This scale comprises four items, which participants will rate on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The purpose of the scale is to assess individuals' beliefs and attitudes towards reciprocity. Illustrative items from the scale include statements such as: "It is fair and obligatory to help others because I know that other people will help me someday" and "People who are involved will develop reciprocal beliefs on give and take based on other people's intentions and behavior." The reliability of the scale is measured by the Cronbach's Alpha coefficient, which is reported to be 0.91 in this instance. In assessing reciprocity at the group level, the scores of individuals within the group will be aggregated to obtain an overall score for the group. This aggregation will enable the analysis of reciprocity tendencies within the group as a collective entity.

#### ***Collective efficacy***

To assess collective efficacy, the researchers will employ a validated scale developed by Jung and Sosik (2002). This scale consists of five items that participants will rate on a 5-point Likert scale, ranging from

1 (strongly disagree) to 5 (strongly agree). The scale aims to measure individuals' perceptions of collective efficacy within their group or team. Example items from the scale include: "My group can find solutions to problems with its performance" and "My group members work hard to fulfill the group's overall responsibilities". The reliability of the scale, indicating the internal consistency of the items, is assessed using the Cronbach's Alpha coefficient, which in this case is reported to be 0.84. By utilizing this validated scale, the research aims to gain insights into individuals' perceptions of their group's collective efficacy. The scale provides a standardized and reliable method for measuring the extent to which individuals believe in their group's ability to perform well and accomplish shared goals.

### ***Knowledge Sharing***

To evaluate knowledge sharing within the team, the researchers will utilize a scale developed by Lin (2007). This scale, consisting of four items, will be measured using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The purpose of this scale is to assess the team's ability to share and collect knowledge effectively. Example items from the scale include: "We share our job experience with each other" and " We share our ideas about jobs with one another". The reliability of the scale is determined by calculating the Cronbach's alpha coefficient, which in this case is reported to be 0.97. This high value indicates excellent internal consistency among the items within the scale, suggesting that the scale reliably measures the concept of knowledge sharing. By employing this validated scale, the researchers aim to evaluate the extent to which team members engage in knowledge sharing behaviors.

### **3.4. Control variables**

To ensure a more robust and comprehensive analysis, this study incorporated control variables that are known to have an influence on the relationship under investigation. The selected control variables included gender, age and national diversity within teams. By including these variables, the study aimed to account for their potential effects and isolate the specific impact of the independent variables on the dependent variable of interest. These control variables were chosen based on prior research (Jiang, Gu & Wang, 2015; Mitchell and Boyle, 2015), which has demonstrated their significance in shaping team behaviors and outcomes. By controlling for these variables, the study aimed to enhance the validity and reliability of the findings and provide a deeper understanding of the factors that contribute to innovation capabilities.

Gender composition was included as a control variable due to its potential influence on team dynamics and performance (Mendoza-Silva, 2021). The research suggests that people are more likely to form ties with individuals of the same gender, which can diminish the perception of innovation capability (Fila & Purzer, 2014). In addition, diverse gender compositions can contribute to a broader range of perspectives and knowledge, which are essential for fostering innovative ideas within teams (Quintana-García & Benavides-Velasco, 2016). The gender ratio was measured as the percentage of male to female members on the team.

Age was considered as control variable to capture the participants' demographic characteristics and their level of experience and length of employment in the organization (Genco, Hölttä-Otto & Seepersad, 2012; Mendoza-Silva, 2021). Previous studies have shown that age can play a role in shaping innovation capabilities. Younger individuals often exhibit higher openness to new ideas and a greater willingness to take risks, while older individuals may bring valuable experience and knowledge to innovative processes (Genco, et al., 2012; Kunze, Boehm & Bruch, 2013). Age was measured as the team members' mean age.

National diversity within teams was considered as another control variable. When a team is nationally diverse (nationality), it can lead to different outcomes due to the potential for people to form in-groups and out-groups, or reluctance to collaborate with those being from different nationality, values and beliefs (Stahl et al., 2010). This aspect can have both positive and negative effects on team innovative capability. On one hand, diverse perspectives and ideas brought forth by national diversity can stimulate creativity and innovation. On the other hand, challenges in collaboration and communication may arise, hindering the team's ability to generate new ideas together. National diversity is assessed using a percentage scale, ranging from low (0-25% culturally diverse) to very high (75-100% culturally diverse) diversity levels within the team.

By incorporating these control variables, the study aimed to isolate the effects of the independent variables on innovative capability of the organisation, enabling a more robust analysis of the research hypothesis.

### **3.5. Data analysis**

The collected survey data underwent a meticulous analysis process utilizing the statistical software SPSS. The initial step involved addressing missing data to ensure data completeness, adhering to the recommended threshold of less than 10% for missing values (Field, 2013). Cases exceeding this threshold or respondents who had not completed a significant portion of the survey were carefully managed and excluded from the analysis. To mitigate the occurrence of missing data, a strategic approach was implemented, requiring respondents to complete each page before proceeding to the next, thereby encouraging comprehensive responses. Subsequently, a comprehensive analysis was conducted to gain insights into the data. Descriptive statistics, including frequencies, means, standard deviations, skewness, and kurtosis, provided an overview of the dataset. Visual tools such as boxplots were utilized to identify potential outliers, and histograms along with normality tests were employed to assess the normal distribution of variables. Reliability analyses, following the guidelines proposed by Hair et al. (2019), were performed to ensure the consistency and quality of measurement scales.

To reduce data complexity, a factor analysis was conducted, unveiling underlying factors within the dataset. Prior to conducting regression analysis, assumptions such as normality, linearity, homoscedasticity, and absence of multicollinearity were assessed to confirm the suitability of the analysis. Finally, mediation analysis was performed using the SPSS plug-in PROCESS (Hayes, 2017), which facilitated a more comprehensive exploration of the relationships among variables. This approach allowed for a nuanced understanding of the data and the identification of potential mediating effects.

Overall, the rigorous analysis process ensured the integrity and reliability of the findings, providing valuable insights into the relationships among variables.

### **3.6. Research ethics**

This study was conducted following the ethical principles outlined in the Belmont Report (Miracle, 2016). Throughout the entire research process, from planning to data collection and analysis, strict ethical practices were followed to maintain the integrity of the study. Participants were provided with an electronic informed consent form detailing the purpose of the study, nature of participation, confidentiality procedures, and the voluntary nature of participation. Informed consent was obtained from all participants prior to accessing the online survey. Participants were informed they could withdraw from the study at any time without consequences by exiting the survey. The survey design deliberately limited the inclusion of personal questions or sensitive questions to prevent individual identification and organizational information. The online survey platform, Qualtrics provided data

encryption to protect participant privacy, and IP addresses were not collected to ensure anonymity. No identifying information was obtained, and all data were de-identified before analysis. Access to data was limited strictly to the researcher. Since the contact person in the organisation was in contact with the respondents, the researcher had no direct relationship with or power over participants. Transparent communication was prioritized, with participants informed they could receive a report of the study's aggregate findings upon request.

The completed thesis will be published in an online dissertation repository of Radboud University and the digital archive of the Department of Business Administration, making it accessible to users both inside and outside the university. By strictly adhering to these ethical principles and guidelines, the research upheld a high standard of ethical conduct, demonstrating respect for the rights and interests of the participants involved (Israel & Hay, 2006). This unwavering commitment to ethical considerations contributed to the credibility and trustworthiness of the study, reinforcing the integrity of the research findings.

## **4. Results**

### **4.1. Data screening**

#### **Sample**

It is imperative to adhere to specific criteria when engaging in multiple regression analysis. As articulated by Hair et al. (2019), the first criterion underscores the need for a sample size of a minimum of 50 participants, with a preference for 100 or more, in order to fortify the robustness of statistical outcomes. Additionally, maintaining a minimum ratio of 5 observations per variable included in the model is suggested, although an ideal ratio of 15-20 observations per variable is favoured due to its potential to yield more statistically significant results and enhance degrees of freedom. It is noteworthy that our study's sample size comprised 133 participants, thereby comfortably meeting this critical guideline.

The second criterion warrants careful consideration regarding the characteristics of the variables employed. Both the independent and dependent variables must possess metric measurements, as prescribed by Hair et al. (2019). Specifically, the independent variables applied in the study must adhere to metric measurement standards. It is essential to underscore that all independent and dependent variables within our research conform to these requirements. In the current study, all primary variables were assessed using scale-level measurements. The control variable, age, was measured on a continuous scale, and similarly, the independent variables - collective efficacy, reciprocity, and team cultural intelligence—were also assessed using continuous measurements. Likewise, the mediator variable, knowledge sharing, and the dependent variable, innovative capability, were both evaluated at the metric or continuous level.

#### **4.1.1 Data preparation**

The initial phase of data analysis involved careful data cleaning procedures, including the removal of extraneous details such as start and end times. Only duration data were retained, ensuring a dataset with a 100% completion rate. To enhance the clarity and recognition of items, names and labels of all items were adjusted to align with abbreviated versions of their original names. Items TCQ15 and IC5, which were originally formulated with negative value, underwent reverse coding and were subsequently referred to as RevTCQ15 and RevIC5, respectively. In the study, all primary variables were assessed at the scale level. Age and cultural diversity within teams were treated as continuous variables, while

gender was categorized as nominal, following Field's (2013) guidance. Consequently, dummy variables were computed for the nominal scaled variable, gender, as prescribed by Field (2013). Detailed frequencies of the control variables are presented in Appendix 1, and Appendix 2 provides a comprehensive summary of descriptive statistics for the primary variables as well as the control variables of age and national diversity, which is measured on a continuous level. In Appendix 3, the analysis presents a comprehensive examination of the correlations among the metrically scaled main variables, in addition to the control variable, age and diversity. Notable findings encompass significant and positive correlations among all main variables except team cultural intelligence. Particularly striking are the substantial effects observed between reciprocity and innovative capability ( $r = .588, p < .001$ ), as well as between collective efficacy and innovative capability ( $r = .561, p < .001$ ). Furthermore, all main variables exhibit significant positive correlations with each other except team cultural intelligence. Notably, a medium and statistically significant association is identified between collective efficacy and reciprocity and collective efficacy and knowledge sharing ( $r = .309, p < .001$ ) and ( $r = .298, p < .001$ ). Age has a positive relation with all variables except diversity ( $r = -0.012, p > .05$ ), indicating that as participants' age increases, national diversity tends to decrease. National diversity demonstrates a negative association with all variables except for knowledge sharing and team cultural intelligence (TCQ). More specifically, it exhibits negative correlations with collective efficacy ( $r = -0.034, p > .05$ ); reciprocity ( $r = -0.038, p > .05$ ) and innovative capability ( $r = -0.086, p > .05$ ), suggesting that an increase in national diversity tends to coincide with a decrease in these variables. Notably, diversity also displays a significant positive relationship ( $r = 0.206, p < 0.05$ ) with team cultural intelligence (TCQ), implying that as diversity increases, there is a corresponding enhancement in team cultural intelligence at team level. To facilitate integration into subsequent analyses, certain variables underwent re-coding. Age, for instance, was re-categorized into four distinct groups under the variable RecAge, namely: 1 - 22-30; 2 - 31-39; 3 - 40-48; 4 - 49 and above. Similarly, gender was transformed into a dummy variable denoted as RecGender (0: female; 1: male), while national diversity was categorized into four levels: low (0-25%), moderate (25-50%), high (50-75%), and very high (75-100%). Regarding the scale "reciprocity" developed by Kwahk and Park (2016), individual-level measurements were initially obtained. To align with the objective of comprehending reciprocity at the team level, the data were aggregated. Data aggregation from a lower level to a higher level involves summarizing individual-level data into broader units, such as teams or organizations. This process simplifies data for higher-level analysis, typically using aggregation functions like mean or sum to condense information while preserving key insights (Croon, & van Veldhoven, 2007).

#### **4.1.2 Missing data analysis**

Upon the removal of cases with insufficient responses, a comprehensive analysis of missing data was conducted and documented in Appendix 4, Table 1. It is worth noting that the presence of missing values is a common occurrence in survey-based studies utilizing questionnaires. According to the recommendations of Hair et al. (2019), the impact of missing values on the study's outcomes is generally negligible when they account for 10% or less of the data. However, in cases where missing values exceed 15%, it is advisable to exclude those cases from the analysis. In our dataset, only one variable, namely Wrk\_Covid, exhibited a missing value rate of 12.8%, falling within the range of 10% to 15%. Therefore, it was retained in the analysis. Subsequently, before implementing any data imputation methods, it is crucial to assess the randomness of the missing data processes, as prescribed by Hair et al. (2019). In this regard, Little's Missing Completely At Random (MCAR) test was employed to evaluate the randomness of the missing data. If this test yields non-significant results ( $p > 0.05$ ), it indicates that the missing data can be considered MCAR and does not significantly deviate from randomness. The results of Little's MCAR test (Chi-Square = 52.50, DF = 40, Sig. = .089) demonstrate non-significance ( $p >$

0.05), suggesting that the missing data indeed follows a Missing Completely At Random (MCAR) pattern. This outcome substantiates that the missing data is entirely random and does not introduce biases or complexities in the estimation or interpretation of the results. Given the MCAR nature of the missing data, it provides the flexibility to employ various imputation methods, as recommended by Hair et al. (2019). Consequently, mean substitution is chosen as a suitable imputation method to address the missing values.

#### **4.1.3 Outliers**

In the realm of research, outliers are a prevalent presence. Outliers manifest as observations bearing exceptionally high or low values on an individual variable, referred to as univariate outliers, or exhibit extreme values across multiple variables, termed multivariate outliers. Their presence bears significant implications for statistical analyses and, consequently, the outcomes of research investigations (Tabachnick & Fidell, 2013). Fundamentally, outliers represent observations that conspicuously diverge from the prevailing patterns exhibited by the majority of the dataset (Barnett & Lewis, 1994). Disregarding the treatment of outliers, especially those of an extreme nature, carries the potential to distort research findings (Tabachnick & Fidell, 2013; Hair et al., 2019). In the pursuit of identifying potential outliers - observations that markedly deviate from the overarching dataset and may introduce bias into the regression model (Field, 2013) - boxplots were judiciously crafted for all variables measured on a metric scale. These variables encompassed the four independent variables, one dependent variable, and the control variable, 'age' (for comprehensive details, kindly refer to Appendix 5). Scrutiny of these boxplots revealed the presence of outliers, comprising three outlier in the case of reciprocity, one outlier relating to knowledge sharing, innovation capability and team cultural intelligence. It is pertinent to note that the scores of these outliers resided within a reasonable range, specifically falling within the span of 1 to 7 or 0 to 100 on the scale. Consequently, a judicious determination was made to retain these outliers without any alterations to their respective values.

#### **4.1.4 Common Method Bias (CMB)**

"In the assessment of Common Method Bias (CMB), Harman's single factor score method was employed to examine the potential influence of respondents' social desirability bias on the dataset. Common Method Bias refers to measurement error introduced when respondents provide overly positive responses. The threshold commonly used in the assessment of Common Method Bias (CMB) through Harman's single factor score is typically set at 50%. If a single factor explains less than 50% of the total variance in the dataset, it suggests that common method bias is less likely to be a significant issue. In this study, where the single factor explains only 24.796% of the total variance, this result suggests that there is no substantial threat of common method bias in the dataset. The variance explained by the single factor falls below the widely accepted 50% threshold, suggesting that social desirability bias is less likely to have a substantial impact on respondents' responses. For more comprehensive details, please refer to Appendix 6.

### **4.2. Analysis**

#### **4.2.1. Psychometric analyses - Exploratory Factor Analysis**

Factor analysis, a statistical technique employed for the examination of interrelationships among variables, plays a pivotal role in uncovering the inherent structure within a dataset. Furthermore, it facilitates the condensation and summarization of data (Hair et al., 2019). To accomplish data reduction and elucidate the underlying structure, this study implemented an Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), and conducted a reliability analysis on all metric variables

included in this thesis. A notable divergence between EFA and CFA pertains to the determination of the number of factors. EFA refrains from assuming a predefined number of factors, opting instead for a technical criterion involving eigenvalues exceeding 1, while CFA prescribes a predetermined factor count (Hair et al., 2019). The judicious application of both EFA and CFA allows for a systematic comparison of outcomes derived from the original scale against those emanating from the EFA. The EFA was conducted utilizing SPSS, while the CFA analysis was executed using both SPSS and AMOS. This methodological approach aligns seamlessly with the decision framework expounded by Hair (Hair et al., 2019). It is imperative to emphasize that the principal objective of this study encompasses the exploration of interdependence relationships among variables. It is noteworthy that all variables in this analysis are subject to measurement at the metric level. Furthermore, it is pertinent to acknowledge that the primary constructs under consideration do not adhere to a normal distribution, as evidenced by the skewness and kurtosis, all of which fall above the range of  $[-1.9]$ . It is worth citing the perspective articulated by Hair et al. (2014), which posits that with sufficiently large sample sizes, the results of factor analysis remain robust, thereby allowing for the execution of a comprehensive factor analysis. In practice, researchers often consider a sample size large enough to meet the assumptions of factor analysis, such as having an adequate subject-to-variable ratio, which is commonly suggested to be at least 5 subjects per variable. Given that the present study has 133 participants, which exceeds this recommended threshold, it can be considered as having a sufficiently large sample size for conducting factor analysis. However, it is essential to note that the adequacy of the sample size can also depend on factors such as the complexity of the analysis and the desired level of statistical power. Consequently, it is concluded that the observed skewness does not pose a significant impediment to conducting a rigorous factor analysis.

#### **4.2.2 EFA: Team culture intelligence**

To uncover the underlying structure of the "team cultural intelligence" scale, which encompasses items from TCQ1 to TCQ21, an exploratory factor analysis (EFA) was conducted. In the initial iteration, the analysis fulfilled the necessary conditions for factorization. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy yielded a value of .878, exceeding the prescribed threshold of .50, signifying ample variability within the dataset (Hair et al., 2010). Additionally, the significance of Bartlett's test of sphericity ( $\chi^2 = 1905.563$ ,  $p < .001$ ), confirmed the suitability of the factor analysis approach. This initial exploration revealed the presence of five factors, collectively accounting for over 60% (62.093%) of the total variance. All items exhibited a high communality above 0.20, and several items displayed cross-loadings, particularly TCQ1, TCQ9, TCQ12, TCQ 13, TCQ 16, TCQ 18, and TCQ 19, it suggests that most items in the analysis had a substantial portion of their variance explained by the underlying factors. High communality values (value above 0.20) indicate that the items are well suited for inclusion in the factor analysis. TCQ16 was excluded from the factor analysis due to its lowest cross loading because retaining it would have introduced ambiguity into the factor structure, making it less interpretable (Field, 2013). This exclusion ensures that the remaining items are more clearly associated with specific factors, leading to a more robust and interpretable analysis. The choice of utilizing the direct oblimin rotation method was based on the existence of at least one correlation exceeding 0.3 in absolute terms. Successive iterations of the EFA process consistently surpassed the minimum KMO threshold of 0.5 (with KMO values ranging from 0.873 to 0.802) and produced significant results in Bartlett's test ( $p < .001$ ), reaffirming the suitability of factor analysis. Across these iterations, four factors consistently emerged, collectively explaining (ranging from 67.224% to 69%) of the total variance. In summary, the outcomes of the Exploratory Factor Analysis (EFA) reveal a factor structure characterized as follows:

- Factor 1 encompasses the items TCQ 13, TCQ14, TCQ17, TCQ18, TCQ20, and TCQ21.
- Factor 2 incorporates the items TCQ4, TCQ5 and TCQ8.
- Factor 3 TCQ12 and Rev TCQ15.
- Factor 4 TCQ2, TCQ6, and TCQ10.

#### **4.2.3. Reliability analysis: Team culture intelligence**

The analyses revealed Cronbach's alphas of ( $\alpha = .851$ ), surpassing the commonly accepted threshold of ( $>0.7$ ) (Field, 2013), thereby providing robust evidence of the factors' reliability. A closer examination, which involves removing RevTCQ15, suggests that Cronbach's alpha would increase to .888. However, it is important to note that the magnitude of this increase is not deemed substantial ( $< .05$ ). Consequently, the decision was taken not to eliminate these items. In consideration of these results, it can be confidently asserted that the employed scales demonstrated a notably high level of reliability, in accordance with the prevailing consensus. All relevant tables of the factor analysis as well as the reliability analyses can be found in Appendix 7.

#### **4.2.4. CFA: Team culture intelligence**

For the confirmatory factor analysis, in AMOS, items TCQ1 to TCQ21 were used, all items loaded sufficiently except RevTCQ15, TCQ8, TCQ10 and TCQ11, were removed as they showed poor model fit and loading. After removal of items this resulted in a sufficient factor loading of all items. The final 4-factor structure that was obtained aligns with the results obtained in EFA and CFA in SPSS. The standardized regression weights and factor structure of the 4-factor structure of the team cultural intelligence can be seen in Appendix 8, Figure 3 and Figure 4.

Table 1 outlines the definitive four-dimensional structure of team cultural intelligence proposed for this research.

<b>Item</b>	<b>Description</b>
<b>Factor 1</b>	<b>Cultural Adaptability (C<math>\alpha</math> =0.848)</b>
TCQ1	The team is conscious of the cultural knowledge it uses when interacting with people with different cultural backgrounds.
TCQ2	The team adjusts its cultural knowledge as it interacts with people from a culture that is unfamiliar to the team.
TCQ3	The team is conscious of the cultural knowledge it applies to cross-cultural interactions.
TCQ12	The team enjoys working with people despite language barriers.
<b>Factor 2</b>	<b>Cultural Fusion ( C<math>\alpha</math>=0.831)</b>
TCQ4	The team checks the accuracy of the cultural knowledge it uses when interacting with people from different cultures.
TCQ5	The team uses a combination of norms or practices from different members' culture.
<b>Factor 3</b>	<b>Diversity Harmony (C<math>\alpha</math> =0.753)</b>
TCQ6	The team tolerates members following their own cultural norms and practices.
TCQ7	The team accepts that members from different cultures have different ways of expressing themselves.
TCQ9	Team members participate in team discussions openly and freely.
<b>Factor 4</b>	<b>Active Inclusivity (AI (C<math>\alpha</math>=0.883)</b>
TCQ13	The team makes an extra effort to communicate with people speaking different languages.
TCQ14	The team is keen to learn from people even when communication is slowed down by language barriers.
TCQ21	In my team, members make an extra effort to listen to people from different professional backgrounds and/or work experiences.
TCQ20	In my team, members enjoy doing jobs with people from different professional backgrounds and/or work experiences.
TCQ17	In my team, members make an extra effort to listen to people of different ethnicity, gender, and/or age.
TCQ18	In my team, members make an extra effort to listen to people who hold different work values and/or motivations.
TCQ16	In my team, members enjoy doing jobs with people of different ethnicity, gender, and/or age.
TCQ19	In my team, members are keen to learn from people who have different work values and/or motivations.

Table 1. Illustrates the composition of the Team Cultural Intelligence (CQ) Scale, consisting of 17 items, and provides an overview of their correlations. These items are categorized into four distinct dimensions, namely: Cultural Adaptability, Cultural Fusion, Diversity Harmony, and Active Inclusivity.

Fit Indices						
$\chi^2$	df	$\chi^2 / df$	p	SRMR	CFI	RMSEA
266.599	109	2.45✓	<0.001✓	0.077✓	0.89	0.105

Table 2. Model Fit of the Team CQ

In summary, the chi-squared test statistics and factor loadings strongly endorse the model's robust fit, bolstering the validity of the obtained results. The Comparative Fit Index (CFI) yielded a value of 0.89. CFI values above 0.90 or 0.95 are considered indicative of good model fit (Hu & Bentler, 1999). Therefore, the CFI value of 0.89 suggests room for improvement. The Root Mean Square Error of Approximation (RMSEA) was calculated at 0.105. RMSEA values below 0.06 or 0.08 are considered signs of good fit (MacCallum et al., 1996 ; Hu & Bentler, 1999). The RMSEA of 0.105 exceeds recommended thresholds, also indicating the model could be improved. This noteworthy observation should be thoughtfully taken into account within the context of this study's limitations.

#### 4.2.5. Collective efficacy, Reciprocity, Knowledge sharing, and Innovative capability

For the variables associated with collective efficacy, reciprocity, knowledge sharing, and innovative capability, a consistent pattern emerged wherein a singular one-factor structure was observed in both the Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) procedures. These analyses consistently revealed no instances of cross-loadings or low communalities, providing compelling evidence for the alignment of these variables with the original construct structure of the scales (please refer to Appendix 9). Furthermore, all reliability analyses conducted for these four variables consistently affirmed that the removal of any item would not lead to a substantial improvement in Cronbach's alpha ( $C\alpha$ ) values. The calculated  $C\alpha$  values for collective efficacy, reciprocity, knowledge sharing, and innovative capability were .907, .928, .904, and .938, respectively. In the context of the CFA, the standardized regression estimates for all items within these four variables exhibited robust loadings, with each surpassing the threshold of 0.7 (Hair, 2019). It is noteworthy that item IC5, which was reverse-coded, did not align well with the other variables, displaying a low communality. Consequently, the decision was made to exclude this item from the analysis.

It is important to note that in the context of this study, model fit statistics are of relatively lower importance compared to the consistency of the factor structures. All four variables - collective efficacy, reciprocity, knowledge sharing, and innovation capability - confirmed a one-factor structure matching the original validated scale. This provides reassuring evidence of construct validity that is more vital than model fit statistics for the goals of this research. The strong alignment between the expected and observed factor structures takes priority over achieving arbitrary thresholds of model fit indices. Since the fundamental factor structures were confirmed for each scale used, the model demonstrated an adequate ability to reproduce the covariance matrix on the strength of its theoretical and empirical foundations. Therefore, emphasis should be placed more on the successful validation of the underlying factor structures rather than the specific model fit statistics (Hayduk, et al., 2007; Barrett, P. (2007).

### 4.3 Multiple Regression Analysis

#### 4.3.1. Testing assumptions.

The initial step in conducting multiple regression analysis involves assessing whether the composite variables conform to the foundational assumptions inherent in multivariate analysis. Firstly, the issue of

multicollinearity, which pertains to high intercorrelations among independent variables (Field, 2013), was addressed. As indicated in Appendix 3, the highest significant correlation observed was  $r = .588$  between Reciprocity and Innovative Capability, signifying a moderately strong positive linear relationship but not a high one. According to Field (2013), only correlations exceeding  $.800$  are of concern. Additionally, the Variance Inflation Factor (VIF), which gauges the strength of the relationship between an independent variable and the other independent variables (Field, 2013), was scrutinized. A VIF value exceeding 4 is considered problematic. Furthermore, the concept of tolerance, which is the reciprocal of VIF, was considered. Tolerance should be greater than  $.20$  (Field, 2013). In this study, no VIF exceeded 1.226; all tolerance value was above  $.816$ . Thus, the multicollinearity assumption was satisfied. Detailed VIF and tolerance values can be found in the coefficients tables in Appendix 14 A - C.

Secondly, the residuals were assessed for independence. The Durbin-Watson test, which assesses serial correlations between errors (Field, 2013), was conducted during the regression analyses. A value above 2.0, generally indicates negative correlations between the residuals, while a value below 2 suggests positive correlations, with the ideal value hovering around 2 to meet this assumption (Field, 2013). For the first analysis, the Durbin-Watson test yielded a value of 1.170. A value of 2.033 was obtained for the second analysis and the last analysis yielded a value of 1.380. Consequently, the assumption of independent residuals was satisfied.

Thirdly, it was imperative that the residuals of the independent variables exhibited homoscedasticity (i.e., the same variance) and that a linear relationship was effectively modelled (Field, 2013). These two assumptions were jointly assessed through scatterplots of the residuals. Homoscedasticity and linearity are considered met when the scatterplot dots are randomly dispersed and evenly distributed around zero (Field, 2013). This criterion was satisfied for all three analyses (see Appendix 14 A - C). Hence, the data exhibited adequate dispersion without any curvilinear relationships (Field, 2013). To confirm the absence of non-linearity, polynomial terms (quadratic and cubic) were generated for all independent variables in this research (see Figure 26, Appendix 13D). Notably, all polynomial terms (quadratic and cubic) were found to be non-significant for model 1 (dependent variable = Knowledge sharing) and model 2 (dependent variable = Innovative capability), thereby confirming the absence of violations of the linearity assumption.

Lastly, the residuals were required to adhere to a normal distribution, which was evaluated using the Kolmogorov-Smirnov and Shapiro-Wilk tests. A significant outcome in these tests indicates non-normality of residuals (Field, 2013). Unfortunately, this was the case for the analyses. Additionally, z-scores for skewness and kurtosis indicated that all five constructs displayed skewness and kurtosis beyond the threshold of 1.96 (Field, 2013). Consequently, transformations were applied to all constructs, resulting in five transformations: inverse, natural logarithm (ln), square, square root, and natural logarithm base 10 (Lg10). The outcomes of these transformations are presented in (Appendix 12, Figure 23).

#### **4.3.2 Assessment of the transformations for TCQ**

To assess the effectiveness of the Log\_TCQ transformation, two regression analyses were executed. Firstly, a baseline model was constructed without any transformations, resulting in an Adjusted R-squared value of  $.006$ . Subsequently, an analogous regression analysis was performed employing the transformed variable Log\_TCQ, yielding an Adjusted R-squared value of  $.007$  (detailed in Appendix 13, A, B, Figure 24). The transformation exhibited a marginal improvement of  $.001$ . Consequently, the decision was made to utilize the original variable for the remaining analysis. It is worth noting that, as

improving skewness does not alter the interpretation of regression coefficients, the transformed model was deemed unnecessary. In line with the insights provided by Maas and Hox (2004), it is imperative to acknowledge that regression analyses often demonstrate a degree of robustness even in the presence of deviations from the normality assumption. Consequently, no alterations were made to the variables in response to this violation, with due consideration given to it during the interpretation of the study's findings.

### 4.3.3 Regression analyses

After the data reduction, the constructs were computed by the MEAN option in SPSS. Then a correlation analysis was performed to find out which concepts correlate with each other. Finally, a regression analysis was performed using the PROCESS plug-in by Hayes (2017). To investigate the hypotheses, a series of multiple regression analyses were conducted a) When KS was dependent variable b) when IC was dependent variable and c) to investigate the relation between KS and IC, IC being the dependent variable. The findings, including coefficients, corresponding standard errors, and  $R^2$  values for these three analyses, are meticulously presented in Appendix 14.A – C, Figure 27 – 29.

Before delving into the analyses, rigorous preparations were made by creating mean variable for all five constructs, ensuring their suitability for inclusion in the multiple regression models. Alongside these variables, control factors, namely age, gender, and national diversity, were integrated into the models. As linear regression analysis does not accommodate the inclusion of mediator variables, the SPSS PROCESS plugin developed by Hayes was employed to facilitate the analysis (Hayes, 2017).

#### 4.3.3. A) Testing hypotheses H2, H3, H5

Appendix 14.A., figure 27 presents the variables used in the analysis, categorized into two distinct models. The first model encompasses control variables such as 'age,' 'gender, and national diversity. The second model includes the independent variables team efficacy, reciprocity and team cultural intelligence in addition to all the control variables. Both models share knowledge sharing as the dependent variable.

##### Model 1:

In Model 1, which includes control variables and the dependent variable, "Mean\_KS" (Knowledge Sharing), the overall model is not statistically significant ( $F(3, 129) = 1.714, p = .167$ ) and explains only a small proportion of the variance in knowledge sharing ( $R^2 = .038$ ). The adjusted R-square is relatively low (.016), suggesting that the control variables alone explained a small proportion of the variance in knowledge sharing. The control variable "National diversity" has a positive unstandardized coefficient ( $B = 0.162, p = 0.126$ ), indicating that as national diversity increases; knowledge sharing tends to increase slightly. The control variable "Rec\_Age" also has a positive unstandardized coefficient ( $B = 0.068, p = 0.445$ ), suggesting that as the age of respondents increases, knowledge sharing also tends to increase, although the effect is small and also the relationship is not statistically significant ( $p > 0.05$ ). The control variable "RecGender" has a negative unstandardized coefficient ( $B = -0.115, p = 0.531$ ), and is not statistically significant, indicating that gender (recoded as RecGender) does not have a significant impact on knowledge sharing.

##### Model 2:

In Model 2, additional variables related to "Mean\_CE" (Collective Efficacy), "Mean\_Reci" (Reciprocity), and "Mean\_TCQ" (Team Cultural Intelligence) are included alongside the control variables and the dependent variable "Mean\_KS. The overall model for Model 2 is statistically

significant ( $F(3, 126) = 5.818, p < .001$ ), and it explains a larger proportion of the variance in knowledge sharing ( $R^2 = .155$ ) compared to Model 1. The adjusted R-squared (Adj  $R^2$ ) for Model 2 increases significantly to 0.115, which represents a substantial improvement compared to Model 1 (0.016). This increase in Adj  $R^2$  suggests that the combination of control variables (age, gender, diversity) and independent variables (CE, TCQ, Rec) collectively contribute to explaining 11.5% of the variance in knowledge sharing (Mean\_KS).

While national diversity has a positive coefficient ( $B = 0.196$ ) in predicting knowledge sharing, this result is not statistically significant ( $p = 0.055$ ). The p-value approaching significance suggests a potential positive trend. However, the relationship does not reach formal significance levels, indicating definitive conclusions cannot be drawn from this result alone. The non-significant finding may reflect limited statistical power to detect smaller effects with the sample size of 133 teams. Measurement and model limitations may also attenuate the observed association between national diversity and knowledge sharing. This initial finding points to a possible positive relationship warranting further research with expanded models and samples. The absence of statistical significance in the results prevents confirming a substantial impact of national diversity on knowledge sharing based on this dataset. Unaccounted for variables or factors not considered in the analysis might be affecting the link between national diversity and knowledge sharing. A more thorough analysis, or further research, could provide insights into these factors and their impact on the results.

"Rec\_Age" remains positive but not statistically significant ( $B = 0.068, p = 0.445$ ) in Model 2, suggesting that the effect of age on knowledge sharing becomes less clear when considering additional variables. RecGender remains negative and not statistically significant ( $B = -0.262, p = 0.149$ ) in Model 2. "Mean\_CE" (Collective Efficacy) has a positive and highly significant standardized coefficient (Beta = 0.290,  $p = 0.005$ ), indicating that higher levels of collective efficacy are strongly associated with increased knowledge sharing. "Mean\_Reci" (Reciprocity) also has a positive and significant standardized coefficient ( $B = 0.010, p = 0.047$ ), suggesting that greater reciprocity is associated with higher levels of knowledge sharing. "Mean\_TCQ" (Team Cultural Intelligence) has a negative and non-significant standardized coefficient (Beta = -0.162,  $p = 0.167$ ), indicating that team cultural intelligence does not have a significant impact on knowledge sharing in this model.

In summary, Model 2 provides a better explanation of knowledge sharing, with collective efficacy and reciprocity being significant predictors. National diversity remains positively associated with knowledge sharing. However, neither age nor gender (RecGender) significantly influences knowledge sharing in this context. Team cultural intelligence (Mean\_TCQ) does not appear to have a significant impact.

#### **4.3.3. B) Hypothesis Testing - H1, H4, H6**

Model 1, which includes control variables (RecGender, National diversity, Rec\_Age) and the dependent variable "Mean\_IC" (Innovative Capability), has a statistically non-significant overall model ( $F(3, 129) = 1.387, p = 0.250$ ). Additionally, it explains only a small proportion of the variance in Innovative Capability ( $R^2 = 0.031$ ). Model 2, which expands upon Model 1 by adding independent variables (Mean\_CE, Mean\_Reci, Mean\_TCQ) to the control variables and the dependent variable "Mean\_IC," is statistically significant ( $F(6, 126) = 22.109, p < 0.001$ ). It demonstrates a substantial increase in explanatory power, with an adjusted  $R^2$  of 0.490.

**Model 1 (Control Variables):** The initial model (Model 1) that includes only control variables does not significantly explain the variance in Innovative Capability. The p-value ( $p = 0.250$ ) for the overall model suggests that the control variables alone are not effective predictors of Innovative Capability.

**Model 2 (Control and Independent Variables):** The second model (Model 2), which incorporates both control and independent variables, is highly significant ( $p < 0.001$ ) and substantially improves the explanatory power compared to Model 1. The adjusted  $R^2$  of 0.490 indicates that this model explains a substantial proportion of the variance in Innovative Capability.

Variable Significance: In Model 2, several variables are significant predictors of Innovative Capability: Mean\_CE (Creative Efficacy) has a strong positive effect ( $B = 11.396$ ,  $p < 0.001$ ). Mean\_Reci (Reciprocity) also has a significant positive effect ( $B = 0.587$ ,  $p < 0.001$ ). None of the control variables (National diversity, Rec\_Age, RecGender) significantly predict Innovative Capability in Model 2.

In summary, Model 1 with control variables alone does not effectively explain Innovative Capability. However, Model 2, which includes both control and independent variables (Mean\_CE and Mean\_Reci), is highly significant and explains a substantial portion of the variance in Innovative Capability. Collective Efficacy (Mean\_CE) and Reciprocity (Mean\_Reci) are the key predictors of Innovative Capability in this model. The control variables do not play a significant role in explaining Innovative Capability in this context. In addition, the analysis did not indicate a significant relationship between the independent variable "Mean\_TCQ" (Team Cultural Intelligence) and the dependent variable "Innovative Capability" (Mean\_IC). In Model 2, the unstandardized coefficient for Mean\_TCQ was -0.865, and the associated p-value was 0.669, which is not statistically significant ( $p\text{-value} > 0.05$ ). This suggests that, in this particular analysis, Team Cultural Intelligence, as measured by Mean\_TCQ, does not have a significant direct impact on Innovative Capability. Other factors, such as Collective Efficacy (Mean\_CE) and Reciprocity (Mean\_Reci), appear to have a more substantial influence on Innovative Capability.

#### 4.3.3. C) Hypothesis Testing - H7

The analysis of Model 1, which includes control variables and the dependent variable "Mean\_IC" (Innovative Capability), indicates that the overall model is not statistically significant ( $F(3, 129) = 1.387$ ,  $p = 0.250$ ). Additionally, it explains only a small proportion of the variance in Innovative Capability ( $R^2 = 0.031$ ). These findings suggest that, in this model, the included variables, which encompass control variables namely, age, gender and diversity do not provide strong statistical support for a significant relationship with Innovative Capability. However, Model 2, which incorporates additional independent variable Mean\_KS (Knowledge Sharing), exhibits a different pattern. The overall model is statistically significant ( $F(4, 128) = 3.144$ ,  $p = 0.017$ ), indicating that the introduction of Mean\_KS to the model has increased its explanatory power significantly. The adjusted  $R^2$  has also increased from 0.009 in Model 1 to 0.061 in Model 2, suggesting that Model 2 explains a slightly larger portion of the variance in Innovative Capability. Analyzing these results in the context of Hypothesis H7, which posits, "Knowledge sharing and innovation capability are positively associated with each other," we can draw some insights:

Model 1 does not provide strong evidence to support H7. The absence of statistical significance and the low  $R^2$  value suggest that, when considering control variables alone, there isn't a clear positive association between Knowledge Sharing (Mean\_KS) and Innovative Capability (Mean\_IC). Model 2, with the inclusion of Mean\_KS, demonstrates a statistically significant relationship and a slightly improved explanatory power. This suggests that when Knowledge Sharing is included as an independent variable, there is a significant positive association with Innovative Capability. Therefore, while Model 1 does not strongly support H7, Model 2 provides evidence in favor of H7, indicating that Knowledge Sharing and Innovative Capability are indeed positively associated when other factors are considered.

The inclusion of Mean\_KS as an independent variable strengthens the relationship between these two variables.

#### 4.3.3. D) Testing Mediating relationship

It is crucial to emphasize that the findings of this analysis are context-specific and limited to the dataset and variables utilized. The relationship between Team Cultural Intelligence and Innovative Capability may exhibit variations in different contexts or when employing different measurement methods. Furthermore, this analysis does not consider potential indirect or mediated effects that Team Cultural Intelligence might exert on Innovative Capability through intermediary variables or pathways. To address the complex nature of mediation, especially when examining potential mediators between independent and dependent variables, linear regression analysis may not be suitable. Linear regression lacks the capability to incorporate mediator variables into the analysis. Therefore, to explore potential mediation effects, the SPSS PROCESS plugin developed by Hayes (2017) was employed. This specialized tool facilitates the investigation of indirect effects and mediation relationships in a more comprehensive manner, allowing for a deeper understanding of the underlying mechanisms at play in the relationship between Team Cultural Intelligence and Innovative Capability.

#### Testing H8a, H8b and H8c

Hypothesis H8 was assessed utilizing the SPSS PROCESS procedure, encompassing the examination of H8a, H8b, and H8c, accounting for the following effects.

Regression analysis Effects

1. Direct relationship between  $X \rightarrow M$ ; a
2. Direct relationship  $M \rightarrow Y$ ; b
3. Direct relationship  $X \rightarrow Y$ ; c
4. Relationship  $X \rightarrow Y$  under control of M; c'
5. Indirect effect/Mediation effect; ab

Note. Model 4 Process. X= independent variable, Y=dependent variable - (IC), M=Mediator (KS)

*H8a. KS mediates the relationship between Collective efficacy and Innovative capability*

1. Direct relationship between CE  $\rightarrow$  KS ; a: (b=.3490, t = 3.5696, p=.0005)
2. Direct relationship KS  $\rightarrow$  IC; b: (b=1.5742, t = .9143, p=.3623)
3. Direct relationship CE  $\rightarrow$  IC; c: (b=14.9454, t = 7.7629, p=.0000)
4. Relationship CE  $\rightarrow$  IC under control of KS; c': (b=14.3961, t = 7.1340, p<.0000)
5. Indirect effect/Mediation effect; ab: (b=.5493, Boot CI (-1.0014, 2.5557))

The following relationships were examined, and their respective results are presented:

There is a significant direct relationship between CE (Collective Efficacy) and KS (Knowledge Sharing) (a: b = 0.3490, t = 3.5696, p = 0.0005).

The direct relationship between KS and IC (Innovative Capability) ( $b = 1.5742$ ,  $t = 0.9143$ ,  $p = 0.3623$ ) is not statistically significant.

There is a strong direct relationship between CE and IC ( $c = 14.9454$ ,  $t = 7.7629$ ,  $p < 0.0001$ ).

When controlling for KS, the relationship between CE and IC remains significant ( $c' = 14.3961$ ,  $t = 7.1340$ ,  $p < 0.0001$ ).

The indirect/mediation effect ( $ab: b = 0.5493$ , Boot CI (-1.0014, 2.5557)) suggests that KS partially mediates the relationship between CE and IC, and the mediation effect is statistically significant. Therefore, Knowledge Sharing (KS) does play a mediating role in the relationship between Collective Efficacy (CE) and Innovative Capability (IC). Overall, these results indicate a significant direct relationship between CE and IC, with some mediation through KS. However, the direct relationship between KS and IC is not statistically significant in this analysis.

*H8b. KS mediates the relationship between reciprocity and innovative capability*

1. Direct relationship between Reciprocity  $\rightarrow$  KS;  $a: (b = .0117, t = 2.5128, p = .0132)$
2. Direct relationship between KS  $\rightarrow$  IC ;  $b: (b = 2.4814, t = 1.5170, p = .1317)$
3. Direct relationship between Reciprocity  $\rightarrow$  IC;  $c: (b = .7285, t = 8.3181, p = .0000)$
4. Relationship between Reciprocity  $\rightarrow$  IC under control of KS;  $c': (b = .6994, t = 7.8396, p < .0000)$
5. Indirect effect/Mediation effect  $ab: (b = .0290, \text{Boot CI } (-.0110, .1115))$

In the provided information, there is a direct relationships between Reciprocity (Reciprocity) and Knowledge Sharing (KS), Knowledge Sharing (KS) and Innovative Capability (IC), and a direct relationship between Reciprocity (Reciprocity) and Innovative Capability (IC). Additionally, there is a mediated relationship involving Reciprocity, Knowledge Sharing (KS), and Innovative Capability (IC).

Direct relationship between Reciprocity  $\rightarrow$  Knowledge Sharing (KS): The coefficient ( $b$ ) is 0.0117, and the  $p$ -value is 0.0132. This suggests that there is a statistically significant positive relationship between Reciprocity and Knowledge Sharing. As Reciprocity increases, Knowledge Sharing tends to increase. Direct relationship between Knowledge Sharing (KS)  $\rightarrow$  Innovative Capability (IC): The coefficient ( $b$ ) is 2.4814, but the  $p$ -value is 0.1317. The  $p$ -value is relatively high, indicating that this relationship is not statistically significant at a conventional significance level ( $p < 0.05$ ). Therefore, Knowledge Sharing does not directly affect Innovative Capability in this analysis. Direct relationship between Reciprocity  $\rightarrow$  Innovative Capability (IC): The coefficient ( $b$ ) is 0.7285, and the  $p$ -value is 0.0000. This indicates a statistically significant positive relationship between Reciprocity and Innovative Capability. As Reciprocity increases, Innovative Capability tends to increase. Relationship between Reciprocity  $\rightarrow$  Innovative Capability (IC) under the control of Knowledge Sharing (KS): The coefficient ( $b$ ) is 0.6994, and the  $p$ -value is less than 0.0000, indicating statistical significance. This relationship suggests that even when considering the influence of Knowledge Sharing, Reciprocity still has a significant positive effect on Innovative Capability. Indirect effect/Mediation effect ( $ab$ ): The coefficient ( $b$ ) is 0.0290, and the bootstrapped confidence interval (-0.0110, 0.1115) includes both positive and negative values, but it includes zero (0). This means that the indirect effect of Reciprocity on Innovative Capability through Knowledge Sharing is not statistically significant ( $p < 0.5$ ). The confidence interval that includes zero indicates that it's not possible to confidently assert that the mediation effect is statistically different from zero.

In summary, there is a statistically significant direct positive relationship between Reciprocity and both Knowledge Sharing and Innovative Capability. However, the direct relationship between Knowledge Sharing and Innovative Capability is not statistically significant in this analysis. The mediation effect through Knowledge Sharing in the relationship between Reciprocity and Innovative Capability is not statistically significant.

*H8c. KS mediates the relationship between TCQ and innovative capability*

1. direct relationship TCQ→KS; a: (b= -.0539, t = -.4521, p=. 6519)
2. Direct relationship KS→IC; b: (b=5.2696, t =. 2.7183, p=.0075)
3. direct relationship TCQ→IC; c: (b=1.0414, t =.3842, p=. .7015)
4. Relationship TCQ→IC under control of KS; c': (b=1.3256, t =.5004, p<.6176)
5. Indirect effect/Mediation effect ab: (b= -.2842, Boot CI (-1.5258, .6018)

The direct relationship between TCQ (Team Cultural Intelligence) and KS (Knowledge Sharing) does not appear to be statistically significant (p = 0.6519). This suggests that TCQ may not have a direct impact on KS in this context. The direct relationship between KS and IC (Innovative Capability) is statistically significant (p = 0.0075), indicating that an increase in KS is associated with an increase in IC. The direct relationship between TCQ and IC also does not appear to be statistically significant (p = 0.7015). This suggests that TCQ may not have a direct impact on IC in this context. When considering the relationship between TCQ and IC while controlling for KS (c'), it remains non-significant (p < 0.6176). The indirect effect or mediation effect (ab) has a point estimate of -0.2842. The bootstrap confidence interval (-1.5258 to 0.6018) includes zero, suggesting that it's not possible to confidently assert that this mediation effect differs significantly from zero. This suggests that the mediation effect of KS in the relationship between TCQ and IC may not be statistically significant. In summary, while there is a significant direct relationship between KS and IC, the direct relationship between TCQ and both KS and IC is not significant. Additionally, the mediation effect of KS in the TCQ-IC relationship is inconclusive as the confidence interval spans zero. For comprehensive details, please refer to Appendix 14.D, figure 30 - 32).

**4.4. Structural Equation Modelling**

Fit Indices						
$\chi^2$	df	$\chi^2 / df$	p	SRMR	CFI	RMSEA
386.91	195	1.98✓	0.001✓	0.067✓	0.922✓	0.086

Table 3. Model fit indices from Structural Equation Modelling

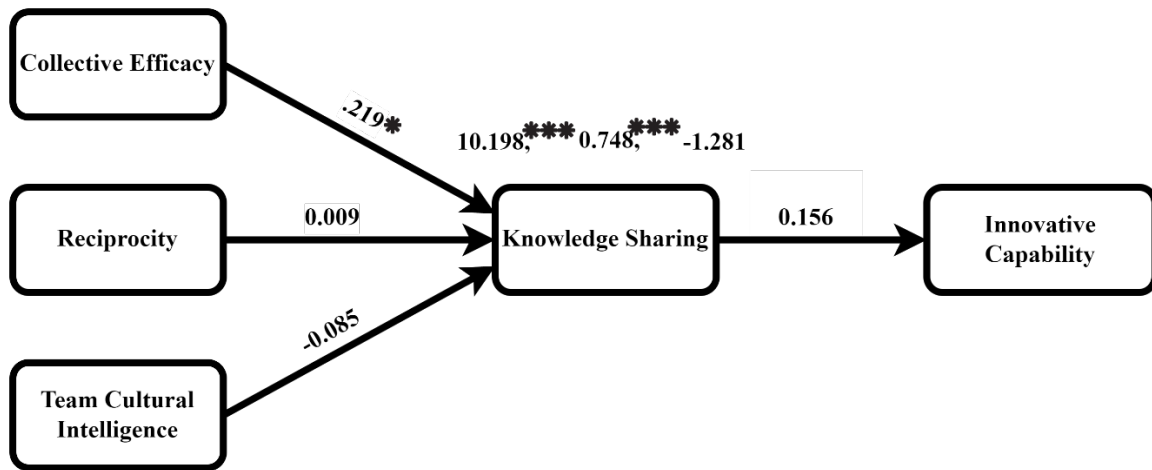


Figure 2. Structural Equation Model (unstandardized regression coefficients and its significance (\*\*\*) =  $p < 0.001$ ; \* =  $p < 0.05$ )

In our analysis of the Structural Equation Model (SEM) with a sample size of 133, we encountered challenges related to improper solutions, as indicated by Heywood cases. These Heywood cases were observed in two relationships within the model: one involving collective efficacy (CE) and innovative capability (IC), and the other involving team cultural intelligence (TCQ) and innovative capability (IC). Heywood cases occur when parameter estimates take on values that are either unreasonably extreme or theoretically implausible. Specifically, the parameter estimate for the path from CE to IC was found to be 10.198 ( $p < 0.001$ ), and for the path from TCQ to IC, it was -1.281 ( $p = 0.601$ ). The presence of a Heywood case for CE and TCQ raises concerns about model identification and potential constraints related to these variables. Notably, the magnitude of the CE estimate, 10.198, is notably high and falls outside the typical range of parameter estimates, necessitating careful consideration, especially given our relatively modest sample size. Despite our efforts to address these Heywood cases through measures such as parameter constraints and the use of the Generalized Least Squares (GLS) method, they persisted. Heywood cases are complex issues that warrant thorough investigation and model refinements to ensure the robustness of our SEM findings. While interpreting the results related to CE, TCQ, and IC, it is crucial to exercise caution due to the presence of Heywood cases. Our smaller sample size of 133 adds to the complexity, as it can sometimes pose challenges in obtaining stable parameter estimates (Wolf, Clark, & Miller, 2013; Kline, 2016). It is noteworthy that other relationships within the model did not exhibit Heywood cases and provided valuable insights into the relationships between the studied variables. Nevertheless, the presence of Heywood cases underscores the need for careful handling and further research to enhance the validity and reliability of our SEM findings, particularly when working with limited sample sizes. Please refer Appendix 15B, figure 34 for more details.

## 5. Discussion

The purpose of this study was to provide a more comprehensive understanding of how team-level factors of team cultural intelligence, reciprocity, collective efficacy and knowledge sharing combine to influence innovation capability. Drawing from theory on cooperation, diversity, team dynamics and knowledge flows, it was hypothesized that these factors would have both direct and indirect positive effects on team innovation outcomes. The results provide partial support for the hypothesized relationships.

The findings provided robust support for the hypothesis (H1) that collective efficacy plays a pivotal role in influencing innovation capability. Collective efficacy, or the shared belief in a team's ability to

innovate, emerged as a potent driver of innovation. The finding aligns with social cognitive and team effectiveness theories (Bandura, 1997). It highlights the critical importance of fostering shared beliefs among team members in their collective capabilities to innovate. Teams that believe they can successfully generate and implement novel ideas and solutions are more likely to actually achieve innovation outcomes (Liu, Chen, & Tao, 2015; Miyao, et al., 2022). This suggests team leaders and organizations should devote effort to purposeful team building interventions aimed at cultivating collective efficacy through goal-setting, modeling successful innovation approaches, discussing shared capabilities, and providing mastery experiences that build confidence. Believing the team has the skills and abilities to overcome obstacles and challenges appears foundational to achieving innovation potential ((Zhang, Tsui, & Wang, 2011; Kim & Shin, 2015). Empirical research underscores how collective efficacy facilitates team coordination, planning, effort expenditure, and perseverance in the face of difficulties - all critical for the complex cognitive and behavioral processes involved in innovation (Liu, Chen, & Tao, 2015). Teams with robust shared beliefs in their joint capabilities are more resilient when engaging the risk-taking, experimentation, and setbacks inherent in innovation (Xi & Xianyin, 2023). Fostering collective efficacy may be especially impactful when teams face uncertainty or ambiguity around goals and processes (Miyao, et al., 2022).

Furthermore, our study offered empirical support for the hypothesis (H6) regarding the positive association between reciprocity and innovation capability. This finding resonates with social exchange perspectives, which suggest that mutual cooperation and the practice of reciprocity promote better idea generation and implementation within teams. Reciprocity, by facilitating the exchange of critical resources for innovation, emerged as a key driver. When team members perceive and adhere to norms of reciprocity and mutual cooperation, they are more willing to openly exchange ideas, perspectives, and assets ((Tamjidyamcholo et al., 2013). This facilitates the combination and flows of diverse resources that fuel innovation processes. Fostering cultures where members feel obligated to share and reciprocate resource contributions seems to unlock innovation potential. Explicitly promoting reciprocity norms, modeling reciprocal behaviors, and rewarding sharing and exchange could provide teams greater capacity to translate ideas into implementable innovations.

Empirically, reciprocity has been linked to greater information sharing, participation, and citizenship behaviors in teams (Molm, Schaefer & Collett, 2007; Lin, 2007), all vital for innovation. The mutual exchange fostered by reciprocity may be particularly key for innovation under conditions of task uncertainty and interdependence (Leonard and Sensiper, 1998). When members perceive reciprocal obligations, they contribute more freely, assist others, and coordinate their efforts, enhancing joint innovative capacity.

However, the non-significant relationships team cultural intelligence exhibited with both knowledge sharing and innovation capability counters hypotheses and prevailing arguments about its value for diverse teams. This suggests a need to re-examine whether team cultural intelligence has direct linear effects on innovation, or instead plays a more nuanced, indirect role. Prior research has touted team cultural intelligence as an important factor enabling collaboration and performance in diverse teams (Lauring & Selmer, 2013). The capabilities to understand, adapt to, and bridge differences are argued to help manage diversity and strengthen cohesion (Rockstuhl & Ng, 2008; Moon, 2013). However, the direct pathways from team cultural intelligence to knowledge sharing and innovation capability were not supported here.

This prompts a need to unpack how team cultural intelligence may indirectly aid innovation through intermediate process variables. For example, culturally intelligent teams may engage in more effective communication patterns, develop stronger relational ties (Janssens & Brett, 2006; Bücken & Korzilius,

2021) and mitigate relationship conflict (Chen & Lin, 2013; Hu et al., 2017). In turn, these processes may facilitate knowledge exchange and combination underlying innovation.

Additionally, team cultural intelligence could play an important moderating role. The ability to decipher and adapt to diversity may strengthen the effects of other predictors on innovation outcomes (Ratasuk & Charoensukmongkol, 2020). For instance, reciprocity norms may be more impactful when team cultural intelligence helps ensure cooperation is interpreted appropriately by all members. Further research on these nuanced effects is warranted. Overall, while team cultural intelligence is theoretically important for diverse teams, its precise contributions to knowledge sharing and innovation remain unclear. More sophisticated conceptualization and modeling of how it enables cooperative processes and inclusive climates is needed (Suthatorn & Charoensukmongkol, 2018). However, this initial finding highlights the need to look beyond direct linear relationships when examining complex constructs like team cultural intelligence in relation to innovation capabilities.

A somewhat surprising outcome was the non-significant mediation effect of knowledge sharing, contrary to our hypotheses (H8a-c). This result raises conceptual questions about the construct of knowledge sharing itself. While it is widely acknowledged that knowledge flows are critical for innovation, our study suggests that the measurement of knowledge sharing may require refinement and expansion. Future research endeavors should consider broadening the scope of knowledge sharing to encompass not just explicit sharing but also tacit knowledge, tools, interactions, and network dynamics. Sophisticated mapping of knowledge networks, flows, combinations, and creations may better capture this mechanism. Overall, the knowledge translation process within teams needs improved modeling to determine its specific contributions.

Collectively, the factors examined in this study contributed to explaining 49% of the variance in team innovation capability, this suggests that these Independent Variables have a substantial influence on explaining the variation in innovation capability and underscoring the significance of studying team-level predictors. Nevertheless, it is essential to recognize that innovation is a multifaceted and intricate process, and this study merely scratches the surface. The complexity of innovation calls for ongoing exploration, as we strive to uncover additional boundary conditions, intricate mechanisms, and factors that may moderate or mediate the relationships we explored.

## **6. Conclusion**

In conclusion, this study underscores the importance of fostering collective efficacy and reciprocity norms within teams to enhance innovation capability. Developing shared beliefs in the team's capabilities and promoting mutual cooperation seem to act as key drivers of innovation outcomes. However, the role of team cultural intelligence requires further examination regarding potential indirect effects and boundary conditions. Additionally, conceptual refinements to knowledge sharing may better capture its contributions as an intermediary mechanism. Overall, the results provide partial yet meaningful support highlighting the significance of cooperative team-level states as innovation enablers. But further research is needed to fully unpack the complexity of how diversity attributes translate into innovation capabilities.

### **7. a. Theoretical Implications:**

This study makes a distinctive theoretical contribution to the existing body of knowledge on diversity, cooperation, and team innovation. It stands out by showcasing the critical roles of two specific factors: collective efficacy and reciprocity, which serve as motivational emergent states. This finding adds depth

and nuance to our understanding of how diversity attributes translate into tangible innovation capabilities within teams.

The significance of collective efficacy and reciprocity as innovation drivers suggests that these concepts should be incorporated into models of team effectiveness. Traditionally, team effectiveness models have focused on factors like communication, leadership, and shared goals. With this study's insights, collective efficacy and reciprocity emerge as equally crucial components that should be integrated into existing frameworks. This expanded perspective can help researchers and practitioners more comprehensively understand what makes teams successful in innovation.

Diversity management models often emphasize the importance of inclusion, equal opportunity, and cultural competence. This study introduces the notion that fostering collective efficacy and reciprocity norms should also be central to diversity management strategies. It highlights that diversity efforts should not only focus on creating a diverse team but also on cultivating a team culture that maximizes the innovative potential of that diversity. This expanded perspective can guide organizations in re-evaluating and enhancing their diversity management practices.

### **7. b. Managerial Implications:**

Organizations should actively seek to cultivate collective efficacy within their teams. This involves creating an environment where team members collectively believe in their ability to innovate successfully.

Practical steps include:

- Clearly define innovation-related goals and encourage teams to set their own achievable yet challenging targets. This helps instill a sense of purpose and shared commitment to innovation.
- Invest in team-building initiatives that foster trust, collaboration, and a sense of shared identity among team members. These activities can strengthen the bonds that underpin collective efficacy.
- Promote psychological safety, where team members feel comfortable taking risks and sharing their ideas without fear of criticism or reprisal. This encourages open dialogue and idea sharing.
- Provide training and resources that enhance team members' cooperative skills. This can include conflict resolution, effective communication, and teamwork training.
- Create organizational structures and processes that facilitate resource exchange and collaboration among team members. This can involve creating cross-functional teams or interdisciplinary working groups.
- Organizations should actively promote reciprocity norms within their teams. This means encouraging mutual cooperation and the practice of reciprocating favors or resources. Practical steps include:
  - Clearly communicate the value of reciprocity and mutual cooperation within the team. Make it part of the team's culture and values.
  - Team leaders and managers should lead by example, demonstrating reciprocal behaviors and highlighting their importance.
  - Implement reward mechanisms that recognize and reinforce sharing and exchange behaviors. This can include performance evaluations that consider contributions to team success.

While the study did not find direct relationships between cultural intelligence, knowledge sharing, and innovation capability, organizations should not disregard cultural intelligence. Here are some

recommendations for how future research could further examine team cultural intelligence in diverse teams:

- Explore potential moderating effects of cultural intelligence on team processes and emergent states. It may strengthen relationships between factors like cohesion, trust, and motivation on team outcomes.
- Test indirect effects of cultural intelligence on innovation through communication patterns, knowledge sharing processes, and conflict management. The relationships may operate through these mediators.
- Use qualitative methods like interviews and ethnography to better understand how cultural intelligence aids coordination, cohesion, and tacit knowledge flows in diverse teams.
- Leverage team cultural intelligence to improve cross-cultural communication within diverse teams. This can involve cultural sensitivity training and intercultural communication workshops.
- Use team cultural intelligence to mitigate and resolve conflicts arising from cultural differences. Equip team members with the skills to navigate diversity-related challenges effectively.

Refining Knowledge Sharing Measures: Recognizing the limitations of knowledge sharing as currently conceptualized, organizations should invest in more sophisticated measures. This could involve:

- Broaden the scope of knowledge sharing assessments to encompass tacit knowledge, tools, interactions, and network dynamics.
- Develop tailored knowledge sharing strategies that account for the diverse nature of knowledge and the various ways it can contribute to innovation.

With the ongoing process of globalization, the importance of optimizing diverse teams is increasing. Organizations should recognize that this study's findings underscore the critical role of cooperative emergent states in diverse teams. Therefore, they should prioritize strategies aimed at fostering cooperation and enhancing team confidence as they manage diverse teams across borders.

In summary, this study offers actionable insights for organizations seeking to enhance their innovation capabilities through effective team dynamics. By implementing the theoretical and managerial implications outlined above, organizations can better harness the innovative potential of their teams, ultimately contributing to their long-term success in an increasingly diverse and globalized business landscape.

## **8. Limitations and Future Research**

There are several limitations of this study that provide opportunities for future research.

First, the sample size of 133 teams, while substantial, could be expanded to improve generalizability and statistical power. Although the study surpassed the recommended sample size of 100 respondents for confirmatory factor analysis and structural equation modelling, the RMSEA, which assesses construct validity, exceeded the threshold of 0.08 in nearly all cases, indicating inadequacy.

Second, the cross-sectional design means causal inferences must be made cautiously; utilizing longitudinal research methods is advisable for future research.

Third, while mediation effects were tested, examining additional moderators could reveal important boundary conditions. Factors like leadership, conflict management, motivation, and organizational culture may moderate the team dynamics studied here.

Fourth, the quantitative self-report surveys may involve biases; integrating multi-source data and objective measures could provide more robust evaluations.

Fifth, the reciprocity measure was collected at the individual level rather than team level. Aggregating to represent team reciprocity norms could be improved through more sophisticated composition models.

Finally, the slider scale used for some measures displayed values from 0-100 rather than a Likert scale as intended. Using a pure Likert scale in future research could enhance interpretability.

Overall, this research offers an initial glimpse into the interrelationships shaping team innovation capability. Considerable potential exists to build on the findings by examining moderators, using qualitative approaches, longitudinal designs, and multi-level measurement to continue unravelling this complex phenomenon.

## References

- Abdelwhab Ali, A., Panneer selvam, D. D. D., Paris, L., & Gunasekaran, A. (2019). Key factors influencing knowledge sharing practices and its relationship with organizational performance within the oil and gas industry. *Journal of Knowledge Management*, 23(9), 1806-1837.
- Adair, W. L., Hideg, I., & Spence, J. R. (2013). The culturally intelligent team: The impact of team cultural intelligence and cultural heterogeneity on team shared values. *Journal of cross-cultural psychology*, 44(6), 941-962.
- Afsar, B., Al-Ghazali, B. M., Cheema, S., & Javed, F. (2020). Cultural intelligence and innovative work behavior: the role of work engagement and interpersonal trust. *European Journal of Innovation Management*, 24(4), 1082-1109.
- Akhavan, P., & Mahdi Hosseini, S. (2016). Social capital, knowledge sharing, and innovation capability: an empirical study of R&D teams in Iran. *Technology Analysis & Strategic Management*, 28(1), 96-113.
- Al Hawamdeh, N., & AL-edenat, M. (2022). Investigating the moderating effect of humble leadership behaviour on motivational factors and knowledge-sharing intentions: evidence from Jordanian public organisations. *VINE Journal of Information and Knowledge Management Systems*.
- Alshahrani, H., & Rasmussen Pennington, D. (2018). "Why not use it more?" Sources of self-efficacy in researchers' use of social media for knowledge sharing. *Journal of Documentation*, 74(6), 1274-1292.
- Alsharo, M., Gregg, D., & Ramirez, R. (2017). Virtual team effectiveness: The role of knowledge sharing and trust. *Information & Management*, 54(4), 479-490.
- Andersen, R. (2011), "Component content management: shaping the discourse through innovation diffusion research and reciprocity", *Technical Communication Quarterly*, Vol. 20 No. 4, pp. 384-411.
- Andresen, M., & Bergdolt, F. (2017). A systematic literature review on the definitions of global mindset and cultural intelligence—merging two different research streams. *The International Journal of Human Resource Management*, 28(1), 170-195.
- Ang, S., Van Dyne, L., Koh, C., Ng, K. Y., Templer, K. J., Tay, C., & Chandrasekar, N. A. (2007). Cultural intelligence: Its measurement and effects on cultural judgment and decision making, cultural adaptation and task performance. *Management and organization review*, 3(3), 335-371.
- Ang, Soon & Van Dyne, Linn & Tan, Mei Ling. (2011). Cultural Intelligence. *Cambridge handbook on intelligence*. 582-602. 10.1017/CBO9780511977244.030.
- Ang, S., Rockstuhl, T., & Tan, M. L. (2015). Cultural intelligence and competencies. *International encyclopedia of social and behavioral sciences*, 2, 433-439.
- Baker, D. F. (2001). The development of collective efficacy in small task groups. *Small Group Research*, 32(4), 451-474
- Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, 37(2), 122-147.
- Bandura, A. (1997). *Self-Efficacy: The Exercise of Control*. New York, NY: W.H. Freeman and Co.

- Barrett, P. (2007). Structural equation modelling: Adjudging model fit. *Personality and Individual Differences*, 42(5), 815-824.
- Bock, G. W., Zmud, R. W., Kim, Y. G., & Lee, J. N. (2005). Behavioral intention formation in knowledge sharing: Examining the roles of extrinsic motivators, social-psychological forces, and organizational climate. *MIS quarterly*, 87-111.
- Bogilović, S., Černe, M., & Škerlavaj, M. (2017). Hiding behind a mask? Cultural intelligence, knowledge hiding, and individual and team creativity. *European Journal of Work and Organizational Psychology*, Vol. 26 No. 5, pp. 710-723.
- Bray, S. R. (2004). Collective Efficacy, Group Goals, and Group Performance of a Muscular Endurance Task. *Small Group Research*, 35(2), 230–238. <https://doi.org/10.1177/1046496403260531>
- Bryman, A., & Cramer, D. (2002). *Quantitative data analysis with SPSS release 10 for Windows: A guide for social scientists*. Routledge.
- Bücker, J., & Korzilius, H. (2021), Groundbreaking teamwork. The pivotal role of team cultural intelligence for explaining creativity, innovative work behavior, and learning in teams.
- Burgess, D. (2005). What motivates employees to transfer knowledge outside their work unit?. *The Journal of Business Communication* (1973), 42(4), 324-348.
- Calantone, R. J., Cavusgil, S. T., & Zhao, Y. (2002). Learning orientation, firm innovation capability, and firm performance. *Industrial marketing management*, 31(6), 515-524.
- Cavusgil, S. T., Calantone, R. J., & Zhao, Y. (2003). Tacit Knowledge Transfer and Firm Innovation Capability. *Journal of Business & Industrial Marketing*, 18, 6-21. <https://doi.org/10.1108/08858620310458615>
- Chang, H. H., & Chuang, S. S. (2011). Social capital and individual motivations on knowledge sharing: Participant involvement as a moderator. *Information & management*, 48(1), 9-18.
- Charoensukmongkol, P. (2019), “The efficacy of cultural intelligence for adaptive selling behaviors in cross-cultural selling: the moderating effect of trait mindfulness”, *Journal of Global Marketing*, doi: 10.1080/08911762.2019.1654586.
- Chen, C. J., & Hung, S. W. (2010). To give or to receive? Factors influencing members’ knowledge sharing and community promotion in professional virtual communities. *Information & management*, 47(4), 226-236.
- Chen, M. L., & Lin, C. P. (2013). Assessing the effects of cultural intelligence on team knowledge sharing from a socio-cognitive perspective. *Human Resource Management*, 52(5), 675-695
- Chen, Y., Zhou, X., & Klyver, K. (2019). Collective efficacy: Linking paternalistic leadership to organizational commitment. *Journal of Business Ethics*, 159, 587-603.
- Chiu, C. M., Hsu, M. H., & Wang, E. T. (2006). Understanding knowledge sharing in virtual communities: An integration of social capital and social cognitive theories. *Decision Support Systems*, 42(3), 1872-1888.
- Choi, S.B., Kim, K., Ullah, S.E. and Kang, S.W. (2016), “How transformational leadership facilitates innovative behavior of Korean workers: examining mediating and moderating processes”, *Personnel Review*, Vol. 45 No. 3, pp. 459-479.

- Chou, H. W., Lin, Y. H., Chang, H. H., & Chuang, W. W. (2013). Transformational leadership and team performance: The mediating roles of cognitive trust and collective efficacy. *Sage Open*, 3(3), 2158244013497027.
- Cialdini, R. B. (2001). *Influence: Science and Practice*, Allyn & Bacon. Needham Heights, MA.
- Collins, K. S., Duyar, I., & Pearson, C. L. (2016). Does cultural intelligence matter? Effects of principal and teacher cultural intelligence on Latino student achievement. *Journal for Multicultural Education*, 10(4), 465-488.
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
- Cropanzano, R., & Mitchell, M. S. (2005). Social exchange theory: An interdisciplinary review. *Journal of management*, 31(6), 874-900.
- Crotty, S. K., & Brett, J. M. (2012). Fusing creativity: Cultural metacognition and teamwork in multicultural teams. *Negotiation and Conflict Management Research*, 5(2), 210-234.
- Croon, M. A., & van Veldhoven, M. J. (2007). Predicting group-level outcome variables from variables measured at the individual level: a latent variable multilevel model. *Psychological methods*, 12(1), 45.
- Darroch, J. (2005). Knowledge management, innovation and firm performance. *Journal of knowledge management*, 9(3), 101-115.
- Davenport, T. H., & Prusak, L. (1998). *Working knowledge: How organizations manage what they know*. Harvard Business Press.
- Duberley, J., Johnson, P., & Cassell, C. (2012). Philosophies underpinning qualitative research. In G. Symon & C. Cassell (Eds.), *Qualitative organizational research: Core methods and current challenges* (pp. 15-34). London: Sage Publications.
- Earley, P.C. (2002). Redefining interactions across cultures and organizations: Moving forward with cultural intelligence. *Research in Organizational Behavior*, 24, 271–299
- Earley, P.C., & Ang, S. (2003). *Cultural intelligence: Individual interactions across cultures*. Palo Alto, CA: Stanford University Press
- Endres, M. L., & Chowdhury, S. (2013). The role of expected reciprocity in knowledge sharing. *International Journal of Knowledge Management (IJKM)*, 9(2), 1-19.
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American journal of theoretical and applied statistics*, 5(1), 1-4.
- Fang, F., Schei, V., & Selart, M. (2018). Hype or hope? A new look at the research on cultural intelligence. *International Journal of Intercultural Relations*, 66, 148-171.
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. Sage.
- Fila, N. D., & Purzer, S. (2014). The relationship between team gender diversity, idea variety, and potential for design innovation. *The International journal of engineering education*, 30(6), 1405-1418.

- Ganguly, A., Talukdar, A., & Chatterjee, D. (2019). Evaluating the role of social capital, tacit knowledge sharing, knowledge quality and reciprocity in determining innovation capability of an organization. *Journal of knowledge management*.
- Garba, T., & Kraemer-Mbula, E. (2018). Gender diversity and enterprise innovative capability: The mediating effect of women's years of education in Nigeria. *International Journal of Gender and Entrepreneurship*, 10(4), 290-309.
- Genco, N., Hölttä-Otto, K., & Seepersad, C. C. (2012). An experimental investigation of the innovation capabilities of undergraduate engineering students. *Journal of Engineering Education*, 101(1), 60-81.
- Ghosh, V., Sengupta, T., Narayanamurthy, G., & Ishizaka, A. (2023). Examining collective creative self-efficacy as a competency indicator of group talent management: a study of SMEs in an emerging economy. *The International Journal of Human Resource Management*, 34(6), 1182-1212.
- Gibson, C. B., Randel, A. E., & Earley, P. C. (2000). Understanding group efficacy: An empirical test of multiple assessment methods. *Group & organization management*, 25(1), 67-97.
- Goddard, R. D. (2001). Collective efficacy: A neglected construct in the study of schools and student achievement. *Journal of educational psychology*, 93(3), 467.
- Goddard, R. D., Hoy, W. K., & Hoy, A. W. (2004). Collective Efficacy Beliefs: Theoretical Developments, Empirical Evidence, and Future Directions. *Educational Researcher*, 33(3), 3–13. <https://doi.org/10.3102/0013189X033003003>
- González-Cruz, T. F., Botella-Carrubi, D., & Martínez-Fuentes, C. M. (2020). The effect of firm complexity and founding team size on agile internal communication in startups. *International Entrepreneurship and Management Journal*, 16, 1101-1121.
- Gouldner, A. W. (1960). The norm of reciprocity: A preliminary statement. *American sociological review*, 161-178.
- Gressgård, L. J. (2011). Virtual team collaboration and innovation in organizations. *Team Performance Management: An International Journal*, 17(1/2), 102-119.
- Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 105-117). Sage publications.
- Gui, L., Lei, H., & Le, P. B. (2022). Determinants of radical and incremental innovation: the influence of transformational leadership, knowledge sharing and knowledge-centered culture. *European Journal of Innovation Management*, 25(5), 1221-1241.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis*. Andover, Hampshire, United Kingdom: Cengage.
- Happ, C., Melzer, A., & Steffgen, G. (2016). Trick with treat—reciprocity increases the willingness to communicate personal data. *Computers in Human Behavior*, 61, 372-377.
- Hayduk, L., Cummings, G., Boadu, K., Pazderka-Robinson, H., & Boulianne, S. (2007). Testing! testing! one, two, three—Testing the theory in structural equation models!. *Personality and Individual Differences*, 42(5), 841-850.
- Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford publications.

- Healy, K., & Perry, C. (2000). Comprehensive criteria to judge validity and reliability of qualitative research within the realism paradigm. *Qualitative Market Research: An International Journal*, 3(3), 118-126.
- Heckathorn, D. D. (2011). Comment: Snowball versus respondent-driven sampling. *Sociological methodology*, 41(1), 355-366.
- Hom, P. W., Griffeth, R. W., & Sellaro, C. L. (1984). The validity of Mobley's (1977) model of employee turnover. *Organizational Behavior and Human Performance*, 34(2), 141-174.
- Hsu, C. L., & Lin, J. C. C. (2008). Acceptance of blog usage: The roles of technology acceptance, social influence and knowledge sharing motivation. *Information & management*, 45(1), 65-74.
- Hu, N., Wu, J. and Gu, J. (2017), "Cultural intelligence and employees' creative performance: the moderating role of team conflict in interorganizational teams", *Journal of Management and Organization*, Vol. 25 No. 1 pp. 1-21.
- Hulsheger, U.R., Anderson, N. and Salgado, J.F. (2009), "Team-level predictors of innovation at work: a comprehensive meta-analysis spanning three decades of research", *Journal of Applied Psychology*, Vol. 94 No. 5, pp. 1128-1145.
- Hussein, A. T. T., Singh, S. K., Farouk, S., & Sohal, A. S. (2016). Knowledge sharing enablers, processes and firm innovation capability. *Journal of Workplace Learning*, 28(8), 484-495.
- Iskhakova, M., & Ott, D. L. (2020). Working in culturally diverse teams: Team-level cultural intelligence (CQ) development and team performance. *Journal of International Education in Business*.
- Israel, M., & Hay, I. (2006). *Research ethics for social scientists*. Sage.
- Jackson, J. D., Yi, M. Y., & Liu, L. C. (2013). The effects of information sharing, collective efficacy and team conflict on system development team performance. *International Journal of Business and Systems Research*, 7(3), 318-337.
- Jackson, S. E. (1996). The consequences of diversity in multidisciplinary work teams. *Handbook of work group psychology*, 53-75.
- Janssens, M., & Brett, J. M. (2006). Cultural intelligence in global teams: A fusion model of collaboration. *Group & Organization Management*, 31(1), 124-153.
- Jiang, W., Gu, Q., & Wang, G. G. (2015). To guide or to divide: The dual-side effects of transformational leadership on team innovation. *Journal of Business and Psychology*, 30, 677-691.
- Johnson, T. P. (2014). Snowball sampling: introduction. *Wiley Stats Ref: Statistics Reference Online*.
- Jung, D. I., & Sosik, J. J. (2002). Transformational leadership in work groups: The role of empowerment, cohesiveness, and collective-efficacy on perceived group performance. *Small group research*, 33(3), 313-336.
- Justesen, L., & Mik-Meyer, N. (2012). *Qualitative research methods in organization studies*. Copenhagen: Hans Reitzels Forlag.
- Jyoti, J., & Kour, S. (2015). Assessing the cultural intelligence and task performance equation: Mediating role of cultural adjustment. *Cross Cultural Management*, 22(2), 236-258.

- Kadam, R., Rao, S. A., Abdul, W. K., & Jabeen, S. S. (2020). Diversity climate perceptions and its impact on multicultural team innovation and performance. *Measuring Business Excellence*, 24(3), 301-318.
- Kafetzopoulos, D., & Psomas, E. (2015). The impact of innovation capability on the performance of manufacturing companies: The Greek case. *Journal of Manufacturing Technology Management*, 26(1), 104-130.
- Kankanhalli, A., Tan, B. C., & Wei, K. K. (2005). Contributing knowledge to electronic knowledge repositories: An empirical investigation. *MIS quarterly*, 113-143.
- Kim, M. S., Phillips, J. M., Park, W. W., & Gully, S. M. (2023). When leader-member exchange leads to knowledge sharing: the roles of general self-efficacy, team leader modeling, and LMX differentiation. *The International Journal of Human Resource Management*, 34(7), 1442-1469.
- Kim, M., & Shin, Y. (2015). Collective efficacy as a mediator between cooperative group norms and group positive affect and team creativity. *Asia Pacific Journal of Management*, 32, 693-716.
- Kline, R. B. (2016). *Principles and Practice of Structural Equation Modeling* (Fourth; TD Little, Ed.).
- Korzilius, H., Bücken, J. J., & Beerlage, S. (2017). Multiculturalism and innovative work behavior: The mediating role of cultural intelligence. *International Journal of Intercultural Relations*, 56, 13-24.
- Kunze, F., Boehm, S., & Bruch, H. (2013). Age, resistance to change, and job performance. *Journal of Managerial Psychology*, 28(7/8), 741-760.
- Kwahk, K. Y., & Park, D. H. (2016). The effects of network sharing on knowledge-sharing activities and job performance in enterprise social media environments. *Computers in Human Behavior*, 55, 826-839.
- Lauring, J., & Selmer, J. (2013). Diversity attitudes and group knowledge processing in multicultural organizations. *European Management Journal*, 31(2), 124-136.
- Lawson, B., & Samson, D. (2001). Developing innovation capability in organisations: a dynamic capabilities approach. *International journal of innovation management*, 5(03), 377-400.
- Le, P.B. and Lei, H. (2019), "Determinants of innovation capability: the roles of transformational leadership, knowledge sharing and perceived organizational support", *Journal of Knowledge Management*, Vol. 23 No. 3, pp. 527-547.
- Leonard, D., & Sensiper, S. (1998). The role of tacit knowledge in-group innovation. *California management review*, 40(3), 112-132.
- Li, J., Wu, N., & Xiong, S. (2021). Sustainable innovation in the context of organizational cultural diversity: The role of cultural intelligence and knowledge sharing. *Plos One*, 16(5), e0250878.
- Liao, S. H., Fei, W. C., & Chen, C. C. (2007). Knowledge sharing, absorptive capacity and innovation capability: an empirical study of Taiwan's knowledge-intensive industries. *Journal of information science*, 33(3), 340-359.
- Lin, H. F. (2007). Knowledge sharing and firm innovation capability: an empirical study. *International Journal of manpower*, 28(3/4), 315-332.
- Lin, H. F. (2007). Effects of extrinsic and intrinsic motivation on employee knowledge sharing intentions. *Journal of information science*, 33(2), 135-149.

- Lisboa, A., Skarmeas, D., & Lages, C. (2011). Innovative capabilities: Their drivers and effects on current and future performance. *Journal of Business Research*, 64(11), 1157-1161
- Liu, J., Chen, J., & Tao, Y. (2015). Innovation performance in new product development teams in China's technology ventures: the role of behavioral integration dimensions and collective efficacy. *Journal of Product Innovation Management*, 32(1), 29-44
- Maas, C. J., & Hox, J. J. (2004). The influence of violations of assumptions on multilevel parameter estimates and their standard errors. *Computational statistics & data analysis*, 46(3), 427-440.
- Martin, S. R., Emich, K. J., McClean, E. J., & Woodruff, C. T. (2022). Keeping teams together: How ethical leadership moderates the effects of performance on team efficacy and social integration. *Journal of Business Ethics*, 1-13
- Masterson, S. S., Lewis, K., Goldman, B. M., & Taylor, M. S. (2000). Integrating justice and social exchange: The differing effects of fair procedures and treatment on work relationships. *Academy of Management journal*, 43(4), 738-748.
- Mat Roni, S. (2014). Introduction to SPSS, School of Business, Edith Cowan University, Australia.
- Mayer, J. D., Caruso, R. R., & Salovey, P. (2000). Emotional intelligence meets traditional standards for an intelligence. *Intelligence* 27, 267-298.
- Mendoza-Silva, A. (2021). Innovation capability: A sociometric approach. *Social Networks*, 64, 72-82.
- Mertens, D. M. (2015). *Research and evaluation in education and psychology (Vol. 4)*. Los Angeles: Sage Publications.
- Miracle, V. A. (2016). The Belmont Report: The triple crown of research ethics. *Dimensions of critical care nursing*, 35(4), 223-228
- Mitchell, R., & Boyle, B. (2015). Professional diversity, identity salience and team innovation: The moderating role of openmindedness norms. *Journal of Organizational Behavior*, 36(6), 873-894.
- Miyao, M., Ozaki, H., Tobia, S., Messeni Petruzzelli, A., & Frattini, F. (2022). The role of open innovation hubs and perceived collective efficacy on individual behaviour in open innovation projects. *Creativity and Innovation Management*, 31(2), 294-305.
- Molm, L. D., Schaefer, D. R., & Collett, J. L. (2007). The value of reciprocity. *Social Psychology Quarterly*, 70(2), 199-217
- Moon, T. (2013). The effects of cultural intelligence on performance in multicultural teams: cultural intelligence in mcts. *Journal of Applied Social Psychology*, 43(12), 2414–2425. <https://doi.org/10.1111/jasp.12189>.
- Muijs, D. (2010) *Doing Quantitative Research in Education with SPSS. Second Edition*, SAGE Publications, London. <https://doi.org/10.4135/9781849203241>
- Newman, I., & Benz, C. R. (1998). *Qualitative-quantitative research methodology: Exploring the interactive continuum*. Southern Illinois University Press
- Ng, K. Y., & Earley, P. C. (2006). Culture+ intelligence: Old constructs, new frontiers. *Group & Organization Management*, 31(1), 4-19.

- Nguyen, T. M., Ngo, L. V., & Gregory, G. (2022). Motivation in organisational online knowledge sharing. *Journal of Knowledge Management*, 26(1), 102-125.
- Nguyen, T. M., Nham, T. P., Froese, F. J., & Malik, A. (2019). Motivation and knowledge sharing: a meta-analysis of main and moderating effects. *Journal of Knowledge Management*.
- Nguyen, T.M., Siri, N.S. and Malik, A. (2021), “Multilevel influences on individual knowledge sharing behaviours: the moderating effects of knowledge sharing opportunity and collectivism”, *Journal of Knowledge Management*, doi: 10.1108/JKM-01-2021-0009.
- Norwood, NJ: Ablex Thomas, D.C. (2006). Domain and development of cultural intelligence: The importance of mindfulness. *Group & Organization Management*, 31(1), 78-99
- Omar, M. K., Dahalan, N. A., & Yusoff, Y. H. M. (2016). Social media usage, perceived team-efficacy and knowledge sharing behaviour among employees of an oil and gas organisation in Malaysia. *Procedia Economics and Finance*, 37, 309-316.
- Ott, D. L., & Michailova, S. (2018). Cultural intelligence: A review and new research avenues. *International Journal of Management Reviews*, 20(1), 99-119.
- Parhamnia, F., Farahian, M., & Rajabi, Y. (2022). Knowledge sharing and self-efficacy in an EFL context: the mediating effect of creativity. *Global Knowledge, Memory and Communication*, 71(4/5), 293-321.
- Parker, C., Scott, S., & Geddes, A. (2019). *Snowball sampling*. SAGE research methods foundations.
- Parker, L. E. (1994). Working together: Perceived self-and collective-efficacy at the workplace 1. *Journal of Applied Social Psychology*, 24(1), 43-59.
- Perugini, M., Gallucci, M., Presaghi, F., & Ercolani, A. P. (2003). The personal norm of reciprocity. *European Journal of Personality*, 17(4), 251-283.
- Podrug, N., Filipović, D., & Kovač, M. (2017). Knowledge sharing and firm innovation capability in Croatian ICT companies. *International Journal of Manpower*, 38(4), 632-644.
- Porter, C. O., Itir Gogus, C., & Yu, R. C. F. (2011). Does backing up behavior explain the efficacy—Performance relationship in teams?. *Small group research*, 42(4), 458-474.
- Presbitero, A., & Attar, H. (2018). Intercultural communication effectiveness, cultural intelligence and knowledge sharing: Extending anxiety-uncertainty management theory. *International Journal of Intercultural Relations*, 67, 35-43.
- Quintana-García, C., & Benavides-Velasco, C. A. (2016). Gender diversity in top management teams and innovation capabilities: The initial public offerings of biotechnology firms. *Long Range Planning*, 49(4), 507-518.
- Quintane, E., Mitch Casselman, R., Sebastian Reiche, B., & Nylund, P. A. (2011). Innovation as a knowledge-based outcome. *Journal of knowledge management*, 15(6), 928-947.
- Ratasuk, A., & Charoensukmongkol, P. (2020). Does cultural intelligence promote cross-cultural teams' knowledge sharing and innovation in the restaurant business?. *Asia-Pacific Journal of Business Administration*, 12(2), 183-203.

- Reynolds, R., & Blickensderfer, E. (2014) The impact of task skill and team familiarity on shared knowledge and collective efficacy. In Proceedings of the Human Factors and Ergonomics Society Annual Meeting (Vol. 58, No. 1, pp. 1332-1335). Sage CA: Los Angeles, CA: SAGE Publications.
- Riggs, M. L., & Knight, P. A. (1994). The impact of perceived group success-failure on motivational beliefs and attitudes: A causal model. *Journal of Applied psychology*, 79(5), 755. Chicago
- Ritchie, J. L. (2013). J., Nicholls, CM and Ormston, R. eds., *Qualitative research practice: A guide for social science students and researchers*.
- Ritter, Thomas and Gemunden, Hans Georg (2004). The Impact of a Company's Business Strategy on Its Technological Competence, Network Competence and Innovation Success. *Journal of Business Research* 57 (5): 548– 56.
- Rockstuhl, T., & Ng, K.Y. (2008). The effects of cultural intelligence on interpersonal trust in multicultural teams. *Handbook of cultural intelligence: Theory, measurement, and applications*, 206-220.
- Romijn, H., & Albaladejo, M. (2002). Determinants of innovation capability in small electronics and software firms in southeast England. *Research policy*, 31(7), 1053-1067.
- Runhaar, P., & Sanders, K. (2016). Promoting teachers' knowledge sharing. The fostering roles of occupational self-efficacy and Human Resources Management. *Educational Management Administration & Leadership*, 44(5), 794-813.
- Saenz, J., Aramburu, N. and Blanco, C.E. (2012), "Knowledge sharing and innovation in Spanish and Colombian high-tech firms", *Journal of Knowledge Management*, Vol. 16 No. 6, pp. 919-933.
- Şahin, F., & Gürbüz, S. (2014). Cultural intelligence as a predictor of individuals' adaptive performance: A study in a multicultural environment. *International Area Studies Review*, 17(4), 394-413.
- Salanova, M., Llorens, S., Cifre, E., Martínez, I. M., & Schaufeli, W. B. (2003). Perceived collective efficacy, subjective well-being and task performance among electronic work groups: An experimental study. *Small Group Research*, 34(1), 43-73.
- Saunila, M., & Ukko, J. (2014). Intangible aspects of innovation capability in SMEs: Impacts of size and industry. *Journal of Engineering and Technology Management*, 33, 32-46.
- Shan, J., Konishi, M., Pullin, P., & Lupina-Wegener, A. (2021). Effects of cultural intelligence on multicultural team effectiveness: The chain mediation role of common ingroup identity and communication quality. *Journal of Theoretical Social Psychology*, 5(4), 519-529.
- Snell, S. A., Snow, C. C., Davison, S. C., & Hambrick, D. C. (1998). Designing and supporting transnational teams: The human resource agenda. *Human Resource Management*, 37(2), 147–158. [https://doi.org/10.1002/\(SICI\)1099-050X\(199822\)37:2<147:AID-HRM5>3.0.CO;2-W](https://doi.org/10.1002/(SICI)1099-050X(199822)37:2<147:AID-HRM5>3.0.CO;2-W).
- Spector, P. E. (2019). Do not cross me: Optimizing the use of cross-sectional designs. *Journal of Business and Psychology*, 34(2), 125-137.
- Stahl, G. K., Maznevski, M. L., Voigt, A., & Jonsen, K. (2010). Unraveling the effects of cultural diversity in teams: A meta-analysis of research on multicultural work groups. *Journal of international business studies*, 41, 690-709.

- Steffgen, G., & Melzer, A. (2008). *IT Security. An empirical study on the willingness of people to communicate personal data* (also available in French and German). Luxembourg: Université du Luxembourg, INSIDE/AASC.
- Sternberg, R. J., & Detterman, D. K. (1986). *What is intelligence? Contemporary viewpoints on its nature and definition* (Eds.).
- Sternberg, R. J., Forsythe, G. B., Hedlund, J., Horvath, J. A., Wagner, R. K., Williams, W. M., Snook, S., & Grigorenko, E. L. (2000). *Practical intelligence in everyday life*. New York City, NY: Cambridge University Press.
- Su, X., Lin, W., Wu, J., Zheng, Q., Chen, X., & Jiang, X. (2021). Ethical leadership and knowledge sharing: the effects of positive reciprocity and moral efficacy. *Sage Open*, 11(2), 21582440211021823.
- Sun, Y., Peng, Z., Lim, K., & Wang, W. (2014). Norm of reciprocity, reciprocal benefits, and reciprocal relationships: A revisit of the role of reciprocity in knowledge sharing.
- Sun, Y., Hong, J. C., & Ye, J. H. (2022). The Effects of Employees' Perceived Intrinsic Motivation on Knowledge Sharing and Creative Self-Efficacy. *Frontiers in Psychology*, 12, 6351.
- Sun, Y., Peng, Z., Lim, K., & Wang, W. (2014). Norm of reciprocity, reciprocal benefits, and reciprocal relationships: A revisit of the role of reciprocity in knowledge sharing.
- Suthatorn, P. and Charoensukmongkol, P. (2018), "Cultural intelligence and airline cabin crews members' anxiety: the mediating roles of intercultural communication competence and service attentiveness", *Journal of Human Resources in Hospitality and Tourism*, Vol. 17 No. 4, pp. 423-444
- Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2013). *Using multivariate statistics* (Vol. 6, pp. 497-516). Boston, MA: pearson.
- Taherparvar, N., Esmailpour, R., & Dostar, M. (2014). Customer knowledge management, innovation capability and business performance: a case study of the banking industry. *Journal of knowledge management*.
- Tamjidyamcholo, A., Baba, M. S. B., Tamjid, H., & Gholipour, R. (2013). Information security–Professional perceptions of knowledge-sharing intention under self-efficacy, trust, reciprocity, and shared-language. *Computers & Education*, 68, 223-232.
- Tasa, K., Sears, G. J., & Schat, A. C. (2011). Personality and teamwork behavior in context: The cross-level moderating role of collective efficacy. *Journal of Organizational Behavior*, 32(1), 65-85.
- Terry Kim, T., Lee, G., Paek, S., & Lee, S. (2013). Social capital, knowledge sharing and organizational performance: what structural relationship do they have in hotels?. *International journal of contemporary hospitality management*, 25(5), 683-704.
- Thomas, D.C. (2006). Domain and development of cultural intelligence: The importance of mindfulness. *Group & Organization Management*, 31(1), 78-99.
- Thomas, D.C., Liao, Y., Aycan, Z., Cerdin, J.L., Pekerti, A.A., Ravlin, E.C., Stahl, G.K., Lazarova, M.B., Fock, H., Arli, D., Moeller, M., Okimoto, T.G. & van de Vijver, F. (2015). Cultural intelligence: A theory-based, short form measure. *Journal of International Business Studies*, 46(9), 1099-1118.
- Thorndike, R., & Stein, S. (1937). An evaluation of the attempts to measure social intelligence. *Psychological Bulletin*, 34, 275-285.

- Torche, F., & Valenzuela, E. (2011). Trust and reciprocity: A theoretical distinction of the sources of social capital. *European journal of social theory*, 14(2), 181-198.
- Van Den Hooff, B., & De Ridder, J. A. (2004). Knowledge sharing in context: the influence of organizational commitment, communication climate and CMC use on knowledge sharing. *Journal of knowledge management*, 8(6), 117-130.
- Vandavasi, R. K. K., McConville, D. C., Uen, J. F., & Yepuru, P. (2020). Knowledge sharing, shared leadership and innovative behaviour: a cross-level analysis. *International Journal of Manpower*, 41(8), 1221-1233.
- Wang, S. and Noe, R.A. (2010), "Knowledge sharing: a review and directions for future research", *Human Resource Management Review*, Vol. 20 No. 2, pp. 115-131
- Wang, Z., Wang, N., & Liang, H. (2014). Knowledge sharing, intellectual capital and firm performance. *Management decision*.
- Wasko, M. M., & Faraj, S. (2005). Why should I share? Examining social capital and knowledge contribution in electronic networks of practice. *MIS quarterly*, 35-57
- Watson, C. B., Chemers, M. M., & Preiser, N. (2001). Collective efficacy: A multilevel analysis. *Personality and social psychology bulletin*, 27(8), 1057-1068.
- Widyani, A. A. D., Sarmawa, I. W. G., & Dewi, I. G. A. M. (2017). The roles of knowledge sharing in mediating the effect of self-efficacy and self-leadership toward innovative behavior. *Jurnal Manajemen dan Kewirausahaan*, 19(2), 112-117.
- Witherspoon, C. L., Bergner, J., Cockrell, C., & Stone, D. N. (2013). Antecedents of organizational knowledge sharing: a meta-analysis and critique. *Journal of Knowledge Management*.
- Wolf, E. J., Harrington, K. M., Clark, S. L., & Miller, M. W. (2013). Sample size requirements for structural equation models: An evaluation of power, bias, and solution propriety. *Educational and psychological measurement*, 73(6), 913-934.
- Wright, K. B. (2005). Researching Internet-based populations: Advantages and disadvantages of online survey research, online questionnaire authoring software packages, and web survey services. *Journal of computer-mediated communication*, 10(3), JCMC1034.
- Wu, W. P., & Leung, A. (2005). Does a micro-macro link exist between managerial value of reciprocity, social capital and firm performance? The case of SMEs in China. *Asia Pacific Journal of Management*, 22, 445-463.
- Wu, Y., & Zhu, W. (2012). An integrated theoretical model for determinants of knowledge sharing behaviours. *Kybernetes*, 41(10), 1462-1482.
- Xi, C., & Xianyin, L. (2023). Research on the relationship between collective teacher efficacy and teaching innovation as a mediator. *International Journal of Innovative Research and Scientific Studies*, 6(2), 381-388
- Yang, Z., Nguyen, V. T., & Le, P. B. (2018). Knowledge sharing serves as a mediator between collaborative culture and innovation capability: an empirical research. *Journal of Business & Industrial Marketing*.

Yeh, C. C., & Ku, E. C. (2019). Process innovation capability and subsequent collaborative team performance in travel planning: a knowledge exchange platform perspective. *Current Issues in Tourism*, 22(1), 107-126.

Yeh, Y. J., Lai, S. Q., & Ho, C. T. (2006). Knowledge management enablers: a case study. *Industrial Management & Data Systems*.

Zaccaro, S. J., Blair, V., Peterson, C., & Zazanis, M. (1995). Collective efficacy. Self-efficacy, adaptation, and adjustment: Theory, research, and application, 305-328.

Zhang, A. Y., Tsui, A. S., & Wang, D. X. (2011). Leadership behaviors and group creativity in Chinese organizations: The role of group processes. *The leadership quarterly*, 22(5), 851-862

## Appendixes

### Appendix 1

#### ***Control Variable and Frequency***

Control variable		Frequency	Percentage
Gender	Female	36	27.1
	Male	97	72.9
	Total	133	100

### Appendix 2

#### ***Means, Standard Deviations, and Range for all metrically scaled Variables (N = 133) redo***

Measure	Mean	SD	Min	Max
<b><i>Collective Efficacy</i></b>				
CE1	3.71	0.91	1.00	5.00
CE2	3.65	0.85	1.00	5.00
CE3	3.61	0.95	1.00	5.00
CE4	3.78	0.96	1.00	5.00
CE5	3.97	0.95	1.00	5.00
<b><i>Reciprocity</i></b>				
Reci1	76.41	18.36	1.00	100
Reci2	73.59	19.04	1.00	100
Reci3	73.34	18.92	1.00	100
Reci4	74.53	18.44	1.00	100
<b><i>Knowledge Sharing</i></b>				
KS1	3.88	0.94	1.00	5.00
KS2	4.05	1.04	1.00	5.00
KS3	3.87	1.03	1.00	5.00
KS4	3.89	1.18	1.00	5.00
<b><i>Innovative Capability</i></b>				
IC1	67.35	25.09	1.00	100
IC2	66.11	24.63	1.00	100
IC3	60.45	25.15	1.00	96
IC4	56.59	27.32	1.00	100
IC5	44.42	26.43	0.00	100
IC6	54.86	26.05	1.00	100
<b><i>Team Cultural Intelligence</i></b>				
TCQ1_TCM1	5.59	0.83	2.00	7.00
TCQ2_TCM2	5.57	0.87	3.00	7.00
TCQ3_TCM3	5.35	0.96	2.00	7.00
TCQ4_TCM4	5.11	1.16	2.00	7.00

TCQ5_CE1	5.08	1.17	1.00	7.00
TCQ6_CE2	5.54	0.82	3.00	7.00
TCQ7_CE3	5.68	0.76	4.00	7.00
TCQ8_CE4	4.87	0.97	2.00	7.00
TCQ9_MP1	5.68	0.94	3.00	7.00
TCQ10_MP2	5.49	1.15	2.00	7.00
TCQ11_MP3	5.87	1.09	2.00	7.00
TCQ12_LD1	5.67	0.82	3.00	7.00
TCQ13_LD2	5.30	1.17	2.00	7.00
TCQ14_LD3	5.26	0.96	2.00	7.00
TCQ16_VVID1	5.50	1.27	1.00	7.00
TCQ17_VVID2	5.11	1.37	1.00	7.00
TCQ18_VVID3	5.22	1.10	2.00	7.00
TCQ19_VVID4	5.35	1.25	2.00	7.00
TCQ20_VVID5	5.59	0.84	2.00	7.00
TCQ21_VVID6	5.47	0.93	2.00	7.00
<b>Control variables</b>				
Rec_Age (Years)	2.15	0.88	1.00	4.00
National diversity	2.65	0.77	1.00	4.00

### Appendix 3

#### *Pearson Correlations for all metrically scaled Variables (N ≤ 133)*

Variable	CE	Reci	KS	IC	TCQ	Age	Diversity
CE	1						
Reci	.309**	1					
KS	.298**	.214*	1				
IC	.561**	.588**	.230**	1			
TCQ	.019	.131	-.039	.034	1		
Age	.199*	.169	.123	.099	.014	1	
Diversity	-.034	-.038	.141	-.086	.206*	-.012	1

Note. \*p < .05, \*\*p < .001

Figure 1. Correlation matrix

### Appendix 4

**Table 1****Missing Data Analysis**

	Univariate Statistics							
	N	Mean	SD	Missing		No. of Extremes <sup>a,b</sup>		
				Count	Percent	Low	High	
CE1	133	3.71	0.91	0	0.0			
CE2	133	3.65	0.85	0	0.0			
CE3	133	3.61	0.95	0	0.0	8	0	
CE4	133	3.78	0.96	0	0.0	8	0	
CE5	133	3.97	0.95	0	0.0			
Reci1	133	76.41	18.36	0	0.0	10	0	
Reci2	133	73.59	19.04	0	0.0	10	0	
Reci3	133	73.34	18.92	0	0.0	7	0	
Reci4	133	74.53	18.44	0	0.0	7	0	
KS1	133	3.88	0.94	0	0.0			
KS2	133	4.05	1.04	0	0.0	11	0	
KS3	133	3.87	1.03	0	0.0			
KS4	133	3.89	1.18	0	0.0	17	0	
IC1	133	67.35	25.09	0	0.0	18	0	
IC2	133	66.11	24.63	0	0.0	13	0	
IC3	133	60.45	25.15	0	0.0	13	0	
IC4	133	56.59	27.32	0	0.0	0	0	
IC5	133	44.42	26.43	0	0.0	0	0	
IC6	133	54.86	26.05	0	0.0	0	0	
TCQ1	133	5.59	0.83	0	0.0	5	0	
TCQ2	133	5.57	0.87	0	0.0	5	0	
TCQ3	133	5.35	0.96	0	0.0	3	0	
TCQ4	133	5.11	1.16	0	0.0	0	0	
TCQ5	133	5.08	1.17	0	0.0	3	0	
TCQ6	133	5.54	0.82	0	0.0	3	0	
TCQ7	133	5.68	0.76	0	0.0	0	0	
TCQ8	133	4.87	0.97	0	0.0	0	0	
TCQ9	133	5.68	0.94	0	0.0	3	0	
TCQ10	133	5.49	1.15	0	0.0	6	0	
TCQ11	133	5.87	1.09	0	0.0			
TCQ12	133	5.67	0.82	0	0.0	2	0	
TCQ13	133	5.30	1.17	0	0.0	10	0	
TCQ14	133	5.26	0.96	0	0.0	3	0	
TCQ15	133	3.32	1.76	0	0.0	0	0	
TCQ16	133	5.50	1.27	0	0.0	9	0	
TCQ17	133	5.11	1.37	0	0.0	21	0	
TCQ18	133	5.22	1.10	0	0.0	10	0	
TCQ19	133	5.35	1.25	0	0.0	0	0	
TCQ20	133	5.59	0.84	0	0.0	2	0	
TCQ21	133	5.47	0.93	0	0.0	1	0	
Edu	133			0	0.0			
Wrk_Covid	116			17	12.8			
Age_Rec	133			0	0.0			
Gender_Rec	133			0	0.0			

a. Number of cases outside the range (Q1 - 1.5\*IQR, Q3 + 1.5\*IQR).

b. . indicates that the inter-quartile range (IQR) is zero.

**Estimated Means**

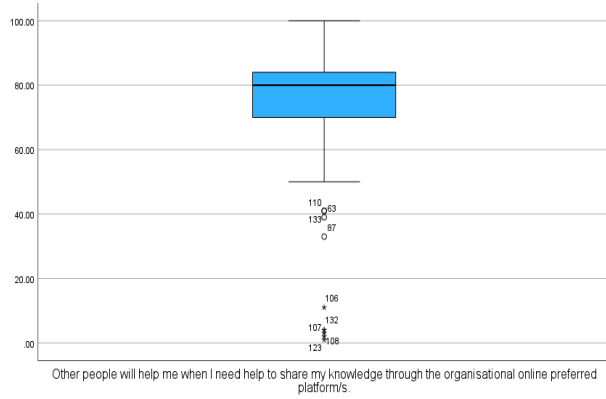
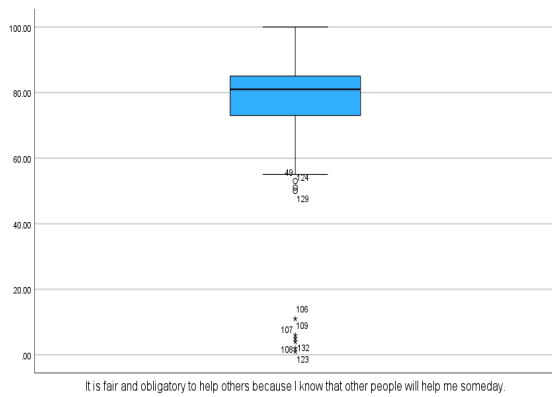
EM Means <sup>a</sup>																																							
CE1	CE2	CE3	CE4	CE5	Rec11	Rec12	Rec13	Rec14	KB1	KB2	KB3	KB4	IC1	IC2	IC3	IC4	IC5	IC6	TCO1	TCO2	TCO3	TCO4	TCO5	TCO6	TCO7	TCO8	TCO9	TCO10	TCO11	TCO12	TCO13	TCO14	TCO15	TCO16	TCO17	TCO18	TCO19	TCO20	TCO21
3.78	3.70	3.64	3.80	3.99	77.5000	74.4828	74.3793	75.4483	3.89	4.08	3.95	3.97	68.5517	67.3103	61.1638	57.6034	44.7155	56.6938	5.56	5.53	5.32	5.04	5.03	5.53	5.69	4.84	5.68	5.49	5.88	5.66	5.31	5.30	3.41	5.57	5.10	5.22	5.26	5.58	5.43

a. Little's MCAR test: Chi-Square = 53.500, DF = 40, Sig. = .089

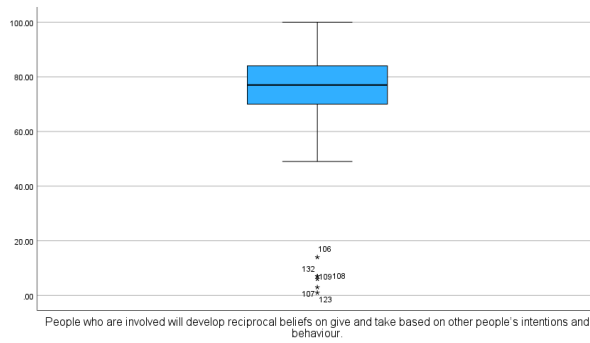
Figure 2. The results of the MCAR test reveal non-significance (p-value = 0.089). In essence, this non-significant MCAR test outcome indicates the presence of randomness in the missing value process, suggesting that our data can be characterized as MCAR (missing completely at random).

## Appendix 5: Outliers

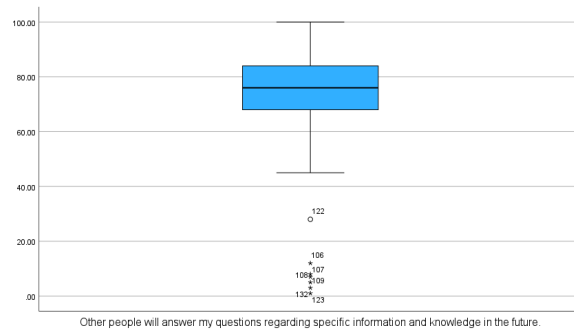
### Reciprocity



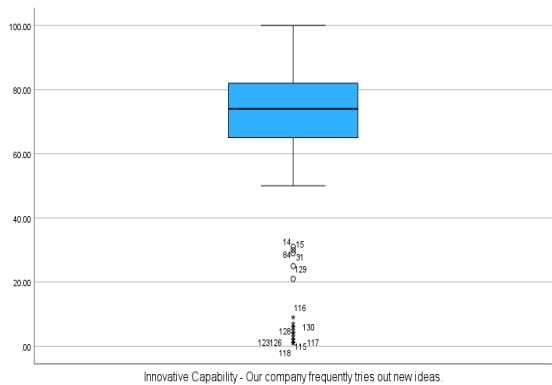
### Reciprocity



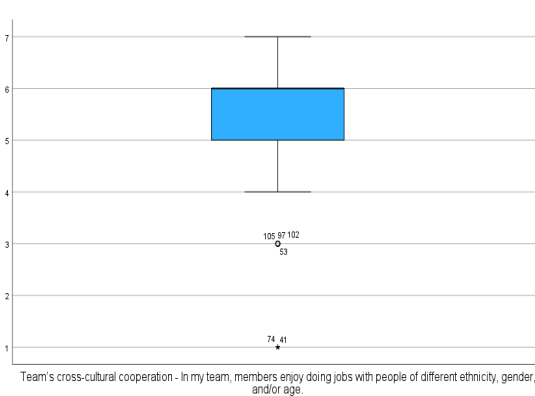
### Knowledge Sharing



### Innovation Capability



### Team Cultural Intelligence



## Appendix 6

## Common Method Bias (CMB)

### *Harman single factor test*

#### Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.92	24.80	24.80	9.919	24.796	24.796
2	7.77	19.43	44.22			
3	2.95	7.38	51.60			
4	2.46	6.15	57.75			
5	1.94	4.85	62.60			
6	1.64	4.09	66.69			
7	1.46	3.65	70.34			
8	1.23	3.08	73.42			
9	1.04	2.59	76.01			
10	0.90	2.25	78.27			
11	0.76	1.91	80.18			
12	0.71	1.76	81.94			
13	0.67	1.67	83.61			
14	0.63	1.57	85.18			
15	0.57	1.43	86.60			
16	0.51	1.28	87.89			
17	0.44	1.10	88.99			
18	0.41	1.04	90.03			
19	0.38	0.95	90.98			
20	0.36	0.91	91.89			
21	0.33	0.82	92.71			
22	0.29	0.72	93.43			
23	0.28	0.69	94.12			
24	0.26	0.65	94.78			
25	0.23	0.58	95.36			
26	0.23	0.56	95.92			
27	0.21	0.52	96.44			
28	0.20	0.50	96.94			
29	0.17	0.42	97.36			
30	0.16	0.40	97.76			
31	0.15	0.37	98.13			
32	0.13	0.32	98.44			
33	0.12	0.31	98.76			
34	0.10	0.25	99.01			
35	0.09	0.21	99.22			
36	0.08	0.20	99.42			
37	0.07	0.17	99.60			
38	0.06	0.16	99.75			
39	0.05	0.13	99.89			
40	0.05	0.11	100.00			

Extraction Method: Principal Component Analysis

## Appendix 7: Psychometric Analyses – Team cultural intelligence

Explorative Factor Analysis (Direct Oblimin rotation)

**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.878
Bartlett's Test of Sphericity	Approx. Chi-Square	1905.563
	df	210
	Sig.	0.000

**Total Variance Explained**

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings <sup>a</sup>
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	9.465	45.072	45.072	9.122	43.437	43.437	7.378
2	1.701	8.102	53.174	1.339	6.377	49.814	4.570
3	1.676	7.983	61.157	1.287	6.129	55.943	1.987
4	1.181	5.622	66.779	0.728	3.468	59.411	2.533
5	1.002	4.770	71.550	0.563	2.682	62.093	6.086
6	0.863	4.109	75.658				
7	0.670	3.191	78.849				
8	0.646	3.078	81.927				
9	0.601	2.861	84.788				
10	0.508	2.418	87.206				
11	0.422	2.011	89.217				
12	0.401	1.908	91.124				
13	0.321	1.527	92.652				
14	0.289	1.378	94.030				
15	0.282	1.340	95.370				
16	0.250	1.188	96.559				
17	0.204	0.972	97.530				
18	0.156	0.743	98.273				
19	0.149	0.708	98.981				
20	0.115	0.548	99.529				
21	0.099	0.471	100.000				

Extraction Method: Principal Axis Factoring.

**Pattern Matrix <sup>a</sup>**

	Factor			
	1	2	3	4
TCQ17	0.835			
TCQ18	0.805			
TCQ21	0.675			
TCQ13	0.656			
TCQ20	0.542			
TCQ14	0.521			
TCQ4		-0.806		
TCQ5		-0.741		
TCQ8		-0.669		
TCQ12			0.555	
RevTCQ15			0.476	
TCQ6				-0.874
TCQ10				-0.474
TCQ2				-0.434

Extraction Method: Principal Axis Factoring.  
 Rotation Method: Oblimin with Kaiser Normalization.  
 a. Rotation converged in 10 iterations.

**Reliability Analysis:**

**Reliability Statistics**

Cronbach's Alpha	N of Items
0.851	14

**Item-Total Statistics**

	Scale Mean if Item	Scale Variance if Item	Corrected Item-Total	Cronbach's Alpha if
	Deleted	Deleted	Correlation	Item Deleted
TCQ2	68.3835	70.829	0.690	0.833
TCQ4	68.8496	68.250	0.631	0.833
TCQ5	68.8797	71.061	0.470	0.843
TCQ6	68.4135	74.002	0.499	0.842
TCQ8	69.0827	74.273	0.388	0.847
TCQ10	68.4662	69.417	0.576	0.836
TCQ12	68.2857	73.675	0.522	0.841
TCQ13	68.6541	70.107	0.521	0.840
TCQ14	68.6992	71.212	0.593	0.837
TCQ17	68.8496	62.735	0.787	0.820
TCQ18	68.7368	68.650	0.649	0.832
TCQ20	68.3609	73.535	0.523	0.841
TCQ21	68.4812	72.221	0.549	0.839
RevTCQ15	69.2707	77.866	0.025	0.888

## Appendix 8

### Confirmatory Factor Analysis (AMOS) – Team Cultural Intelligence

			Estimate
TCQ3	<---	F1	0.766
TCQ2	<---	F1	0.854
TCQ1	<---	F1	0.897
TCQ5	<---	F2	0.801
TCQ6	<---	F3	0.563
TCQ9	<---	F3	0.707
TCQ7	<---	F3	0.832
TCQ14	<---	F4	0.619
TCQ21	<---	F4	0.583
TCQ20	<---	F4	0.582
TCQ17	<---	F4	0.902
TCQ16	<---	F4	0.776
TCQ19	<---	F4	0.599
TCQ4	<---	F2	0.921
TCQ18	<---	F4	0.819
TCQ12	<---	F1	0.543
TCQ13	<---	F4	0.591

Figure 3. Standardised Regression Weights from CFA

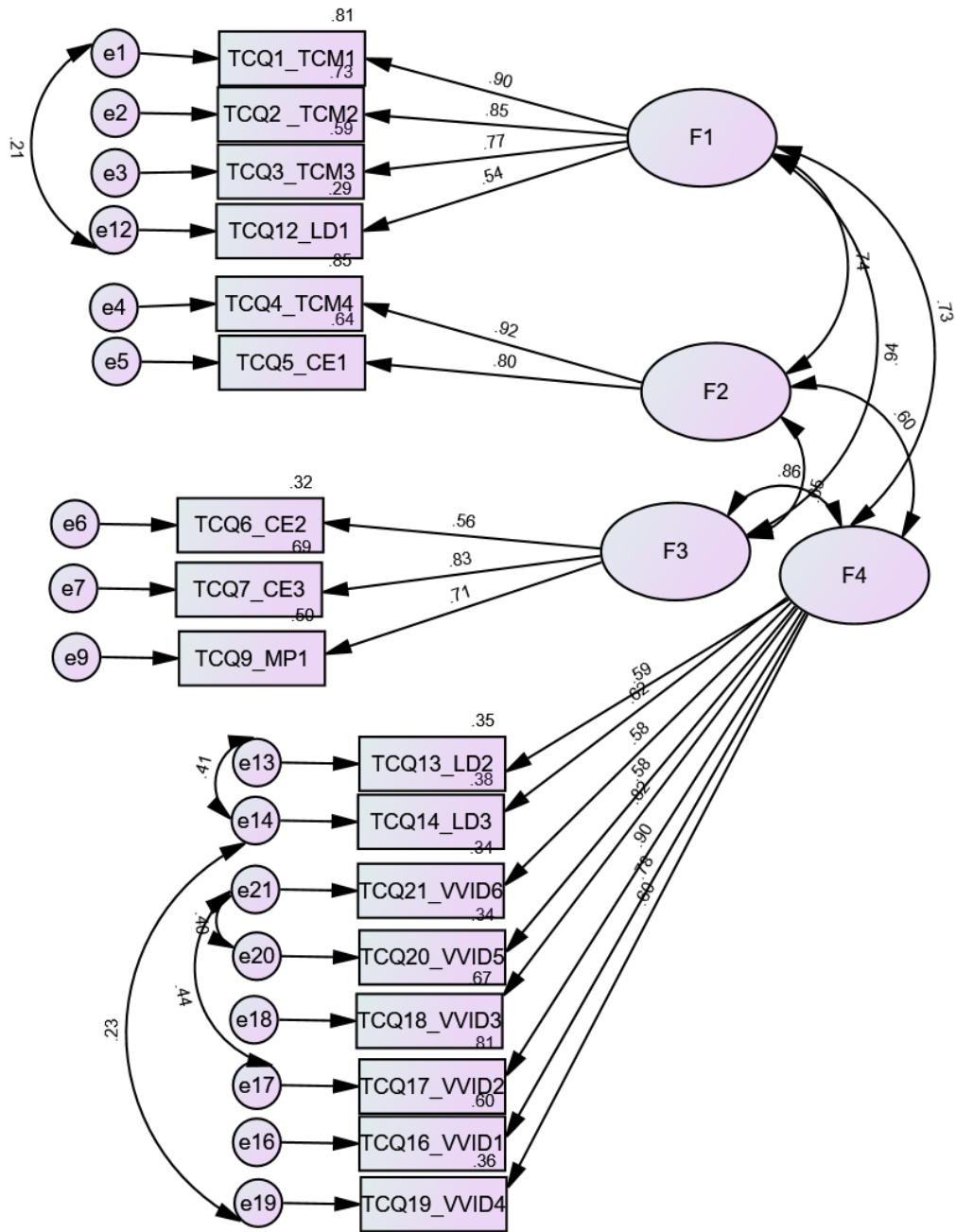


Figure 4. Factor Structure for Team Cultural Intelligence (TCQ) with 17 Items and Four Dimensions in AMOS

Appendix 9

*Explorative Factor Analysis and Confirmatory Analysis for Collective efficacy, Reciprocity, Knowledge sharing, and Innovative capability*

Factor Matrix <sup>a</sup>		Estimate			
	Factor 1				
CE5	0.932	CE5	<---	CE	0.970
CE4	0.856	CE4	<---	CE	0.891
CE2	0.800	CE3	<---	CE	0.694
CE1	0.797	CE2	<---	CE	0.722
CE3	0.689	CE1	<---	CE	0.712

Figure 5. Factor matrix of CE - EFA

Figure 6. Standardised. Regression Weights of CE - CFA

**Reliability Analysis:**

**Reliability Statistics**

Cronbach's Alpha	N of Items
0.907	5

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CE1	15.02	10.333	0.752	0.889
CE2	15.07	10.639	0.754	0.889
CE3	15.11	10.586	0.658	0.909
CE4	14.94	9.830	0.804	0.878
CE5	14.75	9.582	0.870	0.863

Figure 7. Reliability Analysis of CE

Factor Matrix <sup>a</sup>		Estimate	
	Factor 1		
Reci1	0.927	Reci4	<--- Reciprocity 0.861
Reci3	0.874	Reci3	<--- Reciprocity 0.865
Reci4	0.852	Reci2	<--- Reciprocity 0.844
Reci2	0.845	Reci1	<--- Reciprocity 0.927

Figure 8. Factor matrix of Reciprocity - EFA

Figure 9. Stand. Reg. Weights of Reciprocity – CFA

**Reliability Analysis:**

Reliability Statistics	
Cronbach's Alpha	N of Items
0.928	4

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Reci1	221.4586	2617.826	0.876	0.892
Reci2	224.2782	2652.051	0.808	0.915
Reci3	224.5338	2625.872	0.833	0.906
Reci4	223.3459	2701.698	0.813	0.913

Figure 10. Reliability Analysis of Reciprocity

Factor Matrix <sup>a</sup>		Estimate		
	Factor			
	1	KS4	<---	KS 0.757
KS2	0.920	KS3	<---	KS 0.811
KS1	0.882	KS2	<---	KS 0.922
KS3	0.820			
KS4	0.759	KS1	<---	KS 0.889

Figure 11. Factor matrix of KS - EFA

Figure 12. Standardised. Reg. Weights of KS – CFA

**Reliability Analysis:**

Reliability Statistics	
Cronbach's Alpha	N of Items
0.904	4

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
KS1	11.81	8.366	0.818	0.868
KS2	11.65	7.715	0.851	0.853
KS3	11.82	8.119	0.772	0.881
KS4	11.80	7.572	0.725	0.905

Figure 13. Reliability Analysis of KS

**Factor Matrix<sup>a</sup>**

	Factor					Estimate
	1					
IC1	0.943	IC6	<---	F1	0.804	
IC2	0.930	IC4	<---	F1	0.771	
IC3	0.853	IC3	<---	F1	0.850	
IC6	0.827	IC2	<---	F1	0.945	
IC4	0.792	IC1	<---	F1	0.955	

Figure 14. Factor matrix of IC - EFA

Figure 15. Standardised. Reg. Weights of IC - CFA

**Reliability Analysis:**

**Reliability Statistics**

Cronbach's Alpha	N of Items
0.938	5

**Item-Total Statistics**

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
IC1	238.0150	8420.682	0.897	0.911
IC2	239.2632	8543.014	0.885	0.914
IC3	244.9173	8703.516	0.819	0.926
IC4	248.7744	8549.964	0.769	0.936
IC6	250.5038	8619.767	0.803	0.929

Figure 16. Reliability Analysis of IC

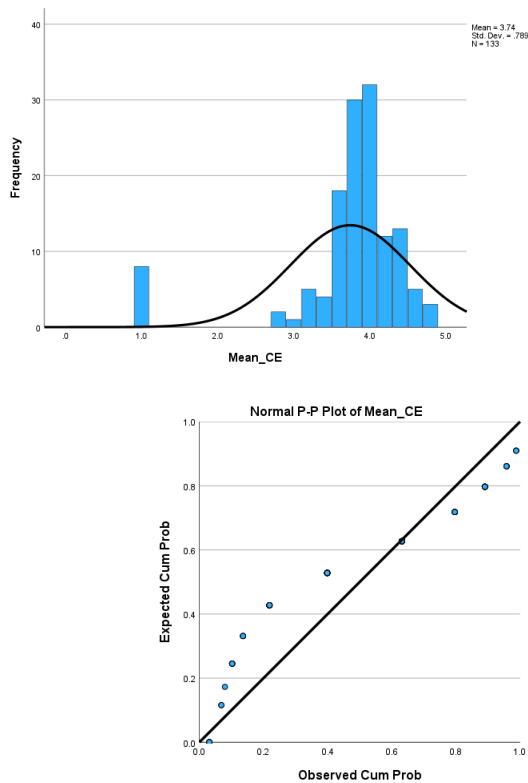
**Appendix 10: Descriptive Statistics**

### Descriptive Statistics

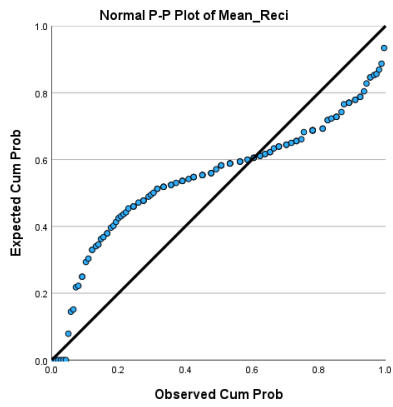
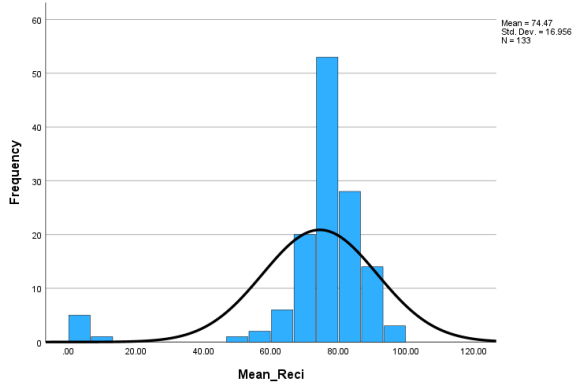
	Mean CE	Mean Reci	Mean KS	Mean IC	Mean TCQ
N	133	133	133	133	133
Mean	3.74	74.47	3.92	58.30	5.38
Median	3.80	78.00	4.25	63.00	5.52
Mode	4.00	82.75	4.25	68.17	5.71
Std. Deviation	0.79	16.96	0.92	21.01	0.68
Skewness	-2.45	-3.06	-2.33	-1.55	-0.96
Std. Error of Skewness	0.21	0.21	0.21	0.21	0.21
Kurtosis	6.45	10.47	5.02	2.02	1.01
Std. Error of Kurtosis	0.42	0.42	0.42	0.42	0.42

Figure 17. Descriptive statistics

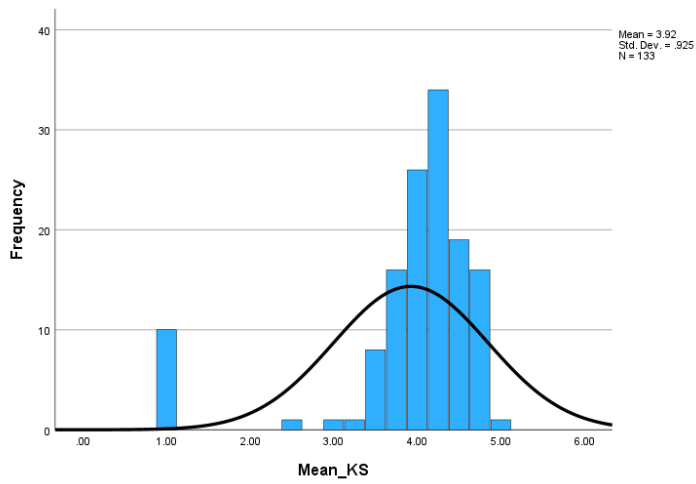
### Appendix 11: P-Plots and Histograms of the 5 constructs

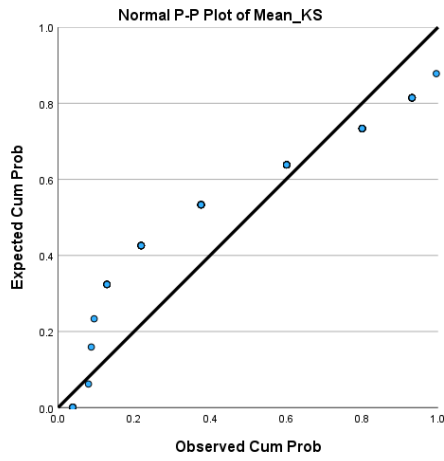


Figures 18. Histogram and P-Plot for CE

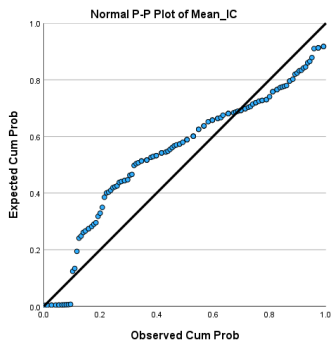
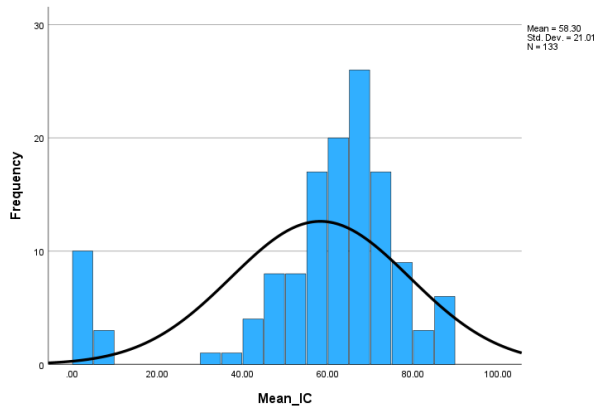


Figures 19. Histogram and P-Plot for Reciprocity

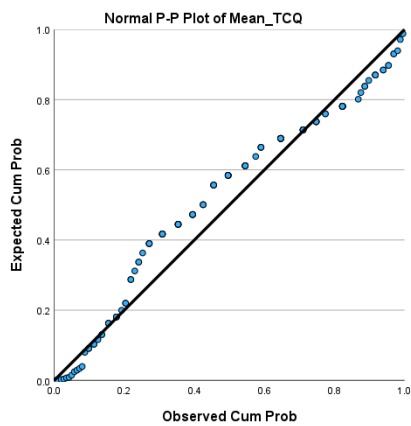
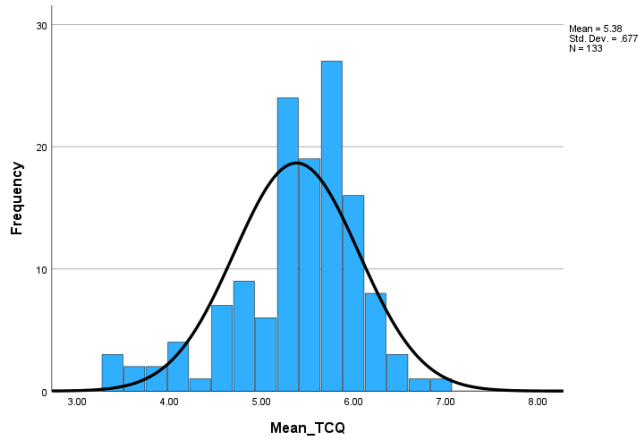




Figures 20. Histogram and P-Plot for KS



Figures 21. Histogram and P-Plot for IC



Figures 22. Histogram and P-Plot for TCQ

**Appendix 12: Transformations of the 5 constructs**

	Log_CE	SQ_Rec	Log_KS	SQ_IC	Log_TCQ
N	133	133	133	133	133
Skewness	1.11	-1.47	1.32	-0.36	0.06
Std. Error of Skewness	0.21	0.21	0.21	0.21	0.21
Kurtosis	2.66	3.91	2.07	0.04	0.81
Std. Error of Kurtosis	0.42	0.42	0.42	0.42	0.42

Figure 23. Five constructs and its transformations to address non-normality

## Appendix 13: Regression Analyses

### A. Baseline model without transforming TCQ

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	.034 <sup>a</sup>	.001	-.006	21.07778	.001	.148	1	131	.701

a. Predictors: (Constant), Mean\_TCQ

b. Dependent Variable: Mean\_IC

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics		
		B	Std. Error				Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF	
1	(Constant)	52.696	14.698		3.585	<.001	23.620	81.771						
	Mean_TCQ	1.041	2.711	.034	.384	.701	-4.321	6.404	.034	.034	.034	1.000	1.000	

a. Dependent Variable: Mean\_IC

### B. Baseline model after transforming TCQ

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	.028 <sup>a</sup>	.001	-.007	21.08132	.001	.103	1	131	.748

a. Predictors: (Constant), Log\_TCQ

b. Dependent Variable: Mean\_IC

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error				Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	60.322	6.551		9.208	<.001	47.363	73.281					
	Log_TCQ	-5.232	16.265	-.028	-.322	.748	-37.409	26.944	-.028	-.028	-.028	1.000	1.000

a. Dependent Variable: Mean\_IC

Figures 24. Model summary of the transformation of TCQ

### C. Normality

**Tests of Normality**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Mean_CE	.277	133	<.001	.693	133	<.001
Mean_Reci	.229	133	<.001	.643	133	<.001
Mean_KS	.268	133	<.001	.675	133	<.001
Mean_IC	.182	133	<.001	.815	133	<.001
Mean_TCQ	.134	133	<.001	.932	133	<.001

a. Lilliefors Significance Correction

Figure 25. Kolmogorov-Smirnov and Shapiro-Wilk-Test

**D. Addressing Linearity Assumption with Polynomial Terms (Quadratic and Cubic)**

		Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	3.831	.120		31.795	<.001	3.592	4.069
	Reci_Centr3	2.887E-6	.000	.219	.257	.798	.000	.000
	Reci_Centr	.008	.013	.154	.669	.505	-.016	.033
	Reci_Centr2	.000	.001	.237	.315	.753	-.001	.002
	TCQ_Centr	-.004	.225	-.003	-.018	.985	-.450	.442
	TCQ_Centr2	.165	.166	.140	.998	.320	-.163	.494
	TCQ_Centr3	.017	.129	.028	.133	.894	-.239	.273
	CE_Centr	.086	.309	.073	.278	.781	-.526	.698
	CE_Centr2	.199	.329	.381	.603	.547	-.453	.851
	CE_Centr3	.103	.146	.553	.706	.482	-.186	.393

a. Dependent Variable: Mean\_KS

Figure 26. Models incorporating Polynomial Terms (quadratic and cubic) to assess linearity

**Appendix 14.A.Hypothesis Testing – H2, H3, H5**

Model Summary <sup>c</sup>										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Durbin-Watson	
						F Change	df1	df2		Sig. F Change
1	.196 <sup>a</sup>	.038	.016	.91740	.038	1.714	3	129	.167	
2	.394 <sup>b</sup>	.155	.115	.86996	.117	5.818	3	126	<.001	1.170

a. Predictors: (Constant), RecGender, National diversity, Rec\_Age

b. Predictors: (Constant), RecGender, National diversity, Rec\_Age, Mean\_CE, Mean\_TCQ, Mean\_Reci

c. Dependent Variable: Mean\_KS

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.328	3	1.443	1.714	.167 <sup>b</sup>
	Residual	108.570	129	.842		
	Total	112.898	132			
2	Regression	17.538	6	2.923	3.862	.001 <sup>c</sup>
	Residual	95.360	126	.757		
	Total	112.898	132			

a. Dependent Variable: Mean\_KS

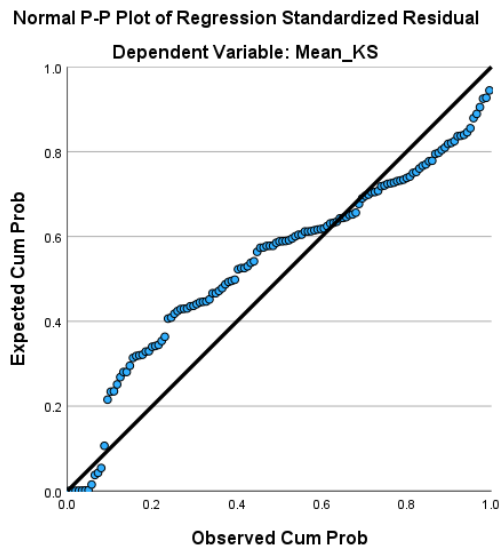
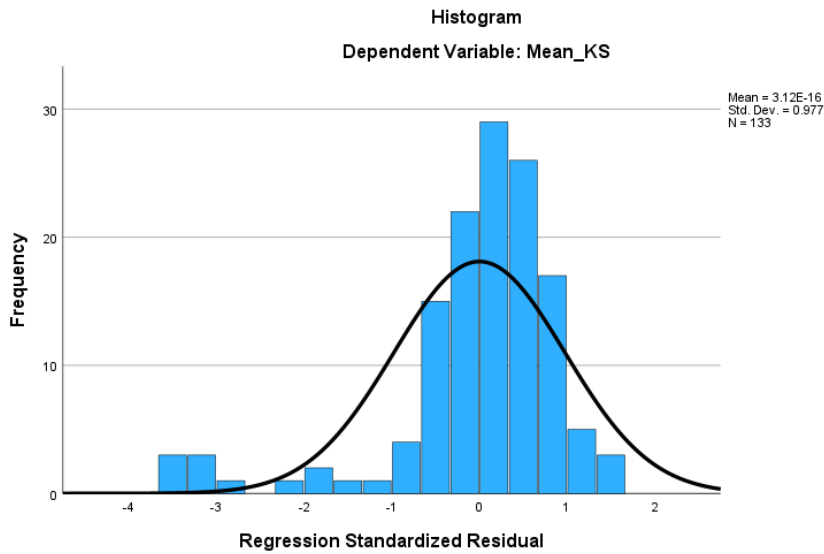
b. Predictors: (Constant), RecGender, National diversity, Rec\_Age

c. Predictors: (Constant), RecGender, National diversity, Rec\_Age, Mean\_CE, Mean\_TCQ, Mean\_Reci

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.279	.377		8.691	<.001	2.532	4.025					
	National diversity	.162	.105	.134	1.540	.126	-.046	.369	.141	.134	.133	.980	1.021
	Rec_Age	.139	.091	.133	1.522	.130	-.042	.320	.123	.133	.131	.980	1.021
2	RecGender	-.115	.183	-.055	-.628	.531	-.476	.247	-.056	-.055	-.054	.960	1.042
	(Constant)	2.496	.755		3.308	.001	1.003	3.989					
	National diversity	.196	.101	.163	1.936	.055	-.004	.397	.141	.170	.159	.942	1.061
	Rec_Age	.068	.089	.065	.767	.445	-.107	.243	.123	.068	.063	.937	1.067
	RecGender	-.262	.181	-.126	-1.450	.149	-.620	.096	-.056	-.128	-.119	.883	1.133
	Mean_CE	.290	.102	.247	2.834	.005	.087	.492	.298	.245	.232	.881	1.135
	Mean_Reci	.010	.005	.182	2.010	.047	.000	.020	.214	.176	.165	.816	1.226
Mean_TCQ	-.162	.117	-.119	-1.391	.167	-.394	.069	-.039	-.123	-.114	.917	1.090	

a. Dependent Variable: Mean\_KS



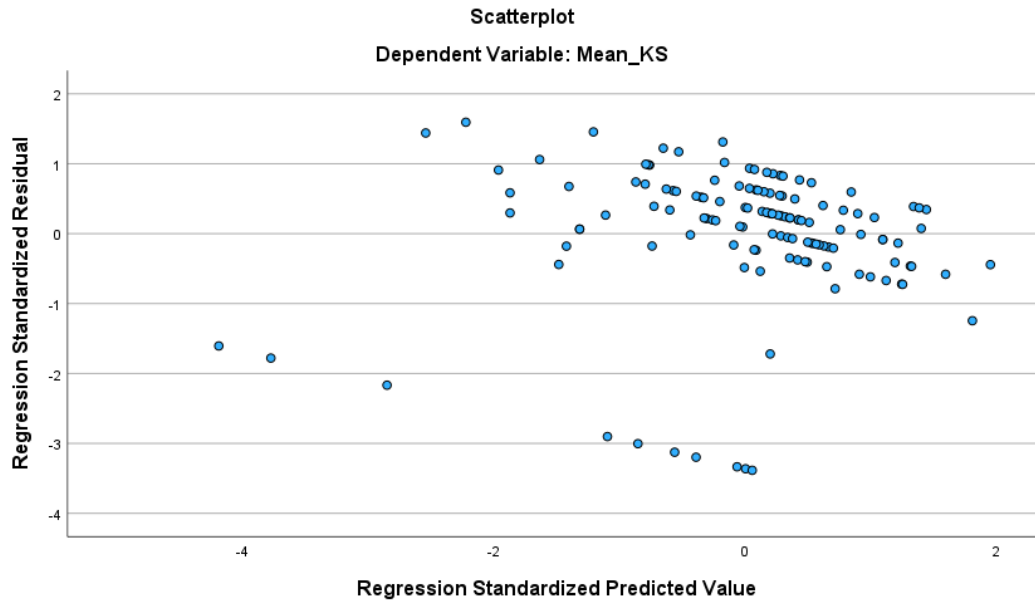


Figure 27. Multiple regression results for KS

#### Appendix 14.B. Hypothesis Testing - H1, H4, H6

##### Model Summary<sup>c</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change	Durbin-Watson
						F Change	df1	df2		
1	.177 <sup>a</sup>	.031	.009	20.91792	.031	1.387	3	129	.250	
2	.716 <sup>b</sup>	.513	.490	15.00877	.482	41.525	3	126	<.001	2.033

a. Predictors: (Constant), RecGender, National diversity, Rec\_Age

b. Predictors: (Constant), RecGender, National diversity, Rec\_Age, Mean\_CE, Mean\_TCQ, Mean\_Reci

c. Dependent Variable: Mean\_IC

##### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1820.140	3	606.713	1.387	.250 <sup>b</sup>
	Residual	56445.141	129	437.559		
	Total	58265.281	132			
2	Regression	29882.116	6	4980.353	22.109	<.001 <sup>c</sup>
	Residual	28383.165	126	225.263		
	Total	58265.281	132			

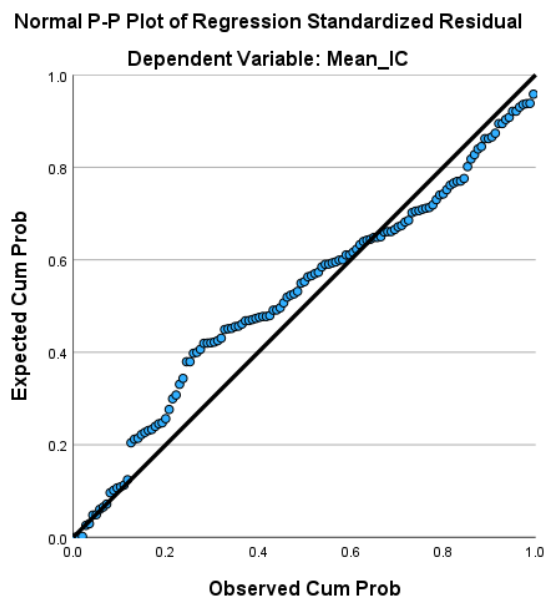
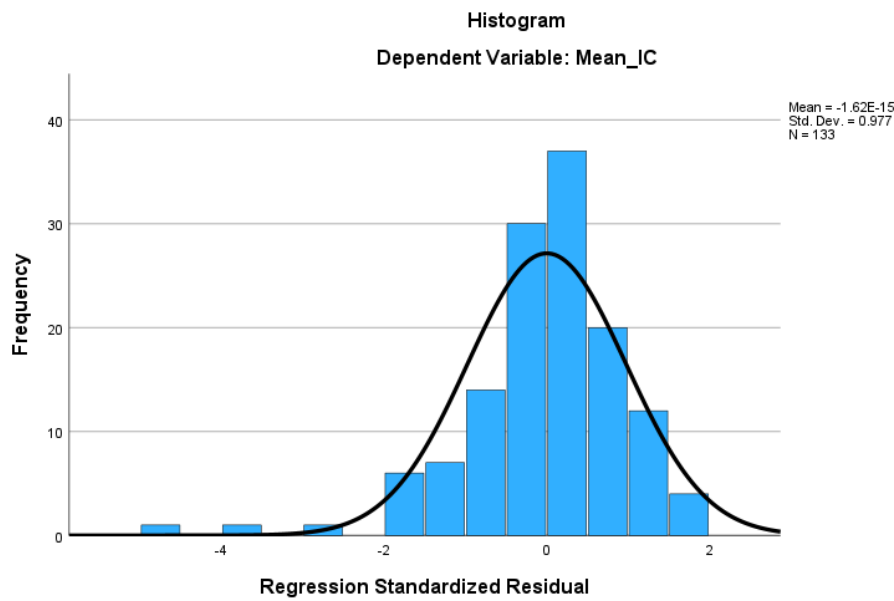
a. Dependent Variable: Mean\_IC

b. Predictors: (Constant), RecGender, National diversity, Rec\_Age

c. Predictors: (Constant), RecGender, National diversity, Rec\_Age, Mean\_CE, Mean\_TCQ, Mean\_Reci

Coefficients <sup>a</sup>													
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	54.910	8.603		6.383	<.001	37.889	71.931					
	National diversity	-1.855	2.392	-.068	-.776	.439	-6.587	2.877	-.086	-.068	-.067	.980	1.021
	Rec_Age	1.921	2.083	.081	.922	.358	-2.199	6.041	.099	.081	.080	.980	1.021
	RecGender	5.733	4.167	.122	1.376	.171	-2.511	13.977	.143	.120	.119	.960	1.042
2	(Constant)	-15.687	13.017		-1.205	.230	-41.447	10.073					
	National diversity	-1.413	1.750	-.052	-.808	.421	-4.876	2.050	-.086	-.072	-.050	.942	1.061
	Rec_Age	-1.512	1.528	-.064	-.990	.324	-4.535	1.511	.099	-.088	-.062	.937	1.067
	RecGender	-1.001	3.117	-.021	-.321	.749	-7.170	5.168	.143	-.029	-.020	.883	1.133
	Mean_CE	11.396	1.764	.428	6.461	<.001	7.906	14.887	.561	.499	.402	.881	1.135
	Mean_Reci	.587	.085	.474	6.879	<.001	.418	.756	.588	.523	.428	.816	1.226
	Mean_TCQ	-.865	2.015	-.028	-.429	.669	-4.853	3.124	.034	-.038	-.027	.917	1.090

a. Dependent Variable: Mean\_IC



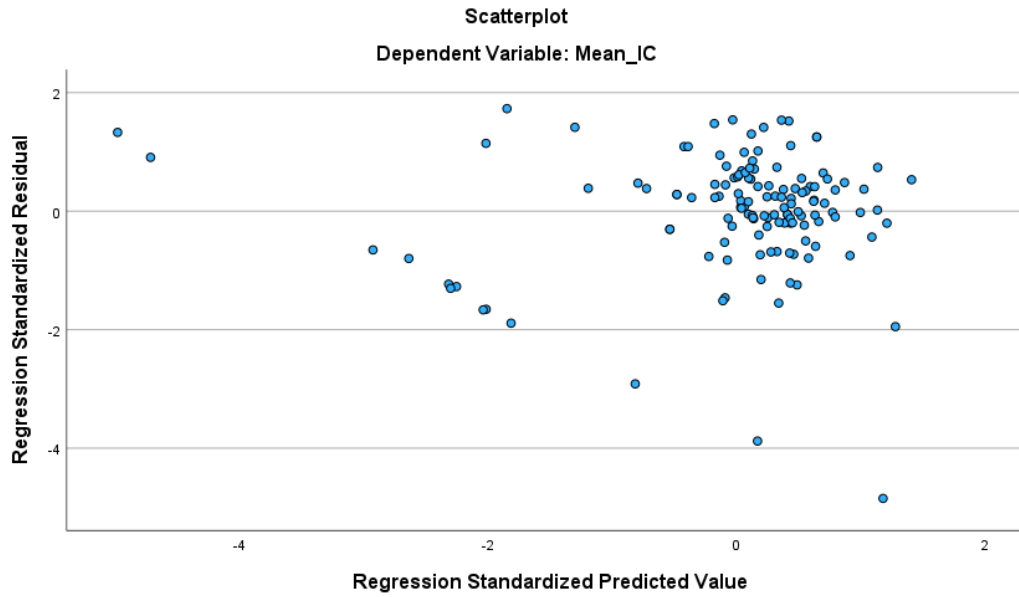


Figure 28. Multiple regression results for Innovative capability

#### Appendix 14.C. Hypothesis Testing – H7

**Model Summary<sup>c</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics				Durbin-Watson
						F Change	df1	df2	Sig. F Change	
1	.177 <sup>a</sup>	.031	.009	20.91792	.031	1.387	3	129	.250	
2	.299 <sup>b</sup>	.089	.061	20.35861	.058	8.185	1	128	.005	1.380

a. Predictors: (Constant), RecGender, National diversity, Rec\_Age

b. Predictors: (Constant), RecGender, National diversity, Rec\_Age, Mean\_KS

c. Dependent Variable: Mean\_IC

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1820.140	3	606.713	1.387	.250 <sup>b</sup>
	Residual	56445.141	129	437.559		
	Total	58265.281	132			
2	Regression	5212.725	4	1303.181	3.144	.017 <sup>c</sup>
	Residual	53052.556	128	414.473		
	Total	58265.281	132			

a. Dependent Variable: Mean\_IC

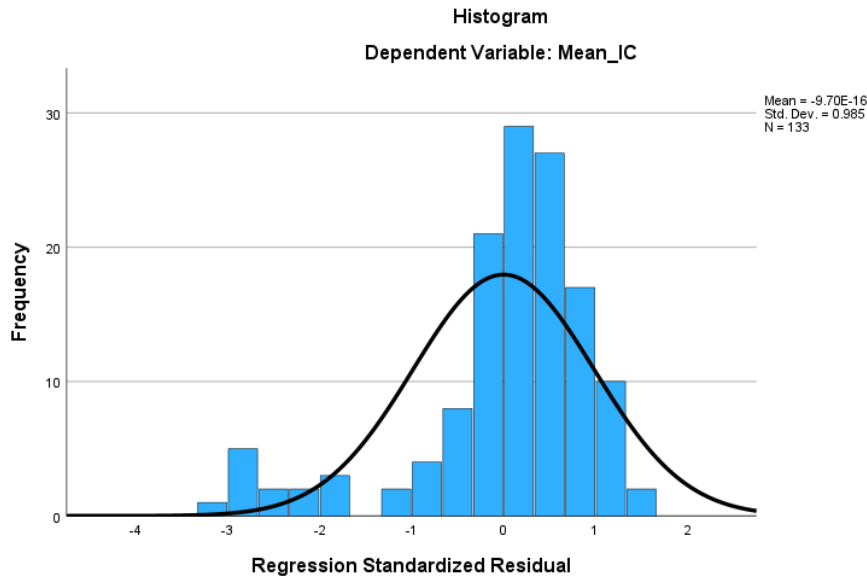
b. Predictors: (Constant), RecGender, National diversity, Rec\_Age

c. Predictors: (Constant), RecGender, National diversity, Rec\_Age, Mean\_KS

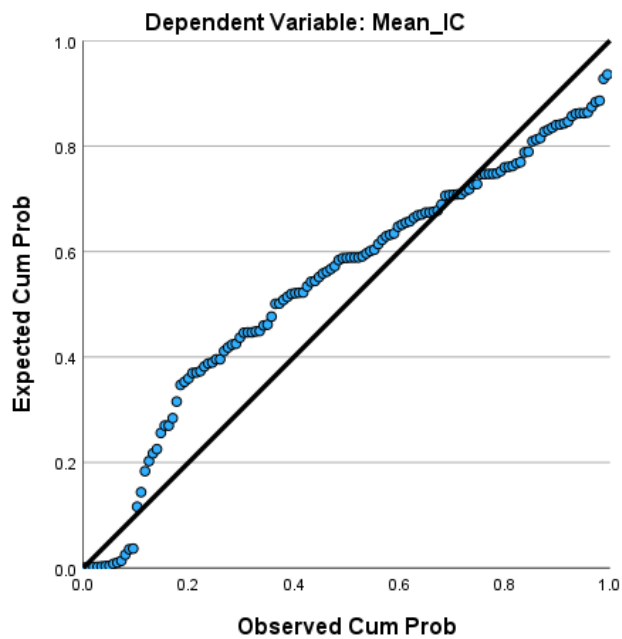
**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error				Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	54.910	8.603		6.383	<.001	37.889	71.931					
	National diversity	-1.855	2.392	-.068	-.776	.439	-6.587	2.877	-.086	-.068	-.067	.980	1.021
	Rec_Age	1.921	2.083	.081	.922	.358	-2.199	6.041	.099	.081	.080	.980	1.021
	RecGender	5.733	4.167	.122	1.376	.171	-2.511	13.977	.143	.120	.119	.960	1.042
2	(Constant)	36.581	10.543		3.470	<.001	15.721	57.441					
	National diversity	-2.758	2.349	-.101	-1.174	.242	-7.406	1.889	-.086	-.103	-.099	.962	1.040
	Rec_Age	1.144	2.045	.048	.559	.577	-2.902	5.190	.099	.049	.047	.962	1.039
	RecGender	6.375	4.062	.135	1.569	.119	-1.662	14.411	.143	.137	.132	.957	1.045
	Mean_KS	5.590	1.954	.246	2.861	.005	1.724	9.456	.230	.245	.241	.962	1.040

a. Dependent Variable: Mean\_IC



Normal P-P Plot of Regression Standardized Residual



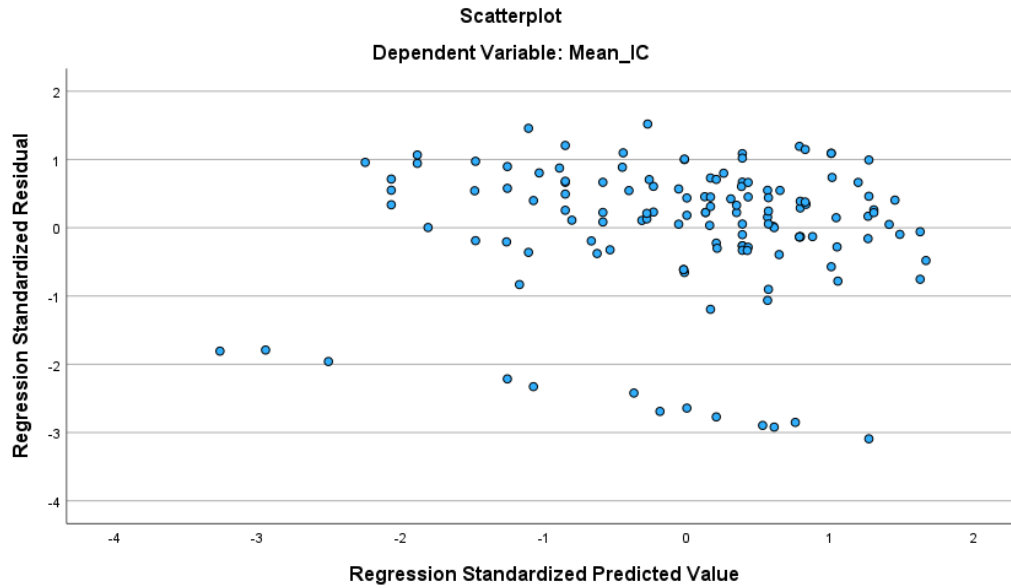


Figure 29. Multiple regression results for Innovative Capability with KS as independent variable

#### Appendix 14.D. Mediation analysis using PROCESS

##### Hypothesis Testing H8a, H8b, H8c

\*\*\*\*\*

Model: 4

Y: Mean\_IC

X: Mean\_CE

M: Mean\_KS

Sample

Size: 133

\*\*\*\*\*

OUTCOME VARIABLE:

##### (a) Direct relationship between CE → KS

Mean\_KS

Model Summary

R	R-sq	MSE	F	df1	df2	p
.2977	.0886	.7854	12.7420	1.0000	131.0000	.0005

Model

	coeff	se	t	p	LLCI	ULCI
constant	2.6163	.3740	6.9953	.0000	1.8764	3.3562
Mean_CE	.3490	.0978	3.5696	.0005	.1556	.5423

\*\*\*\*\*

OUTCOME VARIABLE:

**b) Direct relationship KS →IC**

Mean\_IC

Model Summary

R	R-sq	MSE	F	df1	df2	p
.5652	.3195	305.0171	30.5115	2.0000	130.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	-1.7815	8.6382	-.2062	.8369	-18.8711	15.3081
Mean_CE	14.3961	2.0180	7.1340	.0000	10.4038	18.3884
Mean_KS	1.5742	1.7218	.9143	.3623	-1.8321	4.9805

\*\*\*\*\* TOTAL EFFECT MODEL \*\*\*\*\*

OUTCOME VARIABLE:

Mean\_IC

Model Summary

R	R-sq	MSE	F	df1	df2	p
.5613	.3151	304.6350	60.2626	1.0000	131.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	2.3371	7.3659	.3173	.7515	-12.2345	16.9087
Mean_CE	14.9454	1.9252	7.7629	.0000	11.1369	18.7540

\*\*\*\*\* TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y \*\*\*\*\*

**(c) direct relationship CE →IC**

Total effect of X on Y

Effect	se	t	p	LLCI	ULCI
14.9454	1.9252	7.7629	.0000	11.1369	18.7540

**(c') Relationship CE →IC under control of KS**

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
14.3961	2.0180	7.1340	.0000	10.4038	18.3884

**(ab) Indirect effect/Mediation effect**

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
Mean_KS	.5493	.8744	-1.0014	2.5557

Figure 30. Output of testing H8a by means of process SPSS

**(a) Direct relationship between Reciprocity→KS**

\*\*\*\*\*

Model: 4

Y: Mean\_IC  
 X: Mean\_Rec  
 M: Mean\_KS

Sample

Size: 133

\*\*\*\*\*

OUTCOME VARIABLE:

Mean\_KS

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.2144	.0460	.8222	6.3143	1.0000	131.0000	.0132

Model

	coeff	se	t	p	LLCI	ULCI
constant	3.0519	.3554	8.5867	.0000	2.3488	3.7551
Mean_Rec	.0117	.0047	2.5128	.0132	.0025	.0209

\*\*\*\*\*

**b) Direct relationship between KS→IC**

OUTCOME VARIABLE:

Mean\_IC

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.5975	.3570	288.1860	36.0897	2.0000	130.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	-3.5220	8.3187	-.4234	.6727	-19.9797	12.9356
Mean_Rec	.6994	.0892	7.8396	.0000	.5229	.8759

```

Mean_KS      2.4814      1.6357      1.5170      .1317      -.7547      5.7176
***** TOTAL EFFECT MODEL *****
OUTCOME VARIABLE:
  Mean_IC
Model Summary
      R      R-sq      MSE      F      df1      df2      p
      .5879      .3456      291.0486      69.1909      1.0000      131.0000      .0000
Model
      coeff      se      t      p      LLCI      ULCI
constant      4.0511      6.6872      .6058      .5457      -9.1779      17.2801
Mean_Rec      .7285      .0876      8.3181      .0000      .5552      .9017
***** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y *****

```

**(c) direct relationship between Reciprocity→IC;**

```

Total effect of X on Y
      Effect      se      t      p      LLCI      ULCI
      .7285      .0876      8.3181      .0000      .5552      .9017

```

**(c') Relationship between Reciprocity →IC under control of KS;**

```

Direct effect of X on Y
      Effect      se      t      p      LLCI      ULCI
      .6994      .0892      7.8396      .0000      .5229      .8759

```

**(ab) Indirect effect/Mediation effect**

```

Indirect effect(s) of X on Y:
      Effect      BootSE      BootLLCI      BootULCI
Mean_KS      .0290      .0322      -.0110      .1115

```

*Figure 31.* Output of testing H8b by means of process SPSS

**(a) Direct relationship between TCQ→KS**

```

*****
Model: 4
  Y: Mean_IC
  X: Mean_TCQ
  M: Mean_KS

Sample
Size: 133

*****
OUTCOME VARIABLE:
  Mean_KS

Model Summary
      R      R-sq      MSE      F      df1      df2      p

```

	.0395	.0016	.8605	.2044	1.0000	131.0000	.6519
Model							
	coeff	se	t	p	LLCI	ULCI	
Constant	4.2131	.6468	6.5135	.0000	2.9335	5.4927	
Mean_TCQ	-.0539	.1193	-.4521	.6519	-.2899	.1821	

\*\*\*\*\*  
 OUTCOME VARIABLE:

**b) Direct relationship KS→IC;**

Mean\_IC

Model Summary							
	R	R-sq	MSE	F	df1	df2	p
	.2342	.0548	423.6124	3.7719	2.0000	130.0000	.0256

Model							
	coeff	se	t	p	LLCI	ULCI	
Constant	30.4944	16.5130	1.8467	.0671	-2.1747	63.1635	
Mean_TCQ	1.3256	2.6490	.5004	.6176	-3.9152	6.5664	
Mean_KS	5.2696	1.9386	2.7183	.0075	1.4343	9.1048	

\*\*\*\*\* TOTAL EFFECT MODEL \*\*\*\*\*  
 OUTCOME VARIABLE:

Mean\_IC

Model Summary							
	R	R-sq	MSE	F	df1	df2	p
	.0335	.0011	444.2726	.1476	1.0000	131.0000	.7015

Model							
	coeff	se	t	p	LLCI	ULCI	
constant	52.6956	14.6976	3.5853	.0005	23.6202	81.7710	
Mean_TCQ	1.0414	2.7108	.3842	.7015	-4.3211	6.4039	

\*\*\*\*\* TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y \*\*\*\*\*

**(c) direct relationship TCQ→IC;**

Total effect of X on Y						
Effect	se	t	p	LLCI	ULCI	
1.0414	2.7108	.3842	.7015	-4.3211	6.4039	

**(c') Relationship TCQ→IC under control of KS;**

Direct effect of X on Y					
Effect	se	t	p	LLCI	ULCI
1.3256	2.6490	.5004	.6176	-3.9152	6.5664

**(ab) Indirect effect/Mediation effect**

Indirect effect(s) of X on Y:				
Effect	BootSE	BootLLCI	BootULCI	
Mean_KS	-.2842	.5282	-1.5258	.6018

Figure 32. Output of testing H8c by means of process SPSS

Appendix 15A. Structural equation modelling with AMOS

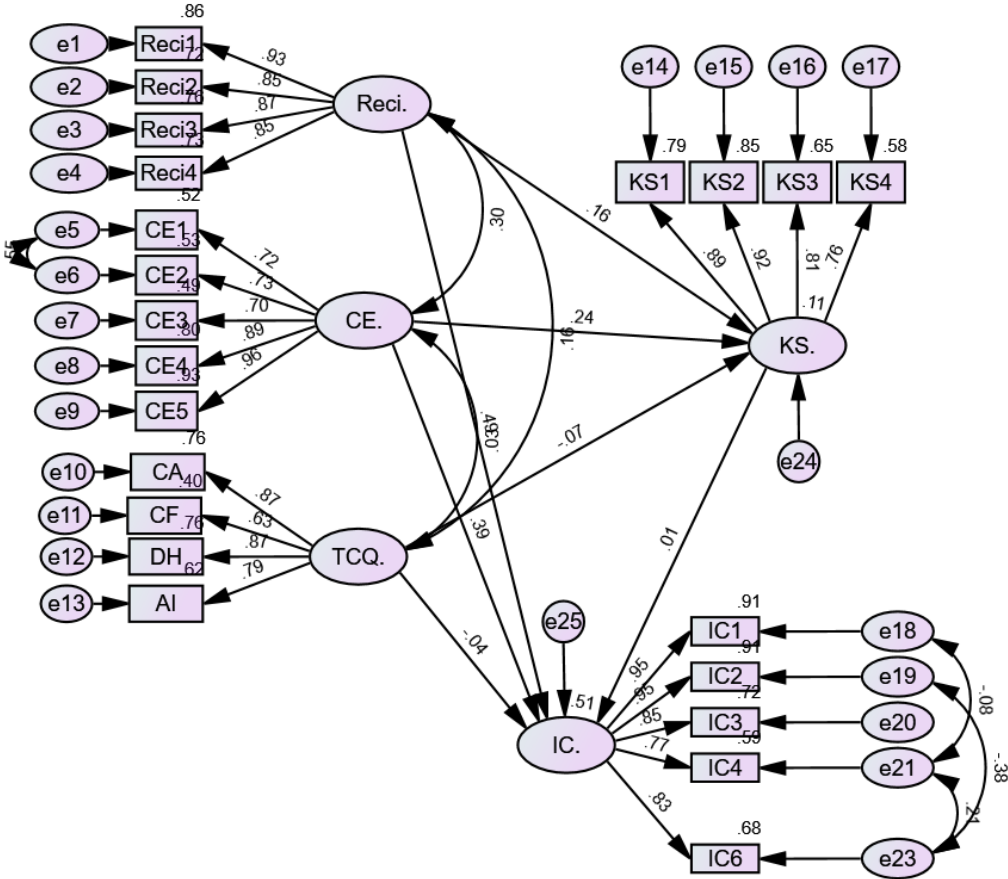


Figure 33. Structure Equation Model in AMOS SPSS with dimensions

Appendix 15B.

Regression Weights

			Estimate	S.E.	C.R.	P
KS.	<---	CE.	0.219	0.086	2.549	0.011
KS.	<---	TCQ.	-0.085	0.114	-0.748	0.454
KS.	<---	Reci.	0.009	0.005	1.694	0.09
IC.	<---	Reci.	0.748	0.118	6.318	***
IC.	<---	CE.	10.198	1.928	5.289	***
IC.	<---	TCQ.	-1.281	2.448	-0.523	0.601
IC.	<---	KS.	0.156	2.045	0.077	0.939
CE5	<---	CE.	1			
CE4	<---	CE.	0.937	0.054	17.332	***
CE3	<---	CE.	0.73	0.071	10.265	***
CE2	<---	CE.	0.684	0.062	11.116	***
CE1	<---	CE.	0.718	0.067	10.761	***
IC1	<---	IC.	1			
IC2	<---	IC.	0.983	0.043	23.071	***
IC3	<---	IC.	0.894	0.056	15.943	***
IC4	<---	IC.	0.882	0.073	12.163	***
IC6	<---	IC.	0.899	0.063	14.297	***
Reci4	<---	Reci.	1			
Reci3	<---	Reci.	1.049	0.08	13.096	***
Reci2	<---	Reci.	1.029	0.082	12.535	***
Reci1	<---	Reci.	1.08	0.074	14.514	***
KS1	<---	KS.	1			
KS2	<---	KS.	1.144	0.075	15.237	***
KS3	<---	KS.	0.994	0.082	12.133	***
KS4	<---	KS.	1.075	0.099	10.859	***
AI	<---	TCQ.	0.964	0.132	7.313	***
DH	<---	TCQ.	0.887	0.114	7.816	***
CA	<---	TCQ.	0.925	0.119	7.809	***
CF	<---	TCQ.	1			

Table 34. Results of the Structural Equation Modelling (\*\*\* =  $p < 0.001$ ; \*\* =  $p < 0.01$ ; \* =  $p < 0.05$ ).

**Appendix 15C.**

**Standardized Regression Weights**

			Estimate
KS.	<---	CE.	0.239
KS.	<---	TCQ.	-0.069
KS.	<---	Reci.	0.162
IC.	<---	Reci.	0.492
IC.	<---	CE.	0.389
IC.	<---	TCQ.	-0.036
IC.	<---	KS.	0.005
CE5	<---	CE.	0.964
CE4	<---	CE.	0.893
CE3	<---	CE.	0.698
CE2	<---	CE.	0.731
CE1	<---	CE.	0.718
IC1	<---	IC.	0.952
IC2	<---	IC.	0.953
IC3	<---	IC.	0.848
IC4	<---	IC.	0.771
IC6	<---	IC.	0.825
Reci4	<---	Reci.	0.852
Reci3	<---	Reci.	0.871
Reci2	<---	Reci.	0.850
Reci1	<---	Reci.	0.925
KS1	<---	KS.	0.890
KS2	<---	KS.	0.921
KS3	<---	KS.	0.809
KS4	<---	KS.	0.759
AI	<---	TCQ.	0.785
DH	<---	TCQ.	0.873
CA	<---	TCQ.	0.871
CF	<---	TCQ.	0.630

*Table 35.* Standardized Regression in Structural Equation Model (SEM)

## Questionnaire

Dear Participants,

Thank you for taking the time to participate in this survey.

I am a Master's student at Radboud University, Netherlands. As part of my Master Thesis research, I am conducting a research to gather information on team cultural intelligence and innovative capability and their relationship in a global team. Your participation in this survey is crucial in helping me gain valuable insights into this area of study and will be used to inform future research and decision-making in this field. Please take a few minutes to answer the following questions to the best of your ability.

The questionnaire is composed of three sections, covering:

I. Research Constructs

II. Demographic questions

III Team Composition

The survey should take approximately 15 – 20 minutes to complete and all responses will be kept confidential. Your answers will be used for academic purposes only and will not be shared with any third parties.

Thank you again for your time and participation in this survey. Your input is greatly appreciated.

If you have any questions or comments about this study, please contact me via [priya.limboo@ru.nl](mailto:priya.limboo@ru.nl) or Dr. Joost Bucker (Senior Lecturer International HRM), via [j.bucker@fm.ru.nl](mailto:j.bucker@fm.ru.nl).

Thank you again for your time and contribution.

Best regards,  
Priya Limboo

### Instructions

- The survey can be completed on any device with internet access, such as a computer, tablet, or smartphone.
- Please read each question carefully and answer truthfully.
- Please make sure you have a stable internet connection.
- If you encounter any technical difficulties while taking the survey, please close and re-open your browser.
- Once you have answered all the questions, you will be asked to submit your responses.
- After submitting, you will not be able to make changes to your answers.
- Thank you again for your time and participation in this survey. Your input is greatly appreciated.

Part I Collective efficacy

Please respond to each of the questions by considering your team's ability to work together effectively, trust, and shared beliefs. These questions will help to gain insight into the level of collective efficacy within your team.

Please indicate your level of agreement or disagreement with the following statements with regard to your team's collective efficacy

	Questions	1	2	3	4	5
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	My group can find solutions to problems with its performance.					
2	This group can pull itself out of a slump.					
3	I believe that failure will make our group try harder					
4	My group members go above and beyond the call of duty.					
5	My group members work hard to fulfill the group's overall responsibilities.					

Part II Reciprocity

Please respond to each of the questions by considering the level of mutual support, exchange, and understanding within your team. These questions will help to gain insight into the level of reciprocity within your team.

Please indicate your level of agreement or disagreement with the following statements with regard to your team's reciprocity.

	Questions	1	2	3	4	5	6	7
		Strongly Disagree	Moderately Disagree	Slightly Disagree	Neutral	Slightly Agree	Moderately Agree	Strongly Agree
1	It is fair and obligatory to help others because I know that other people will help me someday							
2	Other people will help me when I need help to share my knowledge through the organisational online preferred platform/s							

3	Other people will answer my questions regarding specific information and knowledge in the future							
4	People who are involved will develop reciprocal beliefs on give and take based on other people's intentions and behaviour							

### Part III Knowledge Sharing

Please respond to each of the questions by considering your team's ability to collaborate and exchange knowledge, expertise. These questions will help to gain insight into the level of knowledge sharing within your team.

Please indicate your level of agreement or disagreement with the following statements with regard to your team's knowledge sharing.

	Questions	1	2	3	4	5
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	We share our job experience with each other.					
2	We share our expertise at the request of other members.					
3	We share our ideas about jobs with one another					
4	We share work reports and official documents with one another					

### Part IV Innovative Capability

Please respond to each of the questions by considering your team's ability to think creatively, embrace new ideas and concepts. These questions will help to gain insight into the level of innovative capability within your team.

Please indicate your level of agreement or disagreement with the following statements with regard to your team's innovative capability.

	Questions	1	2	3	4	5	6
		Strongly Disagree	Disagree	Moderately Disagree	Neutral	Moderately Agree	Agree
1	Our company frequently tries out new ideas.						
2	Our company seeks out new ways to do things						
3	Our company is creative in its methods of operation						
4	Our company is often the first to market with new products and services.						
5	Innovation in our company is perceived as too risky and is resisted.						
6	Our new product introduction has increased over the last 5 years						

#### Part V Team Cultural Intelligence

Please respond to each of the questions by considering your team's ability to understand, respect, and effectively interact with individuals from diverse cultural backgrounds. These questions will help to gain insight into the level of cultural intelligence within your team.

Please indicate your level of agreement or disagreement with the following statements with regard to your team's cultural intelligence.

		Strongly disagree	Disagree	Somewhat disagree	Somewhat disagree/ Somewhat agree	Somewhat agree	Agree	Strongly agree
	Questions	1	2	3	4	5	6	7
1	The team is conscious of the cultural knowledge it uses when interacting with people with different cultural backgrounds							
2	The team adjusts its cultural knowledge as it interacts with people from a culture that is unfamiliar to the team							

3	The team is conscious of the cultural knowledge it applies to cross-cultural interactions							
4	The team checks the accuracy of the cultural knowledge it uses when interacting with people from different cultures <i>(it is the self-reflection of the team if they have adequate cultural knowledge).</i>							
5	The team uses a combination of norms or practices from different members' culture							
6	The team tolerates members following their own cultural norms and practices							
7	The team accepts that members from different cultures have different ways of expressing themselves							
8	The team uses some norms and practices from some members and some from others							
9	Team members participate in team discussions openly and freely							
10	Each team member participates in decision-making							
11	All team members are encouraged to participate in team discussions							
12	The team enjoys doing jobs with people despite language barriers							
13	The team makes an extra effort to listen to people speaking different languages							

14	The team is keen to learn from people even when communication is slowed down by language barriers							
15	The team is less willing to communicate when faced with people speaking a different language							
16	In my team, members enjoy doing jobs with people of different ethnicity, gender, and/or age							
17	In my team, members make an extra effort to listen to people of different ethnicity, gender, and/or age							
18	In my team, members make an extra effort to listen to people who hold different work values and/or motivations							
19	In my team, members are keen to learn from people who have different work values and/or motivations							
20	In my team, members enjoy doing jobs with people from different professional background and/or work experiences							
21	In my team, members make an extra effort to listen to people from different professional backgrounds and/or work experiences							

## II. Demographic Questions

**The following questions are designed to gather information about your team's demographic features, giving us a clearer understanding of the team's structure**

What is your current age?

What is your gender?

- Male
- Female
- Others

What is the highest level of education you have completed?

- High school
- Bachelor's degree
- Master's degree
- Doctorate
- Others

What is your nationality?

In which department do you work?

- Research and Development (1)
- Purchasing (2)
- Marketing (including sales) (3)
- Human Resource Management (4)
- Accounting and Finance (5)
- Others (6) \_\_\_\_\_

### III. Team Composition

**The following questions aim to gather information about your team, providing us with a more comprehensive view of the team's composition.**

What is the name of your team?

How many years of experience do you have in your current job role?

- 0-5 years
- 5-10 years,
- 10-15 years
- More than 15 years

How long have you been working within the current team?

- 0-5 years
- 5-10 years,
- 10-15 years
- More than 15 years

Please indicate the number of team members in your team: .....

What is your job function?

- a. Individual Contributor

b. Manager

c. Director

d. Other \_\_\_\_\_

What is your current location?

a. Berlin

b. New York

c. Paris

d. Others \_\_\_\_\_

How long have you been working internationally? \_\_\_\_\_ Years

What is your job title?

- Project Manager
- Administrative
- Developer
- Others \_\_\_\_\_

What is the level of cultural diversity within your team (in terms of country of origin)?

- 0 - 25%
- 25 - 50%
- 50 - 75%
- 75 - 100%

Are you currently working on-site (in office)?

- Yes
- No (I work remotely)
- I combine both on-site (in office) and remote (outside office)

Did Covid 19 affect your innovative capability?

- No
- Yes, please specify why \_\_\_\_\_

Has your work-related travel mobility returned to pre-COVID-19 levels?

- Yes
- No
- Partially returned to covid level
- Unsure
- Not applicable

**Thank You**

We have come to the conclusion of this survey and extend sincere thanks for your participation. Your feedback is highly valued and will be instrumental in our efforts to enhance our understanding.

The data collected from this survey will undergo thorough examination, and your contribution will have a significant impact on our future decision-making process.

If you would like to be kept informed of the results of this research, please leave your e-mail address below.

If you have any questions or comments about this research, please contact [priya.limboo@ru.nl](mailto:priya.limboo@ru.nl).

Thank you once again for taking the time to complete this survey. Your opinions and insights are greatly appreciated.